Ocean Wind
An Ørsted & PSEG project

Appendix E – Biological Survey Results

- Seal Haul-Out Survey
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- Eastern Black Rail and Saltmarsh Sparrow Habitat Assessment
- Acoustic Bat Survey

<u>*PORTIONS CONTAIN CONFIDENTIAL INFORMATION*</u>

Contains Confidential Information – Not for Public Disclosure: This Appendix contains trade secrets and/or commercial or financial information that is privileged and confidential, and which is exempt from public disclosure under the Federal Freedom of Information Act and the New Jersey Open Records Act.

Seal Haul-Out Survey

Aerial Seal Haul-out Surveys
Ocean Wind Offshore Windfarm

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Aerial Seal Haul-out Surveys

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Revision Number	Date	Change Details	By
1	July 16, 2019	Insert information on flight speed in methods	JRW
2	August 5, 2019	Add image labels, Acknowledgements, Contact Information	JRW

1 Summary

Surveys were commissioned along the New Jersey coastline to find information on seal species presence. Original survey design called for surveys to occur between two hours before and two hours after low tide. An investigative survey flight was conducted in accordance with these conditions but no seals were found. Further research into seal patterns of activity suggested that many seals preferred to approach the coast nearer high tide. The survey crew remobilized and captured aerial digital imagery in suitable conditions along 215 km of coastline. Areas around known seal haul-out locations were intensively surveyed, as was the area around potential cable landing sites. Approximately 29,000 images were captured during the digital aerial survey flight, of which ≈19,000 were captured along the coast but not in the main areas of interest. Approximately 9,500 images covering ≈64 km^2 contained 45 seals and 310 bird flocks. The seals were identified as probable harbor seal (*Phoca vitulina vitulina*). Bird flocks represented gulls, ducks, auks, shorebirds, geese, crows, vultures, and egrets.

The survey areas were intensively covered by overlapping imagery and the numbers of seals found during the surveys reflects seal activity for the optimal combination of tide and weather conditions at this time.

2 Introduction

The APEM–Normandeau Team was contracted by Ørsted to conduct an aerial digital survey to identify seal haul-out locations and census the numbers of seals at each. Areas with bird flocks were also of interest. Aerial visual surveys were conducted prior to the digital survey to help target imagery at haul-out locations and bird flock locations.

The Survey Area (Sandy Hook to Great Bay, New Jersey) covers approximately 215 km of the coastline (Figure 1) from the Sandy Hook haul-out site to the Great Bay harbor seal haul-out site on Fish Island. This included all coastal areas behind barrier islands (e.g., Long Beach Island) as well as the main coastline and beach areas. The area around two potential cable landfall sites was intensively targeted for survey.

This report describes the background, methods and results of the aerial digital survey which was undertaken in March 2019 to help inform future assessment work related to a proposed wind farm development.

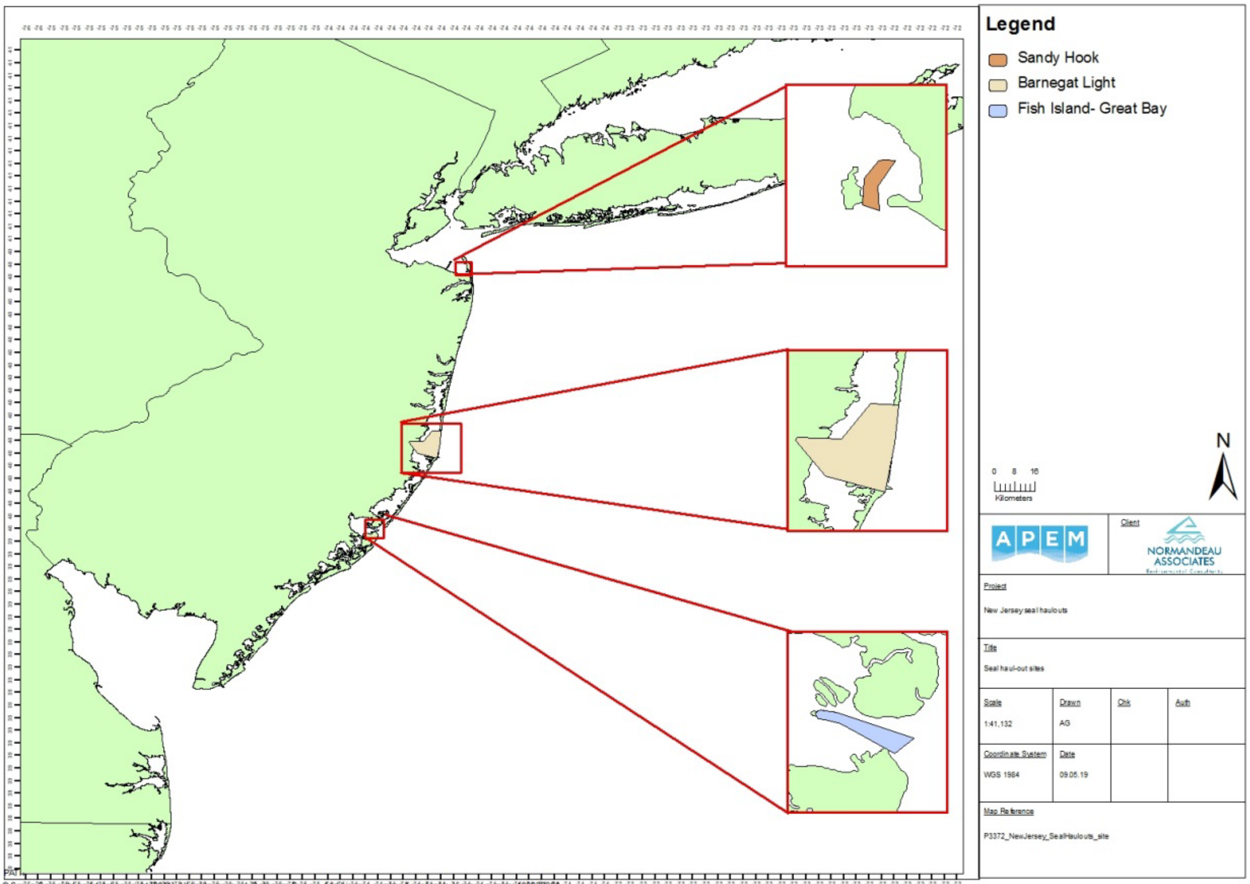

Figure 1. New Jersey coastline showing the extent of the seal haul-out Survey Area.

3 Background

A brief review of available information about seals in New Jersey waters and their habits was undertaken as part of this report and is presented below.

3.1 Seal Species in New Jersey

Four seal species occur in the coastal waters off New Jersey: harbor seals, gray seals, hooded seals, and harp seals. These species migrate from Canada in the fall and early winter southward to the East Coast to forage until May or June when they return to northern waters (Moll et al. 2017). This section contains a brief description of each species and the most current stranding data for New Jersey.

3.1.1 Harbor Seal (Phoca vitulina vitulina)

Harbor seals migrate south from the east Canadian Arctic to New England waters in the fall and early winter with anecdotal sightings as far south as North Carolina (Hayes et al. 2018). In mid-May to June, harbor seals migrate north to Maine and eastern Canada. This species can be found year-round throughout New England and the Gulf of Maine (Gilbert et al. 2005). Recent anecdotal reports indicate that some pupping occurs at high-use haul-outs off Manomet, Massachusetts, and the Isle of Shoals, Maine. No pups were observed from 1996 through 2011

(Toth et al. 2018), but stranding data indicate pups occur in the coastal New Jersey waters (Hayes et al. 2018). Radio-tagging in 2001 established that sub-adult, juvenile, and adult seals may occur in New Jersey (Waring 2006). Toth et al. (2018) indicated a significant increase ($p = 0.03$) in abundance from 1996 through 2011 in Great Bay, New Jersey. Maximum counts increased from 100 individuals in 1996 to 160 individuals during the 2010–2011 season; and in 2016, five years after the study, 220 harbor seals were observed at the haul-out site.

Harbor seals strand each year throughout their migratory range. From 2011 to 2015, 37 harbor seals (five pups and 32 adults/sub-adult/juveniles) stranded along the New Jersey coast (Table 1; Hayes et al. 2018).

Table 1. Harbor seals stranded along NJ coast, 2011–2015*

Year	Adults (pup)
2011	10(0)
2012	7(0)
2013	4(0)
2014	2(1)
2015	9(4)
Total	32(5)

* Hayes et al. 2018

3.1.2 Gray Seal (Halichoerus grypus atlantica)

Gray seals range from Labrador to New Jersey and are known to pup in several locations along the Maine coast and Nantucket-vineyard Sound, Massachusetts (Hayes et al. 2018). Radio-tagging surveys indicate that gray seals travel between the US and Canada; however, an unknown percentage of seals reside year-round in the US (Hayes et al. 2018). Between 2011 and 2015, 49 gray seals (35 adult and 14 pups) stranded along the New Jersey coast (Table 2; Hayes et al. 2018).

Table 2. Gray seals stranded along NJ coast, 2011–2015*

Year	Adults (pup)
2011	10(0)
2012	4(0)
2013	7(2)
2014	7(6)
2015	7(6)
Total	35(14)

* Hayes et al. 2018

3.1.3 Hooded Seal (Cystophora cristata)

Hooded seals occur throughout much of the North Atlantic and Arctic oceans and are highly migratory. This species occurs in US waters from Maine to Florida but has occurred as far south as Puerto Rico (Waring et al. 2008). Hooded seals generally prefer deep water and are found farther offshore than harp seals. Between 2001 and 2005, 8 adult hooded seals stranded along New Jersey (Table 3; Waring et al. 2018).

Table 3. Hooded seals stranded along NJ coast 2001–2005*

Year	Adults (pup)
2001	5(0)
2002	1(0)
2003	1(0)
2004	1(0)
2005	0(0)
Total	8(0)

* Waring et al. 2018

3.1.4 Harp Seal (Pagophilus groenlandicus)

Harp seals occurs throughout much of the North Atlantic and Arctic oceans and are highly migratory (Hayes et al. 2018). Adults and some of the immature animals migrate southward along the Labrador coast south to the US Atlantic in winter and spring (Hayes et al. 2018). Between 2011 and 2015, 23 harp seals (22 adults and 1 pup) stranded along the New Jersey Coast (Table 4; Hayes et al. 2018).

Table 4. Harp seals stranded along NJ coast, 2011–2015*

Year	Adults (pup)
2011	16(0)
2012	0(0)
2013	2(1)
2014	1(0)
2015	3(0)
Total	22(1)

* Hayes et al. 2018

3.2 Haul-out Conditions

Seals haul-out during the winter to rest and get warm (Moll et al. 2017). Haul-out sites vary but include intertidal and subtidal rock outcrops, sandbars, sandy beaches, and peat banks in salt marshes (Moll et al. 2017). The number of seals that may haul-out on a given day varies substantially based on tide, temperature and wind chill, wind speed and direction, wave intensity, and disturbance (Moll et al. 2017; Schneider and Payne 1983; Toth et al. 2018). Information regarding which conditions are most likely to positively affect seal haul-out numbers along the coast of New Jersey are summarized from several studies below.

Moll et al. (2017) surveyed a harbor seal haul-out on a rock outcrop located near Coddington Point on Naval Station Newport, Rhode Island, from 2010 through 2017. The focus of the study was to better understand harbor seal haul-out usage, abundance, behavior, and environmental conditions. Results from weekly counts during the daytime and at low tide (usually within one hour of peak low tide) indicated that more seals hauled out in the following conditions (Moll et al. 2017):

- Warmer water temperature
- Low wind gust speed
- Wind from the sheltered direction
- Lower water level, and
- Proximity of observation time to solar noon.

Further analysis suggested that strong winds from sheltered aspects might have had less of an effect on the number of seals hauled out than strong winds from exposed aspects. Overall, the results indicated that the seal count decreased as wind speed increased. However, binning wind direction into exposed (e.g., northwest) aspects and protected (southeast) aspects provided a more useful and predictive characterization. The number of seals hauled out in lower wind speeds from the protected aspect (in this case E, SE, S, and SW) was significantly higher ($p<0.05$) than in higher winds (up to >15 knots) from the exposed aspect (NE, N, NW, and W; Moll et al. 2017).

Moll et al. (2017) also indicated variable site fidelity among seals at this haul-out. Some individuals were regularly observed throughout the season, while others were seen only sporadically or one time.

Schneider and Payne (1983) examined how the combined effects of several environmental factors affected the number of seals hauled out during winter in southeastern Massachusetts. Results indicated that tide, air temperature, and wave intensity had the most influence on the total number of seals hauled out ($p<0.0001$; Schneider and Payne 1983). The number of seals decreased with increasing time before and after low tide with increasing air temperature and increasing wave intensity. The negative relationship with air temperature reflects the pattern of seasonal abundance, which reached a peak during the coldest months (Schneider and Payne 1983). Examination of the next level of variates indicated that total counts were significantly correlated with wind direction, wind speed, disturbance, and sky cover but were of less importance than season, tide, and wave intensity (Schneider and Payne 1983). Overall, Schneider and Payne (1983) concluded that while several factors affected the number of seals appearing near shore at Manomet, Massachusetts, only tide and disturbance had any significant effect on the percentage hauling out. In addition, nearly all of the animals visible from shore hauled out at the same time, which is apparently common at ledge site haul-outs. Thus, ledge counts may be preferred for monitoring distribution and abundance of harbor seals. The authors also indicated that harbor seals do not haul-out in synchrony with each other or with the tide on uninhabited beaches.

Toth et al. (2018) observed harbor seal haul-out areas at salt marsh sites in Little Egg Inlet in Great Bay, New Jersey, from 1996 through 2011 (Figure 2). Data were collected opportunistically from 1996 through 2009 and in 2010–2011, surveys were made more regularly (conducted 5 days per week) from the Rutgers University Marine Field station cupola. Data recorded included date/time, number, and location of hauled-out seals and number of seals in close proximity in the water, tide stage, wind speed and direction, notable weather conditions, and presence of young pups. Observations were made for harbor seals only, but the authors indicated that although gray, harp, and hooded seals can also be found in coastal New Jersey at the same time they were not included in the counts for this study.

Monthly maximum number of seals varied from 75 individuals in January to 160 individuals in March, and the months with the highest number of hauled-out seals were February through April (Toth et al. 2018). In addition to the study site, harbor seals were anecdotally sighted in adjacent marsh islands in Great Bay (2 km from the mouth of Great Bay inlet, 1 km from the study site) and at various sites up the Mullica River into brackish water (20 km from the mouth of Great Bay inlet, 16 km from the study site).

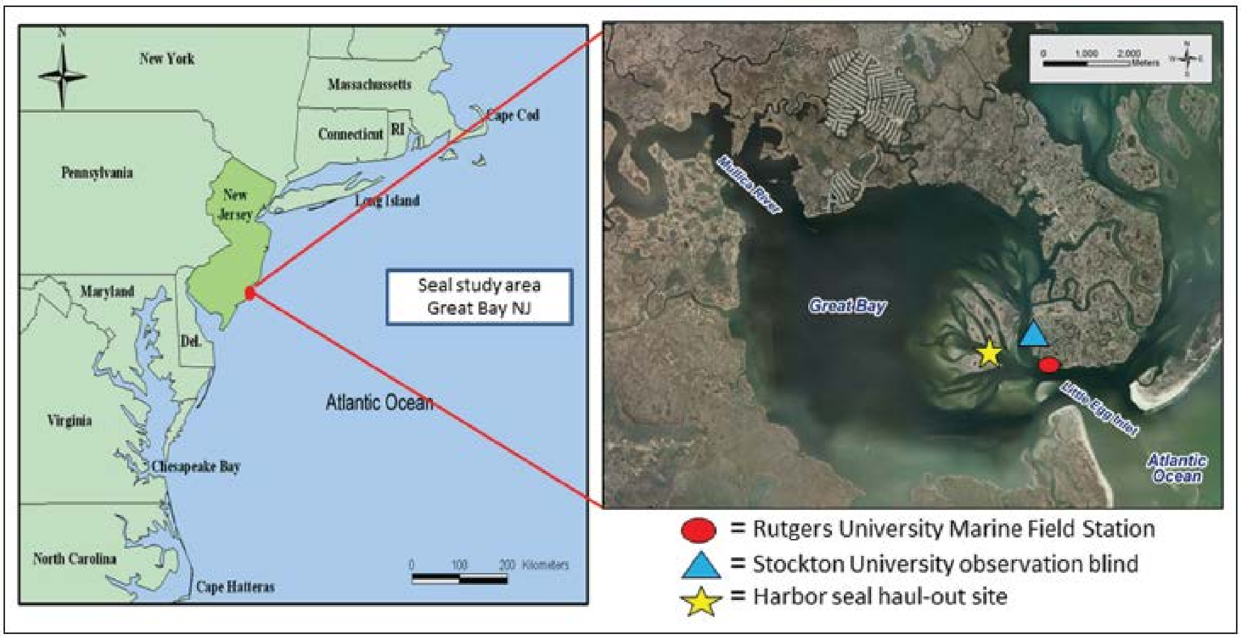

Figure 2. Harbor seal haul-out study area for the 1996–2011 survey (Source: Toth et al. 2018)

Although seals may be hauled out in suitable habitats along the New Jersey coast, there are three known annual haul-out locations in New Jersey: Sandy Hook, Barnegat Light, and Great Bay (Figure 3).

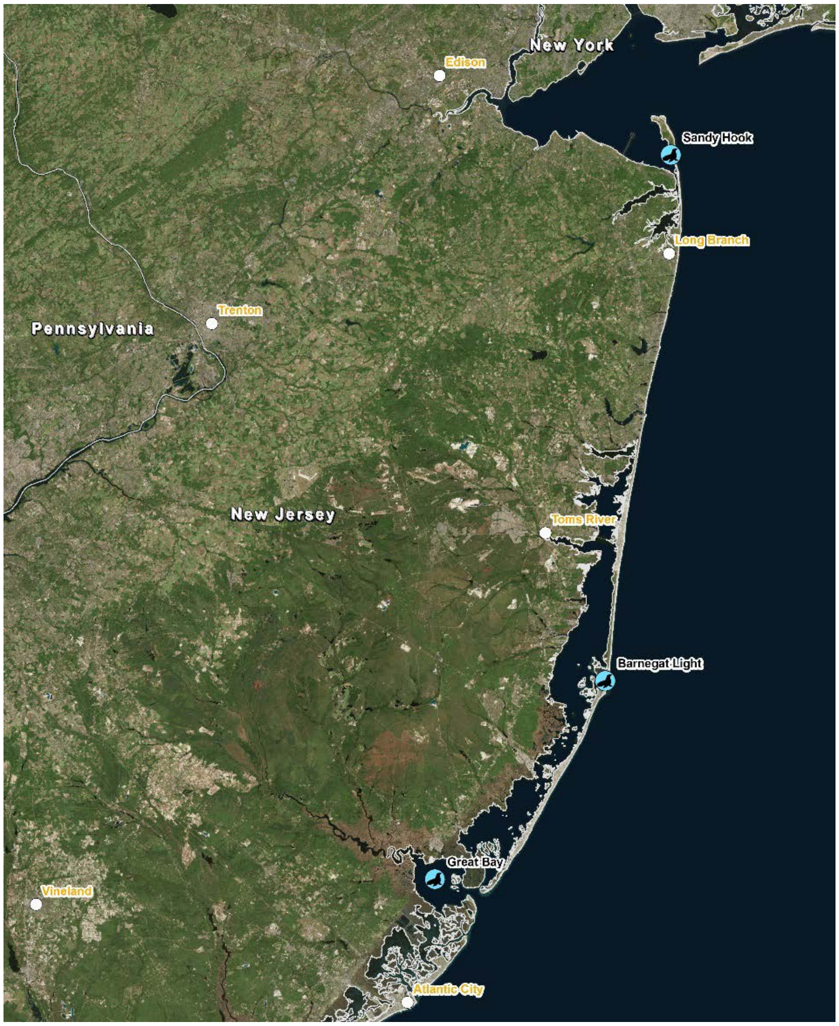

Figure 3. Three known annual seal haul-out locations in New Jersey (Source: Conservation Wildlife Foundation New Jersey 2019).

3.3 Great Bay

Great Bay consists of tidal rivers, inland bays, and multiple wetland types, typically with low salt-march vegetation (*Spartina alterniflora*; Slocum 2009). Great Bay is an ideal haul-out site because of its relative isolation and separation from the mainland and urban disturbances. In addition, seals can forage for fish in both the ocean and estuary (Toth et al. 2018). Great Bay is the largest seal haul-out site in New Jersey and is used by more than 120 individuals with up to 150 observed at one time (NJ WAP 2017). This site is the focus of Stockton University's New Jersey Seal Study course, studied since 1994, and the study mentioned above (Toth et al. 2018). Toth et al. (2018) also indicated that although multiple anecdotal haul-out areas were observed, large numbers of harbor seals showed consistent site fidelity to the study area over the 15-year study (Figure 4).

Figure 4. Great Bay's seal haul-out site in New Jersey.

3.4 Sandy Hook

Sandy Hook is New Jersey's second largest seal haul-out site. Seals can most often be observed on the bayside beaches but may also be occasionally observed on the ocean beaches, the rocky shoreline near Officer's Row, or on floating patches of ice in Sandy Hook Bay (Figure 5). Up to 95 seals have been observed here at one time (NJ WAP 2017). Skeleton Hill Island, which is really not much bigger than a sandbar, in particular is a favorite winter haul-out spot. A video of Skeleton Hill Island on 23 March 2018 shows 150 seals, a record for that area (Patch Staff 2018).

Figure 5. Sandy Hook's seal haul-out sites in New Jersey.

3.5 Barnegat Light

Barnegat Light is New Jersey's third largest seal haul-out site (Figure 6). Seals can be observed swimming in and out of Barnegat Light and hauled-out on sandy beaches, sand bars, and docks (NJ WAP 2017). The numbers of seals at this site are lower than at the other two haul-out sites, but fairly regular during the winter.

Figure 6. Barnegat Light's seal haul-out sites in New Jersey.

4 Methods

An aerial visual reconnaissance mission was flown to pinpoint the location of seal colonies along the New Jersey coast before an ultra-high definition aerial digital survey was conducted. This mission was flown using a 1974 Cessna U206F at approximately 1000 ft. The aircraft flew at around 100 kts and circled areas of interest to allow sufficient time for accomplishing comprehensive visual searches. An observer equipped with a Canon EOS-1Ds Mark III captured images from the aircraft throughout the task. The survey was flown north to south along the coastline, entering inlets and estuaries containing sand bars; potential haul-out sites were flown over in a clockwise orbit. This allowed the observer the best view to conduct the survey. Areas where previous research had indicated were historical haul-out sites were surveyed more intensely with several orbits being flown. The observer used the android mobile application Locus Map to track the flight and to mark the location where a target was spotted. The survey was flown during the middle of the day to maximize the amount of sunlight available to capture the best quality images and make spotting the seals easier. The survey was flown during a window where the lowest tides matched up with solar noon so that the sandbanks were exposed.

Since no seals were noted during the observer flight, a discussion was held on whether to proceed the next day with the digital flight. The initial spotter flight was on 9 March, but no seals were hauled out. We looked into weather and wind to see if this might have a bearing and worked closely with Dr. Jackie Sullivan Toth. We also received regular updates from Rutgers University Marine Field Station on the seal population at the Great Bay site (Table 5). We first checked haul-out patterns from 5 March through 8 March to see if there was tide, weather, or any pattern prior to the March 9 flight. The patterns of activity suggested that nearer high tide was more likely for seals to gather and then haul-out at the Great Bay site; although, no data were available from Sandy Hook or Barnegat Light.

Table 5. Seal Data from Rutgers University Marine Field Station

Date (March 2019)	Time (am)	Number of Seals	Water Temperature (°C)	Wind Speed, Direction, and Temperature (°C)
5	11:50	20	4.8	~15, WNW, −3.3°
6	09:30	4	5	17, WNW, −7.2°
7	11:20	101	4.9	7, SSW, −8.3°
9	10:30	24	4.3	6, W, −5°

Following consultation it was determined that air temperatures were on the low side for the seals to show haul-out behavior; therefore, the digital aerial flight was postponed until the next available window.

Flight plans were created to capture digital imagery within the historical seal haul-out locations and the proposed cable landfall location. The digital survey flight was flown using the Shearwater III camera system, at a flight altitude of 1,600 ft and flight speed of 120 kts over ground selected to ensure good quality imagery was captured. Counts are not undertaken whilst the flight is in progress, but are gathered from the captured imagery at a later time. Digital stills aerial surveys provide a permanent record from which to gain accurate counts of targets detected within the imagery. There is no decrease in detection from the transect line and therefore the flight speed does not decrease the ability to provide accurate counts.

Images captured within these locations were extracted and visually inspected to determine if there were any seals present. Seals detected were tagged to provide a georeferenced location for individuals. Images with flocks of birds were also identified.

The high-resolution aerial digital survey was completed on 17 March 2019. Suitable weather windows were identified for 16 to 18 March. An update on 14 March had 145 seals hauled out at high tide; although the wind speed was 16 knots. Wind speed and tide had been the reason survey on 14 and 15 March were not considered. This information provided thus far resulted in a survey design change to incorporate some areas nearer low tide and to reach Great Bay nearer high tide.

On 16 March, although we were ready to fly, Dr. Toth reported only 2 seals hauled out the entire day and none were clearly visible in the water so the flight was abandoned. Wind speed looked a little high and was keeping the water from the marsh edge possibly making it difficult for the seals to haul out.

The forecast for 17 March was determined to be suitable—little to no wind in the afternoon for the high tide and a suitable low tide window to fly the other sites and allowing survey of Barnegat and the cable landings (Site 2) on a rising tide. Based on the pattern over the previous few days of seals coming in with the high tide, 17 March was the last day that would allow the survey to be carried out in late afternoon just before high tide (5:47 pm, Sandy Hook [Site 1]; 6:31 pm, Great Bay [Site 3]) with a 10 degree sun angle (6:00 pm). We planned to be on task at 2:00 pm to complete sites 1, 2, and 3. Time permitting, we planned on re-surveying Sandy Hook, although we were aware that the sun angle might overrun slightly depending on transit times between the areas.

Dr. Toth provided a rising tide update on 17 March suggesting that, although no seals were hauled out, "tons" were in the surrounding water possibly waiting for the tide to rise to haul-out. We mobilized and flew the survey. We flew Sandy Hook, Barnegat Inlet, and Great Bay. Because the survey went quicker than planned, we got to Great Bay earlier than we would have liked. We flew it a second time to ensure we had imagery from closer to high tide. The plan was to re-fly Sandy Hook on the way back to the airport; however, this ended up cutting it close to fuel time cut-off and was abandoned. An update in the afternoon indicated there weren't many seals hauled out but there were plenty in the surrounding water. A quick quality control review of the imagery found seals in the water around Great Bay.

4.1 Weather Conditions

4.1.1 Visual Survey

The visual survey flight was undertaken on 9 March 2019. Temperatures of 4.4°C–6.1°C were recorded with a wind speed of 1–3 knots from an east-north-easterly direction and little to no cloud cover. A dew point of between −3°C to −4.5°C was recorded.

4.1.2 Aerial Digital Survey

The aerial digital survey was undertaken on 17 March 2019. A temperature of −1.1°C was recorded with a wind speed of 10 knots. Cloud cover was recorded at 0% with visibility of over 10 km. Sea state was recorded as 1.

4.2 Target Extraction and Quality Control

4.2.1 Image Analysis

Approximately 29,000 images were captured during the digital aerial survey flight. Of those, the images that had their central node fall within the boundary polygons of the areas shown in Figure 1 were extracted from the dataset and processed to allow target detection. This provided approximately 9,000 images to be analyzed. Images were screened to identify those that contained seals. In addition images that contained flocks of birds were also identified.

Images that contained seals were geo-processed and seals were "tagged" to provide location information for each individual. Survey data were analyzed to produce maps showing seal distributions in each area. For each map, seal observations were composed of individual points geo-referenced to actual spatial locations at the time of sighting.

Images that contained flocks of birds were “tagged” and location was recorded. Images were briefly reviewed to record approximate numbers of individuals and a description of species groups, and the locations of the flocks were mapped. Some example images are shown in Appendix A.

4.2.2 Identification Quality Control

Targets flagged as potential seals were quality checked by the QC manager to ensure they were suitable for inclusion. All but two snags were determined to be seals and remained in the data set. Some example images are shown in Appendix A.

5 Results

5.1 Visual Survey

No seals were noted during the observer flight.

5.2 Aerial Digital Survey

To ensure total coverage of each area, data collection methods were pre-planned to include overlap between images. Duplicate areas were discounted during analysis, and if any targets were detected in these areas only one copy was retained within the dataset. The total area covered was calculated by mapping the outer extents of the images and calculating the area within GIS. The areas surveyed covered the seal haul out sites and the potential cable landing sites, and covered a combined total area of 63.674 km^2 (Table 6). Imagery analyzed including the overlap covered a combined area of 87.838 km^2, which indicates the intensity of survey effort provided by a total of 9,477 images. Depending on the area, between 92% and 97% of imagery contained no seals or bird flocks (Table 6).

Table 6. Blank Images Detected in Each Survey Area

Area	Size of haul out area (km^2)	Area of images analyzed (km^2)	# Images	Blank Images	
				# Blank	% Blank
SITE_1_SANDY_HOOK	0.110	4.142	432	401	92.82
SITE_2_BARNEGAT_LIGHT	61.183	83.771	8190	7944	97
SITE_3_GREAT_BAY	2.381	9.925	855	787	92.05

5.2.1 Seal Distribution and Identification by Survey Area

The distributions of detected seals are shown in Figure 7 to Figure 9. Each point shows an individual seal location in each of the survey areas. Of the three main seal colony locations, Barnegat Light also included the area around the potential cable landfall route (Figure 7, Figure 8, Figure 9). In total 45 seals were detected within the images: six in the Sandy Hook area, five in the Barnegat Light area, and 34 in the Fish Island–Great Bay area (Table 7). The majority of the seals detected were in the water, with very few hauled out, making some identifications difficult. Only 7 of the 45 seals were identified to species, of which all were identified as probable harbor seals (Table 8).

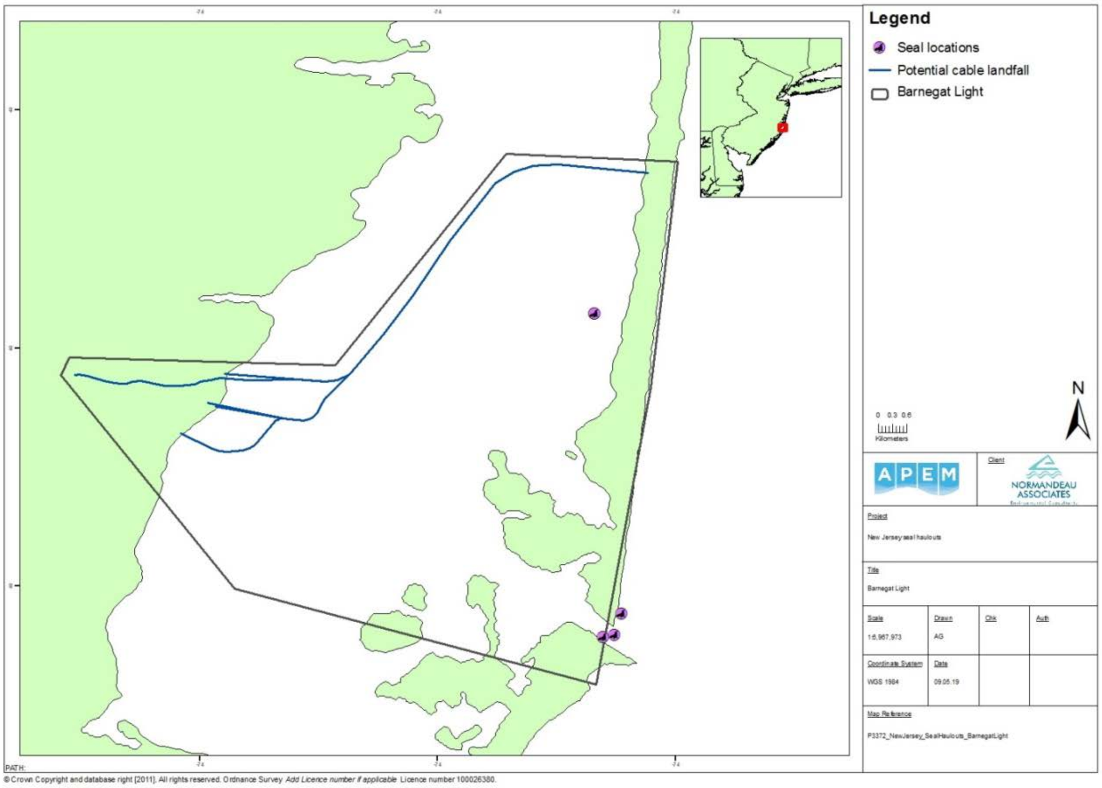

Figure 7. Barnegat Light seal locations.

Figure 8. Sandy Hook seal locations.

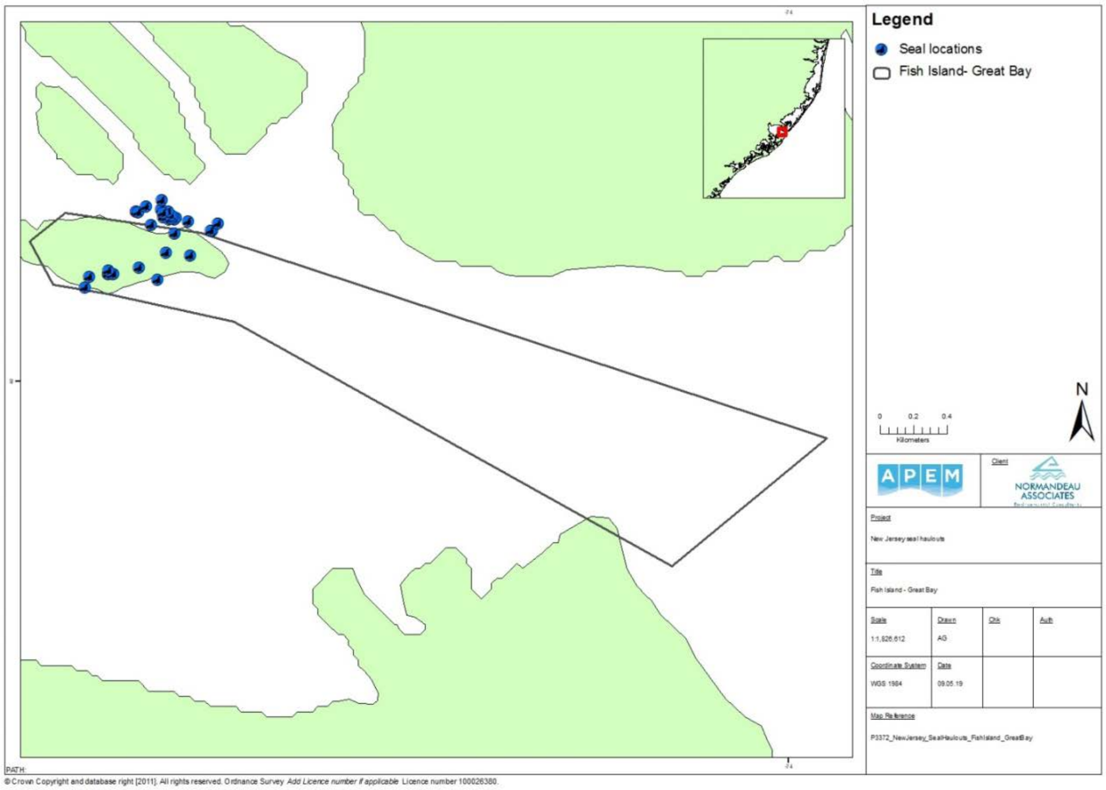

Figure 9. Fish Island–Great Bay seal locations.

Table 7. Number of Targets Detected and Sent for Identification

Order	Survey Area		
	SITE_1_SANDY_HOOK	SITE_2_BARNEGAT_LIGHT	SITE_3_GREAT_BAY
Marine Mammals	6	5	34
Total	6	5	34

Table 8. Number of Targets Identified to Species

Order	Survey Area		
	SITE_1_SANDY_HOOK	SITE_2_BARNEGAT_LIGHT	SITE_3_GREAT_BAY
Harbor Seal	-	2	5
Species Unknown	6	3	29
Total	6	5	34

5.2.2 Bird Flocks

Removing duplicates, 310 bird flocks were found in imagery. Flock sizes were estimated unless images contained <10 individuals at which point individuals were counted. The minimum flock size was 7, and maximum flock size 2,550. Across all 310 flocks, mean flock size was 99 (Table 9). Flocks were mapped (Appendix B). All flocks were identified to species groups, and the species groups represented in order of frequency were gulls, wildfowl excluding geese, auks, shorebirds, geese, crows, vultures, terns and egrets. Within each species group some individuals were identified to species, and the full list with scientific names can be found in Appendix C.

Table 9. Number of Bird Flocks and Minimum, Maximum, and Mean Flock Sizes

Number of Flocks	Minimum Flock Size	Maximum Flock Size	Mean Flock Size
310	7	2,550	99

6 Discussion

The surveys were carefully planned to ensure that seals could be detected if they were in the area. On-the-ground updates of seal activity ensured that the surveys targeted the best possible representation of seal activity. The survey areas were intensively covered by overlapping imagery and the numbers of seals found during the surveys reflects seal activity for the optimal combination of tide and weather conditions at this time. The entire coastline was surveyed and imagery captured. These images are available for review should there be other areas of interest identified at a later date.

Bird flocks were imaged within and without of the target areas, and those outside of the target areas are available for review should an interest or need arise.

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Waring, G. T., J. R. Gilbert, J. Loftin, and N. Cabana. 2006. Short-term movements of radio-tagged harbor seals in New England. Northeast. Nat. 13: 1–14.

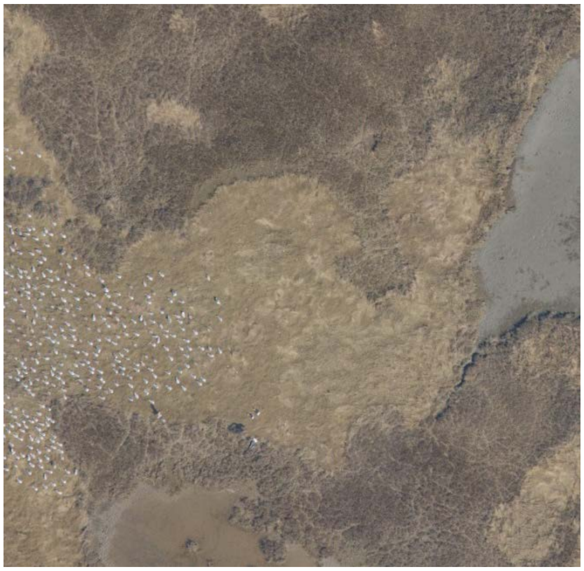
Appendix A: Example Images

Harbor Seal. Barnegat Light (39.766679, -74.095087).
Date: 2019-03-17

Harbor Seal. Nr Fish Island (39.510648, -74.340654).
Date: 2019-03-17

Harbor Seal. Fish Island (39.509089, -74.343501).
Date: 2019-03-17

Bird Flock. Nr Barnegat Light (39.7612,-74.1471.
Date: 2019-03-17



Bird Flock. Nr Barnegat Light (39.7654,-74.1378)
Date: 2019-03-17

Close-up of Bird Flock. Nr Barnegat Light (39.7654,-74.1378)
Date 2019-03-17

Appendix B: Locations of Bird Flocks

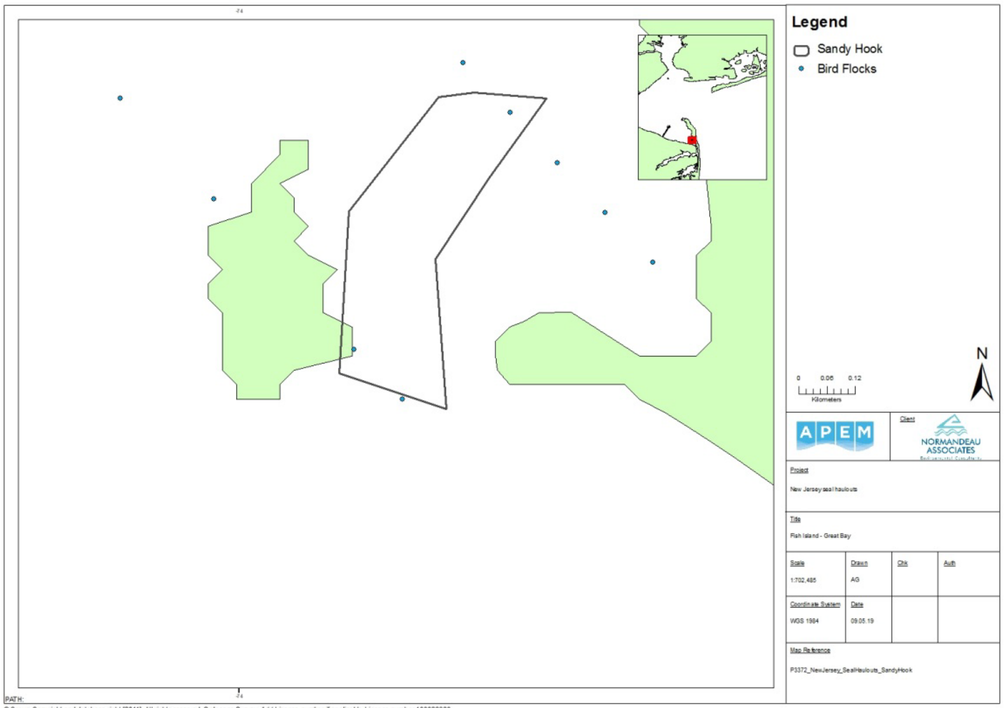


Figure 10. **Sandy Hook bird flock locations.**

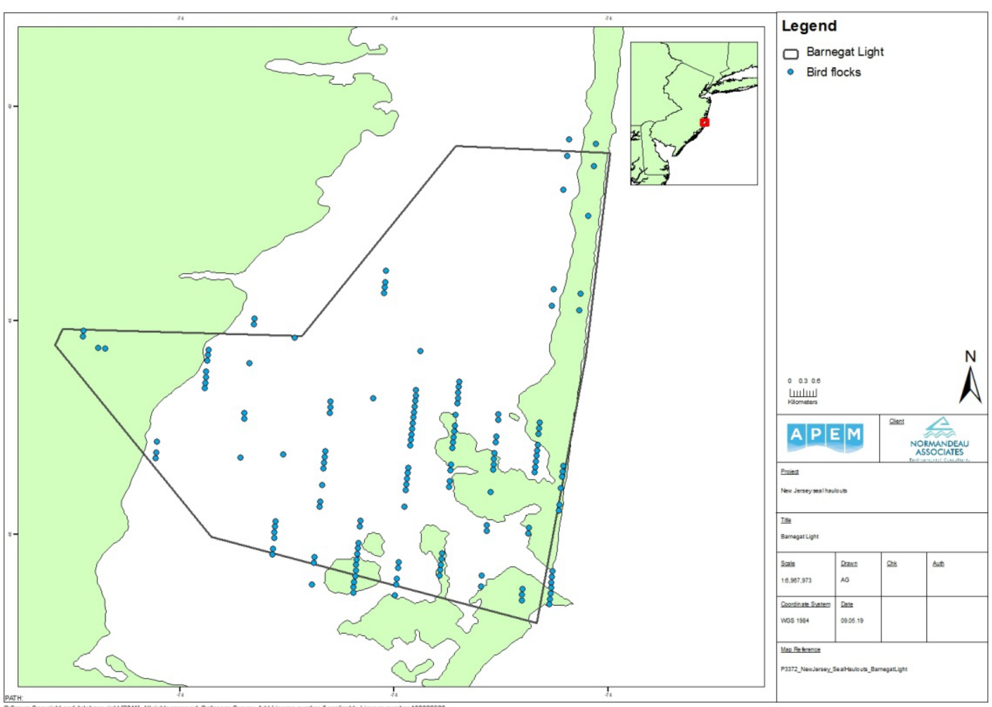


Figure 11. **Barnegat Light bird flock locations.**

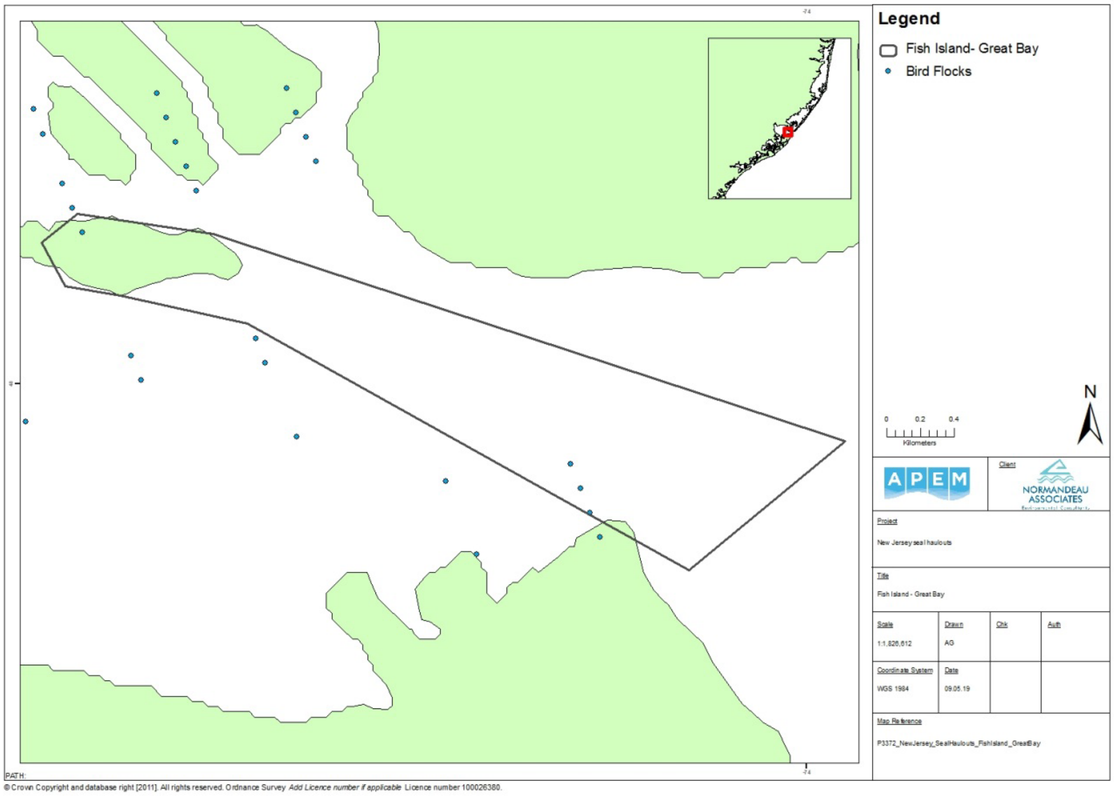


Figure 12. Fish Island bird flock locations.

Appendix C: Species Found in Imagery during Survey

List of Seal Species Found in Imagery during the Survey, by Site

Common Name	Scientific Name	Class	Family	SITE_1_SANDY_HOOK	SITE_2_BARNEGAT_LIGHT	SITE_3_GREAT_BAY
Harbor Seal	*Phoca vitulina*	Mammalia	Phocidae		X	X

List of Bird Species Found in Imagery during the Survey, in Taxonomic Order

Common Name	Scientific Name
Greater White-fronted Goose	*Anser albifrons*
Gadwall	*Anas strepera*
American Wigeon	*Anas americana*
American Black Duck	*Anas rubripes*
Mallard	*Anas platyrhynchos*
Green-winged Teal	*Anas crecca*
Long-tailed Duck	*Clangula hyemalis*
Common Merganser	*Mergus merganser*
Common Loon	*Gavia immer*
Great Egret	*Ardea alba*
Turkey Vulture	*Cathartes aura*
American Oystercatcher	*Haematopus palliatus*
Sanderling	*Calidris alba*
Razorbill	*Alca torda*
Atlantic Puffin	*Fratercula arctica*
Laughing Gull	*Leucophaeus atricilla*
Ring-billed Gull	*Larus delawarensis*
Bonaparte's Gull	*Chroicocephalus philadelphia*
Herring Gull	*Larus argentatus*
Lesser Black-backed Gull	*Larus fuscus*
Great Black-backed Gull	*Larus marinus*
Forster's Tern	*Sterna forsteri*
American Crow	*Corvus brachyrhynchos*

SAV Survey

Ocean Wind Offshore Wind (OCW01)

Submerged Aquatic Vegetation (SAV) Survey Report

Document Version

File Name	Preparer	Editor	Checker	Accepter	Approver
FINAL_OCW01_Oyster Creek_SAV Report_2021-01-19	JC	AD	DY		

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1. Introduction

Ocean Wind LLC (Ocean Wind), a subsidiary of Ørsted Wind Power North America LLC (Ørsted), is developing the Ocean Wind Offshore Wind Farm (Wind Farm Project or Project) to generate renewable power off the coast of New Jersey and transfer the electricity to load centers within New Jersey and the Mid-Atlantic region. Ocean Wind intends to develop, build, operate, and own a utility-scale offshore wind farm located approximately 15 miles off the of the coast of New Jersey within the OCS-A 0498 Lease Area (**Figure 1**). The Project will include turbines and infrastructure required to transmit power generated by the turbines to connection points with the Pennsylvania, Jersey, Maryland (PJM) electric transmission system or power pool. Up to two grid connections will be made at BL England and Oyster Creek. The offshore export cables will be buried below the seabed within federal and state waters and will connect with the onshore export cable at the onshore transition joint bays (TJBs) at the landfall location(s). For the Oyster Creek interconnection point, buried export cables from the wind farm area will make landfall at Island Beach State Park and then continue across Barnegat Bay and make landfall on the mainland at one of the three potential landfall locations (**Figure 2)**. The Project would be installed from 2023 through 2024 and commissioned and operational in 2024.

SAV along the New Jersey coast has been studied by various public and private entities over the last 40 years. Barnegat Bay has been extensively studied, with historical SAV mapping completed by the New Jersey Department of Environmental (NJDEP) from 1979 to 1987. Additional studies were completed by Rutgers University in the early 2000s (Lathrop and Haag, 2011). SAV beds provide shelter and forage habitat for a variety of estuarine fish and macrocrustacean species (State of New Jersey, 2017). Additionally, SAV beds provide dissolved oxygen to the water column and provides stability to sediments against erosion forces as a function of root/rhizome development and substrate binding (Bergstrom and Hurley, 2006). The SAV canopy modifies local hydrodynamics, promoting increased sedimentation by reducing water velocity and allowing fine particles to settle out of suspension.

Based on the desktop study review of existing SAV information, Ocean Wind developed a Project-specific SAV survey plan to collect additional information near potential landfall locations (Appendix A). The survey protocol was developed using existing state and federal agency protocols and those that were used for similar surveys in New Jersey. In addition, Ocean Wind coordinated with the NJDEP and the National Oceanic and Atmospheric Administration (NOAA) on the protocols and incorporated their feedback.

To fill in the data gaps from historical NJDEP and Rutgers University mapping and existing studies, Phase 1 Aerial Photography Surveys and Phase 2 In-water SAV surveys were conducted to identify the current presence and extent of SAV beds within the proposed export cable routes and landfall locations. The Phase 1 Survey is summarized below and has been included as Appendix B. Based on project design and changes to routing, a Phase 2 survey was not conducted for BL England study area. Phase 2 SAV surveys were targeted to focus on areas where the routes are likely to cross back bay areas where SAV habitat is present and therefore, only conducted in Barnegat Bay. Phase 2 SAV surveys are discussed in further detail below. Site photographs are provided in Appendix C and notable biological observations are provided in Appendix D.

2. Survey Area

The Phase 2 SAV surveys were conducted in Barnegat Bay, Ocean County, with a total survey area of approximately 0.08 square miles (approximately 200,000 m^2) (**Figure 2**). The SAV survey areas extend from the shoreline out to the edge of the SAV bed as identified in aerial surveys and confirmed on site. The Island Beach State Park (IBSP) survey area is located on the eastern side of the Bay and extends from the backside of the IBSP barrier island approximately 1,200 m (3,900 ft) out into the Bay. The Holtec Property landfall area is the northernmost potential landfall area located on the western side of the Bay north of the Oyster Creek mouth and extends approximately 200 m (650 ft) out into the Bay. The Bay Parkway landfall area is the middle potential landfall area on the western side of the Bay south of the mouth of Oyster Creek and the survey area extends 370 m (1,200 ft) out into the Bay. The Lighthouse Drive landfall area is the southernmost potential landfall area located on the western side of the Bay located north of Waretown Creek and extends 220 m (720 ft) out into the Bay.

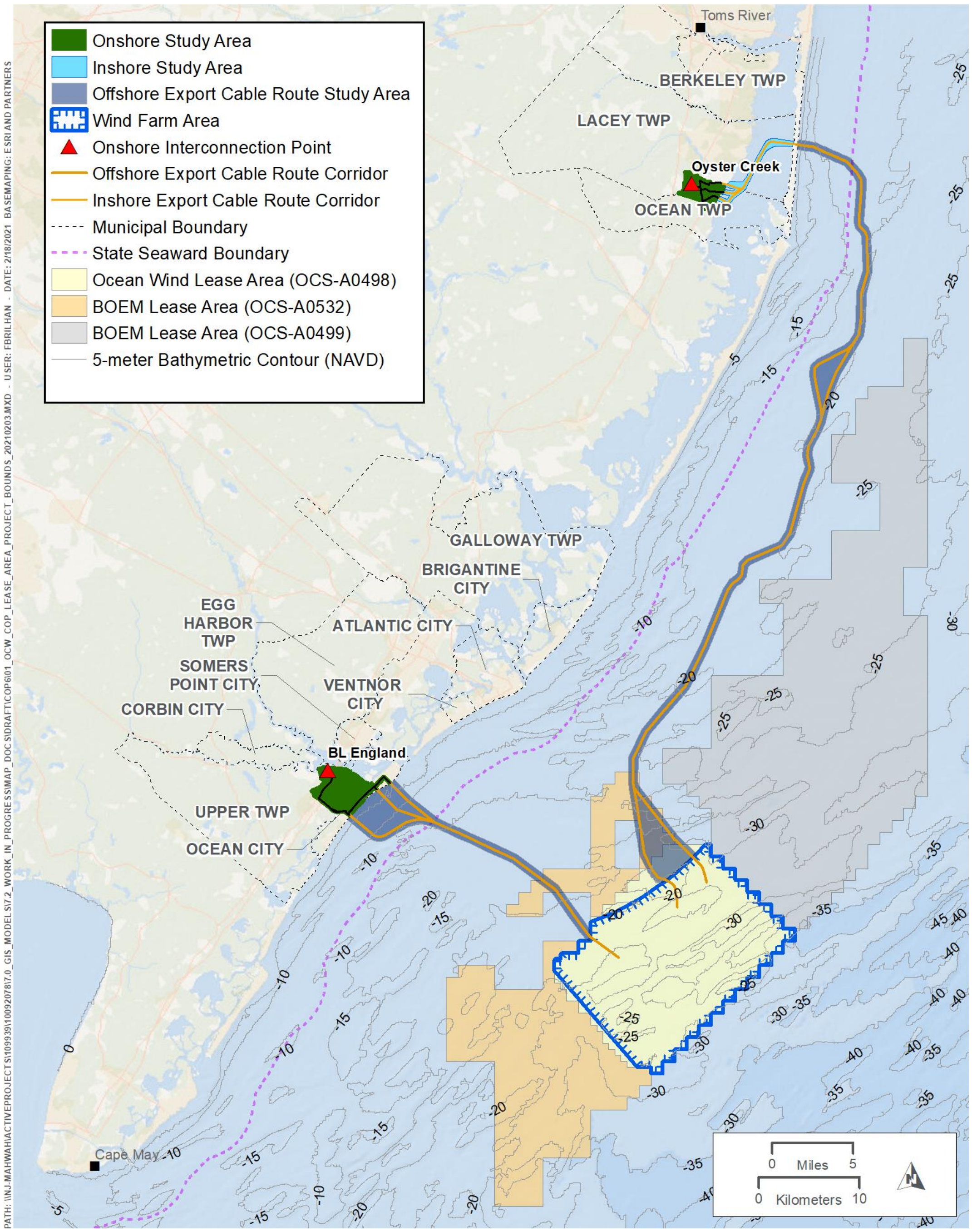

Figure 1. Project Area Overview Map.

Figure 2. Barnegat Bay Phase 2 SAV Survey Area

3. Methods

In October 2019 and October 2020, Phase 1 and Phase 2 SAV surveys were conducted at the anticipated project landfall area for Oyster Creek (**Figure 2**) to confirm the presence and extent of SAV beds located along proposed inshore export cable routes and potential landfall locations. The SAV survey method described here and provided in Appendix A, is based on methodology described in Lathrop et al. (2011) , the *Submerged Aquatic Vegetation Survey Guidance for the New England Region* protocol published in 2016 by a joint agency task force including the USEPA, NOAA, and the USACE (Colarusso and Verkade, 2016), and *Guidance for Submerged Aquatic Vegetation (SAV) Surveys as Related to the Submerged Vegetation Habitat Rule at NJAC 7:7E-3.6 (NJDEP 2015)*.

Surveying efforts were divided into two phases. The first phase of the survey (referred to as "Phase 1 SAV Survey") was conducted later in the growing season in October 2019 during periods of high visibility before the seasonal decline in water temperatures reduce growth of SAV. The presence/absence of SAV beds was determined within the study areas and their extents were mapped using aerial photography. The second phase of the survey (referred to as "Phase 2 SAV Survey") was conducted the week of 5 October 2020 and gathered more detailed information about the SAV beds identified in Phase 1 SAV Surveys using quadrat sampling along transect lines.

3.1 Phase 1 SAV Survey

The Phase 1 SAV Survey was carried out in a fixed wing aircraft using a Shearwater III camera system surveying at an altitude of approximately 1,112 m (3,650 ft) above sea level. High-resolution imagery was captured at a resolution of 4 centimeters (cm) (1.5 inches) ground sample distance (GDS) during 15 flight lines. Surveys were targeted to be complete within 90 minutes of either side of low tide to allow for maximum intertidal exposure and to facilitate the SAV mapping process. Global Positioning System (GPS) data were recorded for each aerial photograph's camera release point. The extent and estimated cover density of SAV beds were estimated from aerial photography of shallow areas (<6 ft water depth).

Due to the nature of the imagery collected over the Bay (i.e., sun glint, changing wave patterns between adjacent imagery), a combination of automated processing, which involved feeding the collected GPS data into photogrammetric processing software along with the imagery, and manual georeferencing of images, was required to produce mosaics. This allowed a mosaic to be generated for all areas where the bay bottom could be seen.[1] Once the mosaic was finalized, areas of SAV were digitized using Geographic Information System (GIS) Software (ArcMap Version 10.7.1).

Seagrass was mapped according to the following categories[2]:

- Sparse (10-40 percent cover)
- Moderate (40-80 percent cover)
- Dense (80-100 percent cover)

[1] For areas of deeper water where the sea bottom could not be seen (typically in areas more than 7 ft below mean sea level) in any of the imagery due to lack of light penetration, it was not possible to georeference the imagery or map SAV. Details for density for "patchy" SAV beds was documented in Phase 2 SAV Surveys.
[2] The delineation of these categories was based on the data from the study by Lathrop et al. (2006), which mapped seagrass cover in Barnegat Bay-Little Egg Harbor-Great Bay study area using these categories.

The resulting areas of SAV documented in the Phase 1 Survey were used to inform the more intensive Phase 2 SAV survey effort.

3.2 Phase 2 SAV Survey

The Phase 2 SAV Survey was conducted to gather more detailed information about the SAV beds using underwater camera/quadrat sampling along transect lines. The Phase 2 SAV Surveys documented the outer extents of the SAV beds identified in the Phase 1 SAV Survey and obtained representative information on SAV species and density from the outer edge of the beds into the shoreline. Beginning the survey with the identification of the outer edge of the SAV bed allows survey effort to be focused on those areas where SAV is actually present. The Phase 2 survey was confined to the 50 m (164 ft) areas on either side of the proposed cable route that overlaps with areas of SAV identified in the Phase 1 SAV Survey. The 50 m (164 ft) on either side of the potential cable route was surveyed as this is the potential area which could be impacted during cable installation. The survey was completed the week of 5 October 2020. Initial reconnaissance of the survey area was conducted using the following visual assessment methods: visual inspection from an elevated boat platform, bathyscope/viewing bucket from the surface, and a pole mounted underwater camera which provided a real time feed to an observer on the boat. This reconnaissance was performed to identify the presence/absence of SAV and to determine the outer edge of the SAV bed. Reconnaissance was conducted on sunny days, during a falling or lower tide, to facilitate optimal viewing capabilities

Following initial reconnaissance, transect lines were established in the SAV beds identified in the Phase 1 SAV Surveys. Transect lines were spaced 30 m (98 ft) apart and perpendicular to the export cable route and spanned the 50 m (164 ft) buffer on either side of the cable route. Within each transect line points for SAV sampling were spaced every 10 m (33 ft). At each transect point a GoPro Hero3 mounted to an adjustable pole secured above a 0.5 m x 0.5 m (0.25 m^2) quadrat frame divided into 4, 25 cm x 25 cm grid cells was lowered to the bottom to photo-document SAV and the benthic habitat (**Figure 3**). The camera was connected to a Wi-Fi extension cable to allow the camera feed to be viewed in real time by observers on the survey vessel. In the field and upon processing the photographs, the following data was recorded:

1. Date and time for each sampling transect.
2. Water depth at each sampling point (quadrat).
3. Water quality data (temperature, pH, salinity, dissolved oxygen, turbidity) at the beginning of each transect.
4. General sediment type characterized by visual observation (e.g., silt, mud, sand, shell hash) at each sampling point.
5. Estimated percent cover and density of SAV, per species, within a 0.25-m^2 quadrat divided into 25 cm x 25 cm grid cells.
6. Shoot length of 1-3 randomly chosen SAV blades within the quadrat, per species. Blades were estimated in place relative to reference markers on the quadrat. If, while watching the live camera feed, it was not possible to estimate blade length in place due to currents, samples were collected manually using a small three tine garden rake.
7. Estimated percent coverage (0-100 percent) per species. Surveyors recorded qualitative vegetative density as they surveyed SAV beds on the following scale:
    a. Sparse (1-10 percent cover);
    b. Low (11-25 percent cover);
    c. Moderate (26-50 percent cover), and
    d. High (>50 percent cover).
8. Notable biological observations (e.g., shellfish or algal beds, fish and macrocrustaceans) (Appendix D).

Based on field conditions and sampling logistics, the following modifications to the Project sampling protocol (Appendix A) were made:

- The quadrat size was modified from 1 m^2 to 0.25 m^2. Agency review of the sampling protocol requested 1 m^2 sampling quadrat size, if possible. However, for ease of equipment maneuverability during data collection and to ensure that the camera could be submerged with the entire quadrat frame in the camera view, quadrat size was modified (see **Figure 3** for equipment setup). Additionally, 0.25m^2 is consistent with sampling guidelines set forth by Colarusso and Verkade (2016).
- Transects were conducted perpendicular to the cable route instead of perpendicular to the shoreline. This change was made to better assess the potential impacts of the proposed export cable a linear feature and resulted in more sampling locations.
- Water quality measurements were collected at the beginning of each transect instead of at every point along the transect. Each transect point was spaced 10m apart, due to the close proximity of each point the collection of water quality information at each point would have resulted in hundreds of redundant water quality measurements.

3.2.1 Data Analysis

3.2.1.1 Percent Cover

To calculate the estimated percent coverage of the survey area, the SAV density results of the camera drops were divided into density categories based on visible percent coverage of SAV as part of Step 1:

- Absent (0 percent)
- Sparse (1-10 percent)
- Low (11-25 percent)
- Medium (26-50 percent)
- High (>50 percent)

In Step 2, the length and width of the survey areas were multiplied to get the total area (m^2). The percentage of each category generated in Step 1 were multiplied by the total area calculated in Step 2 to yield the representative percent cover per survey area.

3.2.1.2 Stem Density

Stem densities were determined during video reviews for the 0.25 m^2 quadrat sampling. The visible number of blades were counted within the 0.25 m^2 quadrat. When densities were very high and visibility of individual blades was limited, counts were capped at 250 stems/quadrat. These data were then multiped by 4 to extrapolate stem density per 1 m^2.

3.2.1.3 Blade Length

Blade length was estimated in place from the still images captured during the field survey using the ImageJ photo processing software. A custom macro was developed that set the scale of the image based on the length of the 25 cm (10 in) grid cell in the image. Once the scale was calibrated a reviewer manually drew a line over selected blades of the SAV. Stems selected for measurement were generally those where the grid cells of the SAV frame/grid or the currents in the area pushed the blades of SAV over horizontally such that the length of a stem could be estimated. The estimated length of the blade was recorded on the image and in a spreadsheet. In the instances where SAV was collected the blade length was measured on a ruler and photographed. Each blade length was measured to the nearest tenth of a centimeter. The SAV blades that were physically collected during the Phase 2 SAV survey were measured to the nearest tenth of a centimeter.

3.2.2 Sediment Sample Collection and Grain Size Analysis

Per the NJDEP (2015) SAV Survey Guidance document and the Project survey protocol, sediment samples were collected for grain size analysis. The sediment samples were collected on October 8, 2020, using a petite ponar grab from locations representative of the observed sediment types within each of the four potential landfall areas during the SAV survey (**Figure 4)**. The sediment samples were photographed, then homogenized, placed in glass jars, and sent to an analytical laboratory for grain size analysis consistent with the American Society for Testing and Materials (ASTM) methods D6913 and D7928. The results were reported according to the Wentworth (1922) grain size scale.

Figure 3. Quadrat Frame with Mounted GoProHero3 for SAV Sampling.

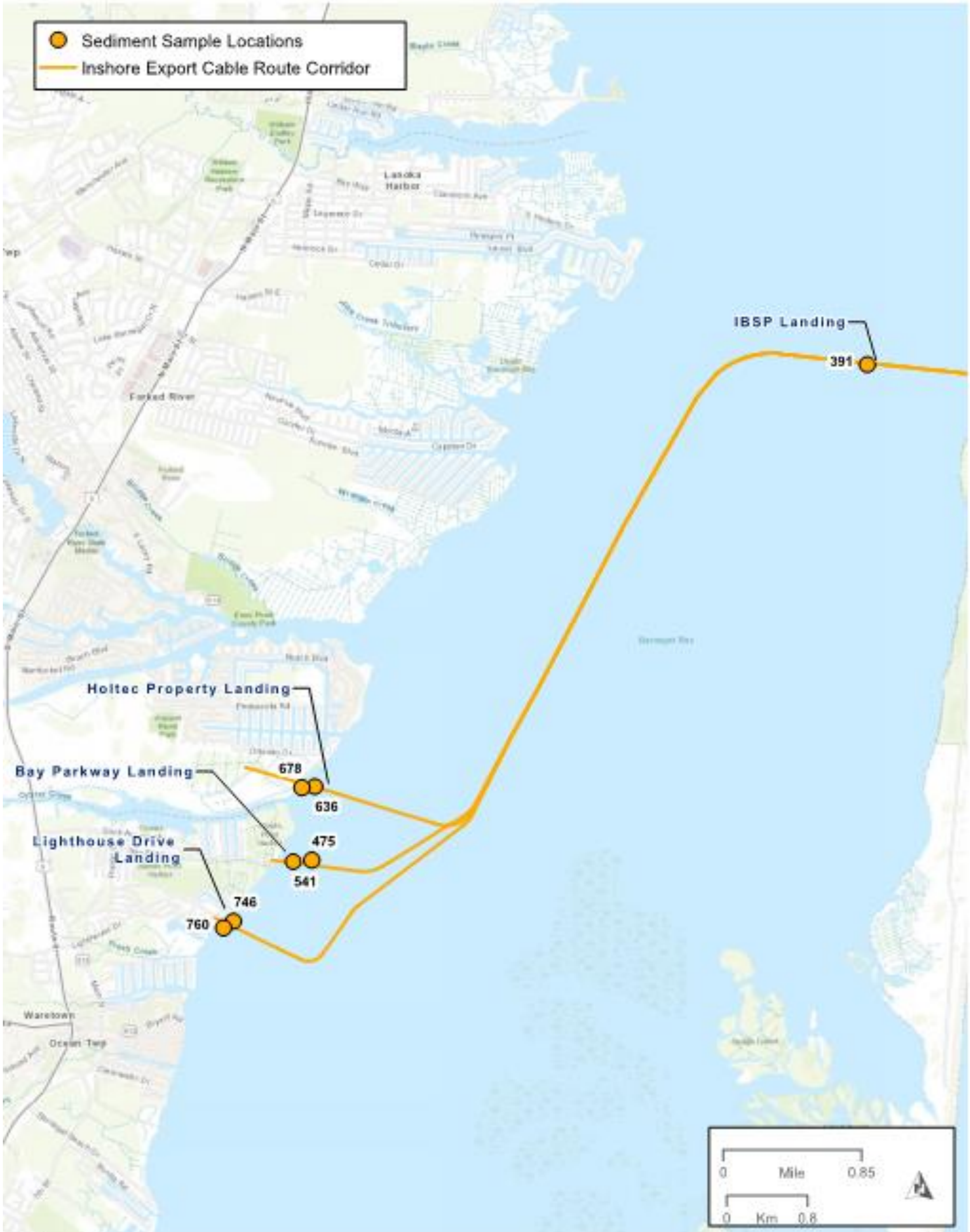

Figure 4. Sediment Sampling Locations.

4. Results

4.1 Phase 1 SAV Surveys

A total of 10,864 images were captured during the aerial survey. The coverage map for the Phase 1 SAV Survey area is shown in **Figure 5**.

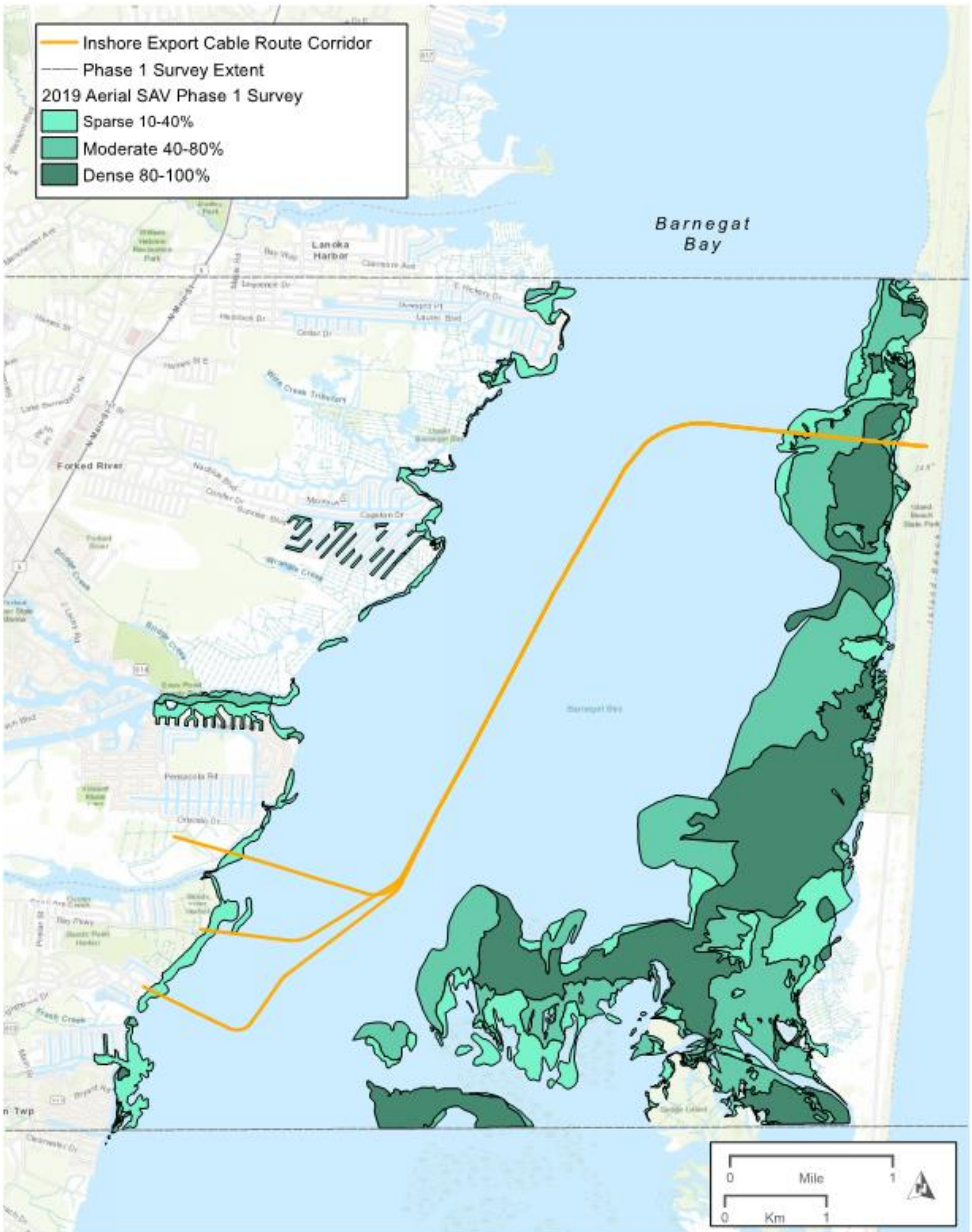

Figure 5. SAV Map of the Barnegat Bay Phase 1 SAV Survey Area

During the Phase 1 aerial survey, the area along the IBSP shoreline was mapped as predominantly moderate to dense SAV with an outer fringe of sparser coverage. Presumed SAV beds on the eastern shoreline extend more than 1,200 m (3,930 ft) from the shoreline in some locations based on the aerial imagery. For the three landfall areas along the western shoreline of the Bay a comparatively narrow band of sparse SAV extending from approximately 70-330 m (230-1,080 ft) was observed.

4.2 Phase 2 SAV Survey

At IBSP during the Phase 2 SAV survey, the outer edge of the SAV bed was observed 1,067 m (3,500 ft) from the shoreline and approximately 90 m (295 ft) from the edge of the SAV bed documented in the Phase 1 aerial survey. Depths in this area were 1-1.2 m (3-4 ft).

Due to shallower than anticipated depths, it was only possible to survey transects in the outer third of the IBSP landfall area. This area consists of a shallow shoal extending approximately 1,200 m (3,930) or more out from the shoreline of IBSP. To the north of IBSP, there appears to be an old channel with depths of up to 2.1 m (7 ft) based on nautical charts. The survey vessel had relatively shallow draft of ~0.6 m (~2 ft). To protect both the vessel and benthic habitat the survey vessel did not attempt to enter areas where depths were too shallow. Vessel counts and prop scars documented in Lathrop et al. (2017) are concentrated along the outer fringe of the shoal in the vicinity of the IBSP survey area, which indicates depths too shallow to be readily accessible by vessel (**Figure 6)**. Slightly to the south of IBSP survey area is a portion of Tice's Shoal which experiences heavy vessel traffic with greater vessel access closer to the shoreline.

SAV was documented in only one survey location within the Holtec Property survey area and had a depth of 1 m (3.2 ft). In the Bay Parkway survey area, the outer edge of the SAV beds was documented 60 m (197 ft) further out than what was documented in the Phase 1 survey and 380 m (1,248 ft) from the shoreline. The depth at the edge of the SAV bed was 1.6 m (5.2 ft). In the Lighthouse Drive survey area, the outer edge of the SAV bed is generally in the same area as what was documented in the Phase 1 survey and approximately 150 m (492 ft) from the shoreline. The depth at the edge of the SAV bed ranged from 1.2-1.4 m (3.9-4.7 ft).

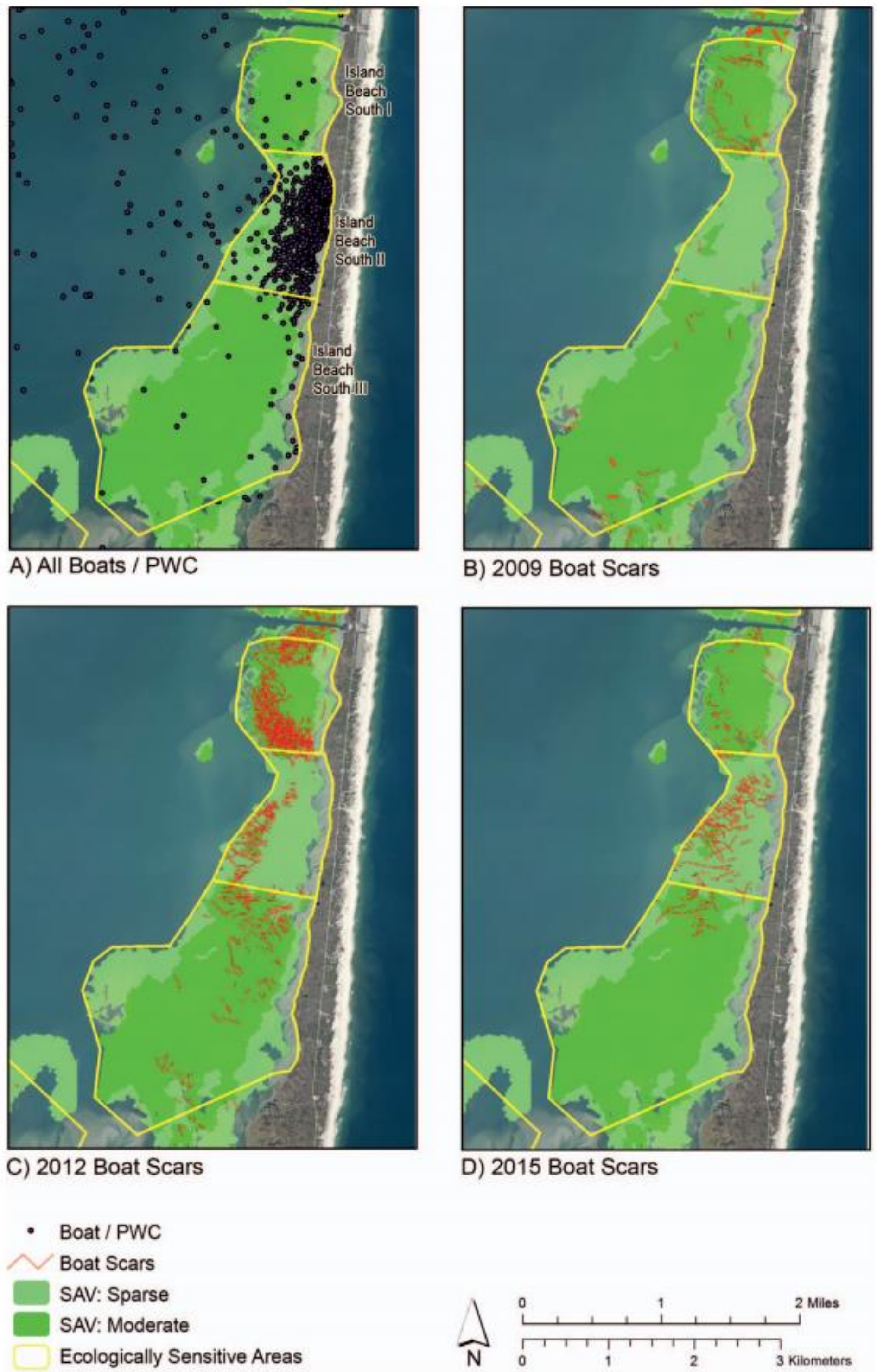

Figure 6. Figure excerpted from Lathrop et al. 2017 showing the distribution of watercraft and boat scar observations in the vicinity of the IBSP landfall area. The IBSP survey area is in the northern portion of each plot just to the south of the linear break in the SAV beds.

SAV was documented in only one survey location within the Holtec Property survey area and had a depth of 1 m (3.2 ft). In the Bay Parkway survey area, the outer edge of the SAV beds was documented 60 m (197 ft) further out than what was documented in the Phase 1 survey and 380 m (1,248 ft) from the shoreline. The depth at the edge of the SAV bed was 1.6 m (5.2 ft). In the Lighthouse Drive survey area, the outer edge of the SAV bed is generally in the same area as what was documented in the Phase 1 survey and approximately 150 m (492 ft) from the shoreline. The depth at the edge of the SAV bed ranged from 1.2-1.4 m (3.9-4.7 ft). Phase 2 SAV survey photograph is provided in Appendix C.

4.2.1 Water Depth and Quality

Water depths recorded for each sampling location and water quality measurements taken at the beginning of each transect are presented in **Table 1**. The average depth across sampling locations was 4.4 ft, average temperature was 18.4°C, average salinity was 26.7 ppt, average dissolved oxygen was 7.9 mg/L average pH was 7.9, and average turbidity was 2.9 NTU.

Table 1. Water Quality and Depth Summary.

Survey Area	Transect	Point ID	Depth (ft)	Temperature (C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)
IBSP	360-365	360	2.3	15.8	24.5	7.5	7.8	5.38
	376-366	376	3.6	17.2	25.8	7.8	8.2	4.46
	377-387	387	3.3	17.2	25.8	7.77	8	1.89
	388-389	398	3.2	17.2	25.8	7.6	8	2.26
	399-409	409	4.6	17.2	25.8	7.5	7.9	3.95
Bay Parkway	475-465	475	4.8	18.2	26.2	7.33	7.6	3.56
	475-465	465	5.6	18.2	26.4	7.27	7.6	11.46
	477-487	477	7.1	18.3	26.4	7.27	7.7	2.93
	477-487	487	4.5	18.4	26.4	7.52	7.6	2.2
	499-489	489	4.7	18.4	27	7.5	7.6	1.84
	510-500	510	4.7	18.5	26.8	7.43	7.7	3.55
	510-500	500	4.6	18.5	26.8	7.46	7.7	1.69
	522-512	512	4.8	18.5	27.4	7.7	7.7	1.63
	534-524	534	4.9	18.5	27.4	7.7	7.7	1.17
	545-535	545	4.1	18.6	27.4	7.8	7.8	2.06
	557-547	557	4.5	18.7	27.7	7.99	7.8	1.85
	569-559	567	3.8	18.8	27.7	8.5	7.9	1.38
	571-581	581	2.5	19	27.1	8.7	8.1	0.83
Holtec Property	619-629	619	5.9	17.2	25.8	7.5	7.9	3.95
	619-629	629	6.1	19.5	27	8.4	7.9	1.73
	631-641	641	5.7	19.7	26.7	8.5	7.9	2.67
	642-652	652	4.5	19.6	27	8.6	7.9	1.56
	663-663	663	4.1	19.7	26.7	8.7	7.8	2.38
	687-677	677	4.5	19.9	26.7	8.6	7.8	3.08
	687-677	687	2.9	19.9	26.6	8.92	7.7	2.39
	699-689	689	3.1	19.6	26.6	8.4	7.9	15.3

Survey Area	Transect	Point ID	Depth (ft)	Temperature (C)	Salinity (ppt)	Dissolved Oxygen (mg/L)	pH	Turbidity (NTU)
Lighthouse Drive	710-700	710	5	18.3	27	7.5	8.1	1.88
	712-722	712	5.7	18.5	26.7	7.52	8.2	0.94
	724-734	734	3.9	18.3	27.3	8.7	8.2	0.78
	736-746	746	3.2	18.5	27.3	8.38	7.9	2.15
	758-748	758	2.7	18.6	27.1	7.75	8	1.7
	770-760	770	2.3	18.8	26.5	8.2	8.1	0.99
	777-772	772	4.3	18.9	26.9	8.14	8.1	1.22

4.2.2 Sediment Type

Sediments varied from fine, silty sand to sand with scattered cobble or shell hash. At Bay Parkway Landing, the dominant sediment type observed was sand. Holtec Property Landing consisted predominately of silty sand and sand and IBSP Landing was dominated by silty sand. Lighthouse Drive Landing sediment consisted predominately of silty sand and sand. Overall, the Phase 2 SAV survey area sediments consisted of sand and silty sand.

4.2.3 Grain Size

The grain size analysis results from the sediment samples collected during the Phase 2 SAV Surveys are reported in Table 2. Laboratory grain size analysis results are provided in Appendix E. Most of the samples consisted of medium to fine sand. There were no noticeable trends between sediment type and SAV density.

Table 2. Grain Size Analysis Results.

Grain Size	Sample ID						
	636	678	475	541	760	746	391
% Gravel	0	0	0	0	0	0	0
% Coarse Sand	2	3	0	3	5	0	0
% Medium Sand	65	24	9	25	15	8	13
% Fine Sand	32	54	89	49	67	88	86
% Silt or Clay	1	19	2	23	13	4	1
Landfall	Holtec Property	Holtec Property	Bay Parkway	Bay Parkway	Lighthouse Drive	Lighthouse Drive	IBSP

4.2.4 SAV Species, Percent Cover and Density

During the Phase 2 SAV Survey, a total of 283 camera drops were completed. Of those camera drops, 118 had SAV present, accounting for 41.7 percent SAV presence for the entire survey area combined. SAV is known to form patchy beds with areas of exposed sediment which is consistent with the observed intermittent presence of SAV at the camera drops. SAV was present in 36 percent of the camera drops in the outer portion of the IBSP area (**Figure 7**). These findings are consistent with the narrow band of sparse SAV observed during the Phase 1 SAV survey. Based on review of the photographs collected during the field survey and the SAV samples collected, observed SAV consisted almost entirely of eelgrass (*Zostera marina)* with widgeon grass (*Ruppia maritima*) only documented at a single location (Station 691) at the Holtec Property survey area.

The Holtec Property did have substantial coverage of macroalgae in many of the sampled locations, but SAV was only observed at Station 691. The findings of the Phase 2 survey at the Holtec Property Landing were inconsistent with the findings of the Phase 1 aerial imagery survey. Extensive macroalgae was found to be present at the Holtec Property Landing survey area during Phase 2 survey efforts, not sparse coverage of SAV (10-40 percent). The macroalgae present likely accounted for the sparse coverage that was documented during the 2019 aerial imagery mapping of the Phase 1 survey (**Figure 8**).

The Bay Parkway Landing had the highest percentage of SAV at 67 percent (**Table 3**). Compared to the Phase 1 SAV survey, SAV was observed over a slightly larger area within the Bay Parkway Landing survey area. The findings of the Phase 2 survey at Bay Parkway Landing survey area were consistent with sparse SAV coverage identified during the Phase 1 survey. Macroalgae was also found to be present at this location (**Figure 9**).

The Lighthouse Drive Landing had SAV present in approximately 47 percent of survey stations. The number of stations with SAV present were relatively evenly distributed between the sparse, low, moderate, and high percent cover categories s of SAV (**Table 4, Figure 10**). During the Phase 1 Survey, the aerial imagery captured sparse coverage and did not reveal the higher densities identified during the Phase 2 Survey.

Figure 7. SAV Percent Cover Estimates at IBSP Landing.

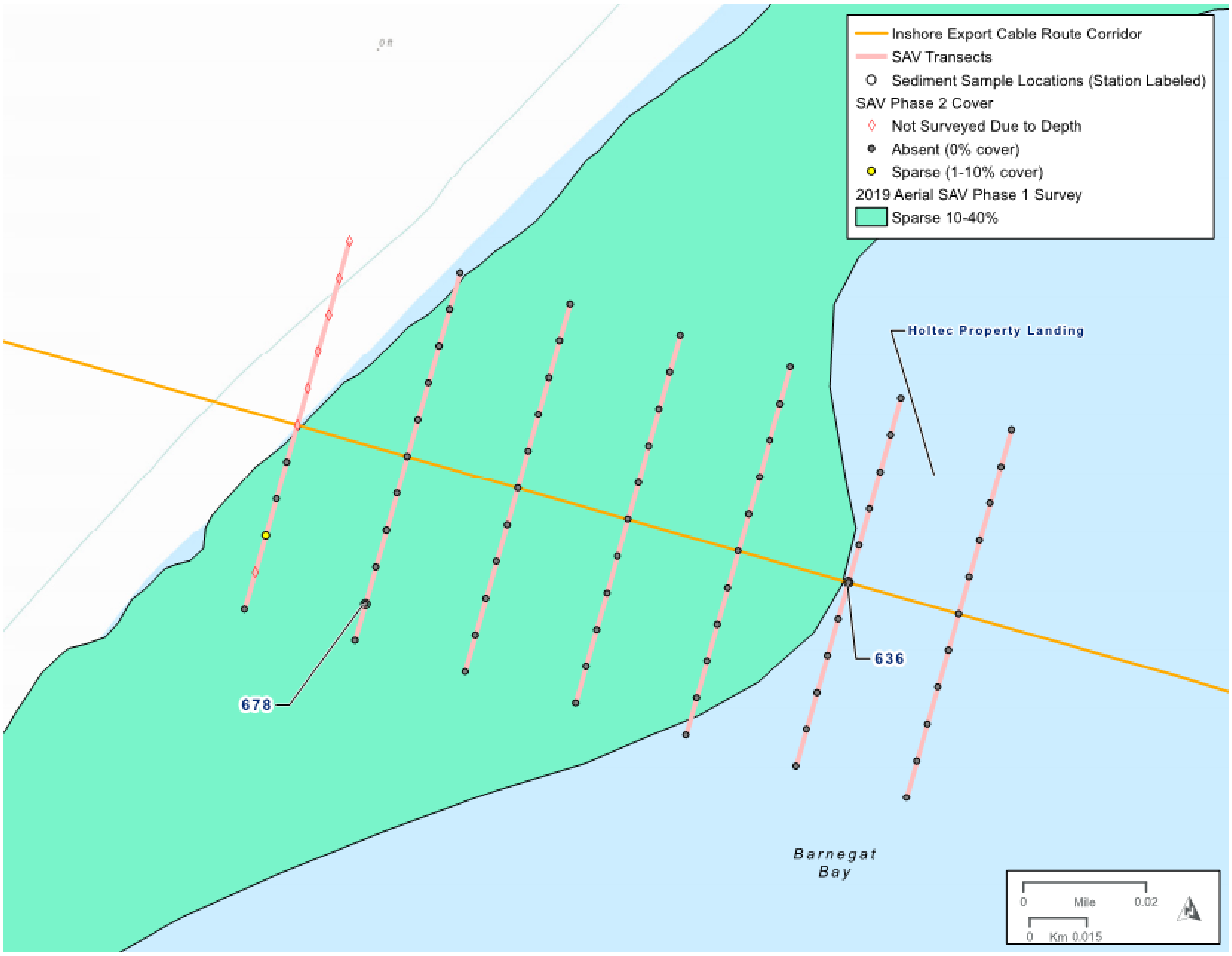

Figure 8. SAV Percent Cover Estimates at Holtec Property Landing.

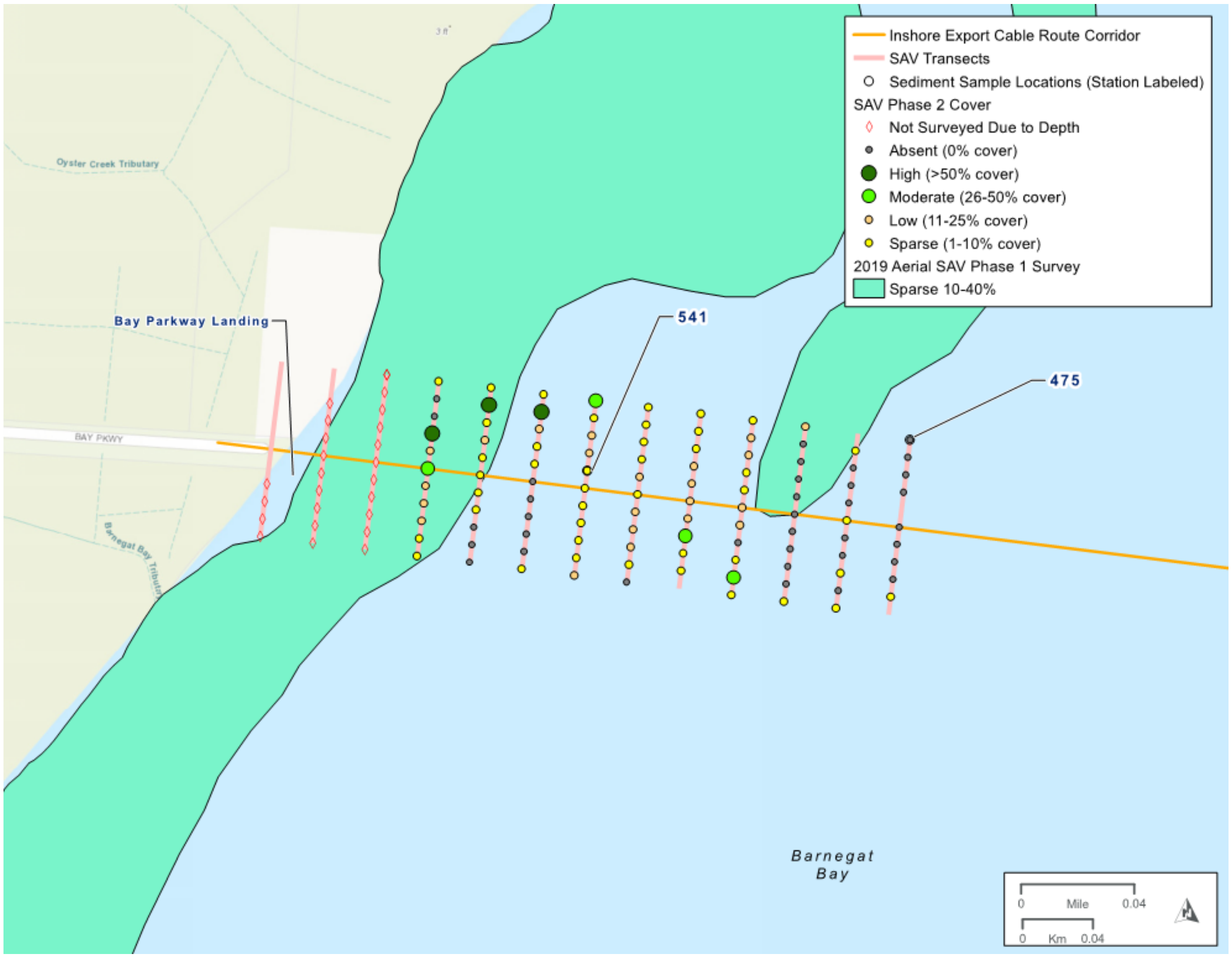

Figure 9. SAV Percent Cover Estimates at Bay Parkway Landing.

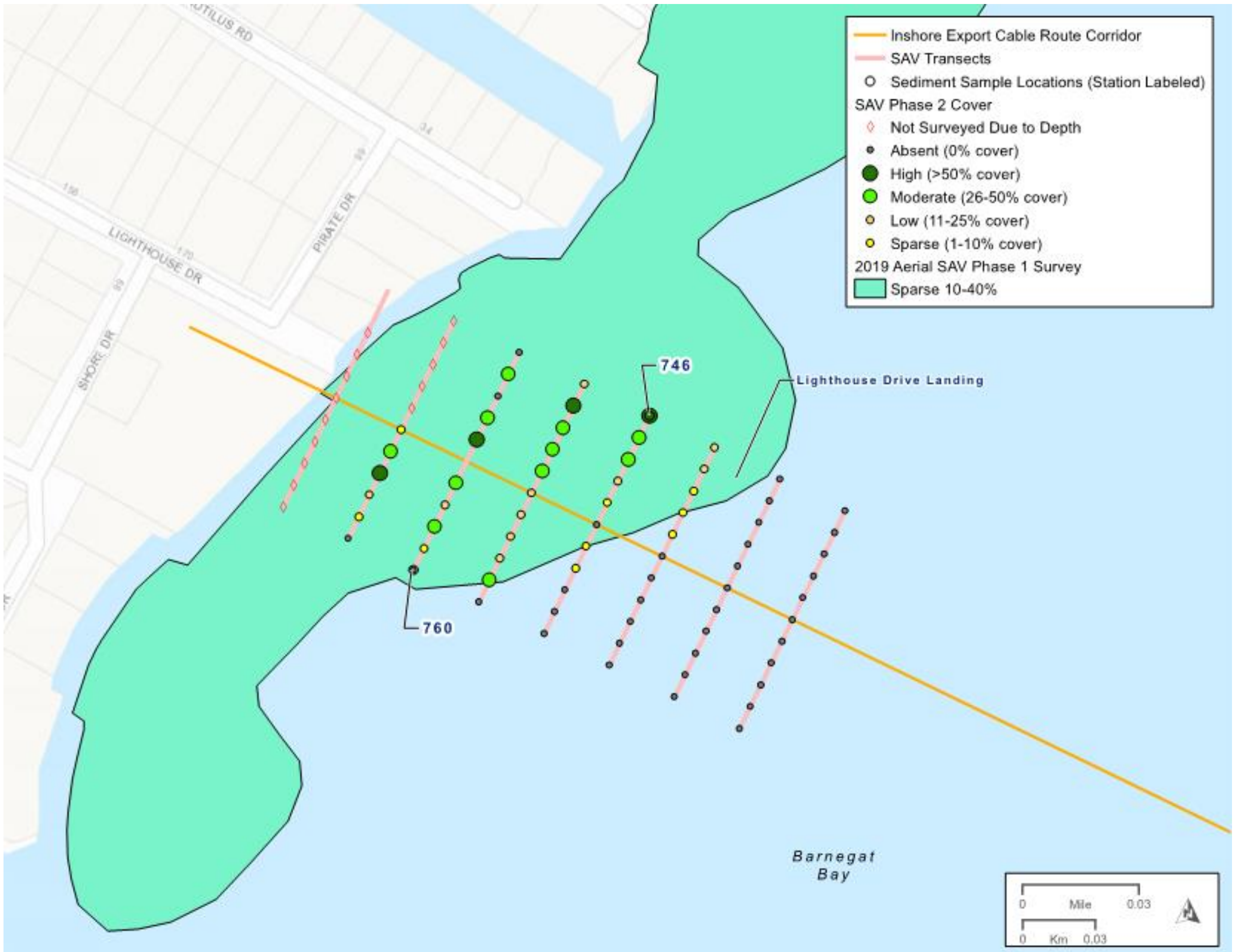

Figure 10. SAV Percent Cover Estimates at Lighthouse Drive Landing.

For IBSP Landing, the findings of the Phase 2 survey were consistent with the findings of the Phase 1 survey in the areas that were accessible by the vessel. There were patches of sparse to moderate SAV present in the outer fringe during the Phase 2 SAV survey, with smaller areas of high percent coverage. The outer edge of the SAV bed in the IBSP area was found to be closer to shore in the Phase 2 survey than documented in the Phase 1 aerial survey. (**Table 4, Figure 7**).

Table 3. Sampling Area SAV Presence and Percentage

Landing	Camera Drop Count	Drops with SAV Present	Percentage with SAV Present
IBSP	36	13	36.1
Bay Parkway	106	71	67.0
Holtec Property	70	1	1.4
Lighthouse Drive	71	34	47.9
Total	**283**	**119**	**42.0**

As discussed previously, Holtec Property Landing had SAV present at only one station and had the lowest percentage of stations with SAV present across all percent cover categories. The Bay Parkway Landing had the greatest percentage of stations in the sparse and low categories, at 39.6 and 20.8 percent, respectively (**Table 4**). Lighthouse Drive had the highest percent of stations in the moderate category and IBSP and Lighthouse Drive landings had the same percentage of stations at 5.6 percent in the high category. The locations with the greatest percentage of survey locations where SAV was absent were the Holtec Property Landing and IBSP, with 98.6 and 63.9 percent of sampled quadrats lacking SAV, respectively.

Table 4. Percentage of survey locations by estimated percent cover category of SAV by Survey Area.

Landing	Absent (0%)	Sparse (1 10%)	Low (11 25%)	Moderate (26 50%)	High (>50%)
IBSP	63.9	11.1	11.1	8.3	5.6
Bay Parkway	33.0	39.6	20.8	3.8	2.8
Holtec Property	98.6	1.4	0.0	0.0	0.0
Lighthouse Drive	52.1	12.7	14.1	15.5	5.6

The area of SAV in each of the percent cover categories was estimated by dividing the percentage of camera drop stations with SAV present in each percent cover category (**Table 4**) by the area (m^2) of each survey area. Due to the limited portion of the IBSP survey area that was able to be assessed for SAV during the Phase 2 survey, the estimates in **Table 5** are not representative of the unsampled areas.

Table 5. Area of SAV cover density by Survey Area.

Landing	Total Area (m^2)	Absent (0%) (m^2)	Sparse (1 10%) (m^2)	Low (11 25%) (m^2)	Moderate (26 50%) (m^2)	High (>50%) (m^2)
IBSP	120,000	76,680	13,320	13,320	9,960	6,720
Bay Parkway	37,000	12,210	14,652	7,696	1,406	1,036
Holtec Property	20,000	19,720	280	0	0	0
Lighthouse Drive	22,000	11,462	2,794	3,102	3,410	1,232

The minimum stem density was 0 (quadrats with no SAV present) for all four landings and the landing with the highest density was IBSP with >200 stems per meter squared (**Table 6**). There were a few IBSP Landing stations with high amounts of SAV present and the stem count was capped at 250 per 0.25 m^2 due to the density of the bed and difficulty reliably counting stems. The mean density was calculated for the sample stations where SAV was present. The highest mean stem density was at IBSP landfall, with 278 stems per m^2. Lighthouse Drive also had a high mean stem density at 219 stems per m^2.

Table 6. Stem Density Per 1 m^2.

Landing	Minimum	Maximum	Median	Mean for Stations With SAV Present
IBSP	0	>1000	0	278
Bay Parkway	0	448	20	85
Holtec Property	0	56	0	56
Lighthouse Drive	0	680	48	219

4.2.5 Blade Length

The total number of blades measured in place in reference to the quadrat frame was 254. The longest blade measured was in one of the quadrats from Bay Parkway at 50.3 cm (Table 7). The shortest length was at Bay Parkway Landing, with a length of 3.4 cm. Overall, the average length of the SAV blades was 13.8 cm.

Table 7. Number of Blades, Average Length, Minimum Length, and Maximum Length for Each Landing measured in place.

Landing	Number of Blades Measured	Average Length (cm)	Minimum Length (cm)	Maximum Length (cm)
IBSP	23	10.0	3.5	16.7
Bay Parkway	143	13.4	3.4	50.3
Holtec Property	2	5.2	4.8	5.5
Lighthouse Drive	88	15.5	5.0	27.5
Total	256	13.8	3.4	50.3

For the SAV blades that were physically collected, the longest blade measured was in one of the quadrats from Lighthouse Drive at 45.7 cm (**Table 8**). The shortest length was at IBSP, with a length of 8.9 cm. Overall, 103 SAV blades were measured with an average length of 25.1 cm.

Table 8. Number of Blades, Average Length, Minimum Length, and Maximum Length for blades physically collected for each landing.

Landing	Number of Blades Measured	Average Length (cm)	Minimum Length (cm)	Maximum Length (cm)
IBSP	24	20.4	8.9	35.6
Bay Parkway	44	24.9	10.2	35.6
Holtec Property	3	17.4	15.2	19.1
Lighthouse Drive	32	30.3	12.7	45.7
Total	103	25.1	8.9	45.7

5. Summary

The areas of SAV documented in the Phase 1 Survey completed in October 2019 were used to inform the more intensive Phase 2 survey effort. The Phase 2 SAV surveys were conducted to identify the presence, extent, density, and species composition of SAV beds within the proposed export cable routes at the four potential landfall locations. The Phase 2 SAV Survey was completed in October 2020 and a total of 283 camera drops were completed. SAV was documented in 41.7 percent of the survey locations. Of the three landfall areas on the western shoreline of the bay, the Holtec Property had the lowest percent cover of SAV, with SAV present at only a single survey station close to the shoreline. Based on review of the photographs collected during the field survey and the SAV samples collected, observed SAV consisted almost entirely of eelgrass with the exception of single location at the Holtec Property which contained widgeon grass. The results from this Phase 2 Survey provide the most recent information on SAV presence, density, and species composition along the export cable routes and will be used to support Project planning, routing and design.

6. Literature Cited

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Appendix A. OCW Submerged Aquatic Vegetation Survey Protocols

OCW Submerged Aquatic Vegetation Surveys

Background:

Submerged Aquatic Vegetation (SAV) occurs in shallow estuaries where sunlight can penetrate the water column and photosynthesis can occur. SAV beds provide shelter and a potential forage habitat for many organisms including spawning fish (NJDEP 2017). Additionally, SAV beds provide dissolved oxygen to the water which helps to stabilize sediment against erosion forces (EPA 2006). Buried export cables from the Ocean Wind Project will pass through coastal habitats and have the potential to intersect SAV beds, causing impacts to the vegetation. SAV surveys will be conducted to identify the presence and extent of SAV beds within the proposed export cable routes and landfall locations to determine the potential for impacts as a result of the proposed project. The planned surveys incorporate existing information on SAV generated by Rutgers University and the State of New Jersey as well as survey protocols from state and federal agencies (Attachment 1).

The proposed export cable route approach to B.L. England is approximately 17.0 miles long, originating from lease area OCS-A-0498. This route will make landfall along the coast of Ocean City, New Jersey. The cable will proceed though the coastal barrier to Peck Bay, part of the larger Great Egg Harbor Bay. While the exact layout of the proposed approach to Oyster Creek is in its conceptual planning phase, it will make landfall via horizontal directional drilling (HDD) at the barrier island containing Island State Park, emerging within a paved area where the Park Office Buildings are located (see Figure 1). The proposed HDD route will then be buried under the barrier island emerging in Barnegat Bay where it will continue west until making landfall on the New Jersey main land at one of four potential locations. Based on existing 1979 and 1986-1987 NJDEP SAV maps and studies conducted in 2009 by Rutgers University (Lathrop et al. 2011), SAV habitats could potentially exist in the shallow coastal areas (< 6 ft water depth) of the back-bay and costal shoreline areas along the proposed routes. SAV surveys will investigate the potential SAV habitat areas identified in Figures 1 and 2.

Statement of Work:

In October 2019 and May 2020, a SAV survey will be conducted at the anticipated project landfall areas for Oyster Creek and BL England (Figures 1 and 2) in order to identify the presence and extent of SAV beds located along proposed inshore export cable routes and potential landfall locations. The SAV survey method detailed here is based on methodology described in Lathrop et al. (2011) and the *Submerged Aquatic Vegetation Survey Guidance for the New England Region* protocol published in 2016 by a joint agency task force involving the USEPA, NOAA, and the USACE (Colarusso and Verkade, 2016).

Surveys will map the extent of SAV beds during the growing season which runs from May through October (Colarusso and Verkade, 2016). Surveying efforts will be divided into two phases. The first phase of the survey will be conducted later in the growing season in September/October during periods of clear water quality conditions before water temperatures reduce growth of SAV and will determine the presence or absence of SAV beds within the study areas and map their extents using aerial photography. The second phase will gather more detailed information about SAV using quadrat sampling along transect lines.

The proposed methodology has been modified from the aforementioned guidance documents to inform Project design and development in order to avoid, minimize and potentially mitigate impacts to SAV. Modifications include:

- Collection of updated aerial photography via aircraft will be conducted to accurately delineate the edges of SAV beds. Lathrop et al. (2011) utilized aerial photography via plane, while the joint agency New England SAV Guidance (Colarusso and Verkade, 2016) recommends using available aerial photography from the state or a university to determine the historical extents of SAV distribution.
- Spacing of the transects and quadrats for Phase 2 of the survey was modified based on size of the Project Area to collect representative SAV density and species data to support potential mitigation planning during permitting. Lathrop et al. (2011) utilized targeted transects and a stratified random sampling design to determine the location and spacing of their in-situ sampling locations while the joint agency New England SAV Guidance (Colarusso and Verkade, 2016) recommends transects running perpendicular to shoreline 5 meters apart (spacing dependent on size of the areas to be surveyed and type of project proposed) with 3 meter spacing of quadrats within the transects. , 50 m on either side was selected to capture a representative portion of the surrounding area in addition to the area where the cable will be placed as a conservative measure. As SAV growth is variable and can be patchy, the 50m buffer to be surveyed would provide information on the presence of SAV in the area surrounding the cable path. The 50m distance will encompass the bottom disturbance from cable installation and allow for the width of barges or other work vessels that would be performing the cable installation.
- No physical sampling or staging of equipment will occur on existing aquaculture leases. In the event that a sample transect were to intersect an aquaculture lease that transect would be shifted to the first available area beyond the lease or eliminated. The survey team will coordinate with MFA staff to ensure the lease areas are avoided.

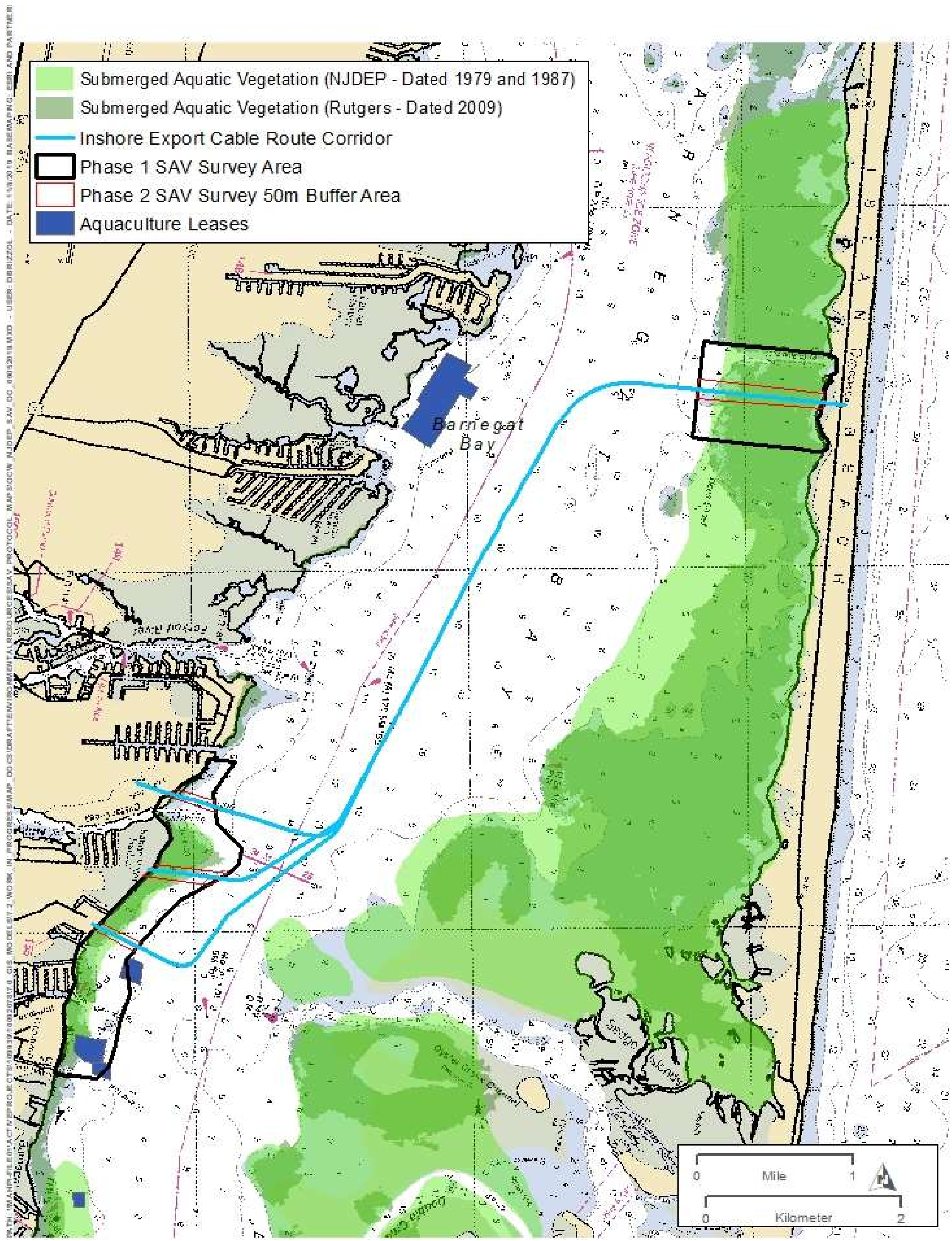

Figure 1. Barnegat Bay SAV Survey Limits

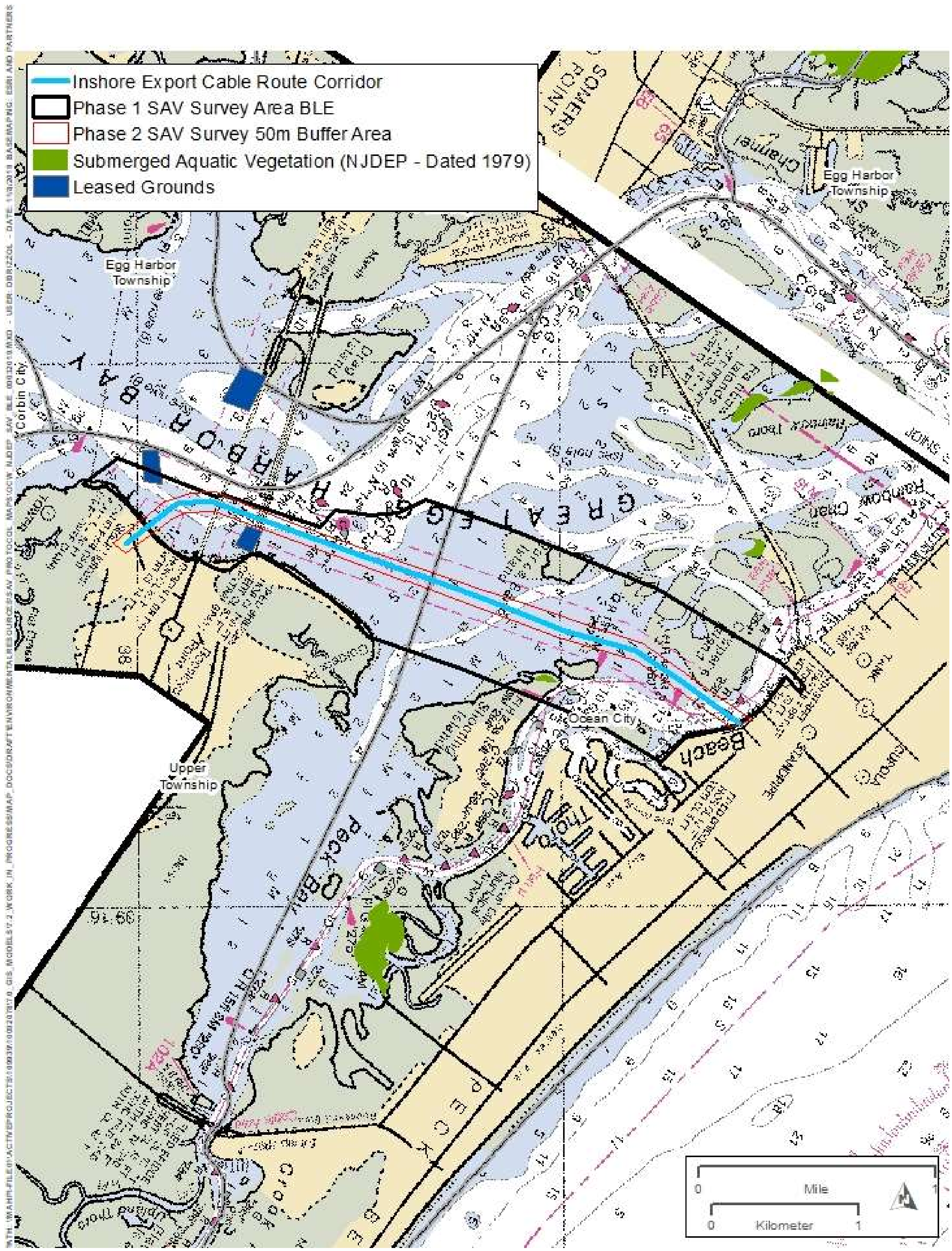

Figure 2. Great Egg Harbor SAV Survey Limits

SAV Survey Phase 1:

HDR will delineate SAV beds from aerial photography of shallow areas (<6 ft water depth) within an approximately 500m buffer of the proposed inshore export cable route and will extend sufficient distance from the shoreline to capture areas where SAV had been previously identified by the NJDEP and Rutgers studies. If weather conditions are suitable (calm winds, no precipitation, high visibility), a drone equipped with a camera will be used to support this survey. If weather conditions are not suitable for drone survey, aerial photography will be conducted using a plane will take place. Both drone and plane aerial surveys will yield high resolution, ortho-rectified imagery (direct overhead/plan view photography). Surveys will be conducted at low tide to facilitate viewing to the maximum depth possible. GPS coordinates will be taken along the SAV bed's perimeter, recording both the position and approximate water depth of each location. SAV beds will be surveyed as one continuous bed where applicable (details of density for "patchy" beds will be documented in phase 2).

SAV Survey Phase 2:

Phase 2 surveys will be conducted within the Phase 1 survey areas to "ground-truth" the extents of the SAV beds and obtain representative information on SAV species and density. The survey is anticipated to be completed in May 2020, when water clarity conditions are optimal. The goal of the Phase 2 survey is to gather more detailed information about the SAV beds identified in Phase 1 using a 0.5 square meter quadrat that is broken into 8 25cm x 25cm grid cells, along transect lines.

Phase 2 survey will begin with initial reconnaissance of the survey area from boat to confirm presence/absence of SAV using bathyscope/viewing bucket from the surface. The survey will be conducted on a sunny day, during a falling tide, when winds are calm to facilitate optimal viewing capabilities. Following initial reconnaissance, underwater photography will be utilized to document the SAV within each 0.5 square meter quadrat. This more detailed survey will be confined to the 50m area on either side of the proposed cable route that overlaps with areas of SAV identified in Phase 1 survey.

Transect lines will be established in SAV beds identified in Phase 1. Transect lines will be spaced approximately 30 meters apart and run perpendicular to the cable route . Start and end points of each transect line will be recorded using a GPS unit. Quadrat samples will be collected every 10 meters along each transect. Upon processing photographs, the following data will be recorded:

1. Date and time for each sampling transect.
2. Water depth at each sampling point (quadrat).
3. Water quality data (temperature, pH, salinity, dissolved oxygen, turbidity) will be collected at each sampling point.
4. General sediment type characterized by visual observation (e.g., silt, mud, sand, shell) will be collected at each sample point. Sediment samples will be collected for grain size analysis by sieving, at a frequency that is representative of the sediments within the survey area. A

minimum of 5 sediment samples will be collected per survey area. Results will be reported according to the Wentworth (1922) grain size scale.

5. Estimated percent cover and density of SAV, per species, within a 0.5-m^2 quadrat divided into 825cm x 25cm grid cells.
6. Shoot length of 1-3 randomly chosen SAV blades within the quadrat, per species. Blades will be estimated in place relative to reference markers on the quadrat. If it is not possible to estimate blade length in place, samples will be collected manually or using an appropriate tool, details regarding why a particular tool was chosen and a repeatable procedure will be provided in the report.
7. Estimated epiphyte percent coverage (0-100%) for each species. Surveyors will record qualitative vegetative density as they survey SAV beds on the following scale:
    a. Spare (1-10% cover);
    b. Low (11-25% cover);
    c. Moderate (26-50% cover), and
    d. High (>50% cover).
8. Notable biological observations (e.g., shellfish or algal beds, crabs or lobsters, and fish fauna).

Reporting

A SAV Survey Report will be prepared to summarize the findings of the field survey. The report will include the following:

- Description of the areas surveyed, results of desktop map review and summary of the habitat observed;
- Description of the survey methodology used to complete the field survey;
- Description and summary of areas of SAV identified in Phase 1 and Phase 2 surveys, including;
    - Date and time surveys were conducted.
    - Water depth at substrate for the shallowest and deepest edges of beds
    - General sediment type (e.g., silt, mud, sand, shell, etc.) and results of grain size analysis from sediment samples. Estimate of the percent cover of SAV and density within each 0.5-m^2 quadrat (for each species) and the mean for all quadrats across the entire area surveyed [e.g., barren, sparse (1-10% cover), low (11-25%), moderate (26-50%), high (> 50%, and shoots/blades per unit area.].
    - Shoot length measurement summary
    - Notable biological observations (e.g., shellfish or algal beds, crabs or lobsters, and fish fauna).
- Figures:
    - Figures showing the aerial photography of the Phase 1 survey areas, and areas of SAV that were identified.
    - Figures showing the Phase 2 transect lines and quadrat sample points and will include, depth, general sediment type, percent cover/density, estimated blade length, epiphyte coverage, and notable biological observations
- Tables summarizing the area of SAV within each of the survey areas.

Schedule:

Anticipated Project schedule and milestones are outlined in Table 1 below.

Table 1. Project Milestones

Item	Due Date
Survey plan approval by agencies	September 2019
Phase 1 Survey	September – October 2019
Phase 2 Survey	October2020
Data processing and analysis	October 2020
Draft Report	November 2020
Final Report	December 2020

Anticipated Project Staff and Qualifications:

The roster of anticipated project staff, their roles, and qualifications will be provided prior to performing survey and reporting activities.

References:

Colarusso, P. and Verkade, A. 2016. *Submerged Aquatic Vegetation Survey Guidance for the New England Region*. Joint Federal Agency Publication including NOAA, EPA, and USACE.

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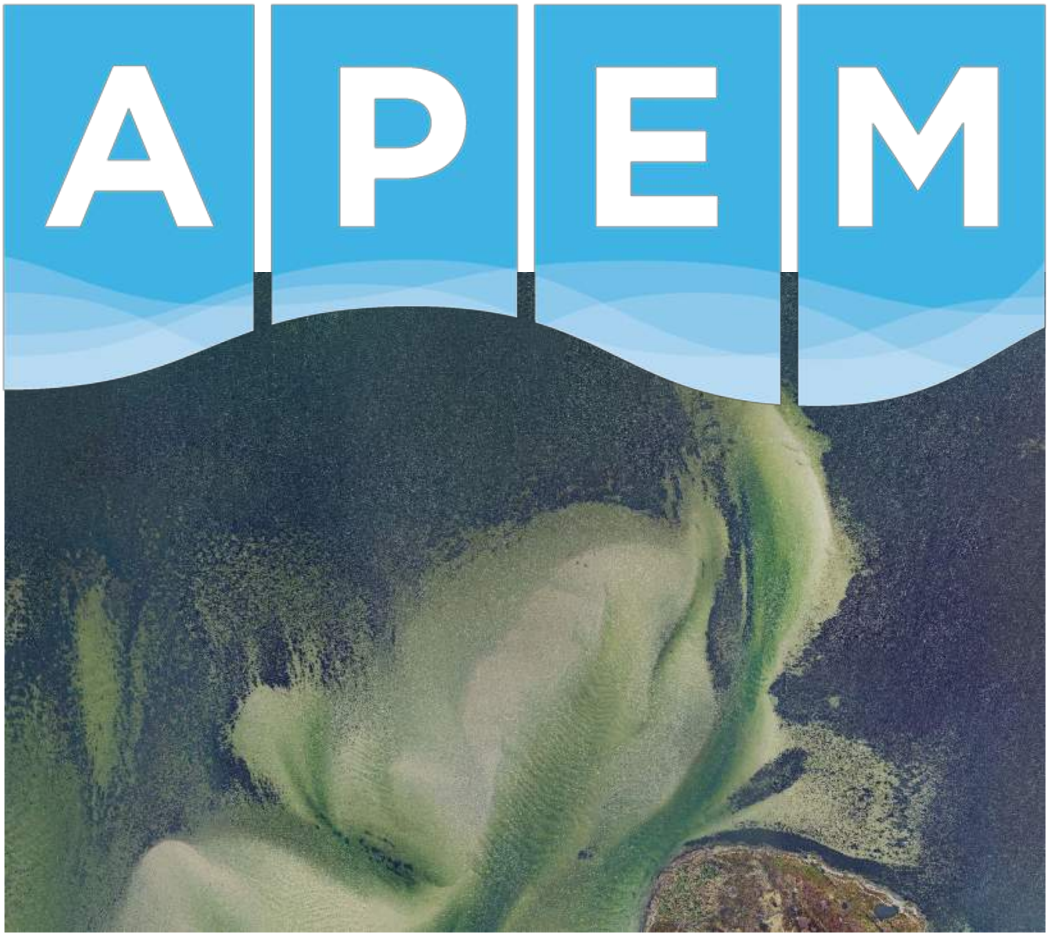
Appendix B. APEM New Jersey Submerged Aquatic Vegetation Aerial Survey



New Jersey Submerged Aquatic Vegetation Aerial Survey

HDR Engineering, Inc

APEM Ref: P00004340

December 2019

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Client: **HDR Engineering, Inc.**

Address: **500 7th Avenue**

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Project reference: **P00004340**

Date of issue: **December 2019**

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Revision and Amendment Register

Version Number	Date	Section(s)	Page(s)	Summary of Changes	Approved by
1.0	11/29/19	All	All	Created	DC
1.2	12/10/19	All	All	Client amendments made	DC

Contents

List of Figures

1. Introduction

1.1 Project Background

APEM were commissioned by HDR Engineering, Inc (hereby referred to as HDR) to undertake an aerial survey of two coastal areas in New Jersey. The aim of the survey was to capture high-resolution aerial photography in order to map submerged aquatic vegetation (SAV) in the two areas.

1.2 Survey Locations

The project involved surveying two locations, one in Barnegat Bay, Ocean County and the other in Great Egg Harbor, Cape May County. An overview of the two locations is shown in Figure 1.

Figure 1. Location of the two sites surveyed in New Jersey. Yellow denotes the Barnegat Bay site and red the Great Egg Harbor site.

The Barnegat Bay site measured 28 square miles in area and is shown in more detail in Figure 2.

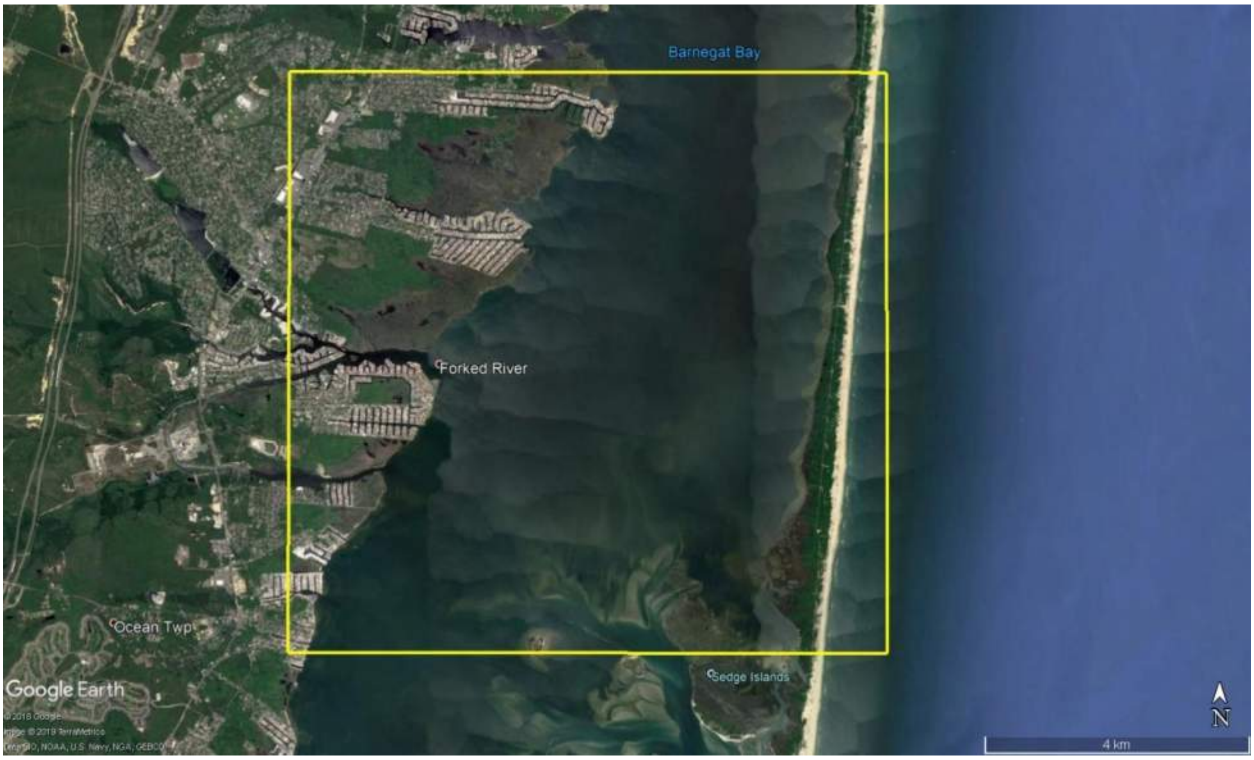

Figure 2. The Barnegat Bay survey area, outlined in yellow.

The Great Egg Harbor site measured approximately 13 square miles in area and is shown in more detail in Figure 3.

Figure 3. The Great Egg Harbor survey area, outlined in red.

2. Surveys and Data Processing

2.1 Aerial Survey

The aerial survey took place on October 7th 2019. The survey was carried out in a fixed wing aircraft using APEM's bespoke Shearwater III camera system surveying at an altitude of approximately 3,650ft above sea level. This allowed us to capture high-resolution imagery at a resolution of 4 cm ground sample distance (GSD). For Barnegat Bay, a total of 10,864 images were captured across 15 flight lines. For Great Egg Harbor a total of 7,299 images were captured across 10 flight lines. The survey was targeted to be complete within 1.5 hours either side of low tide, as this would allow for maximum intertidal exposure and help facilitate the mapping process.

Once the survey was complete, the data were downloaded and backed-up following APEM's stringent data management protocols.

2.2 Data Processing

The GPS data recorded on-board during the aerial survey were processed to produce location data for each aerial photograph's camera release point. These data were fed into photogrammetric processing software along with the imagery to produce georeferenced orthomosaics.

Over land, this photogrammetry process is able to create a seamless mosaic of the area. Over sea, however, it is often more problematic to generate the same type of seamless output due to the nature of the imagery (i.e. sun glint, changing wave patterns between adjacent imagery etc.). As such, a combination of automated processing and manual geo-referencing of images were required in order to achieve the required mosaic. This allowed a mosaic to be generated for all areas where the sea bottom could be seen within the imagery. For areas of deeper water where the sea bottom cannot be seen (typically in areas less than 7ft below mean sea level) in any of the imagery due to lack of light penetration, it was not possible to either georeferenced the imagery or map SAV. However, SAV has been documented to be very patchy and rare at depths of greater than 2m in New Jersey (Good *et al.,* 1978, Kennish *et al*., 2008). Therefore, it is unlikely these areas would contain SAV.

Once the mosaic was finalised, APEM marine biologists digitized areas of SAV using Geographic Information Software (GIS). Seagrass was mapped according to the following categories:

- Sparse cover; 10-40%
- Moderate cover; 40-80% cover
- Dense cover; 80-100% cover

The delineation of these categories was based on the data from the study by Lathrop *et al.* (2006), which mapped seagrass cover in the Barnegat Bay-Little Egg Harbor-Great Bay study area using these categories.

3. Results

The coverage maps for both survey areas are shown in Figures 4 and 5 below.

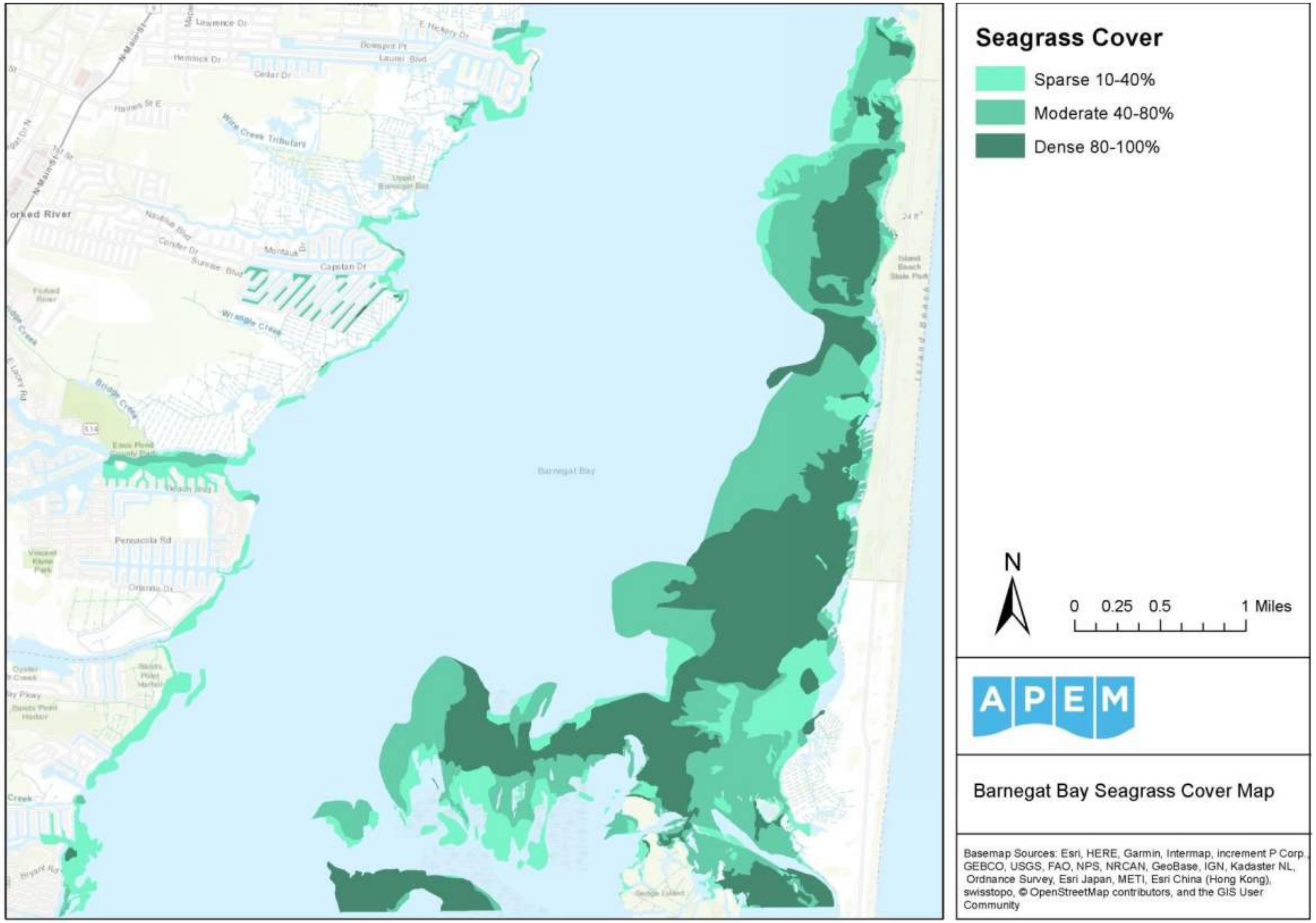

Figure 4 Seagrass coverage map of the Barnegat Bay survey area

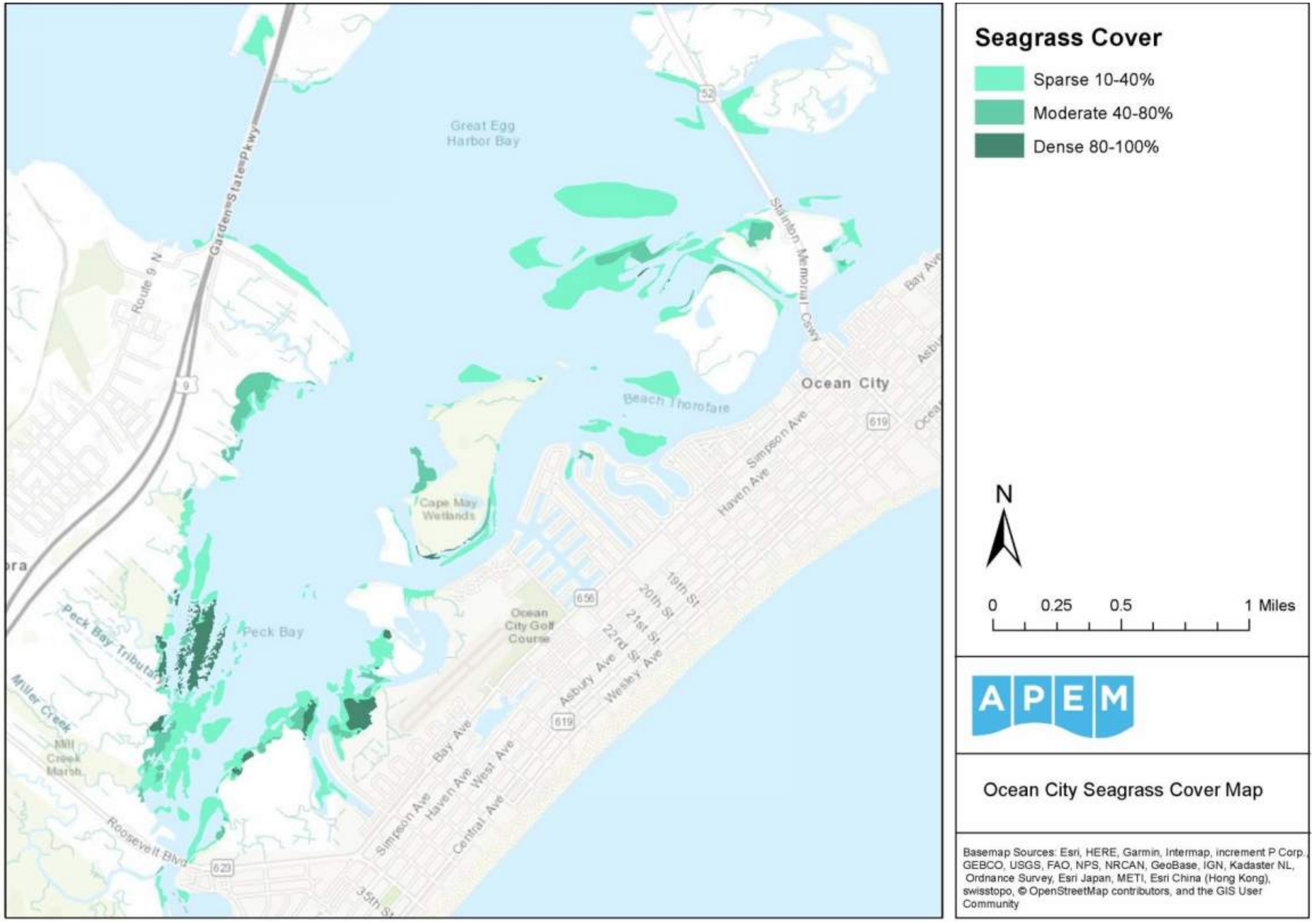

Figure 5 Seagrass coverage map of the Great Egg Harbor survey area

4. References

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Appendix C. Survey Photography

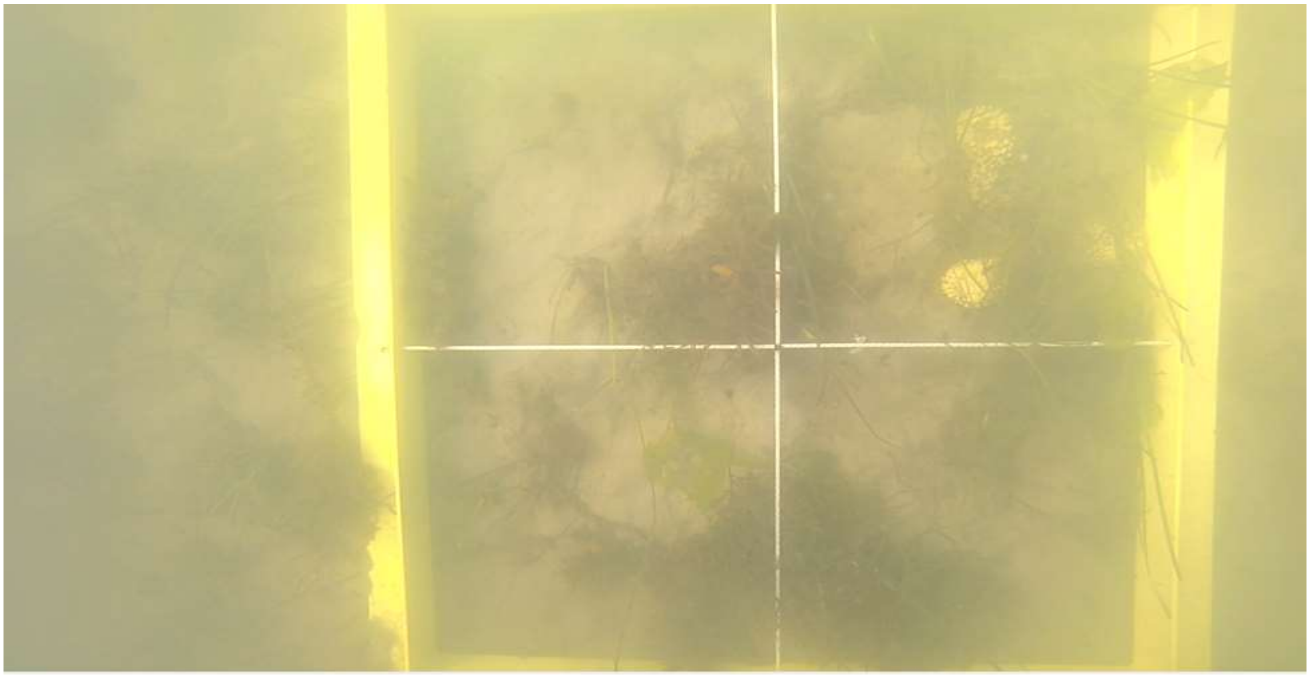


Photo 1: Bay Parkway Landing Station 507 with sponge, red, and green algae present.

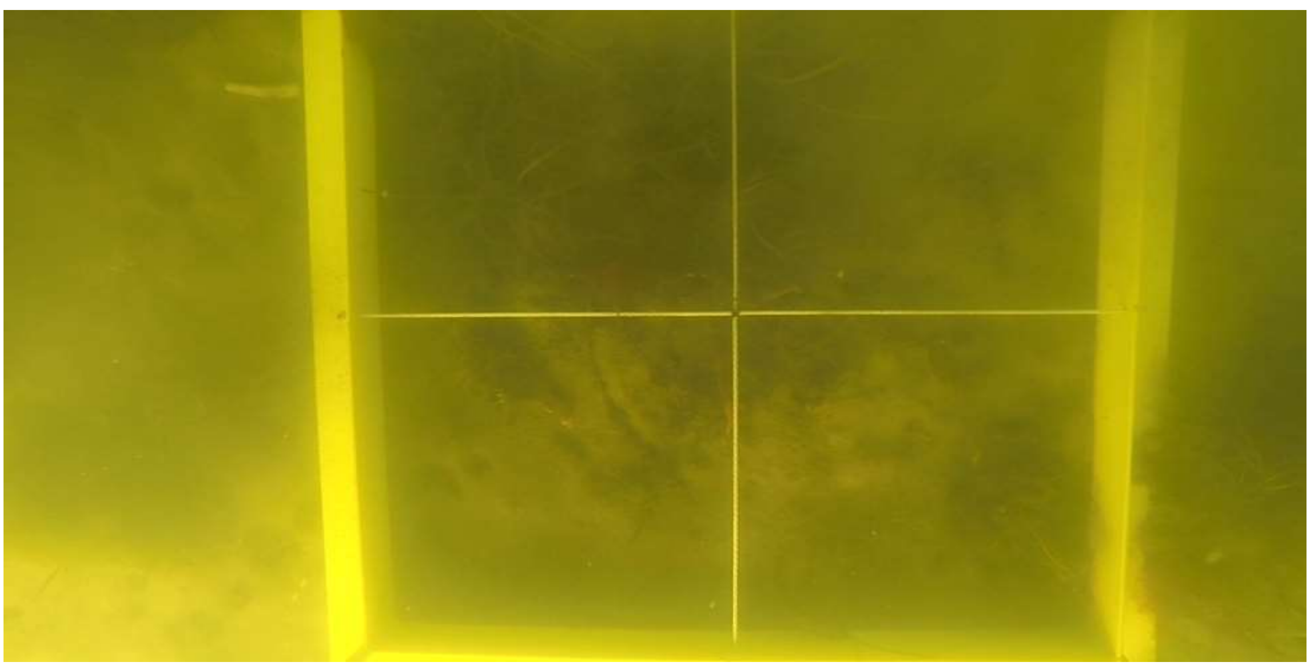


Photo 2: Bay Parkway Landing Station 521 with razor clam present.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01)** **Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	**1 and 2**
		REVIEWED BY:	DJY	
		JOB NO:	10092078	

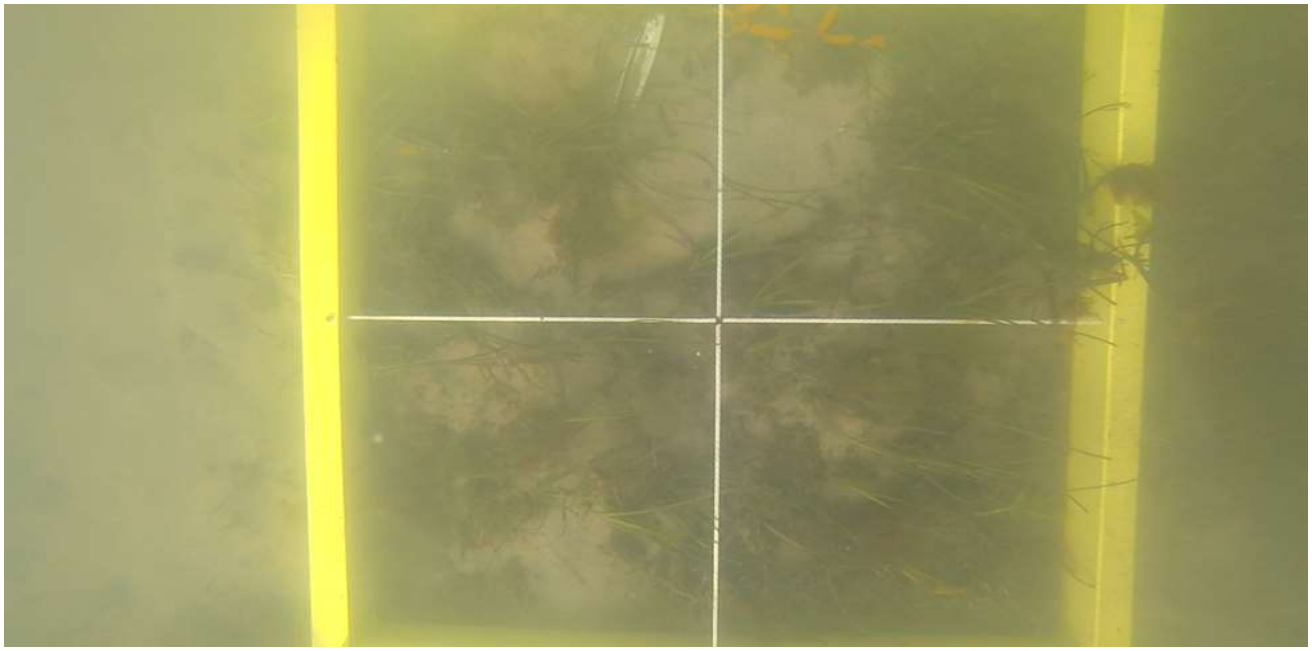


Photo 3: Bay Parkway Landing Station 560 with sponge, razor clam, and algae present.

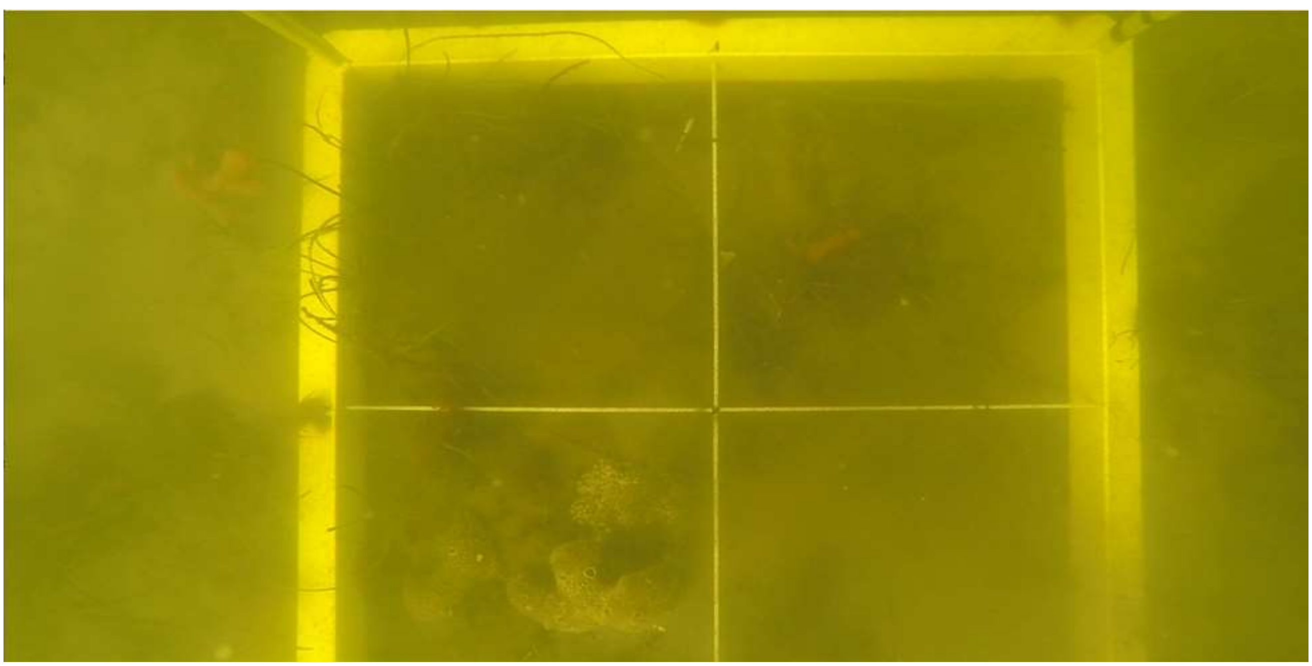


Photo 4: Bay Parkway Landing Station 535 with large sponge present.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01)** **Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	**3 and 4**
		REVIEWED BY:	DJY	
		JOB NO:	10092078	

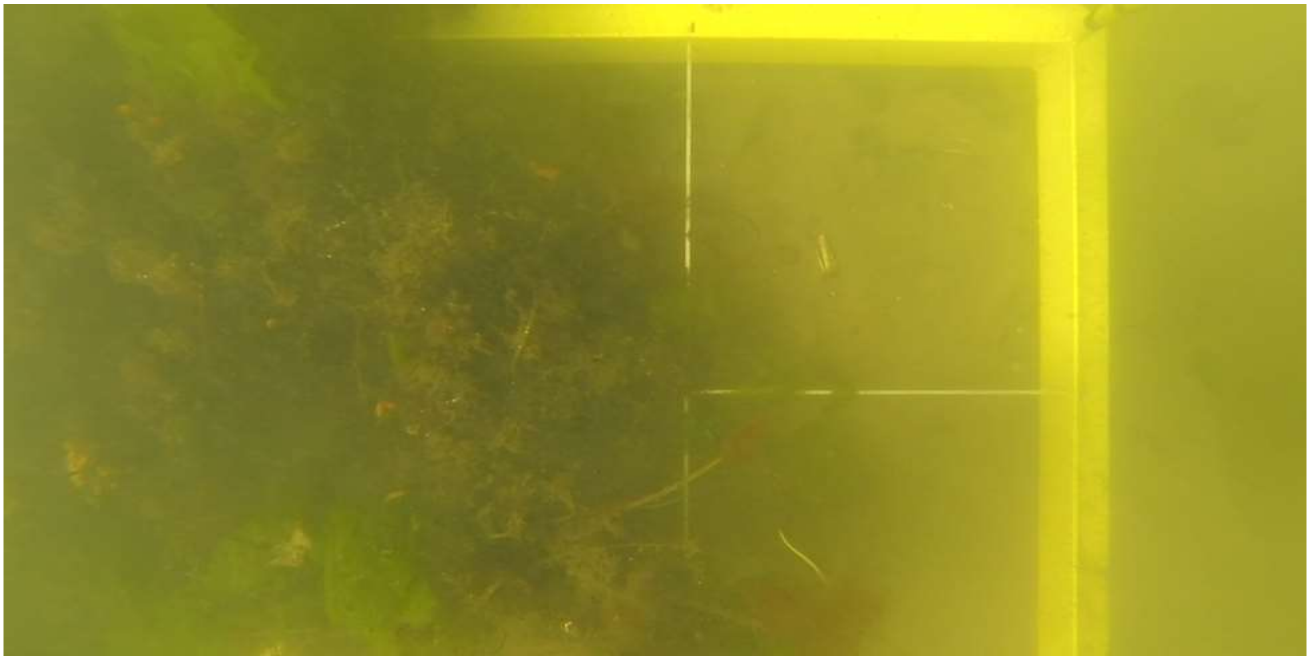


Photo 5: Bay Parkway Landing Station 557 with large algae growth and shell fragments present. Spare SAV growth.

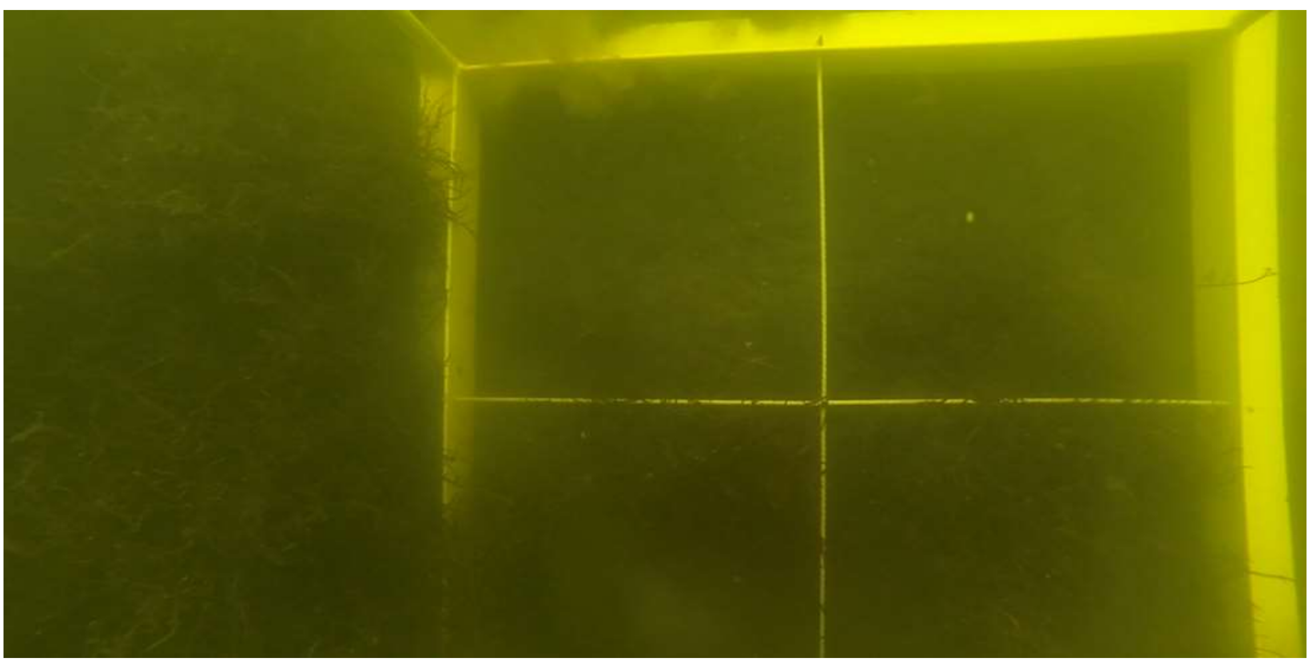


Photo 6: Holtec Property Station 638 with dense algae stand present.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01)** **Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	**5 and 6**
		REVIEWED BY:	DJY	
		JOB NO:	10092078	

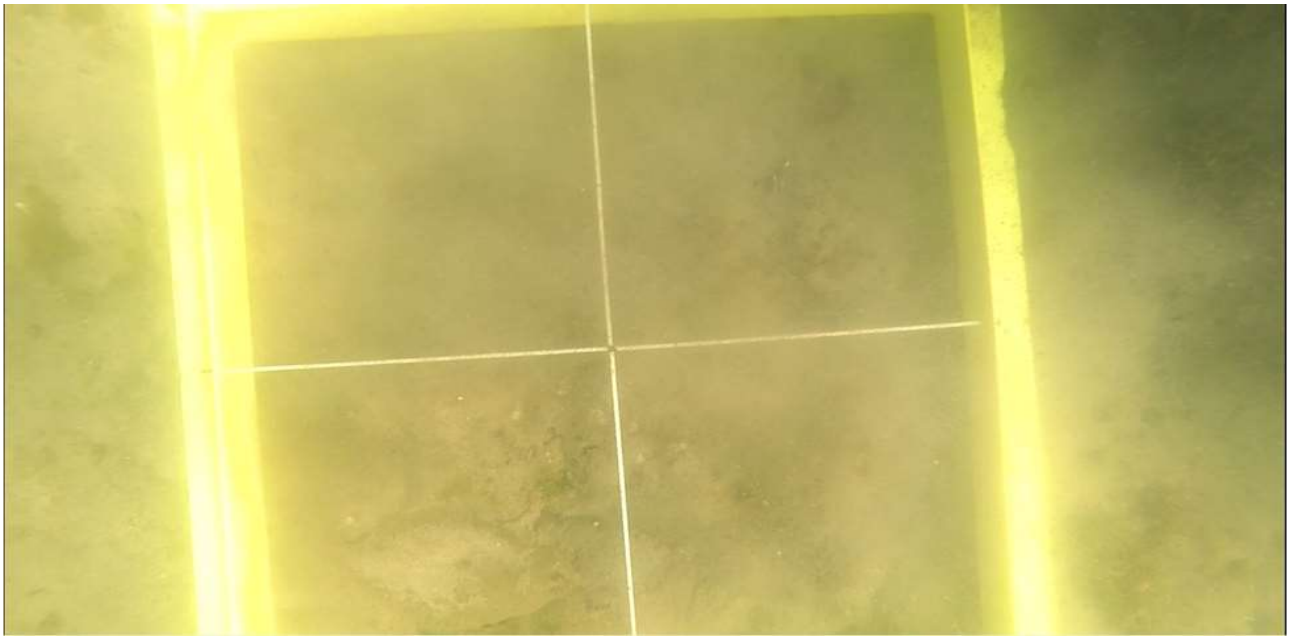


Photo 7: Lighthouse Drive Landing Station 715 with sandy bottom and juvenile summer flounder present.

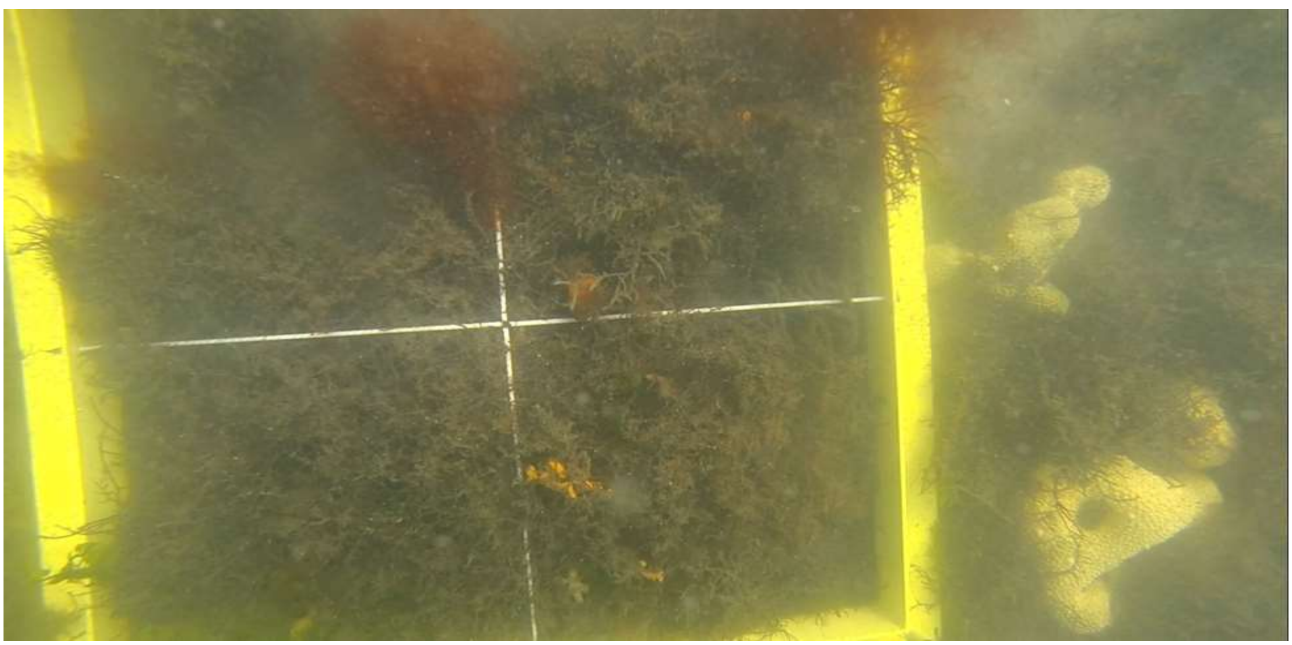


Photo 8: Lighthouse Drive Landing Station 724 with dense algae and large sponge present.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01)** **Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	**7 and 8**
		REVIEWED BY:	DJY	
		JOB NO:	10092078	

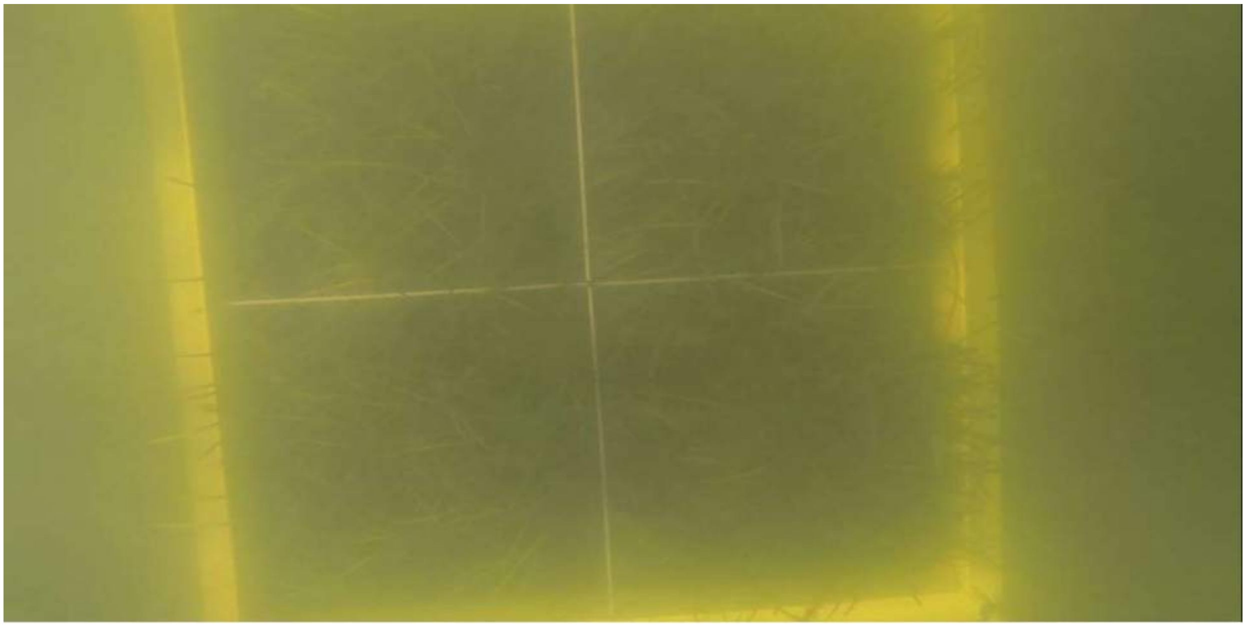


Photo 9: IBSP Landing Station 384 with thick patch of SAV present.

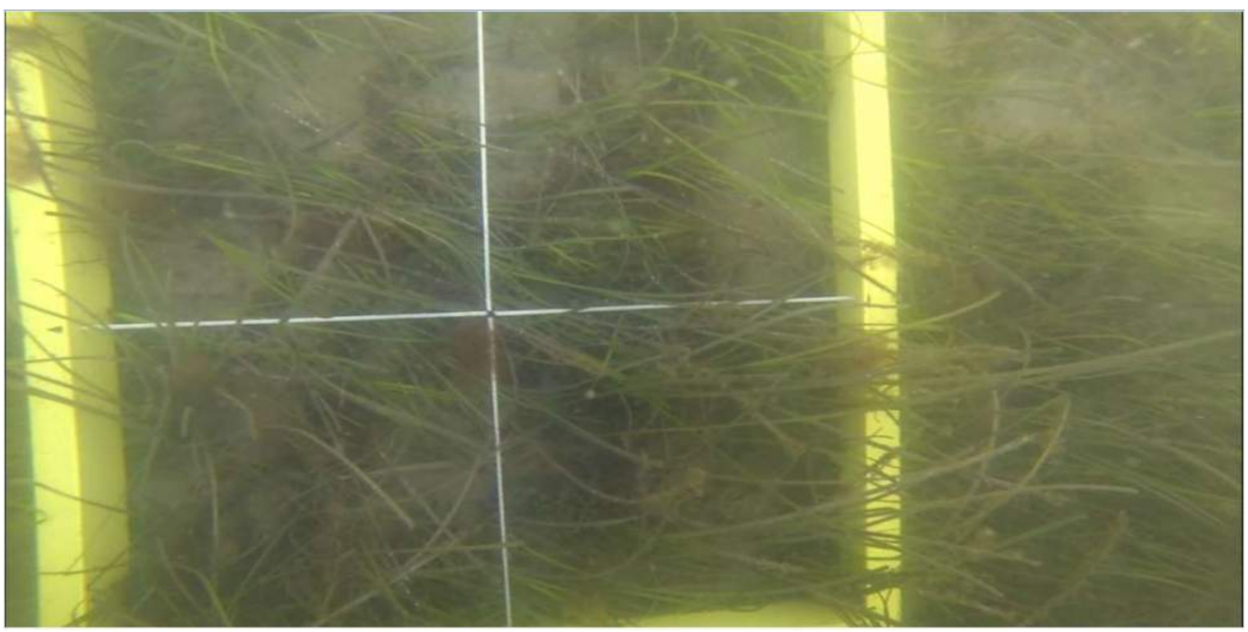


Photo 10: Lighthouse Drive Landing Station 757 with long stands of numerous SAV present.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01)** **Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	
		REVIEWED BY:	DJY	**9 and 10**
		JOB NO:	10092078	

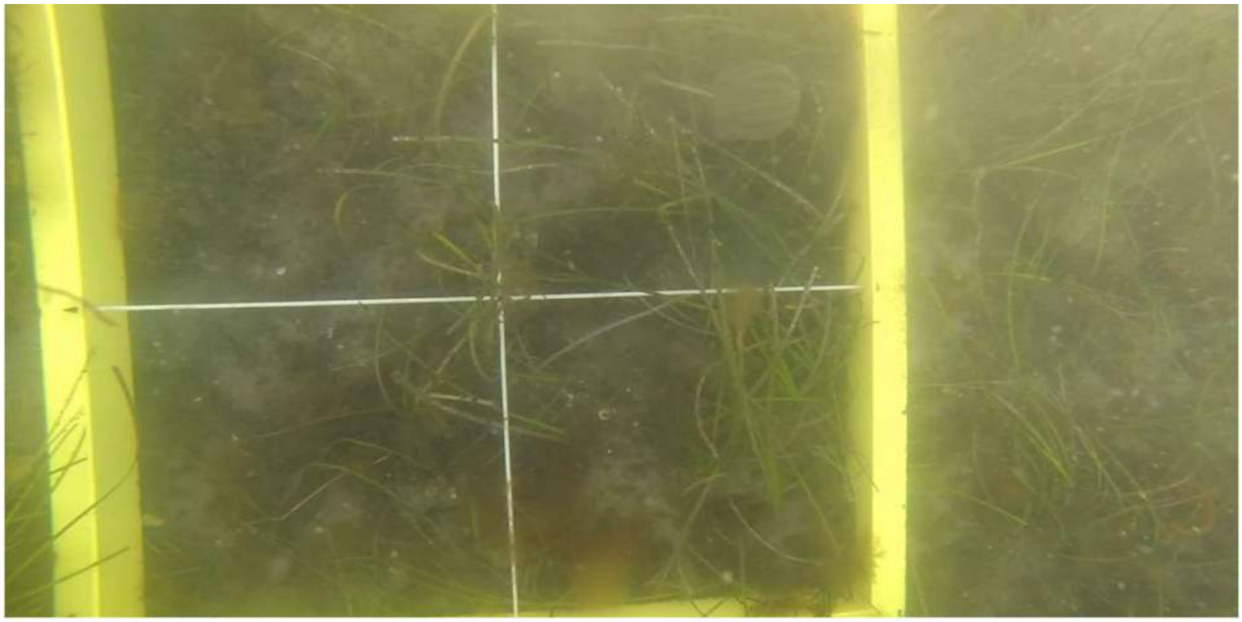


Photo 11: Lighthouse Drive Landing Station 753 with ctenophore, algae, and SAV present.

Photo 12: Photo of crab species brought up with Station 519 quadrant from Bay Parkway Landing.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01)** **Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	**11 and 12**
		REVIEWED BY:	DJY	
		JOB NO:	10092078	

Photo 13: Photo facing southwest at patchy SAV distribution at Lighthouse Drive Landing.

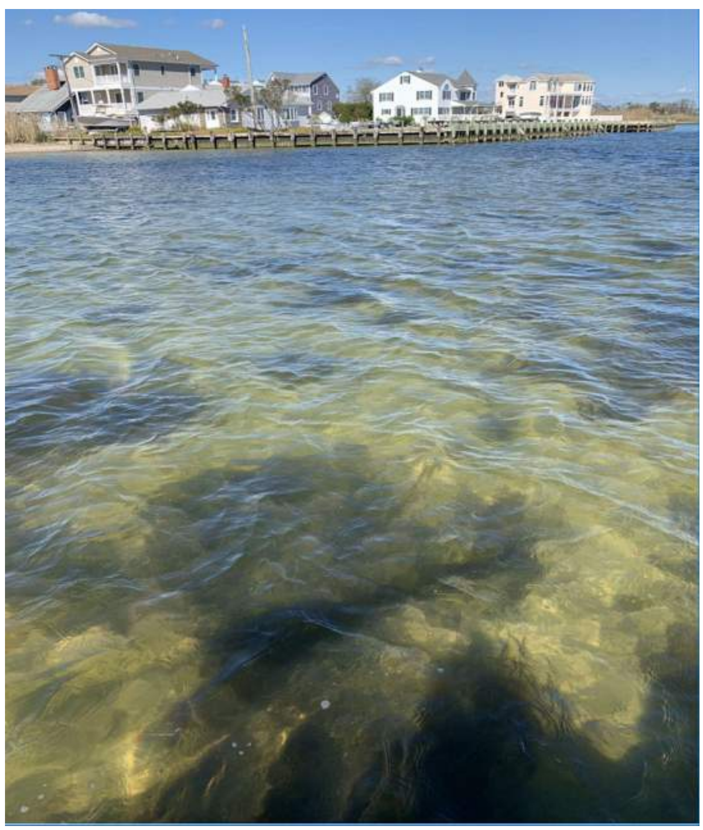


Photo 14: Photo facing northwest at patchy SAV distribution at Lighthouse Drive Landing.

Photo 15: Photo showing Bay Parkway Landing shoreline, SAV rake, and camera frame in the water.

Photo 16: Photo facing west at Holtec Property Landing shoreline.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01) Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	**15 and 16**
		REVIEWED BY:	DJY	
		JOB NO:	10092078	

Photo 17: Photo showing SAV blades and seahorse at Bay Parkway Landing Station 528.

Photo 18: Photo showing sediment sample collected at IBSP Landing Station 391.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01)** **Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	**17 and 18**
		REVIEWED BY:	DJY	
		JOB NO:	10092078	

Photo 19: Photo showing sediment sample collected at Bay Parkway Landing Station 475.

Photo 20: Photo showing sediment sample collected at Bay Parkway Landing Station 541.

Submerged Aquatic Vegetation Survey	**Ocean Wind Offshore Wind (OCW01)** **Oyster Creek SAV Survey Photographs**	DATE:	01/22/21	**PHOTO**
		CREATED BY:	JRC	**19 and 20**
		REVIEWED BY:	DJY	
		JOB NO:	10092078	

Photo 21: Photo showing sediment sample collected at Holtec Property Landing Station 636.

Photo 22: Photo showing sediment sample collected at Holtec Property Landing Station 678.

Photo 23: Photo showing sediment sample collected at Lighthouse Drive Landing Station 746.

Photo 24: Photo showing sediment sample collected at Lighthouse Drive Landing Station 760.

Appendix D. Notable Biological Observations

Notable Biological Observations

While on the survey vessel at multiple locations, schools of baitfish, including Atlantic silversides (*Menidia menidia*) and juvenile Atlantic menhaden (*Brevoortia tyrannus*), were observed being chased by predatory fish assumed to be striped bass (*Morone saxatilis*) and bluefish (*Pomatomus saltatrix*).

During the review of camera drops, ctenophores were observed floating over several quadrats. Several sponge species were observed directly adjacent to the quadrat frame. The shells of Atlantic jackknife clams (*Ensis leei*) and biogenic mounds were observed in multiple quadrats. One small summer flounder (*Paralichthys dentatus*) was observed within one of the Lighthouse Drive Landing quadrats. Survey photography and notable biological observations are provided in Appendix B.

Appendix E. Sediment Sampling Results

TerraSense, LLC
Geotesting Laboratory

10/28/2020
TerraSense Project Number: 7736-20079

Subresults
Hampton-Clarke, Inc.
175 US Hwy 46 West
Fairfield, NJ 07004

Dear Subresults:

Re: Laboratory Test Results for 0101203 AD19744

The purpose of this letter is to present the results of the laboratory tests performed on the samples delivered to the TerraSense laboratory on 10/13/20. Testing was performed based on the assignment dated 10/13/20 by TR.

Test Results

Test results are reported on the accompanying test pages.

Test Comments

Testing was performed in general accordance to the ASTM or other methods as listed on the test pages. Deviations from the test standards are noted on these pages.

Limitations

Our professional services for this project have been performed in accordance with generally accepted engineering practices; no other warranty, expressed or implied, is made.

Sample Disposition

If we do not receive other instructions from you within thirty days, this material will be disposed of.

If you have any questions concerning the test results reported in this letter, please call us.

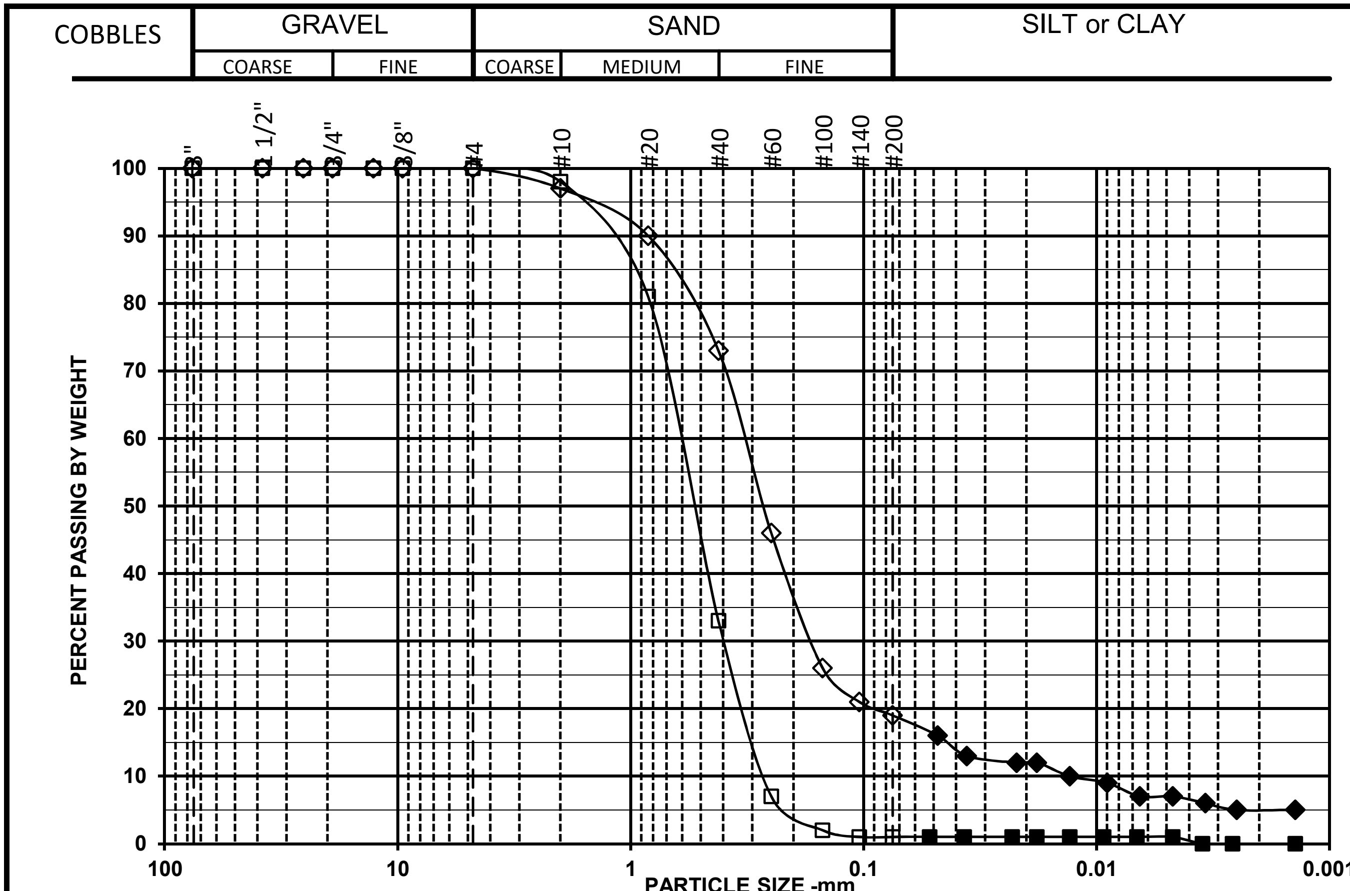
Sincerely,
TerraSense, LLC.
Rosella Thomas
Rosella Thomas
Managing Member

Enclosure:

Hampton Clarke #0101203
AD19744
LABORATORY TESTING DATA SUMMARY

GROUP ID	SAMPLE NO.	CLIENT ID	TEST DATE	IDENTIFICATION TESTS				REMARKS
				WATER CONTENT (%)	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	HYDROMETER % MINUS 2 μm (%)	
AD19744	001	636	10/13/2020		SP	1	0	
AD19744	002	678	10/13/2020		SM	19	5	
AD19744	003	475	10/13/2020		SP	2	0	
AD19744	004	541	10/13/2020		SM	23	8	
AD19744	005	760	10/13/2020		SM	13	5	
AD19744	006	746	10/13/2020		SP	4	2	
AD19744	007	391	10/13/2020		SP	1	1	

Note: (1) USCS symbol based on visual observation and Sieve reported.



Open Symbols: Sieve analysis by ASTM D6913
Filled symbols: Hydrometer analysis by ASTM D7928 corrected for complete sample

Symbol	□	◇	○
Group#	AD19744	AD19744	
ID	001	002	
Client ID	636	678	
% +3"	0	0	
% Gravel	0	0	
% SAND	99	81	
%C SAND	2	3	
%M SAND	65	24	
%F SAND	32	54	
% FINES	1	19	
D_{100} (mm)	9.53	4.75	
D_{60} (mm)	0.62	0.326	
D_{30} (mm)	0.39	0.17	
D_{10} (mm)	0.26	0.013	
Cc	0.9	6.8	
Cu	2.4	25.1	

Sieve Size/ID #	Percent Finer Data		
6"	100	100	
4"	100	100	
3"	100	100	
1 1/2"	100	100	
1"	100	100	
3/4"	100	100	
1/2"	100	100	
3/8"	100	100	
#4	100	100	
#10	98	97	
#20	81	90	
#40	33	73	
#60	7	46	
#100	2	26	
#140	1	21	
#200	1	19	
5μ m	1	7	
2μ m	0	5	
1μ m	0	5	

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□					SP		Grayish brown, Poorly graded sand organic mat'l noted	10/13/20
◇					SM		Grayish brown, Silty sand organic mat'l noted	10/13/20
○								

Hampton Clarke #0101203

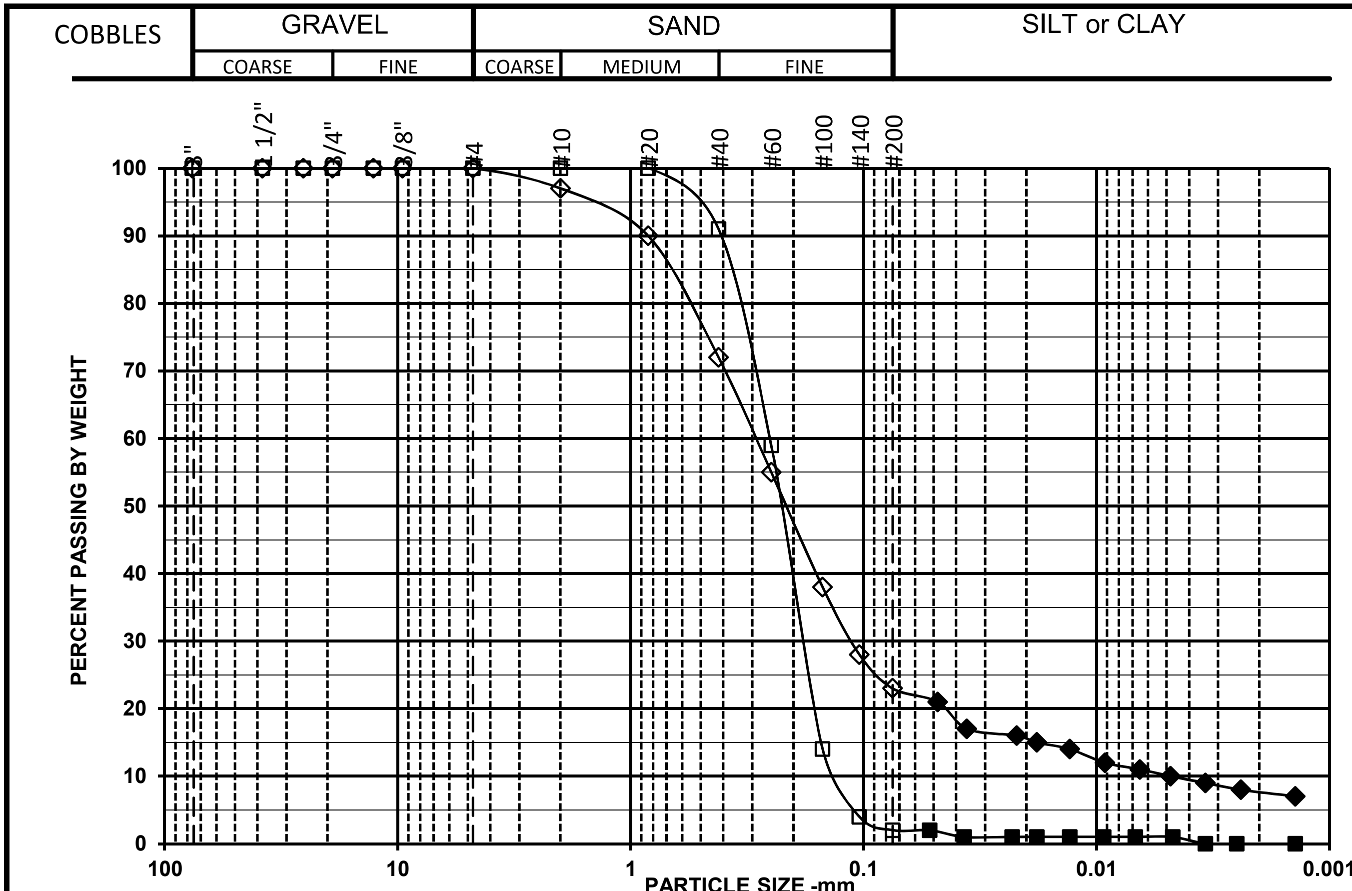
TerraSense, LLC #7736-20079

AD19744

PARTICLE SIZE DISTRIBUTION
ASTM D6913 & ASTM D7928

TerraSense Analysis File: GrainSizeV6Rev1a7 (09/20)

Siev1a.xlsx 10/27/2020



Open Symbols: Sieve analysis by ASTM D6913
Filled symbols: Hydrometer analysis by ASTM D7928 corrected for complete sample

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□					SP		Grayish brown, Poorly graded sand organic mat'l noted	10/13/20
◇					SM		Grayish brown, Silty sand organic mat'l noted	10/13/20
○								

Symbol	□	◇	○
Group#	AD19744	AD19744	
ID	003	004	
Client ID	475	541	
% +3"	0	0	
% Gravel	0	0	
% SAND	98	77	
%C SAND	0	3	
%M SAND	9	25	
%F SAND	89	49	
% FINES	2	23	
D_{100} (mm)	9.53	4.75	
D_{60} (mm)	0.253	0.29	
D_{30} (mm)	0.18	0.11	
D_{10} (mm)	0.13	0.005	
Cc	1	8.7	
Cu	1.9	60.4	

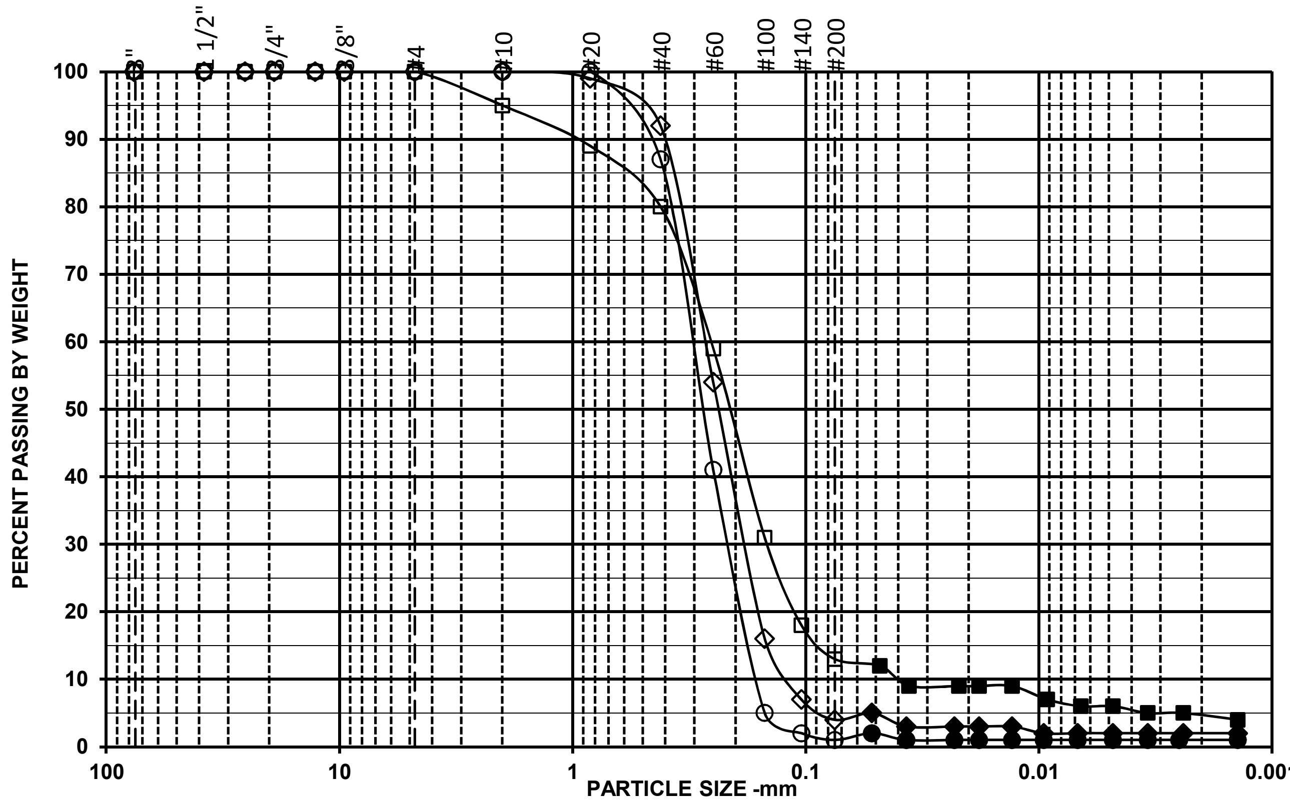
Sieve Size/ID #	Percent Finer Data		
6"	100	100	
4"	100	100	
3"	100	100	
1 1/2"	100	100	
1"	100	100	
3/4"	100	100	
1/2"	100	100	
3/8"	100	100	
#4	100	100	
#10	100	97	
#20	100	90	
#40	91	72	
#60	59	55	
#100	14	38	
#140	4	28	
#200	2	23	
5µ m	1	10	
2µ m	0	8	
1µ m	0	6	

Hampton Clarke #0101203

TerraSense, LLC #7736-20079

AD19744

PARTICLE SIZE DISTRIBUTION
ASTM D6913 & ASTM D7928



Open Symbols: Sieve analysis by ASTM D6913
Filled symbols: Hydrometer analysis by ASTM D7928 corrected for complete sample

Symbol	□	◇	○
Group#	AD19744	AD19744	AD19744
ID	005	006	007
Client ID	760	746	391
% +3"	0	0	0
% Gravel	0	0	0
% SAND	87	96	99
%C SAND	5	0	0
%M SAND	15	8	13
%F SAND	67	88	86
% FINES	13	4	1
D_{100} (mm)	4.75	9.53	9.53
D_{60} (mm)	0.255	0.27	0.309
D_{30} (mm)	0.15	0.18	0.21
D_{10} (mm)	0.04	0.12	0.16
Cc	2.2	1	0.9
Cu	6.4	2.3	1.9

Sieve Size/ID #	Percent Finer Data		
6"	100	100	100
4"	100	100	100
3"	100	100	100
1 1/2"	100	100	100
1"	100	100	100
3/4"	100	100	100
1/2"	100	100	100
3/8"	100	100	100
#4	100	100	100
#10	95	100	100
#20	89	99	100
#40	80	92	87
#60	59	54	41
#100	31	16	5
#140	18	7	2
#200	13	4	1
5μ m	6	2	1
2μ m	5	2	1
1μ m	3	2	1

SYMBOL	w (%)	LL	PL	PI	USCS	AASHTO	USCS DESCRIPTION AND REMARKS	DATE
□					SM		Grayish brown, Silty sand organic mat'l noted	10/13/20
◇					SP		Grayish brown, Poorly graded sand shell fragments & organic mat'l noted	10/13/20
○					SP		Grayish brown, Poorly graded sand shell fragments & organic mat'l noted	10/13/20

Hampton Clarke #0101203

#7736-20079

AD19744

PARTICLE SIZE DISTRIBUTION
ASTM D6913 & ASTM D7928

TerraSense, LLC
TerraSense Analysis File: GrainSizeV6Rev1a7 (09/20)

Siev1c.xlsx 10/27/2020

CHAIN OF CUSTODY RECORD

Hampton-Clarke, Inc.
175 US Hwy 46 West
Fairfield, New Jersey, 07004
Ph:800-426-9992 Fax:973-439-1458

7736-20079

Report To:
Hampton-Clarke, Inc.:
Attn:Reporting
175 Route 46 West
Fairfield, New Jersey 07004

Invoice To:
Hampton-Clarke, Inc.:
Attn:Accounting
175 Route 46 West
Fairfield, New Jersey 07004

Project #: 0101203

CocID#: 6931

FINAL RESULTS TO: subresults@hcvlab.com
PRELIM/VERBAL RESULTS TO: subresults@hcvlab.com

EDD: NEW JERSEY HAZRESULT OR EQUIS EZEDD REQUIRED FOR ALL DATA SUBMITTALS!

Turn Around Time: Standard **Preliminary Due Date:** 10/27/2020
Report Type: NJDEP-R (REDUCED) **Hard Copy Due Date:** 11/4/2020

Sample Number:	Client ID	Matrix:	Date Collected:	Time Collected:	Analysis Requested
AD19744-001	636	Soil	10/8/2020	10:20:00 AM	Grain Size with Hydrometer(ASTM D6913&D7928)
AD19744-002	678	Soil	10/8/2020	10:30:00 AM	Grain Size with Hydrometer(ASTM D6913&D7928)
AD19744-003	475	Soil	10/8/2020	10:48:00 AM	Grain Size with Hydrometer(ASTM D6913&D7928)
AD19744-004	541	Soil	10/8/2020	10:57:00 AM	Grain Size with Hydrometer(ASTM D6913&D7928)
AD19744-005	760	Soil	10/8/2020	1:58:00 PM	Grain Size with Hydrometer(ASTM D6913&D7928)
AD19744-006	746	Soil	10/8/2020	2:17:00 PM	Grain Size with Hydrometer(ASTM D6913&D7928)
AD19744-007	391	Soil	10/9/2020	8:21:00 AM	Grain Size with Hydrometer(ASTM D6913&D7928)

Relinquished By:	Accepted By:	Date:	Time:	Comments, Notes, Special Requirements, HAZARDS
[illegible]	G. Thomas	10/13/20	15:02	GT 10/13/2020

Cooler Temp:__________

HC Lab Use Only: Subcontracted Lab Id and Contact: TERRASENSE, Greg Thomas, (973) 256-0494, LabID: H, 45H Commerce Way, , Totowa, NJ, 07512

Ocean Wind
An Ørsted & PSEG project

SAV Survey Addendum (Island Beach State Park Prior Channel Route Option)

Ocean Wind
An Ørsted & PSEG project

Island Beach State Park Prior Channel Route Option SAV Survey - Addendum to OCW COP, Appendix E, SAV Survey

Objectives

On October 22, 2021 a field survey was performed in Barnegat Bay (**Figures 1** and **2)** to assess the presence or absence of Submerged Aquatic Vegetation (SAV), general sediment characteristics, and water depth in the prior channel that extends west from the Island Beach State Park Maintenance Area.

Methods

To investigate the presence and absence of SAV in the area of the prior channel, an underwater camera mounted above a 0.25 m^2 steel quadrat frame was deployed at 27 stations in this area. A brief video was collected at each station; initial review was conducted in the field and a more detailed review of video was conducted on a computer. These stations were distributed across the shallow flats adjacent to the channel, the channel edge (transition from flats to channel), and the center portion of the channel. A long-handled rake was also used at each station to collect SAV (if present) at each station. SAV was also opportunistically collected from the edge of the camera frame; during retrieval the edge of the camera frame can dig into the sediment and collect SAV or macroalgae. In locations that were too shallow to deploy the camera frame, the rake was used to collect SAV (if present). A GPS point was collected at each point using the ArcGIS Field Maps Application and the internal antenna of an iPhone 10XR; a typical horizontal accuracy of 14-16 ft was achieved prior to collection. Where applicable, a photo was collected and tagged to each point and uploaded into the ESRI Field Maps Application. Each point was classified as flat, channel, or channel edge. At 4 locations a sample of benthic sediments was collected using a petite ponar. The sediments were visually inspected for texture and photographed.

To investigate the anomalous feature in the Holtec Farm landfall area the feature was visually inspected from the boat's surface, manually probed in several areas with the long handle of the SAV rake, and inspected with an underwater camera mounted to the handle of the rake as the survey boat drifted over the feature.

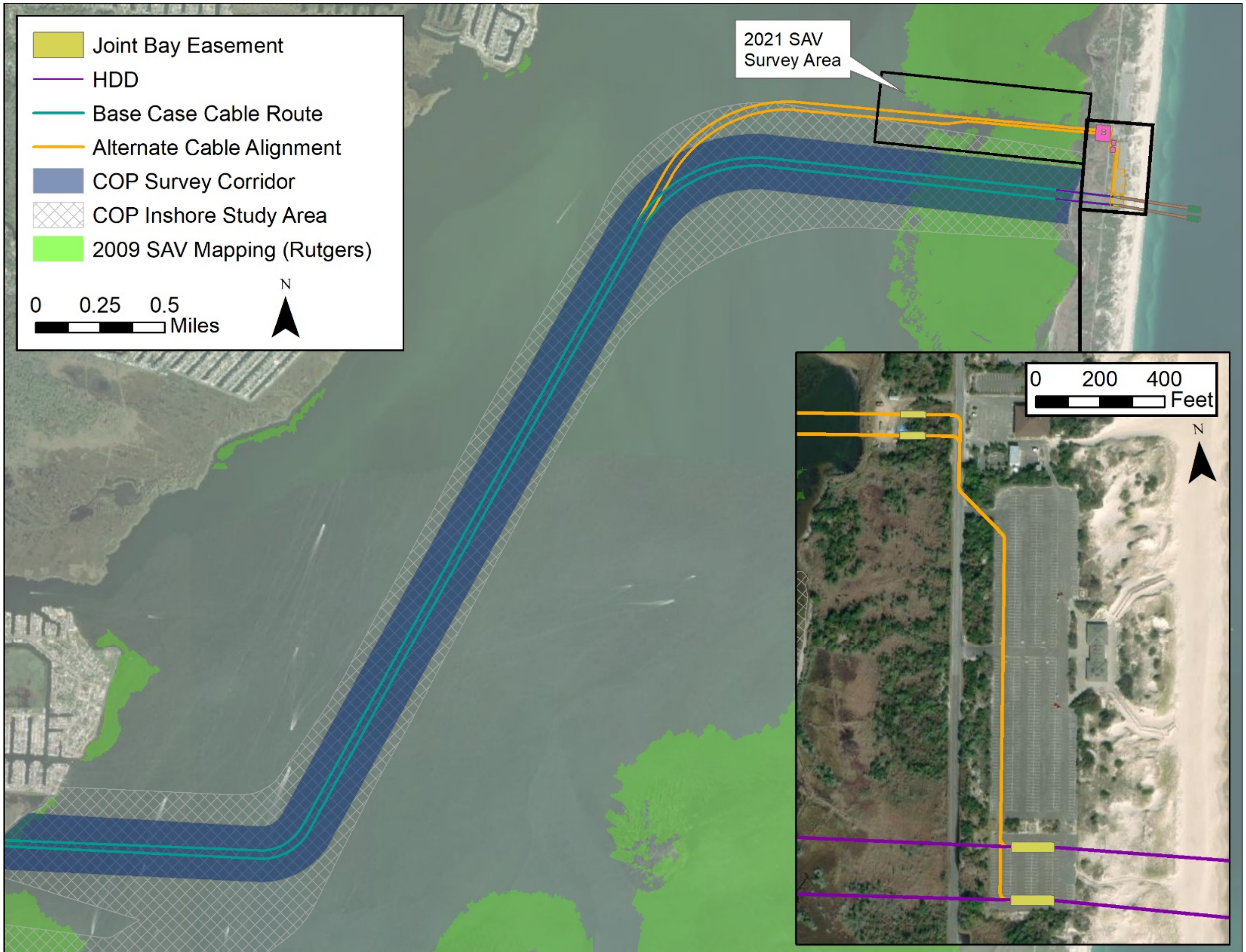
Results

The presence or absence of SAV at each sample point is provided in Table 1. SAV was present at 13 of 33 sample stations; all of these stations were on the adjacent flats or on the channel edge. Of the 21 samples collected in the channel, SAV was absent in 20, with one station inconclusive due to soft sediments in the channel causing turbid conditions as the metal quadrat frame hit the sea floor at that station. Both widgeon grass (*Ruppia maritima)* and eel grass (*Zostera marina)* were documented. The Point IDs in **Table 1** below correspond to the point labels in **Figure 2**. Representative photos of SAV presence or absence are provided in **Figures 3** through **21**.

Table 1. Presence or absence of SAV at each sample point.

Point ID	Gear	Location	SAV Present	Species	Latitude	Longitude
1	Rake	Nearshore Flat	Yes	Eelgrass	39.85269	-74.08982
2	Rake	Nearshore Flat	Yes	Widgeongrass	39.85244	-74.08977
3	Camera	Nearshore Channel	No		39.85228	-74.08955
4	Camera	Nearshore Channel	Yes	Accumulated Dead Eelgrass	39.85207	-74.08983
5	Rake	Nearshore Flat	Yes	Widgeongrass	39.85165	-74.09003

Point ID	Gear	Location	SAV Present	Species	Latitude	Longitude
6	Rake	Nearshore Flat	Yes	Widgeongrass	39.85151	-74.09010
7	Camera	Nearshore Channel	No		39.85210	-74.09022
8	Camera	Nearshore Edge	Yes	Widgeongrass	39.85224	-74.09016
9	Rake	Nearshore Flat	Yes	Widgeongrass	39.85265	-74.09028
10	Camera	Channel Edge	Yes	Widgeongrass	39.85250	-74.09124
11	Camera	Channel	No		39.85236	-74.09153
12	Camera	Flat	Yes	Eelgrass	39.85195	-74.09133
13	Camera	Channel	Inconclusive	Eelgrass	39.85238	-74.09230
14	Camera	Channel Edge	Yes	Widgeongrass	39.85267	-74.09268
15	Camera	Channel	No		39.85250	-74.09327
16	Camera	Channel Edge	Yes	Eelgrass	39.85222	-74.09315
17	Camera	Channel Edge	No		39.85242	-74.09446
18	Camera	Channel	No		0.00000	0.00000
19	Camera	Channel	No		39.85257	-74.09455
20	Camera	Channel Edge	Yes	Widgeongrass	39.85286	-74.09563
21	Camera	Flat	Yes	Eelgrass	39.85218	-74.09618
22	Camera	Channel	No		39.85255	-74.09634
23	Camera	Channel	No		39.85270	-74.09654
24	Camera	Channel	No		39.85278	-74.09684
25	Camera	Channel	No		39.85260	-74.09520
26	Camera	Channel	No		39.85247	-74.09376
27	Camera	Channel	No		39.85237	-74.09284
28	Camera	Channel	No		39.85232	-74.09208
29	Camera	Channel	No		39.85226	-74.09134
30	Camera	Nearshore Channel	No		39.85213	-74.09055
31	Camera	Nearshore Channel	No		39.85207	-74.09036
32	Camera	Nearshore Channel	No	Accumulated Dead Eelgrass	39.85203	-74.08995
33	Camera	Nearshore Channel	No	Accumulated Dead Eelgrass	39.85201	-74.08948



Document Path: \\nj-mahwah\ActiveProjects\109939\10092078\7.0_GIS_Models\7.2_Work_In_Progress\Map_Docs\Draft\RFI_Requests\Kayak_Route_Overview_20211112_small.mxd

Figure 1. Project location map for the October 201 SAV survey in the prior channel that extends west from the Island Beach State Park Maintenance Area.

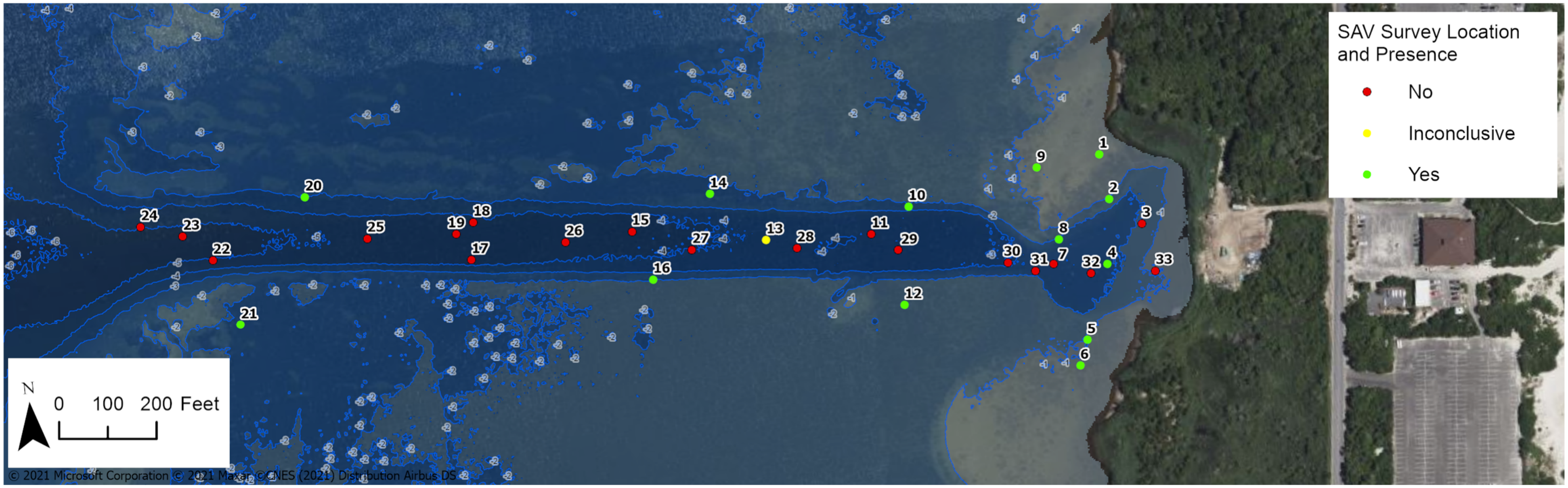


Figure 2. SAV presence and sample points collected in area of prior channel.

The sediments in the channel consisted of fine sands and dark muds with a sulfur odor. In the areas closer to shore a large quantity of organic material which was observed to be accumulated dead SAV and common reed (*Phragmites australis)* fragments. The sediments on the adjacent flats appeared to be fine sands.

Channel Water Depths

Depths on the flats adjacent to the bay were noticeably shallower than the channel and ranged from 1 to 3 feet. Within the channel itself, the eastern portions of the channel had depths ranging from 3 to 4 feet. Moving west, the channel deepened to a range of 5 to 7 feet. Depths were estimated via probing with a long-handled SAV rake.

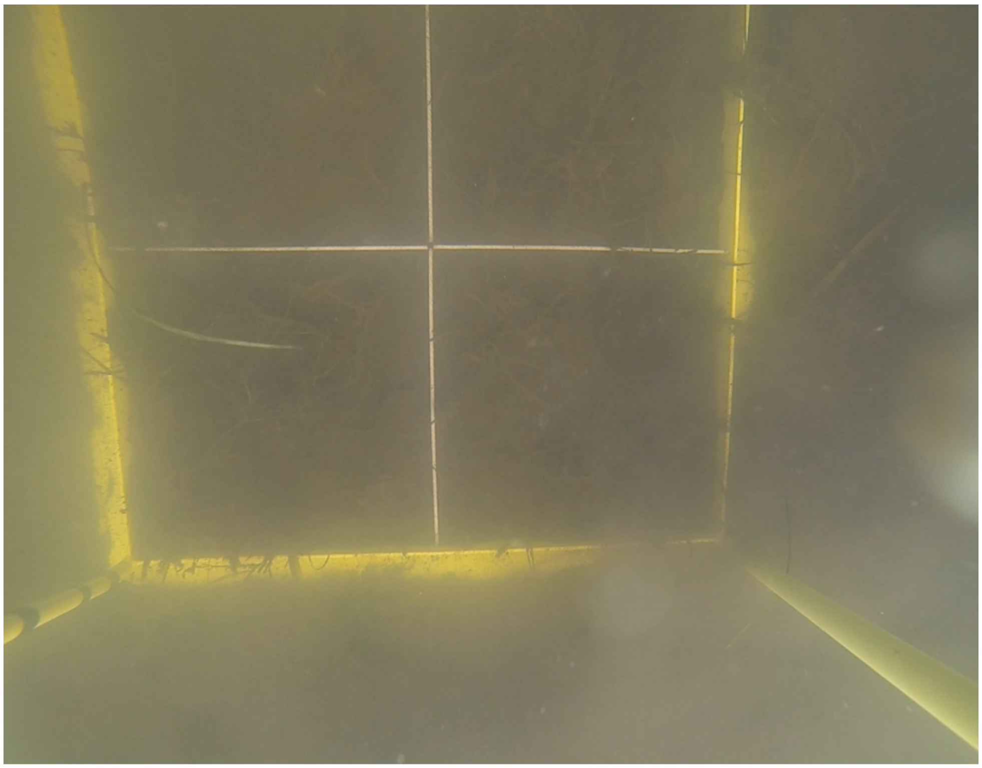


Figure 3. Dead grass and algae observed at Point ID 3 within the nearshore channel.

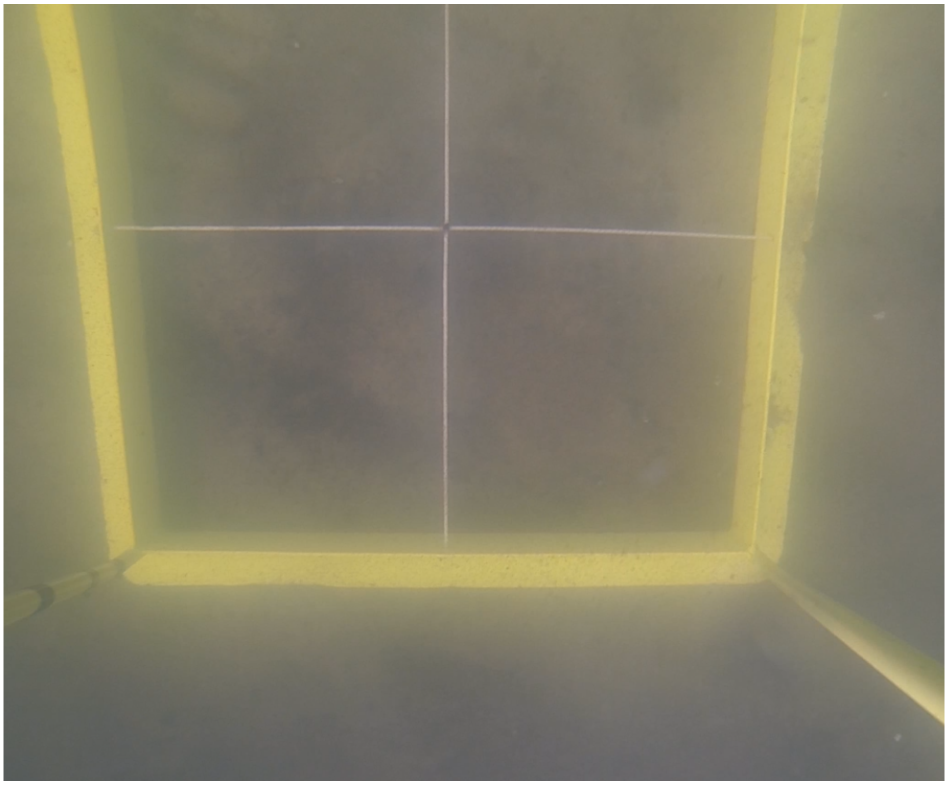


Figure 4. Bare patch of bottom at Point ID 7 within nearshore channel.

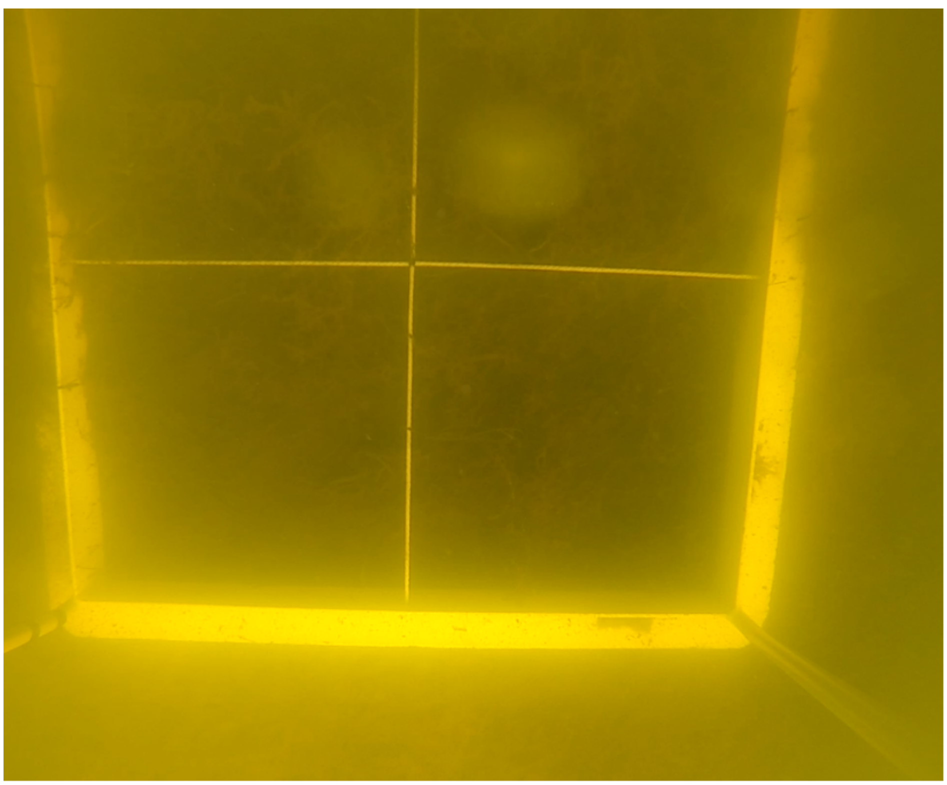


Figure 5. Widgeongrass at Point ID 10 along channel edge.

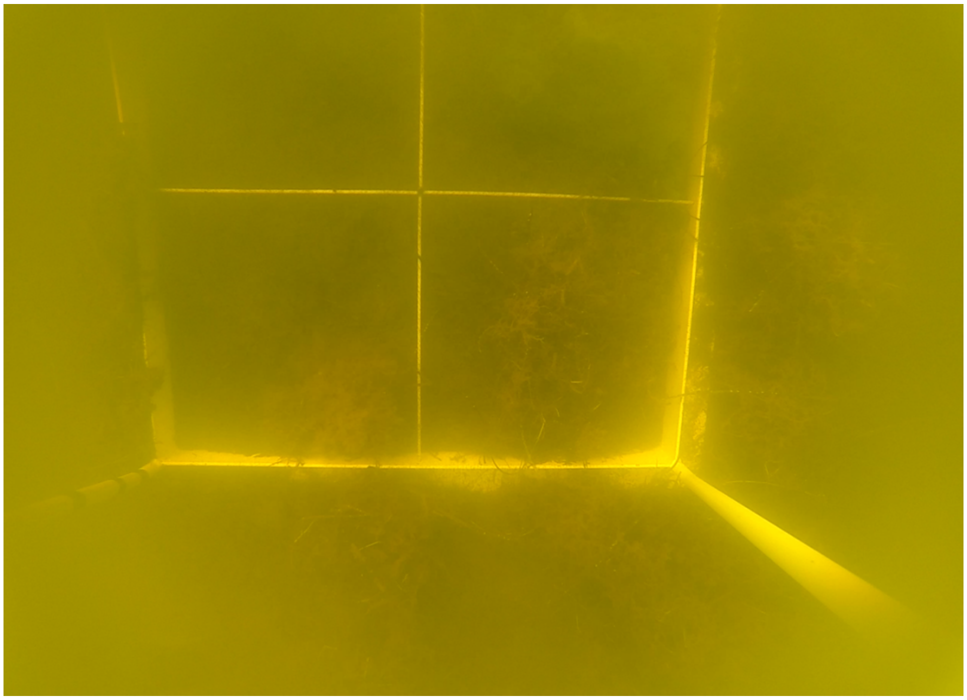


Figure 6. Eelgrass and algae present at Point ID 14 on channel edge.

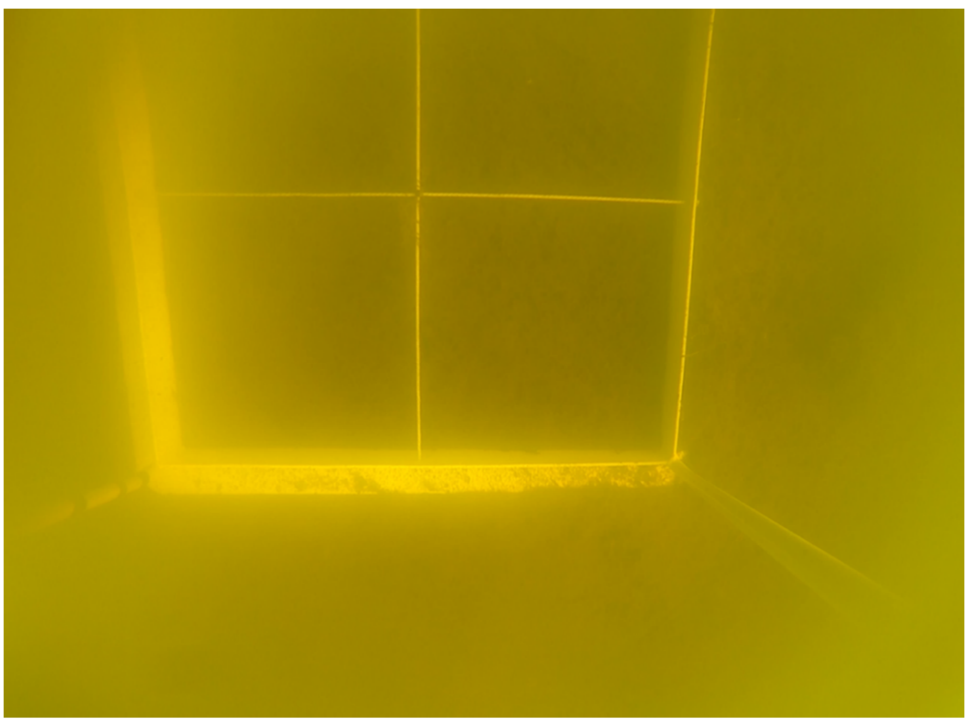


Figure 7. Bare patch of bottom at Point ID 15 within the channel.

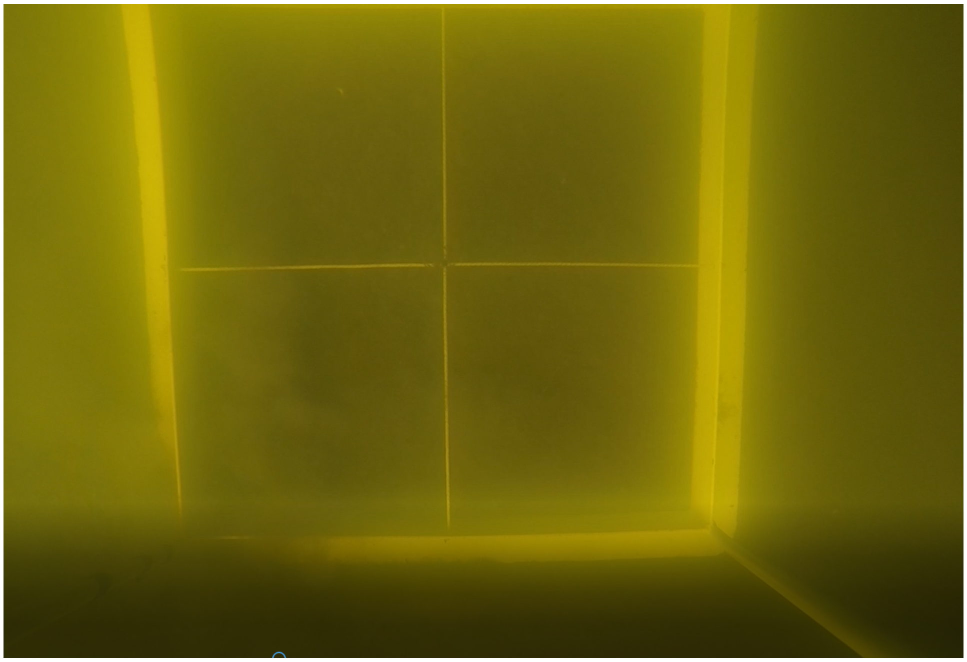


Figure 8. Bare patch of bottom Point ID 17 within the channel edge.

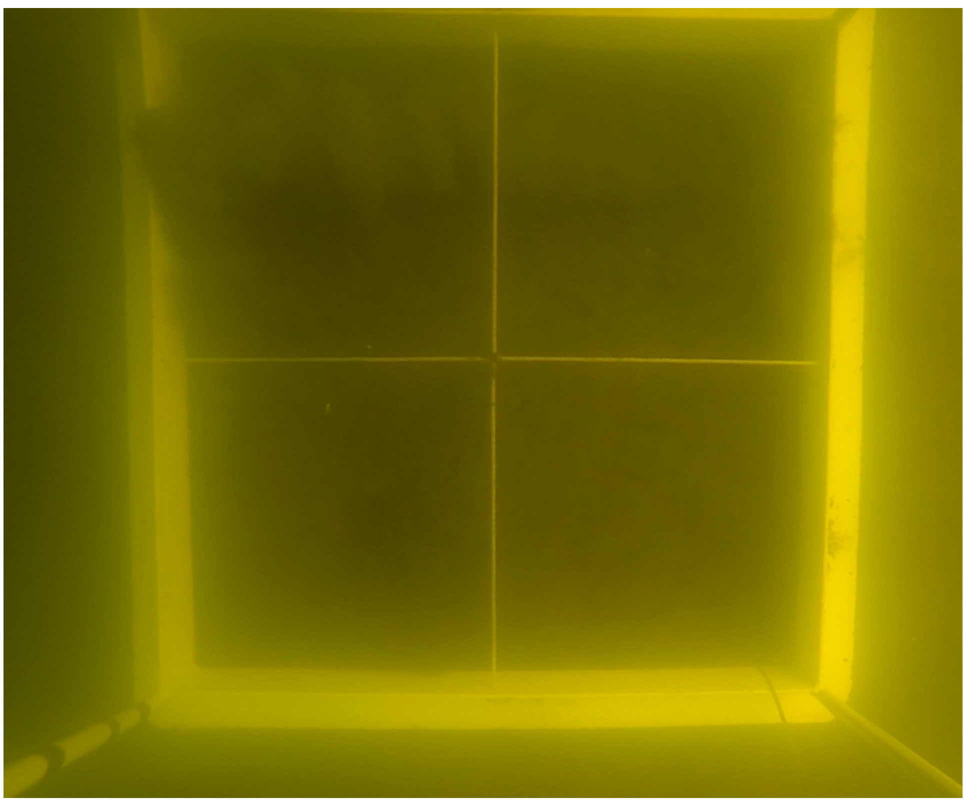


Figure 9. Bare patch of bottom Point ID 18 within the channel edge.

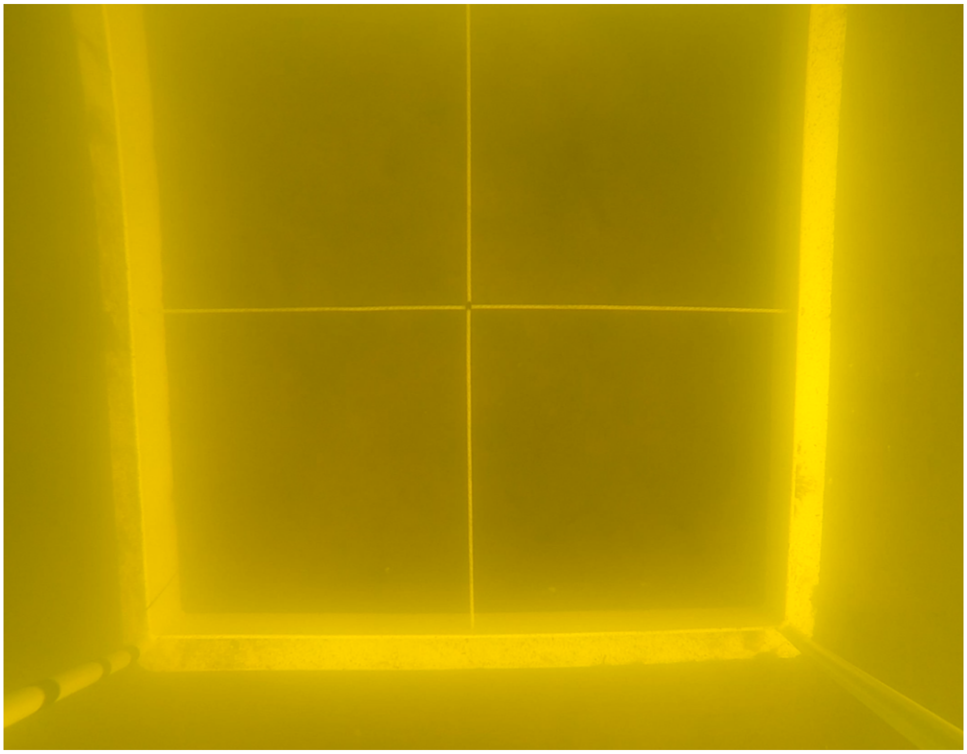


Figure 10. Bare patch of bottom Point ID 19 within the channel edge.

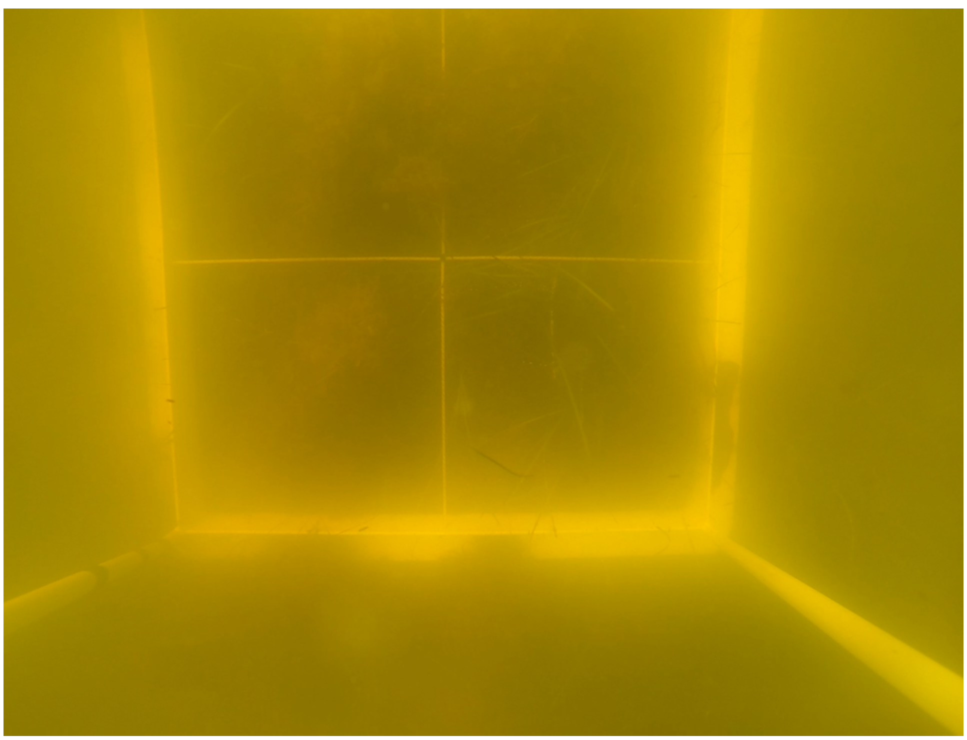


Figure 11. Widgeongrass along channel edge at Point ID 20.

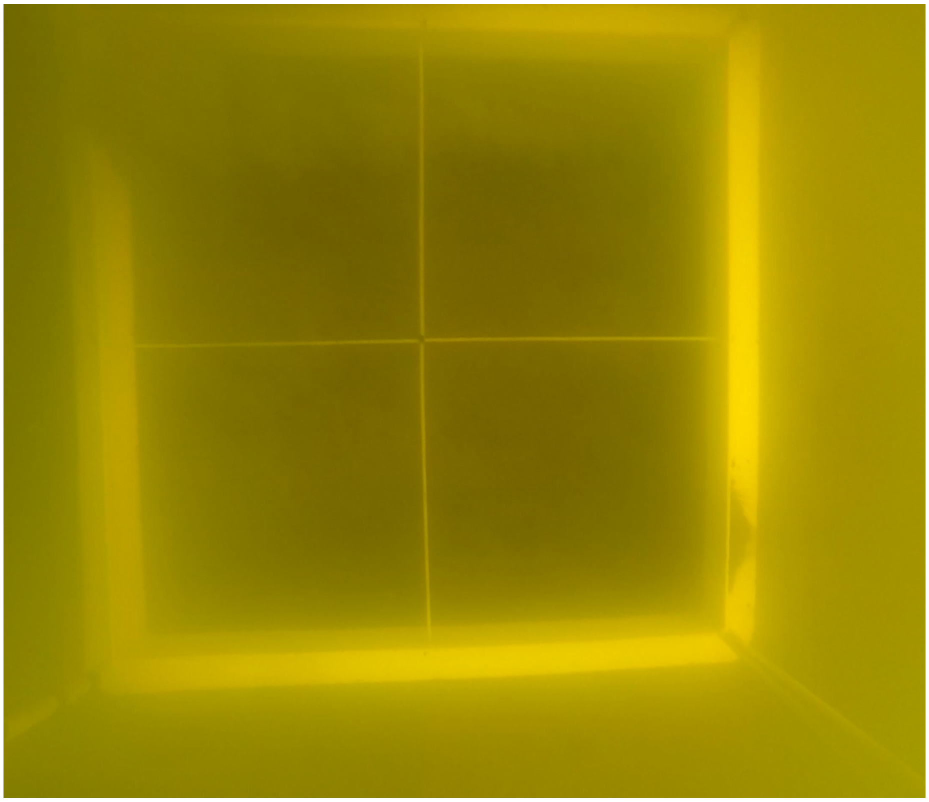


Figure 12. Bare patch of bottom at Point ID 22 within the channel.

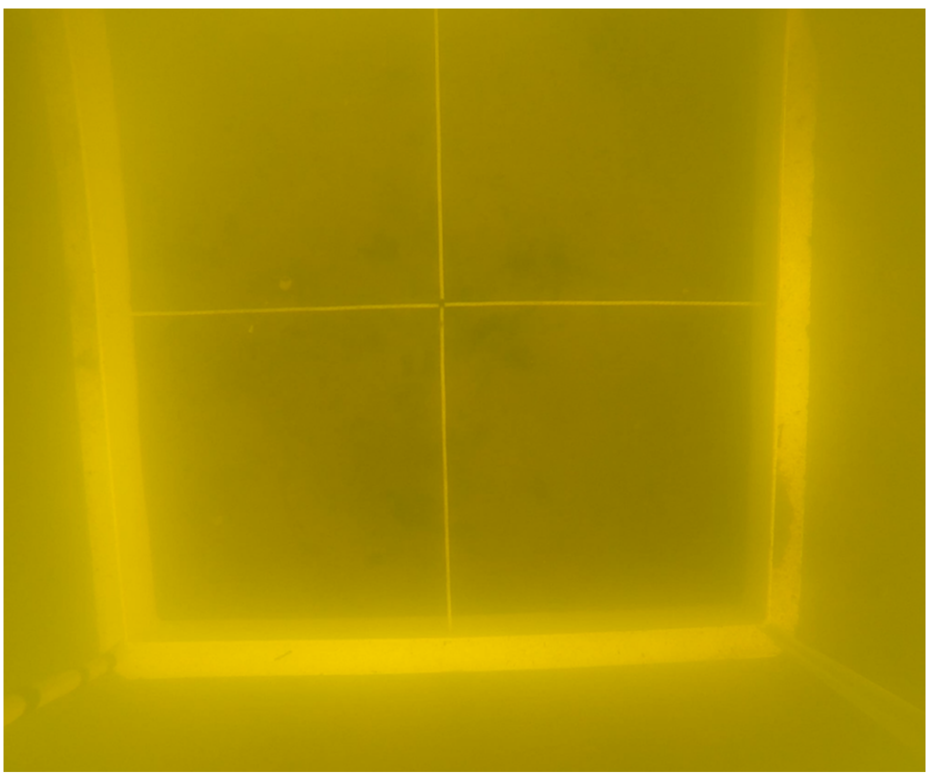


Figure 13. Bare patch of bottom at Point ID 23 within the channel.

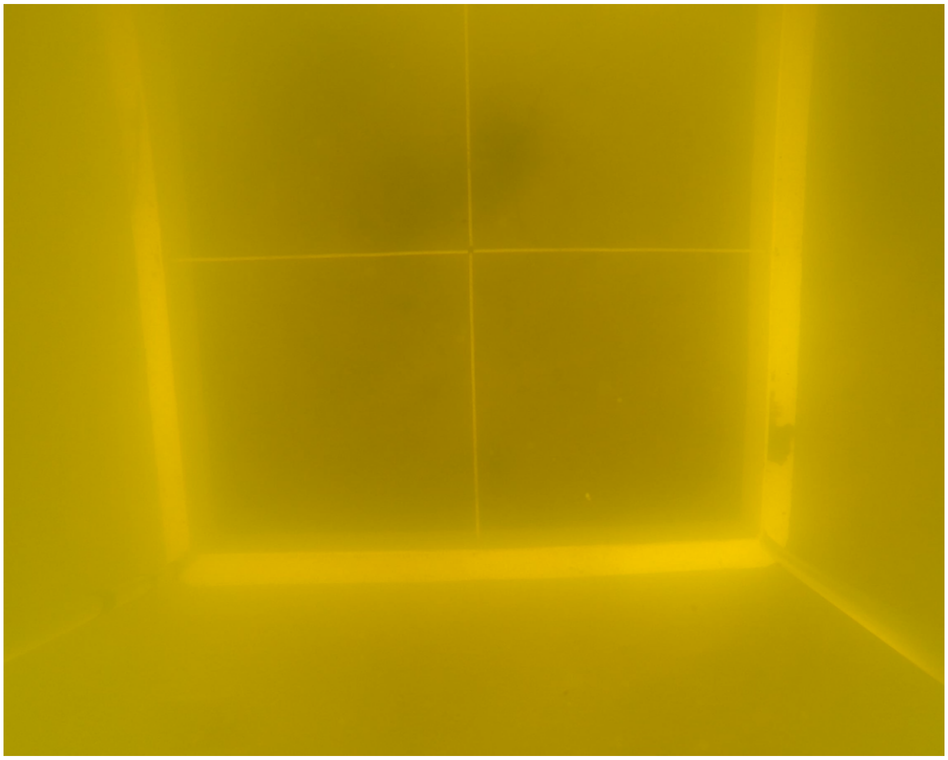


Figure 14. Bare patch of bottom at Point ID 24 within the channel.

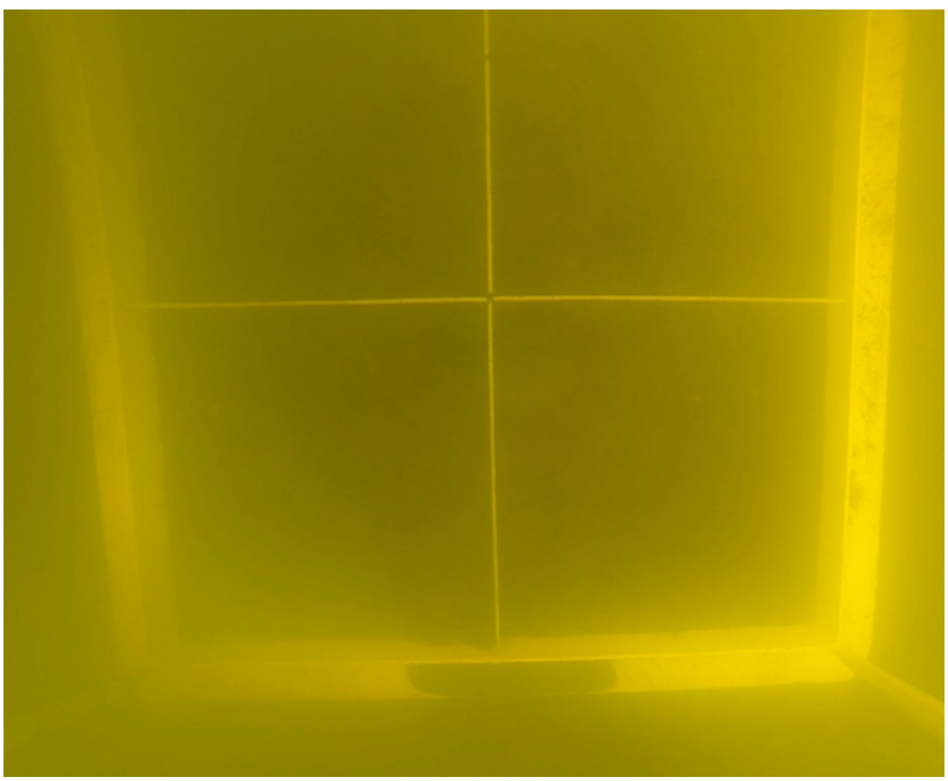


Figure 15. Bare patch of bottom at Point ID 25 within the channel.

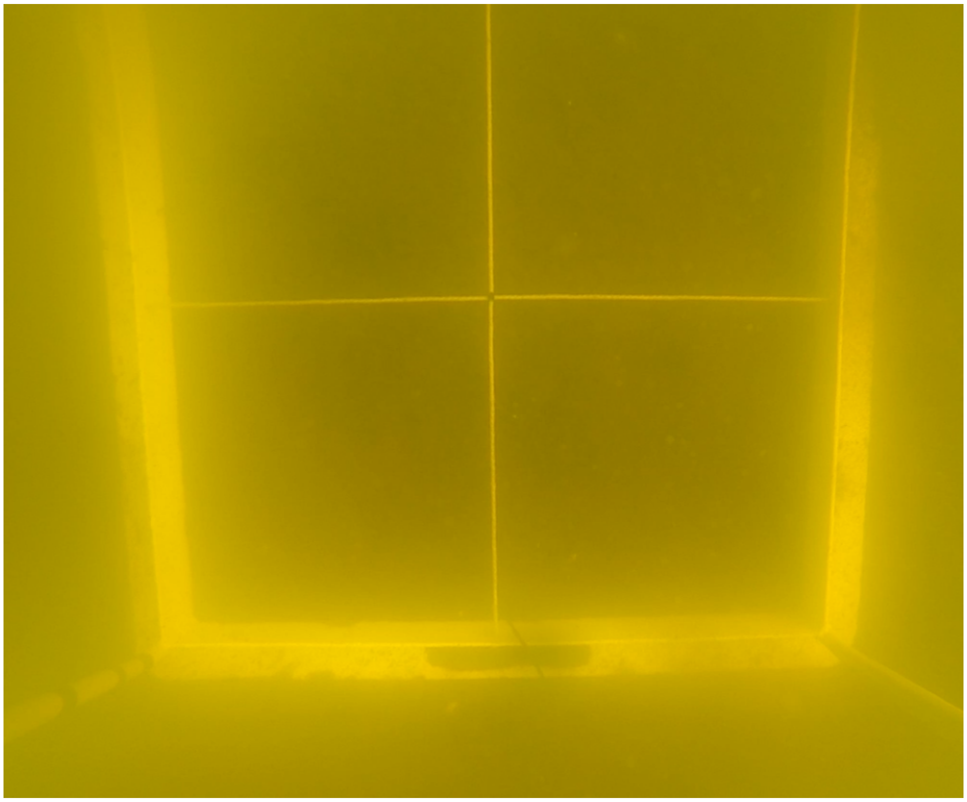


Figure 16. Bare patch of bottom at Point ID 26 within the channel.

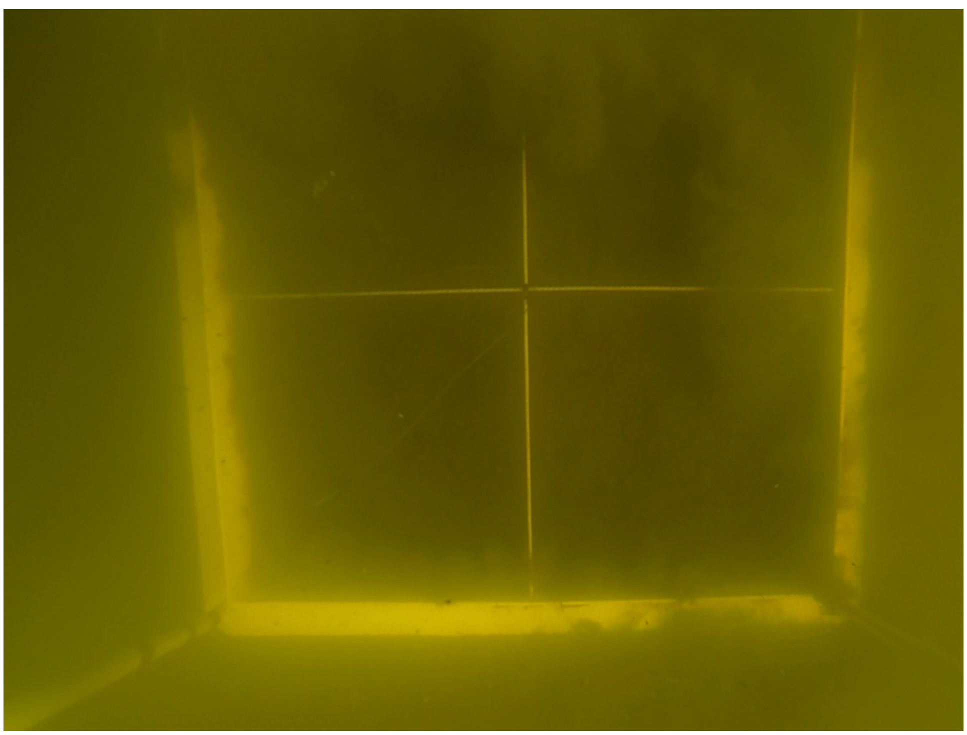


Figure 17. Bare patch of bottom at Point ID 27 within the channel.

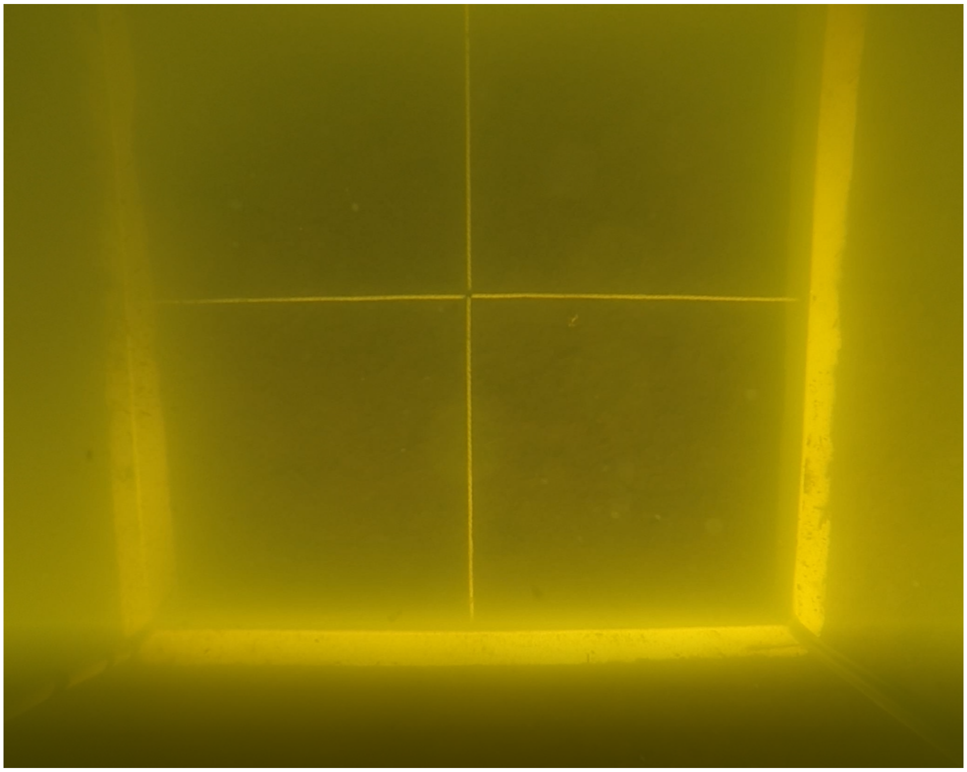


Figure 18. Bare patch of bottom at Point ID 28 within the channel.

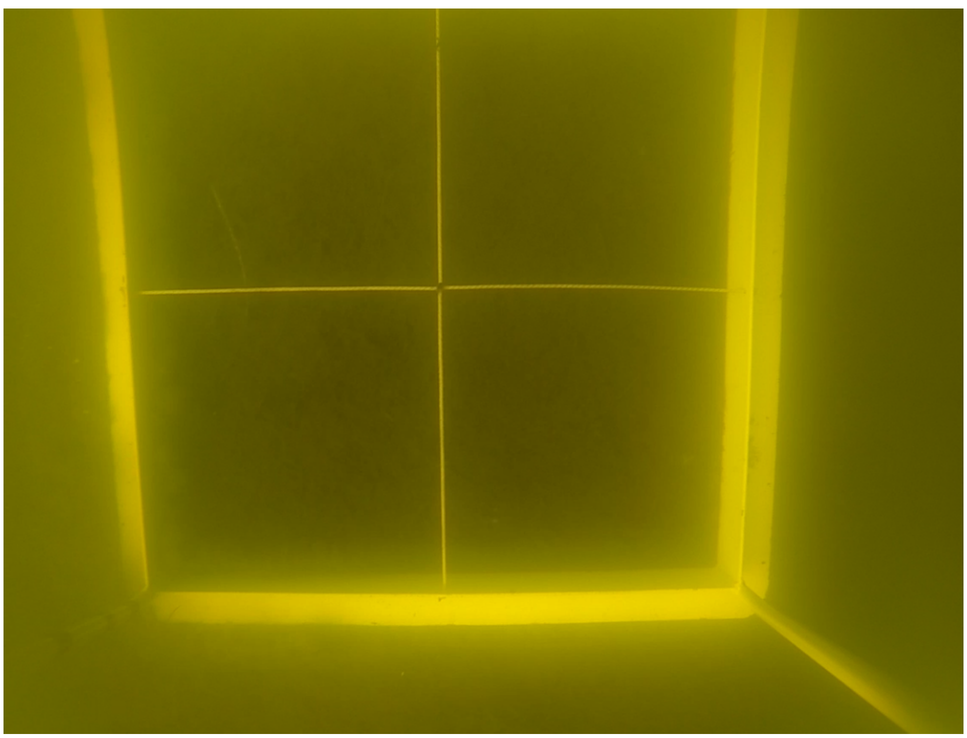


Figure 19. Bare patch of bottom at Point ID 29 within the channel.

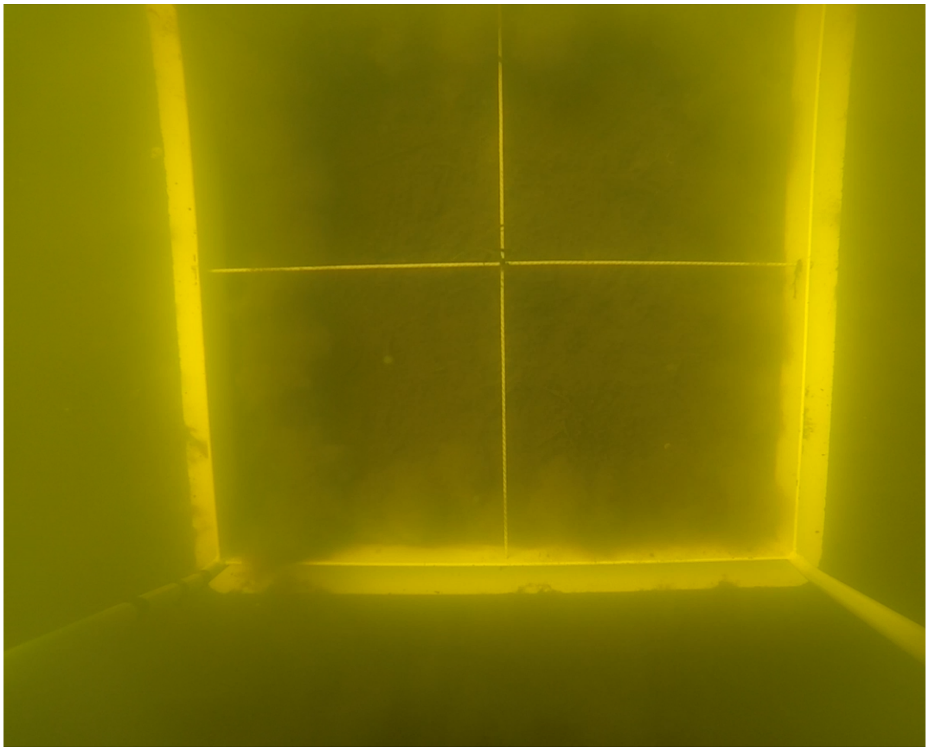


Figure 20. Bare patch of bottom at Point ID 30 within the nearshore channel.

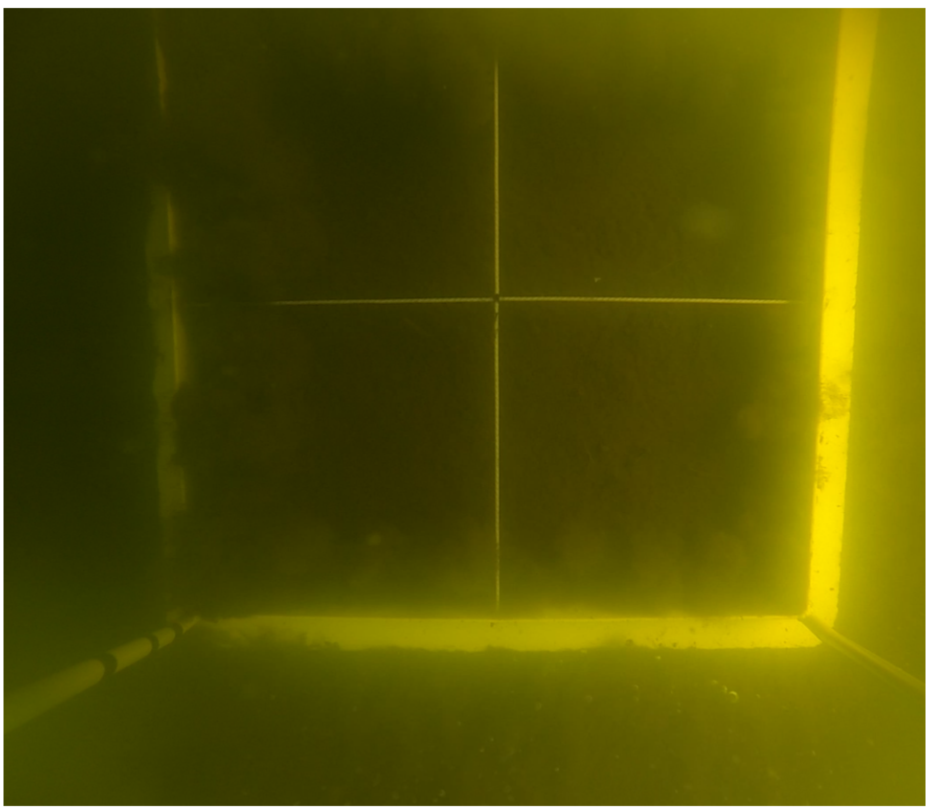


Figure 21. Bare patch of bottom at Point ID 31 within the nearshore channel.

Ocean Wind
An Ørsted & PSEG project

Benthic Habitat Assessment

Ocean Wind Offshore Wind Farm Benthic Habitat Mapping and Benthic Assessment to Support Essential Fish Habitat Consultation

Prepared for:
HDR Engineering

Submitted by:

INSPIRE Environmental
Newport, Rhode Island 02840

Originally Submitted June 28, 2021
Revised April 2022 re: Habitat Impact Acres
Revision 2: August 2022; Updated: September 2022;
Updated: October 2022

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ATTACHMENTS

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LIST OF ACRONYMS

ASMFC	Atlantic States Marine Fisheries Commission
BOEM	Bureau of Ocean Energy Management
CMECS	Coastal and Marine Ecological Classification Standard
COP	Construction and Operations Plan
EFH	Essential fish habitat
FGDC	Federal Geographic Data Committee
GIS	Geographic Information System
HAPC	Habitat Area of Particular Concern
HDD	horizontal directional drilling
IBSP	Island Beach State Park
INSPIRE	INSPIRE Environmental, LLC
MAFMC	Mid-Atlantic Fishery Management Council
MBES	Multibeam echosounder
mmu	Minimum mapping unit
NEFSC	Northeast Fisheries Science Center
NEFMC	New England Fishery Management Council
NOAA	National Oceanic and Atmospheric Administration
NOAA Habitat	NOAA National Marine Fisheries Greater Atlantic Regional Fisheries Office Habitat Conservation and Ecosystem Services Division
OCW01	Ocean Wind Offshore Wind Farm
OSS	Offshore substation
PV	Plan View
SAV	Submerged aquatic vegetation
SPI	Sediment Profile Imaging
SSS	Side-scan sonar
WTG	Wind Turbine Generator
YOY	Young-of-the-year

EXECUTIVE SUMMARY

Ocean Wind, LLC has submitted a Construction and Operations Plan to support the siting and development of the Ocean Wind Offshore Wind Farm (the Project), a project that will generate renewable power off the coast of New Jersey. The Project is being proposed within the Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0498, an area of approximately 75,525 acres located approximately 13 nm southeast of Atlantic City. The Project includes the wind farm, two offshore export cable route corridors in the Atlantic Ocean, and one inshore export cable route corridor in Barnegat Bay, New Jersey. The Ocean Wind Offshore Wind Farm will consist of up to 98 wind turbine generators, up to three offshore substations, array and substation interconnection cables, and up to three export cables. The BL England export cable is expected to be a single export cable that will make landfall along the Atlantic shoreline in Ocean City. The Oyster Creek export cable is expected to be a double export cable that will make landfall at one of several options under consideration along the western shore within Barnegat Bay.

Ocean Wind has collected extensive geophysical and ground-truth data to support the mapping and characterization of habitats within the Ocean Wind Offshore Wind Farm. INSPIRE Environmental has used these data to conduct detailed benthic habitat mapping and a crosswalk of the delineated benthic habitat types to essential fish habitat (EFH) designated within the Offshore Project Area. The Offshore Project Area (Figures 1-1 to 1-3) includes the wind farm, two offshore export cable route corridors in the Atlantic Ocean, and one inshore export cable route corridor in Barnegat Bay, New Jersey (see Section 1.1 for project area descriptions). Three primary benthic habitat types were mapped within the Offshore Project Area: Coarse Sediment, Sand and Muddy Sand, and Mud and Sandy Mud. When further characterized by modifiers, a total of 11 benthic habitat types were mapped within the Offshore Project Area, including mobile habitats characterized by temporally dynamic ripples, discrete habitat areas with low density boulder fields, and inshore habitats with submerged aquatic vegetation (SAV) within Barnegat Bay.

This report was originally submitted in June 2021 and updated with new habitat impact calculation values and information in April 2022. On June 2, 2022, Ocean Wind received Request for Information (RFI) 33 from BOEM requesting multiple updates to the habitat impact calculations, in support of their EFH Assessment and the Draft Environmental Impact Statement (DEIS). Updated total acres related to current indicative GIS layouts and potential impact footprints were provided in response to RFI 33. Because new landfall options and DEIS foundation Alternatives were included in this RFI that covered areas of the seafloor previously outside the footprint of geophysical data and the area mapped for the original Report, minimal areas of interpolated habitat types were added to the habitat delineation data set for the sole purposes of completing these impact calculations and are not included in habitat summaries here; these data were provided to BOEM along with the RFI 33 response. The updated habitat impact values as provided in response to RFI 33 have been minimally updated with new calculations for the inter-array cables and minor clean-up for presentation as an Attachment to this Revision 2 of this Report. These values supersede those provided with the original Report and in the April 2022 revision. These values were updated again in the October 2022 update to correct the values accompanying the wind turbine generators and inter-array cable for the proposed action to align with the latest layout, which includes a southeastern shift of foundation row ‘A’. In addition, values for the Offshore Substation Link Cable were separated out from those originally provided as part of the Oyster Creek Offshore Export Cable. In the process of updating the values for the Oyster Creek Offshore Export Cable, an error was discovered that Coarse Sediment – Mobile values had been excluded from the RFI 33 table for the Oyster Creek Offshore Export Cable and the three BL England Offshore Export Cable options; these have been corrected in the October 2022 update.

Revision 2 of this Report includes the results of additional benthic ground-truth data (sediment profile and plan view imaging (SPI/PV), and video imagery) collected in a June 2022 survey at the Wind Farm Area in order to provide supplemental data to be used in supporting the EFH federal consultation process. The data coverage available for the Wind Farm Area prior to collection of these supplemental data was deemed sufficient for federal permitting review by BOEM. Data results from this supplemental survey confirmed all existing habitat delineations; therefore, none of the habitat boundaries and related results presented here have been updated. The SPI/PV and video imagery collected in 2022 supports and confirms the assessment of benthic habitats in the Wind Farm Area as presented in the original submission of this Report. The full spectrum of backscatter reflectance data collected at the Wind Farm were sampled with SPI/PV imagery, with low backscatter generally corresponding to rippled sand, medium backscatter corresponding to rippled sand with scattered shell hash and some grain size sorting across ripples, crests, and troughs, and relatively high backscatter corresponding to variable presence of washed granules and pebbles and shell fragments/hash. The SPI/PV images acquired during the 2022 survey increased the spatial density of samples in Coarse Sediment habitats with medium to high relative backscatter reflectance across the entire Wind Farm Area (compared to the 2017-2020 samples). Spatial coverage of these areas was also increased by employing towed video targeting these locations. These data provide further evidence that these medium to high backscatter areas of the Wind Farm Area are highly dynamic habitats composed of rippled sands with bare granules and pebbles in ripple troughs or pebbles and granules without attached fauna overlaying sandy sediments.

The June 2022 survey also included additional sampling of sand ridges found in the east corner of the Wind Farm Area. These sand ridges were identified by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Greater Atlantic Regional Fisheries Office Habitat Conservation and Ecosystem Services Division (NOAA Habitat) as an area of potential interest from a habitat and demersal fish perspective. A new section has been added in this Report Revision 2 to present a more detailed characterization of the sand ridge area based on collected SPI/PV and video data.

In addition to the June 2022 survey at the Wind Farm Area to support the update of this report, a preconstruction baseline submerged aquatic vegetation (SAV) survey was conducted in

Barnegat Bay in July 2022. This survey was designed to provide additional baseline SAV data to inform Project design and avoidance strategies (cable routing, designated moorings/anchoring locations) and to inform both federal and state permitting processes. Because these data were collected following the response to RFI 33, they were not used to update habitat delineations or impact calculations provided in this report. The July 2022 SAV survey results are presented in a separate Addendum to Revision 2 of this Report. The data results presented therein should be considered the most up to date data on recent SAV and macroalgae distributions and coverage within Barnegat Bay in the vicinity of the Ocean Wind export cable and potential landfall locations. Additional preconstruction SAV surveys are proposed as part of the Ocean Wind SAV-specific benthic monitoring program (INSPIRE 2022).

The Wind Farm Area (blue polygon on all maps in the figure set) was dominated by Sand and Muddy Sand – Mobile habitats interspersed with small to large patches of Coarse Sediment – Mobile habitat. Additionally, small areas of Sand and Muddy Sand with Low Density Boulder Fields, Coarse Sediment, and Sand and Muddy Sand habitats were documented. The BL England Offshore Export Cable Route Corridor was dominated by Sand and Muddy Sand habitats, with Mud and Sandy Mud habitats located near the Atlantic shoreline within state waters (Figure 3-11). Additional small areas of Coarse Sediment – Mobile, Coarse Sediment, Mud and Sandy Mud with Low Density Boulder Fields, and Sand and Muddy Sand – Mobile were documented. The Oyster Creek Offshore Export Cable Route Corridor was equally comprised of Sand and Muddy Sand – Mobile and Coarse Sediment – Mobile habitats, which were interspersed and alternating throughout the portion of the cable corridor located in federal waters. Small areas of Coarse Sediment and Sand and Muddy Sand were present within the portion of the cable corridor located in state waters. The Oyster Creek Inshore Export Cable Route Corridor was dominated by Mud and Sandy Mud. Areas of SAV habitats were documented near the shorelines of Barnegat Bay west of Island Beach State Park (marked as IBSP on maps) and close to the shoreline of all three landfall options. The export cable route on the Barnegat Bay side of Island Beach State Park has been shifted to the north to coincide with a formerly used navigation channel in order to avoid continuous SAV habitats (as mapped prior to the July 2022 survey). One small area of Mud and Sandy Mud with Low Density Boulder Fields was documented inside Barnegat Bay along the export cable close to the junction of where The Farm cable splits off, and a single anthropogenic feature was also mapped at the shoreline within Barnegat Bay near the Bay Parkway Landfall option (Figure 3-13).

To support EFH consultation, INSPIRE also calculated the maximum total area of each mapped benthic habitat type in terms of NOAA Habitat Complexity Categories that may potentially be permanently and/or temporarily impacted by each component of the Project. A conservative approach was used to calculate the maximum potential total area and composition of habitats cross walked to NOAA Habitat Complexity Categories that may be impacted by the Project for purposes of EFH consultation. Although the same component design parameters (e.g., width of cable protection) as those presented in the COP were used to determine acres of impact, the conservative approach used for this report assumed Project activities would occur over the entirety of the area possible (100% of each cable, rather than the 10% assumed in the COP). In reality, only a fraction of these areas will ultimately be impacted by Project activities. Given this conservative approach, the maximum potentially impacted acres presented in this report will differ from those footprints presented in the COP. The footprint estimates presented in the COP are intended to represent the maximum acres of seafloor (agnostic to habitat type) that may be impacted by each project component. The acres presented in this benthic habitat mapping report are conservative estimates of habitats to which impacts could occur developed for EFH review to describe potential impacts by NOAA Habitat Complexity Category and, therefore, should not be considered representative of the total acres that may be impacted by the Project. As noted above, an update to habitat impact calculations have been updated again in October 2022.

Habitats were cross walked to NOAA Habitat Complexity Categories (NOAA Habitat 2021) to provide inventories of the maximum potential acres that may be impacted by the Project for the purposes of supporting EFH consultation. Habitats cross walked to soft bottom habitats comprise most of the potential acres that may be permanently and temporarily impacted by the Project. A minute fraction of the impacts is expected in habitats characterized as heterogeneous complex. With the exception of SAV habitats, habitats cross walked to the complex NOAA Habitat Complexity Category were characterized as highly dynamic habitats composed of rippled sands with bare granules and pebbles in ripple troughs or pebbles and granules without attached fauna overlaying sandy sediments. These habitats are unlikely to provide an impediment to construction or to be adversely affected by Project activities. SAV habitats mapped within Barnegat Bay represent sensitive and ecologically important habitat and Ocean Wind will coordinate with agencies for monitoring and mitigation based on potential impacts as required. Additional coordination with federal and state agencies regarding SAV in Barnegat Bay is ongoing and an SAV-specific benthic monitoring plan (INSPIRE 2022) has been developed and an initial baseline preconstruction SAV survey was conducted in July 2022, as discussed above.

A complete crosswalk of delineated benthic habitat types to EFH for all demersal species/life stage with designated EFH in the Offshore Project Area provides detailed information to facilitate review of potential impacts to each species/life stage. In total, 24 benthic/demersal species and 47 life stages with designated EFH within the Offshore Project Area have been cross walked to mapped benthic habitats: 47 to Coarse Sediment habitats, 44 to Sand and Muddy sand habitats, 31 to Mud and Sandy Mud habitats, 10 to SAV habitats, and 10 to structure (boulders, debris, etc.) within any habitat type. Species with demersal/ benthic life stages are most vulnerable to permanent project impacts. Species with EFH that include sandy habitats are more likely to experience these long-term impacts from the conversion of sand habitat into hard bottom habitat associated with cable protection and scour protection, if utilized in the project, however, the percentage of habitat impacted versus the percentage of habitat available is low. While other construction impacts are expected to have effects on EFH for demersal/benthic life stages, they are also anticipated to be temporary.

1.0 INTRODUCTION

1.1 Revision 2 Update

This report was originally submitted in June 2021 and updated with new habitat impact calculation values and information in April 2022. On June 2, 2022, Ocean Wind received Request for Information (RFI) 33 from BOEM requesting multiple updates to the habitat impact calculations, in support of their EFH Assessment and the Draft Environmental Impact Statement (DEIS). Updated total acres related to current indicative GIS layouts and potential impact footprints were provided in response to RFI 33. Because new landfall options and DEIS foundation Alternatives were included in this RFI that covered areas of the seafloor previously outside the footprint of geophysical data and the area mapped for the original Report, minimal areas of interpolated habitat types were added to the habitat delineation data set for the sole purposes of completing these impact calculations and are not included in habitat summaries here; these data were provided to BOEM along with the RFI 33 response. The updated habitat impact values provided in response to RFI 33 have been minimally updated with new calculations for the inter-array cables and minor clean-up for presentation as an Attachment to this Revision 2 of this Report. These values supersede those provided with the original Report and in the April 2022 revision. These values were updated again in the October 2022 update to correct the values accompanying the wind turbine generators and inter-array cable for the proposed action to align with the latest layout, which includes a southeastern shift of foundation row ‘A’. In addition, values for the Offshore Substation Link Cable were separated out from those originally provided as part of the Oyster Creek Offshore Export Cable. In the process of updating the values for the Oyster Creek Offshore Export Cable, an error was discovered that Coarse Sediment – Mobile values had been excluded from the RFI 33 table for the Oyster Creek Offshore Export Cable and the three BL England Offshore Export Cable options; these have been corrected in the October 2022 update.

Revision 2 of this Report includes the results of additional benthic ground-truth data (sediment profile and plan view imaging (SPI/PV), and video imagery) collected in a June 2022 survey at the Wind Farm Area in order to provide supplemental data to be used in supporting the EFH federal consultation process. The data coverage available for the Wind Farm Area prior to collection of these supplemental data was deemed sufficient for federal permitting review by BOEM. Data results from this supplemental survey confirmed all existing habitat delineations; therefore, none of the habitat boundaries and related results presented here have been updated. This survey also included additional sampling of sand ridges found in the east corner of the Wind Farm Area. These sand ridges were identified by the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Greater Atlantic Regional Fisheries Office Habitat Conservation and Ecosystem Services Division (NOAA Habitat) as an area of potential interest from a habitat and demersal fish perspective. A new section has been added in this Revision 2 to present a more detailed characterization of the sand ridge area based on collected samples.

In addition to the June 2022 survey at the Wind Farm Area to support the update of this report, a preconstruction baseline submerged aquatic vegetation (SAV) survey was conducted in Barnegat Bay in July 2022. This survey was designed to provide additional baseline SAV data to inform Project design and avoidance strategies (cable routing, designated moorings/anchoring locations) and to inform both federal and state permitting processes. Because these data were collected following the response to RFI 33, they were not used to update habitat delineations or impact calculations provided in this report. The July 2022 SAV survey results are presented in a separate Addendum to Revision 2 of this Report. The data results presented therein should be considered the most up to date data on recent SAV and macroalgae distributions and coverage within Barnegat Bay in the vicinity of the Ocean Wind export cable and potential landfall locations. Additional preconstruction SAV surveys are proposed as part of the Ocean Wind SAV-specific benthic monitoring program (INSPIRE 2022).

Benthic survey and habitat mapping results presented in this report were collected and interpreted prior to the split of a single lease area into Lease Area OCS-A0498, the Ocean Wind 01 Lease Area (referred to as the Wind Farm Area), and Lease Area OCS-A0499. Because all data collected were intended to inform Project decisions, the full extent of these data are presented here and the landfall options under consideration when the action was originally proposed are provided here. Additional landfall options on the western shore of Barnegat Bay are now under consideration and are presented in the Draft Environmental Impact Statement (DEIS). The primary habitats of concern in the vicinity of these landfall are submerged aquatic vegetation (SAV) habitat. As stated above, the July SAV survey results presented in the Addendum to this Revision 2 provide the most recent data on these habitats, along with all export cable landfall locations under consideration.

1.2 Ocean Wind Project Overview and Layout

Ocean Wind, LLC is developing the Ocean Wind Offshore Wind Farm (OCW01, Offshore Wind Farm, or Project) to generate renewable power off the coast of New Jersey and transfer the electricity to load centers within New Jersey and the Mid-Atlantic region. The Project is being developed pursuant to the Bureau of Ocean Energy Management (BOEM) requirements for the Ocean Wind Lease Area OCS-A 0498 Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (Lease) (30 CFR Part 585 and regulations therein). The Lease Area is approximately 75,525 acres and is located approximately 13 nm southeast of Atlantic City. The Offshore Project Area includes the wind farm, two offshore export cable route corridors, and one inshore export cable route corridor (Figure 1-1). Specifically, these areas are:

- **Wind Farm Area**: The area where the turbines, array cables, offshore substation(s), substation interconnector cables, and portions of the offshore export cables are located (Figure 1-2)[1];
- **BL England Offshore Export Cable Route Corridor**: The area between the wind farm and landfall near Ocean City in which an offshore export cable will be installed (Figure 1-3);
- **Oyster Creek Offshore Export Cable Route Corridor**: The area between the wind farm and the Atlantic Ocean side of Island Beach State Park (marked as IBSP on maps) in which up to two offshore export cables will be installed (Figure 1-3);
- **Oyster Creek Inshore Export Cable Route Corridor:** The area within Barnegat Bay from the Bay side of Island Beach State Park to landfall on the western shore of Barnegat Bay in which up to two offshore export cables will be installed (Figure 1-3, additional landfall options on the western shore are now in consideration and are addressed in the DEIS;

The offshore project envelope includes the following components:

- up to 98 wind turbine generators (WTGs);
- up to 3 offshore substations (OSSs);
- array cables and substation interconnection cables;
- up to three offshore export cables within two offshore export cable route corridors; and,
- one landfall that will be used to transition to an onshore export cable at BL England and one landfall that will be to transition to an onshore export cable at Oyster Creek.

Ocean Wind has submitted a Construction and Operations Plan (COP) that provides details related to the design and construction of the Project (Ocean Wind, LLC 2021a), existing conditions and impact producing factors and minimization measures (Ocean Wind, LLC 2021b), and detailed subject-specific appendices (Ocean Wind, LLC 2021c). The approximate locations for the offshore turbines and offshore substations are provided in Appendix G of the COP (Ocean Wind, LLC 2021d).

[1] Consistent with the Marine Site Investigation Report (Appendix D of the COP, Ocean Wind LLC 2021f), the Wind Farm Area, as referenced in this report, is the same as the Lease Area.

1.3 Habitat Mapping Assessment Purpose and Objectives

The purpose of this report and associated data is to provide information on benthic habitat characteristics and spatial distribution with sufficient resolution and quality to support the National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Greater Atlantic Regional Fisheries Office Habitat Conservation and Ecosystem Services Division (NOAA Habitat) in conducting a thorough and complete essential fish habitat (EFH) consultation for the Project. This report will serve as a supplement to the EFH Assessment provided in Appendix P of the COP (Ocean Wind, LLC 2021e). NOAA Habitat developed recommendations for mapping benthic habitats to facilitate EFH consultations (May 2020) in conjunction with BOEM and BOEM has released the recommendations as a supplement to the BOEM Benthic Survey Guidelines (2019). NOAA Habitat recently provided a new version of these habitat mapping recommendations (March 2021). For this report, the maximum potential acres that may be impacted by the Project have been inventoried in terms of the updated NOAA Habitat Complexity Categories outlined in these new recommendations. As noted previously, habitat impact calculations have been updated in October 2022.

Ocean Wind has collected extensive geophysical data (Ocean Wind, LLC 2021f) and ground-truth data (Attachment A) to support the mapping and characterization of habitats within the Ocean Wind Lease Area and along the two export cable route corridors. INSPIRE Environmental (INSPIRE) has used these data to conduct detailed benthic habitat mapping and a crosswalk of the delineated benthic habitat types to EFH (Attachment B), as well as to calculate the maximum total area of each benthic habitat type cross walked to NOAA Habitat Complexity Categories that may potentially be permanently and/or temporarily impacted by each component of the Project. As noted previously, habitat impact calculations have been updated in October 2022.

A list of key terms used in this report is provided in Table 1-1.

The objectives of this habitat mapping assessment report are to:

1. Use high-resolution geophysical and ground-truth data to delineate and characterize benthic habitats within the area potentially affected by the Project;

2. Characterize benthic habitats and describe these habitats in terms of sediment composition, bedforms, and observed/anticipated infaunal and epifaunal communities;

3. Provide results of the crosswalk between mapped benthic habitat types and demersal EFH; and

4. Use a conservative approach to calculate the maximum total area of each benthic habitat type categorized by NOAA Habitat Complexity Categories that may be permanently or temporarily affected by each component of the Project.

Given the uncertainty of the exact locations of impact to the seafloor, an extremely conservative approach, for purposes of EFH consultation, was used to estimate the maximum potential total area and composition of habitats that may be impacted by the Project. Although the same component design parameters (e.g., width of cable protection) as those presented in the COP were used to determine acres of impact, the conservative approach used for this report assumed Project activities would occur over the entirety of the area possible (100% of each cable, rather than the 10% assumed in the COP). As noted previously, habitat impact calculations have been updated in October 2022.

In reality, only a fraction of these areas will ultimately be impacted by Project activities. Given this conservative approach, the maximum potentially impacted acres presented in this report will differ from those footprints presented in the COP. The footprint estimates presented in the COP are intended to represent the maximum acres of seafloor (agnostic to habitat type) that may be impacted by each project component. ***The acres presented in this benthic habitat mapping report are conservative estimates of habitats to which impacts could occur developed for EFH review to describe potential impacts by NOAA Habitat Complexity Category and, therefore, should not be considered representative of the total acres that may be impacted by the Project.***

1.4 Benthic Assessment Purpose, Objectives, and Survey History

Site-specific benthic data were collected over the course of five surveys conducted in 2017 and 2019 in the original OCS-A 0498 lease area, which has since been split into the Ocean Wind Lease Area (OCS-A 0498) (also referred to as the Wind Farm Area) and a new lease area to the south and northwest (OCS-A 0532). An additional survey was conducted in June 2022. All benthic surveys were conducted to serve as ground-truth sampling to support the high resolution geophysical surveys and three of these surveys had a secondary objective to support further habitat characterization and mapping. A total of 362 stations were sampled with a variety of benthic sampling techniques across both Lease Areas OCS-A 0498 and OCS-A 0532 (Figures 1-4 and 1-5). Gardline collected grab samples for sediment grain size analysis at 19 stations in 2019 and 45 stations in 2020 in nearshore and inshore waters of the export cable route corridors (Figure 1-5). Gardline collected grab samples for sediment grain size and benthic community analysis, as well as drop camera footage, at 21 stations in 2017 across both Lease Areas OCS-A 0498 and OCS-A 0532 (Figure 1-4). Similarly, in 2019, Gardline collected grab samples for grain size analysis and drop camera footage for biotic characterization at 20 stations within the Wind Farm Area; the grab was not recovered at one of these stations (Station 5015 in Figure 1-4). In 2019, INSPIRE collected sediment profile and plan view imagery (SPI/PV) at 157 stations within the Wind Farm Area and along both export cable route corridors; grab samples for sediment grain size analysis were also collected at 39 of these stations (Figures 1-4 and 1-5).

An additional benthic survey was conducted at the Wind Farm Area in June 2022 utilizing SPI/PV and towed video in order to provide supplemental data to be used in supporting the EFH federal consultation process. The data coverage available for the Wind Farm Area prior to collection of these supplemental data was deemed sufficient for federal permitting review by BOEM. During the supplemental survey a total of 100 stations were sampled with SPI/PV from

May 29 to 31, 2022 and a total of 17 transects, ranging in length from 664 m to 3,135 m, were sampled with towed video from June 4 to June 7, 2022 (Figure 1-4).

A total of 70 SPI/PV stations were sampled in the west-southwest portion of the Wind Farm Area (Figure 1-4). When combined with the previously collected data, this effort results in sampling density in accordance with the BOEM Benthic Guidelines (1 station per 1-2 km2), The east-northeast portion of the wind farm contained a higher density of samples collected previously. Ground-truth benthic data collected at a density of 1 station per 1-2 km2 has been suggested as a minimum requirement by NOAA in the EFH comments recently provided to BOEM and OCW01. Three stations (623, 644, 648) that were in areas of relatively high backscatter were selected for additional PV "pogo" replicate collection within a 200-m radius of the central location (up to 16 replicates) for additional site characterization.

An additional 30 SPI/PV stations were sampled at the sand ridges found in the east corner of the Wind Farm Area (Figure 2). Five stations were distributed along each of six, 500-m transects divided equally between crests and troughs of the sand ridges. Towed video imagery was also collected along these same transects and at two transects oriented perpendicular to the crest-trough features; therefore, 8 of the 17 video transects were located in the sand ridge area (Figure 1-).

The Coastal and Marine Ecological Classification Standard (CMECS; FGDC 2012) was used to classify sediments and/or benthic biota across these surveys in accordance with the BOEM Guidelines (BOEM 2019, 2020). The secondary objective of this reporting effort is to compile these site-specific benthic survey data and provide the collective results as part of the Ocean Wind COP; these are presented within Attachment C of this report.

Table 1-1. Ocean Wind Key Project Terms and Abbreviations

Term	Definition
Benthic Habitat Classification	Benthic habitat classifications with a minimum mapping unit of 2,000 m^2, prepared by INSPIRE
BL England Offshore Export Cable Route Corridor	The area between the wind farm landfall in Ocean City in which an offshore export cable will be installed
Boulder and Debris Contacts	Isolated boulders, outside boulder fields, and isolated debris features >= 50 cm (0.5 m) identified from geophysical data
Coastal and Marine Ecological Classification System (CMECS)	Federal habitat classification standard recommended by BOEM for benthic assessments and applied here using NOAA Habitat's recommended modifications (NOAA Habitat 2020 and 2021)
EFH Crosswalk	The process of reviewing species with mapped EFH in the Offshore Project Area and comparing their habitat preferences with the mapped benthic habitat types described in Section 3.2 & 3.3 to identify where EFH for those species is likely to be found

Term	Definition
Facies	Bodies of sediment that are recognizably distinct from adjacent sediments that resulted from different depositional environments.
Foundation	The bases to which the WTGs and OSS are installed on the seabed. Monopile is the selected foundation type for the WTGs and piled jacket or monopile foundations will be used for the OSSs.
Horizontal directional drilling (HDD)	HDD techniques will be used to transition the BL England export cable from offshore to onshore and the Oyster Creek, export cable from offshore to inshore; either HDD or open cut will be used at the transition of the Oyster Creek export cable from inshore to onshore. HDD is a subsurface installation technique that will create an underground conduit through which the export cable will transition. HDD avoids impacts to the beach and near shore environment.
Minimum mapping unit (mmu)	The smallest size areal seabed or habitat polygon to be mapped as a discrete entity
Modifiers	Additional descriptive terms used to provide further characterization of benthic habitat types; terms consistent with CMECS are used where feasible
NOAA Complexity Category	Indicates habitat complexity using categories of complexity as defined by NOAA Habitat for the purposes of EFH consultation. These categories include: soft bottom, complex, heterogeneous complex, and large-grained complex (large boulders). For purposes of the EFH consultation, complex habitats include submerged aquatic vegetation (SAV) and sediments with >5% gravel of any size (pebbles to boulders; CMECS Substrate of Rock, Groups of Gravelly, Gravel Mixes, and Gravels). Heterogenous complex is used for habitats with a combination of soft bottom and complex features (NOAA Habitat 2020 and 2021).
Ocean Wind Offshore Wind Farm (the Project)	The Ocean Wind Offshore Wind Farm and facilities required to transmit power to onshore interconnections with the existing power grid, collectively, the Project.
Offshore Project Area	Wind Farm Area and offshore export cable route corridors
Wind Farm Area	Located in federal waters off the coast of New Jersey, within the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS) #OCS-A 0498 (Lease Area). The Ocean Wind Offshore Wind Farm will include up to 98 WTGs, array cables, up to 3 OSSs, substation

Term	**Definition**
	interconnection cables and portions of the offshore export cables within the Lease Area. The Wind Farm Area is located approximately 15 statute miles southeast of Atlantic City, New Jersey in the Atlantic Ocean.
Oyster Creek Inshore Export Cable Route Corridor	The area within Barnegat Bay from the Bay side of Island Beach State Park to landfall on the western shore of Barnegat Bay in which up to two offshore export cables will be installed
Oyster Creek Offshore Export Cable Route Corridor	The area between the Wind Farm Area and the Atlantic Ocean side of Island Beach State Park in which up to two offshore export cables will be installed
Wind Farm Area	The area where the turbines, array cables, offshore substation(s), substation interconnector cables, and portions of the offshore export cables are located

2.0 INPUT DATA AND APPROACH

Multiple sources of geophysical and ground-truth data were used as input data sources for mapping benthic habitats within the Offshore Project Area. Brief summaries of these data sources and details pertinent to their use in the habitat mapping process are described here. Full details of geophysical and ground-truth data collection, processing, and analysis are provided in the Marine Site Investigation Report (Appendix D) appended to the Ocean Wind COP (Ocean Wind, LLC 2021f), as well as in Attachments D through G of this report.

2.1 Input Data

2.1.1 Geophysical Data

To support Ocean Wind Site Investigations, multiple high-resolution multibeam echosounder (MBES) and side-scan sonar (SSS) surveys were conducted within the Offshore Project Area (Ocean Wind, LLC 2021f). Surveys were conducted in 2017 and 2018 by Gardline and Alpine Ocean Seismic Survey Inc. and by Fugro in the Lease Area; additional surveys were conducted by Gardline and Alpine in 2019 and 2020 to further characterize the Wind Farm Area and the export cable route corridors. In each of these surveys, MBES and SSS were collected using different instruments deployed from the same survey vessel (Figure 2-1). The MBES was mounted to the vessel and provides the highest degree of positional accuracy; the MBES can be optimized either for bathymetric or backscatter data, not for both. The geophysical surveys conducted for offshore wind development are designed to support engineering and construction design and, therefore, the MBES was optimized for bathymetric data and backscatter data were collected as an ancillary data product. Bathymetric data were derived from the MBES and processed to a resolution of 50 cm (Ocean Wind, LLC 2021f). Bathymetric data provide information on depth and seafloor topography (Figures 2-2 and 2-3). Backscatter data were derived from the MBES and processed to a resolution of 50 cm (Ocean Wind, LLC 2021f). Backscatter data are based on the strength of the acoustic return to the instrument and provide information on seafloor sediment composition and texture and are best interpreted in concert with hill-shaded bathymetry (Figures 2-4 and 2-5). Backscatter returns are relative (see below) and referred to in terms of low, medium, and high reflectance rather than absolute decibel values. Nominally softer, fine-grained sediments absorb more of the acoustic signal and a weaker signal is returned to the MBES. Although backscatter data provide valuable information about sediment grain size, decibel values reflect not only sediment grain size, but also compaction, water content, and texture (Lurton and Lamarche 2015). For example, sand that is hard-packed and sand that has prominent ripples may have higher acoustic returns than sediments of similar grain size that do not exhibit these characteristics.

In addition, backscatter decibel values are also influenced by water temperature and salinity, sensor settings, seafloor rugosity, and MBES operating frequency, among others (Lurton and Lamarche 2015, Brown et al. 2019). Differences in backscatter decibel values can also occur when data have been collected over a very large survey area under dynamic conditions, with different instruments, and in different years, as was the case for the Ocean Wind surveys. This scenario is common and does not nullify the data; rather geophysicists and geographic information system (GIS) practitioners experienced at working with these data have developed methods to optimize processing (as appropriate to the sensors) and to display the data in a manner optimal for interpretation (Lurton and Lamarche 2015, Schimel et al. 2018). Backscatter data products vary based on processing (Lucieer et al. 2017) and data display procedures. Mapping of seafloor composition and habitats, while greatly aided by backscatter data, rarely relies solely on these data (see Table 1 in Brown et al. 2011). The manner in which the suite of data collected were used for habitat delineations is described further in Section 2.2.

SSS data were generated from a towed instrument and, thus, have a lower positional accuracy than MBES data. However, because the SSS is closer to the seafloor, it provides the highest resolution data on sediment textures and objects on the seafloor (boulders, debris) (Figures 2-6 and 2-7). Thermoclines and haline variations affected the acoustic signal and resulted in data artifacts, presenting as sinuous rippling of alternating low and high returns that could not be removed from the data; they are visible when viewed at very close range. SSS data were processed to a resolution of 10 cm; this resolution permits detection of boulders but does not permit the reliable detection of individual cobbles (6.4 cm to 25.6 cm).

These geophysical data were used to provide surface sediment interpretation delineations for the Project. These interpretations were performed by EGS International Ltd under the supervision of Ocean Wind's Site Investigations team. For the purposes of defining geological seabed types present at the sediment surface, the Folk classification was used, which align with CMECS Substrate classifications (Figure 2-8). Surface seabed types present within the Offshore Project Area are based solely on this scheme and include Coarse Sediment, Sand and Muddy Sand, and Mud and Sandy Mud.

Where present in densities greater than 10 boulders per 10,000 m^2, boulders were aggregated into boulder fields. All boulder fields identified within the Project were present in low (< 99 per 10,000 m^2) densities (Ocean Wind, LLC 2021f); medium (100 – 99 per 10,000 m^2) and high (>199 per 10,000 m^2) density value categories have also been set by Orsted Site Investigations. Boulder fields are defined as a geoform type CMECS (FGDC 2012), however no density values are provided in the federal standard. Isolated individual boulders greater than or equal to 50 cm (0.5 m) outside the boulder fields were identified from the MBES and SSS data. In addition to individual boulders, other solitary objects (known as "contacts" in geophysical survey terminology), such as various types of debris were identified in this manner. These data on individual boulder and debris (>0.5 m) locations were combined to generate an "individual contacts" data set to accompany the boulder field dataset (Figures 2-9 and 2-10). Additional detail regarding processes used for the detection and identifications of boulders and debris is provided in Appendix D to the COP (Ocean Wind, LLC 2021f). A combination of MBES, backscatter, and SSS data was used to detect large and small-scale bedforms, such as mega-ripples and ripples (*sensu* BOEM 2020) (Figures 2-11).

2.1.2 Benthic Ground-Truth Data

As detailed in Section 1.3, ground-truth data were collected at a total of 362 stations using a variety of benthic sampling techniques (Figures 1-4 and 1-5). In addition, a total of 17 transects, ranging in length from 664 m to 3,135 m, were sampled with towed video (Figure 1-4). Forty-five of the stations sampled are within Lease Area OCS-A 0532; as such, these stations are outside the area where benthic habitats were mapped for this Ocean Wind Offshore Wind Farm habitat assessment. These stations are depicted on maps to provide additional information and are included in the compiled benthic data results in Attachment C, but are not considered ground-truth stations as they do not overlap with geophysical data used for mapping and characterizing habitats within the Offshore Project Area.

Imagery and grabs were analyzed for a suite of variables (Table 2-1) and were classified using the CMECS Substrate and Biotic components (Table 2-2). CMECS Substrate Group and Subgroup were particularly useful as ground-truth data for purposes of delineating seafloor sediments and benthic habitats (Figure 2-12). CMECS Biotic Groups and notations of sessile and mobile epifauna present (Figure 2-13) were used to provide detail about the biological communities observed within each mapped habitat type. Detailed descriptions of each variable were analyzed, and full data analysis results can be found in the Attachments D through G.

All June 2022 SPI/PV data were analyzed for variables most useful for ground-truthing habitat delineations; namely, CMECS Substrate Group and Subgroup, gravel minimum and maximum measurements, bedforms (ripples), presence of sensitive taxa, presence of species of concern, presence of non-native taxa, CMECS Biotic Subclass, Attached Fauna precent cover, and SPI grain size major mode. In addition, at the 30 stations sampled in the sand ridge area, presence of tubes, burrows, tracks, types of sessile and mobile epifauna, types of fish, and counts of sand dollars, and infaunal successional stage were recorded. Video imagery was analyzed using a video analysis software (Behavioral Observation Research Interactive Software [BORIS]) allows for the analyst to annotate the video using both continuous and point variables. Habitat type was noted along the length of each transect and relative sand dollar abundance was recorded along transects collected in the sand ridge area.

Separate aerial (2019) and towed video surveys (2020) to map submerged aquatic vegetation (SAV) were conducted in support of Ocean Wind. These data were evaluated in combination with existing state and academic sources on historical SAV presence to map the distribution of these habitats (Ocean Wind, LLC 2021g). In addition, publicly available aerial imagery was used to assist mapping inshore waters not surveyed by geophysical data (these areas could not be surveyed by the geophysical vessel due to their shallow depth). The Oyster Creek Inshore Export Cable Route Corridor was shifted to the north to the location of a formerly used navigation channel to avoid impacts to continuous SAV beds. This area was surveyed using underwater video and these data were combined with previous existing surveys of SAV in the area to map habitats along the new Oyster Creek Inshore Export Cable Route Corridor. For the April 2022 revision, these habitat data along the new corridor were used to update impact calculations only; habitat delineation maps and mapped extents have not been updated.

In addition to the June 2022 survey at the Wind Farm Area to support the update of this report, a preconstruction baseline SAV survey was conducted in Barnegat Bay in July 2022. This survey was designed to provide additional baseline SAV data to inform Project design and avoidance strategies (cable routing, designated moorings/anchoring locations) and to inform both federal and state permitting processes. ***Because these data were collected following the response to RFI 33, they were not used to update habitat delineations or impact calculations provided in this report.*** The July 2022 SAV survey results are presented in a separate Addendum to Revision 2 of this Report. The data results presented therein should be considered the most up to date data on recent SAV and macroalgae distributions and coverage within Barnegat Bay in the vicinity of the Ocean Wind export cable and potential landfall locations.

2.2 Habitat Mapping Approach

Geophysical and ground-truth data were reviewed in an iterative process to delineate benthic habitats. MBES data, viewed as backscatter draped over a hill-shaded bathymetric relief model, was used at a "zoomed out" scale (~1:10,000) to identify large-scale facies – areas of sedimentary characteristics (reflectance, bedform, slope) distinct from those adjacent. These initial delineations are further refined at "zoomed in" scales (~1:2,000 or finer) using the MBES data in combination with SSS, boulder picks, and ground-truth data (Figure 2-14). Delineations must be of a size appropriate both to the resolution of the data and to the subject of interpretation. For these purposes, a minimum mapping unit (mmu) is defined. An mmu is defined as "the smallest size areal entity to be mapped as a discrete entity" (Lillesand et al. 2015).

2.2.1 Delineation of Benthic Habitat Types

Geological characterizations of seabed conditions are not strictly equivalent to benthic habitats as experienced by benthic biological communities and demersal fish. To map these habitats for the purposes of assessing the potential impacts of the Project on these biotic communities, INSPIRE refined the seabed interpretations to map benthic habitats with a minimum mapping unit of 2,000 m^2. Multibeam 50-cm resolution bathymetry, 50-cm resolution backscatter, and 10-cm SSS data were examined along with benthic ground-truth data (Figure 2-15) in order to delineate new habitat polygons as appropriate and according to the minimum mapping unit and to refine the seabed classifications for the purposes of evaluating benthic habitats (Figure 2-16). In addition, anthropogenic features, such as docks near the shoreline in Barnegat Bay, were mapped as such.

Modifiers were used to provide additional descriptive information about the benthic habitats found within the Offshore Project Area; CMECS modifier and Geoform or Substrate terms were used to the extent practicable. These modifiers include features of the seafloor that are relevant to the biota that utilize these habitats and describe the value of the habitats for these biota beyond what is provided in the geological seabed mapping. Modifiers are related to features that describe the mobility, stability, and complexity of the benthic habitats mapped. Where bedforms indicating frequent physical disturbance of the seafloor were observed, the "Mobile" modifier was used. Boulder fields mapped by Ocean Wind Site Investigations were used to refine habitat boundaries and applied as modifiers. Shell substrate (living or non-living shells) and SAV both provide unique habitats for certain species of benthic invertebrates and demersal fish; modifiers were applied for both.

All habitats and their distributions within Offshore Project Area are described in more detail in Sections 3.2 and 3.3. In addition to the habitat data presented on maps in this report, the geospatial data contain separate attributes to record several other features of each habitat polygon: type of bedforms observed, area, presence of scattered boulders and debris, and refinements of Coarse Sediment habitats. In addition to the natural bedforms defined in the BOEM Geophysical Survey Guidelines (2020): mega-ripples = 5 - 60 m wavelength and 0.5 - 1.5 m height; ripples = <5 m wavelength and <0.5 m height; other bedforms such as depressions and trawl marks were noted where present. The presence of isolated boulders and debris identified by Ocean Wind Site Investigation in the geophysical analysis (individual boulder and debris contacts) were noted as "scattered boulders and debris" in the habitat data. Additionally, further characterization of Coarse Sediment habitat polygons was recorded as "coarse sediment refinements" to provide additional detail on the nature of coarse sediment (e.g., gravelly sand or sandy gravel) where such detail could be reliably determined from ground-truth geophysical data. These data are available in the interactive Popup map provided as an accompaniment to this report.

All habitat polygons within which June 2022 benthic data (SPI/PV and video) were collected were reviewed to determine if any updates to the delineations were required. No updates to delineation boundaries were needed as these new data confirmed existing delineations. The existence of the new ground-truth data did permitted the addition of values for the Coarse Sediment refinement variable. These data were updated and have been provided the BOEM.

2.3 Benthic Habitat to EFH Crosswalk

Essential fish habitat (EFH) is implemented through the Magnuson-Stevens Fishery Conservation and Management Act. In the Mid-Atlantic and northeastern United States, the New England and Mid-Atlantic Fishery Management Councils (Councils) work with NOAA Fisheries to identify and describe EFH in published fisheries management plans. To evaluate the potential impacts to EFH for individual species/life stages resulting from activities that directly impact benthic habitats, it is important to identify which benthic habitat types fit the descriptions of habitat use for each EFH species/life stage. Therefore, a crosswalk between benthic habitat types and EFH was conducted. For the purposes of this analysis, a crosswalk is defined as the process of reviewing species with mapped EFH in the Offshore Project Area and comparing their habitat preferences with the mapped benthic habitat types described in Section 3.2 & 3.3 to identify where EFH for those species are likely to be found. Primary benthic habitat types were used for the crosswalk with additional columns for structure and SAV; habitats with modifiers were not used for the crosswalk because the level of detail supporting EFH designations is rarely available at a level that matches the detail provided by modifiers.

EFH maps, data, and text descriptions were downloaded from the NOAA Habitat Conservation EFH Mapper, an online mapping application (NOAA Fisheries 2021). Additional EFH source information was gathered from the Northeast Fisheries Science Center's series of "EFH source documents" that contain a compilation of available information on the distribution, abundance, and habitat requirements for each species managed by the councils (NOAA Fisheries 2020). EFHs are defined by temperature, salinity, pH, physical structure, biotic structure, depth, and currents. While all these habitat variables are important to consider in the greater context of fisheries management, the focus for this report was to create a crosswalk among individual species EFH and mapped benthic habitats. The crosswalk focused on the mapped variables of physical structure, biotic structure, and depth. In addition, only demersal species and life stages were cross walked for this report.

EFH data for all Council-managed species were queried using GIS software to determine where each species' EFH overlaps with the Wind Farm Area, BL England Offshore Export Cable Route Corridor, Oyster Creek Offshore Export Cable Route Corridor, and Oyster Creek Inshore Export Cable Route Corridor (Figure 1-1). Available EFH source information was then reviewed to determine habitat requirements for each demersal species/life stage. These requirements were then cross walked to each of the Offshore Project Area habitats based on detailed characterizations and spatial distributions (See Sections 3-2 & 3-3) to determine if the substrate, biotic structure, and depth requirements for each species/ life stage were likely to be found within a given mapped benthic habitat type.

2.4 Project Impacts to Benthic Habitats

2.4.1 Seafloor Disturbance Impact Producing Factors

The Project activities with the potential to impact the seafloor during construction include installation of foundations for up to 98 WTGs and 3 OSS, the installation of array and substation interconnector cables, and up to three export cables. During Operations & Maintenance, disturbance to the seafloor could result from the presence of infrastructure and temporarily anchored maintenance vessels. Over the life of the Project, the placement of foundations and scour protection will alter the seabed and associated habitat by replacing the existing seabed and habitat with hard structures that create a reefing effect, which results in colonization by assemblages of both sessile and mobile animals. Decommissioning activities will have similar impacts to the seafloor as construction.

Project activities and associated potential impacts through seafloor disturbance are presented in detail in the Volume I, Section 6 of the COP (Ocean Wind, LLC 2021a) and in the specific tables as follows:

- A summary of key project design envelope parameters for the Project is presented in Table 4.4-1
- The design parameters and the extent of anticipated seabed disturbance for the WTGs are presented in Table 6.1.1-3 and depicted in Figure 6.1.1-2

- The design parameters and the extent of anticipated seabed disturbance for the OSSs are presented in Table 6.1.1-6
- The design parameters and the extent of anticipated seabed disturbance for the array cables are presented in Table 6.1.1-7
- The design parameters and the extent of anticipated seabed disturbance for substation interconnector cables are presented in Table 6.1.1-8
- The design parameters and the extent of anticipated seabed disturbance for the export cables are presented in Table 6.1.1-10
- Landfall parameters are provided in Table 6.2.2-1.

2.4.2 Calculating Potential Impacts to Benthic Habitats

This report was originally submitted in June 2021 and updated with new habitat impact calculation values and information in April 2022. On June 2, 2022, Ocean Wind received Request for Information (RFI) 33 from BOEM requesting multiple updates to the habitat impact calculations, in support of their EFH Assessment and the Draft Environmental Impact Statement (DEIS). Updated total acres related to current indicative GIS layouts and potential impact footprints were provided in response to RFI 33. Because new landfall options and DEIS foundation Alternatives were included in this RFI that covered areas of the seafloor previously outside the footprint of geophysical data and the area mapped for the original Report, minimal areas of interpolated habitat types were added to the habitat delineation data set for the sole purposes of completing these impact calculations and are not included in habitat summaries here; these data were provided to BOEM along with the RFI 33 response. The updated habitat impact values as provided in response to RFI 33 have been minimally updated with new calculations for the inter-array cables and minor clean-up for presentation as an Attachment to this Revision 2 of this Report. These values supersede those provided with the original Report and in the April 2022 revision. These values were updated again in the October 2022 update to correct the values accompanying the WTGs and IAC for the proposed action to align with the latest layout, which includes a southeastern shift of foundation row ‘A’. In addition, values for the OSS Link Cable were separated out from those originally provided as part of the Oyster Creek Offshore Export Cable. In the process of updating the values for the Oyster Creek Offshore Export Cable, an error was discovered that Coarse Sediment – Mobile values had been excluded from the RFI 33 table for the Oyster Creek Offshore Export Cable and the three BL England Offshore Export Cable options; these have been corrected in the October 2022 update.

NOAA Habitat recently provided a new version of their habitat mapping recommendation (March 2021); the maximum potential acres that may be impacted by the Project have been inventoried in terms of the NOAA Habitat Complexity Categories outlined in these new recommendations. These habitat complexity categories were defined by NOAA Habitat for the purposes of EFH consultation. The NOAA Habitat Complexity Categories include: soft bottom, complex, heterogeneous complex, and large-grained complex (large boulders). For purposes of the EFH consultation, NOAA has defined complex habitats as SAV and sediments with >5% gravel of any size (pebbles to boulders; CMECS Substrate of Rock, Groups of Gravelly, Gravel Mixes, and Gravels). Heterogenous complex is used for habitats with a combination of soft bottom and complex features.

Given the uncertainty of the exact locations of impact to the seafloor, an extremely conservative approach, for purposes of EFH consultation, was used to estimate the maximum potential total area and composition of habitats that may be impacted by the Project. Although the same component design parameters (e.g., width of cable protection) as those presented in the COP were used to determine acres of potential impact, the conservative approach used for this report accounts for habitat within the corridors and areas that could be impacted by Project activities and assumes that all habitats within the footprints described below could be impacted by the Project. Actual areas impacted by the Project will be less than those presented in this report.

Specifically, design parameters and specifications for each offshore Project component detailed in the COP (Ocean Wind, LLC 2021a) were used to calculate areas of potential impact (e.g., 5.55 m radius of monopile foundation, 2.99 m wide cable protection for the array cables) to each mapped benthic habitat type in terms of NOAA Habitat Complexity Categories. However, the assumptions used in summarizing the maximum areas of potential impact to each habitat type differed from those in the COP. For example, it is predicted that up to 10% of the array cables will require post-lay cable protection and in the COP this measure is applied to the total maximum area that may be impacted. However, because the precise locations of that 10% will not be known until after construction is complete and because habitats vary within the Offshore Project Area, the calculations presented here assume that cable protection will be needed along 100% of the array cables in order to capture the maximum total area of each benthic habitat type that may be permanently or temporarily impacted by cable protection along the array cables.

For convenience, the specific measurements used for each of the following footprint impact areas are provided below and in Figure 2-17:

1) Up to 98 WTG Monopile Foundations: the foundation (0.023 acres, 5.55 m radius), maximum scour protection, should scour protection be needed, (0.59 acres, 22.39 m radius around foundation), and a seafloor disturbance area for each foundation in which temporary installation activities (anchoring and spudding) will occur (47.92 acres, 222.11 m radius around maximum scour protection);

2) Up to 3 OSS Piled Jacket Foundations: the foundation (1.22 acres, 70.41 m square), maximum scour protection (0.20 acres, 15.96 m diameter around each leg), and a seafloor disturbance area for each foundation in which temporary installation activities (anchoring and spudding) will occur (11.65 acres, 259.08 m diameter around maximum scour protection);

3) Array Cables and Substation Interconnector Cables: a cable installation and seafloor disturbance area along an indicative cable centerline in which all seafloor preparation (clearance) and installation (trenching) activities will occur (25 m wide), and cable protection (2.99 m wide strip inclusive of cable installation width);

4) BL England Offshore Export Cable & Landfall: a cable installation and seafloor disturbance area along an indicative cable centerline in which all seafloor preparation (clearance) and installation (trenching) activities will occur (25 m wide), and cable protection (2.99 m wide strip inclusive of cable installation width), HDD installation at landfall including sediment excavation (49.99 m x 29.87 m) for a cofferdam and an associated anchoring area (175-m radius from center of HDD pit);

5) Oyster Creek Offshore Export Cable & Landfall: the following apply for each of two cables to be sited within the Oyster Creek Offshore Export Cable Route Corridor, cable installation and seafloor disturbance area along an indicative cable centerlines in which all seafloor preparation (clearance) and installation (trenching) activities will occur (25 m wide), and cable protection (2.99 m wide strip inclusive of cable installation width), HDD installation on the Atlantic side of the transition under Island Beach State Park including sediment excavation (49.99 m x 29.87 m) for each cofferdam and an associated anchoring area (175-m radius from center of HDD pit); and

6) Oyster Creek Inshore Export Cable & Landfalls: the following apply for each of two cables to be sited within the Oyster Creek Inshore Export Cable Route Corridor, HDD installation on the Barnegat Bay side of the transition under Island Beach State Park including sediment excavation (49.99 m x 29.87 m) for each cofferdam and an associated anchoring area (175-m radius from center of HDD pit); cable installation and seafloor disturbance area along an indicative cable centerlines in which all seafloor preparation (clearance) and installation (trenching) activities will occur (25 m wide), and cable protection (2.99 m wide strip inclusive of cable installation width); these will continue to landfall to encompass the open cut option for this landing (HDD is also considered but represents a smaller impact area). The results presented in the Attachment include all potential HDD options at landfall options on the western shore where considered.

Cumulative areas for each disturbance footprint type were calculated for the proposed project design scenario (e.g., total of all maximum scour protection that may be used for all 98 WTGs plus 3 OSSs). The maximum total areas of permanent and temporary impacts to each habitat type in terms of NOAA Habitat Complexity Categories were also calculated for the proposed project design components listed below. Additional offshore geophysical and geotechnical surveys may be conducted to improve surface and subsurface data in order to make optimal detailed engineering and design decisions. While the current array, substation interconnection, and export cable routes are sited based on previously collected high-resolution data and consideration of engineering, archaeological, and habitat constraints (among others), these routes may be adjusted as design proceeds.

1) Wind Farm Area: Foundations (WTGs + OSSs)

2) Wind Farm Area: Array & Substation Interconnection Cables

3) BL England Export Cable Route Corridor

4) Oyster Creek Export Cable Route Corridor

In reality, only a fraction of the total areas calculated will ultimately be impacted by Project activities. Given this conservative approach, the maximum potentially impacted acres presented in this report will differ from those footprints presented in the COP. The footprint estimates presented in the COP are intended to represent the total actual acres of seafloor (agnostic to habitat type) that will be impacted by each project component. ***The acres presented in this benthic habitat mapping report are conservative estimates developed for EFH review to describe potential impacts by NOAA Habitat Complexity Category and, therefore, should not be considered representative of the total acres that may be impacted by the Project.***

Table 2-1. Ground-Truth Parameters with Corresponding BOEM COP Requirements and Guidelines (BOEM 2019, 2020; NOAA Habitat 2020)

BOEM COP Guidelines and *NOAA*† *Recommendations*	Parameters Derived from PV and/or Drop Camera Images (^ for PV only)	Parameters Derived from SPI Images	Parameters Derived from Grab Samples
Classification of CMECS sediment type Grain size analysis	CMECS Substrate Group CMECS Substrate Subgroup Gravel measurements^	CMECS Substrate Subgroup Sediment type (based on grain size major mode)	CMECS Substrate Group CMECS Substrate Subgroup
Identification of distinct horizons in subsurface sediment	None	Sediment type (based on grain size major mode) Apparent Redox Potential Discontinuity (aRPD)*	None
Delineate hard bottom substrates	CMECS Substrate Group CMECS Substrate Subgroup	Sediment type (based on grain size major mode)	None
Identification of bedforms Characterization of physical hydrodynamic properties	Bedform type^	Boundary roughness	None
Identification of rock outcrops and boulders Characterization and delineation of any hard bottom gradients of low to high relief such as coral (heads/reefs), rock or clay outcroppings, or other shelter-forming features	CMECS Substrate Group CMECS Substrate Subgroup Gravel measurements^	None	None

BOEM COP Guidelines and *NOAA*† *Recommendations*	Parameters Derived from PV and/or Drop Camera Images (^ for PV only)	Parameters Derived from SPI Images	Parameters Derived from Grab Samples
Characterization of benthic habitat attributes	Gravel measurements^ Sediment Descriptor*^ Macrohabitat^	aRPD* Prism penetration depth Sediment oxygen demand and proxies (methane, *Beggiatoa*)	None
Classification to CMECS Biotic Component to lowest taxonomic unit practicable	CMECS Biotic Subclass CMECS Biotic Group	None	CMECS Biotic Subclass CMECS Biotic Group
Characterization of benthic community composition (identify and confirm benthic species (flora and fauna) that inhabit the area) Identification of communities of sessile and slow-moving marine invertebrates (clams, quahogs, mussels, polychaetes, anemones, sponges, echinoderms) *Identification of potentially sensitive seafloor habitat* *Identification of important biogenic habitats:* • *Hard bottom substrates with epifauna* • *Hard bottom substrates with macroalgae* • *Submerged aquatic vegetation (seagrass)*	CMECS Biotic Subclass CMECS Biotic Group Epifauna* Sensitive taxa Attached Flora/Fauna Percent Cover*^ Burrows/Tubes/Tracks^ Macrohabitat^	Epifauna* Sensitive taxa Tubes/Voids Successional Stage*	CMECS Biotic Subclass CMECS Biotic Group Epifauna* Sensitive taxa

BOEM COP Guidelines and *NOAA*† *Recommendations*	**Parameters Derived from PV and/or Drop Camera Images (^ for PV only)**	**Parameters Derived from SPI Images**	**Parameters Derived from Grab Samples**
• *Long-lived and habitat forming taxa (e.g. emergent fauna)*			

† NOAA Habitat Recommendations are indicated by use of italicized characters and support BOEM Guidelines with further detail.
* Indicates variable that is a CMECS modifier. CMECS Modifiers provide additional detail to further characterize habitat components using a consistent set of definitions.

Table 2-2. CMECS Classification Levels Used in Analysis and Classifications for Compiled Benthic Results for the Ocean Wind Offshore Wind Farm Project

CMECS Term	Scale of Classification	Classifications
	Substrate Component	
Substrate Origin	Site	Geologic Substrate
Substrate Class	SPI/PV	Unconsolidated Mineral Substrate
+Substrate Subclass	SPI/PV	Coarse Unconsolidated Substrate; Fine Unconsolidated Substrate
+Substrate Group	PV	Gravel; Gravel Mixes; **Gravelly**; Slightly Gravelly; **Sand**; Muddy Sand; Sandy Mud; Mud; Shell Substrate; Worm Substrate
+Substrate Subgroup	SPI	Pebble; Granule; Sandy Gravel; **Gravelly Sand**; Slightly Gravelly Sand; Coarse Sand; **Medium Sand**; **Fine Sand**; Very Fine Sand; Silty Sand Shell Hash; Sabellariid Reef Substrate
	Biotic Component	
Biotic Setting	SPI/PV	Benthic/Attached Biota
+Biotic Class	SPI/PV	Faunal Bed; Reef Biota; Aquatic Vegetation Bed
+Biotic Subclass	SPI/PV	**Soft Sediment Fauna**; Attached Fauna; Inferred Fauna; Worm Reef Biota; Aquatic Vascular Vegetation
+Biotic Group	SPI/PV	**Larger Tube-Building Fauna**; **Small Tube-Building Fauna**; Small Surface-Burrowing Fauna; **Sand Dollar Bed**; Tunicate Bed; Clam Bed; Mobile Crustaceans on Soft Sediments; Mobile Mollusks on Soft Sediments; Diverse Soft Sediment Epifauna; Mobile Crustaceans on Hard or Mixed Sediments; Tracks and Trails; Sabellariid Reef; Seagrass Bed

+ Indicates variability within the surveyed area at this level of the hierarchy.

Bold text indicates generally dominant classifications across the surveyed area.

3.0 RESULTS

3.1 Benthic Assessment Results

Compiled site-specific benthic survey results that satisfy BOEM Guidelines (2019, 2020) are presented in tabular form in Attachment A and as maps in Attachment C. A brief summary of key results is provided here.

Sediment types within the Lease Area were generally sandy with some areas including varying degrees of small bare gravels (see Figure 2-12 for examples). CMECS Substrate Groups ranged from Sand to Gravel, and Subgroups ranged from Very Fine Sand to Pebble/Granule. Sediment types along the BL England Offshore Export Cable Route Corridor ranged from mud and muddy sand near shore within state waters to sandy in the federal waters portion of the corridor. CMECS Substrate Groups ranged from Mud to Sand, and Subgroups ranged from Mud to Medium Sand. Sediment types along the Oyster Creek Offshore Export Cable Route Corridor were a mix of sands and sands with varying degrees of small bare gravels. CMECS Substrate Groups ranged from Sand to Gravel, and Subgroups ranged from Fine Sand to Pebble. Sediment types along the Oyster Creek Inshore Export Cable Route Corridor were generally muds with some areas of sand. CMECS Substrate Groups ranged from Mud and Sandy Mud to Sand and Muddy Sand, and Subgroups ranged from Silty Sand to Sand.

CMECS Biotic Subclasses within all project areas were generally composed of Soft Sediment Fauna with a few isolated areas of Worm Reef Biota and Attached Fauna. Greater variability was present at the Biotic Group classification level (not analyzed for 2022 data), with Biotic Groups well suited to dynamic sandy environments, such as Sand Dollar Beds, being prevalent. Within the Lease Area, Sand Dollar Bed and Larger Tube-Building Fauna were observed most frequently. Tunicate Beds and various mobile epifauna, such as gastropods and crustaceans were also observed. Both Small and Large Tube-Building Fauna were observed along the BL England Offshore Export Cable Route Corridor. Along the Oyster Creek Offshore Export Cable Route Corridor, the most frequently observed Biotic Group was Small Tube-Building Fauna. Other notable Biotic Groups were Sand Dollar Beds and Sabellariid Reefs. Certain types of sabellariid reefs most often occur parallel to an ocean shoreline in shallow water, but many are also found in deeper waters where current energy is high (FGDC 2012). The Sabellariid Reef Biotic Groups documented within the Offshore Project Area were patchy in nature and did not form large continuous seafloor features (see Figure 2-13B).

BOEM Guidelines (2019, 2020) includes identification of potentially sensitive seafloor habitats, such as corals, SAV beds, and ecologically valuable cobble and boulder habitat (BOEM, 2019). Cobble and boulder habitat can serve as nursery ground for juvenile lobster and as preferable habitat for squid to deposit their eggs. Both lobster and squid are specific in their habitat requirements and are also economically important species. For these reasons, federal and state agencies consider evidence of these taxa to indicate potentially sensitive habitats. Cobble and boulder habitat was not observed within the Offshore Project Area. Squid were observed within the Lease Area in drop camera imagery at a few stations and squid eggs were observed in PV at one station along the northern portion of the Oyster Creek Offshore Export Cable Route Corridor. In addition, species of ecological and/or economic concern for each of the Wind Energy Areas are defined in a comprehensive assessment of all Northeast Wind Energy Areas (Guida et al. 2017). Of the species identified for the New Jersey Wind Energy Area, live Atlantic surf clams and scallops were observed in SPI/PV and drop camera imagery within the Lease Area, and none were observed within either export cable route corridor.

Data were combined across survey type and sampling gear as much as possible, however, some variability in the level of data resolution possible from each gear type necessitated presenting data by gear type. CMECS Substrate sediment composition is an example where ‘finer than Sand’ is difficult to identify with PV imagery alone. All CMECS Substrate Groups finer than Sand are presented grouped when derived from PV as compared to a combination of grab samples and drop camera imagery. CMECS Substrate Subgroups were determined from a combination of SPI/PV and from a combination of grab and drop camera; therefore, all values are presented together rather than by survey gear type. Where samples were not collected for the purposes of measuring a specific variable, these are listed as “Not Applicable,” and, where the value could not be determined due to image quality or similar reasons “Indeterminate” is used. For the CMECS Biotic Group variable, at Gardline benthic station L3-ENV2 only ten organisms were present (four taxa with two individuals and two taxa with one), as such it was not possible to establish the dominant taxon at this station and the station is shown as “Not Reportable” in the data table and maps.

3.2 Benthic Habitat Types

Three primary benthic habitat types were mapped in the Offshore Project Area: Coarse Sediment, Sand and Muddy Sand, and Mud and Sandy Mud. When habitats were updated with modifiers, a total of eleven were mapped within the Offshore Project Area. A single anthropogenic feature (dock) was also mapped at the shoreline within Barnegat Bay near the Bay Parkway landfall option. Overall descriptions of each habitat type as observed across the Offshore Project Area are provided below and descriptions of spatial distribution within the Wind Farm Area, the BL England Offshore Export Cable Route Corridor, the Oyster Creek Offshore Export Cable Route Corridor and the Oyster Creek Inshore Export Cable Route Corridor are provided in Section 3.3. Spatial distributions and characteristics of the benthic habitat types are summarized in Table 3-1. Each of the benthic habitat categories mapped were also cross walked to CMECS Substrate and Biotic component classifications using SPI/PV ground-truth data (Table 3-2; full data results by station are provided in Attachment A). A range of substrate and biotic communities were present within each benthic habitat category as expected, given the differences in observation scale between geophysical data and ground-truth point samples (Table 3-2).

3.2.1 Coarse Sediment

The Coarse Sediment habitat types encompass sands with varying degrees of gravel (Figure 2-8). The Coarse Sediment – Mobile habitat type describes these sand and gravel habitats where the seafloor is subjected to small, but frequent currents and storm events and is common on the outer continental shelf. The seafloor of these Coarse Sediment habitat types exhibited generally medium to high reflectance values in backscatter and SSS data (Figure 3-1). Ripples and/or mega-ripples were prevalent in Coarse Sediment – Mobile habitats, which were far more prevalent in the offshore portions of the Wind Farm Area and export cable route corridors than Coarse Sediment habitats in which ripples were not observed (Table 3-1). Trawl marks related to fishing activity were also observed within a small portion in these habitats within the Wind Farm Area, and small trench-like features were observed in these habitats along the BL England Offshore Export Cable Route Corridor (Table 3-1).

The sediments within these habitats were generally composed of sandy and gravelly sediments ranging from CMECS Substrate Subgroups of Fine Sand to Pebble/Granule within the Wind Farm Area, from Fine Sand to Pebble within the Oyster Creek Offshore Export Cable Route Corridor, and were Muddy Sand in the single grab collected within these habitats within the BL England Offshore Export Cable Route Corridor (Table 3-2). Shell Hash and Sabellariid Reef Substrate were also observed within Coarse Sediment habitats within the Wind Farm Area (Table 3-2). In a number of cases, ground-truth data and geophysical data supported a refinement of coarse sediment into either Sandy Gravel or Gravelly Sand (Figure 3-2).

The SPI/PV images acquired during the 2022 survey increased the spatial density of samples in Coarse Sediment habitats with medium to high relative backscatter reflectance across the entire Wind Farm Area (compared to the 2017- 2019 samples) (Figure 3-3). Spatial coverage of these areas was also increased by employing towed video targeting these locations (Figure 3-3). These data provide further evidence that these medium to high backscatter areas of the Wind Farm Area are highly dynamic habitats composed of rippled sands with bare granules and pebbles in ripple troughs or pebbles and granules without attached fauna overlaying sandy sediments. In addition, increased replication on a smaller scale was achieved by sampling three stations (623, 644, 648) with pogo PV in small areas of relatively high backscatter located within previously delineated Coarse Sediment polygons. Low variability in the CMECS Substrate Subgroup across replicates at each of these locations indicate that these habitats are relatively homogenous and well defined by traditional station sampling with 3 replicate image pairs (Figure 3-4).

The CMECS Biotic Subclasses of Soft Sediment Fauna, Worm Reef Biota, and Attached Fauna were observed within Coarse Sediment habitats within the Offshore Project Area (Table 3-2). Of these, Soft Sediment Fauna were observed most frequently, with Worm Reef Biota observed at several stations, and Attached Fauna observed at a few (Attachments A and C). Soft Sediment Taxa were generally comprised of large and small tube-building taxa, burrowing anemones, amphipods, tunicates, and mobile crustaceans and mollusks (Attachments A and C; Table 3-2; Figure 3-5). Biotic Groups of Mobile Crustaceans or Mollusks on Hard or Mixed Substrate were classified as Attached Fauna, per CMECS (FGDC 2012; Attachment A). Variability in the infaunal and epifaunal communities that use these Coarse Sediment habitat was evident in ground-truth imagery (Figure 3-5), with a “classic” sandy infaunal tube community evident in Slightly Gravelly Sand (Figure 3-5C), large tubes and mobile epifauna colonizing Granules

(Figure 3-5A), and *Molgula* spp. tunicates, burrowing anemones, and mobile epifauna also colonizing a seafloor composed of Granules (Figure 3-5B).

3.2.2 Sand and Muddy Sand

The Sand and Muddy Sand habitat types consist of sand that has been subjected to a wide range of oceanic processes. These habitat types are very common on the outer continental shelf. The Muddy Sand included in this category has a high sand to mud ratio, ranging from an 8:2 sand to mud ratio to 100% sand (Figure 2-8). The seafloor of these habitats exhibited a range of values in backscatter and SSS data reflectance, but were predominantly low to medium (Figure 3-6). Reflectance values tended to be higher within areas of Sand and Muddy Sand – Mobile characterized by prevalent and distinct ripples and nearshore/inshore due to shallower depths (see Section 2.1.1 for additional information on the reasons for these differences). The Sand and Muddy Sand – Mobile habitat type describes these sandy habitats where the seafloor is subjected to small but frequent currents and storm events and is common on the outer continental shelf. Ripples and/or mega-ripples were prevalent in these habitats, which were far more prevalent in the offshore portions of the Wind Farm Area and export cable route corridors than Sand and Muddy Sand habitats in which ripples were not observed (Table 3-1). Trawl marks related to fishing activity were also prevalent in these habitats within the Wind Farm Area (Table 3-1). Shallow depressions of an unknown origin were observed within almost half of the area of these habitats within the BL England Offshore Export Cable Route Corridor (Table 3-1; Figure 2-11).

The sediments within these habitats were generally composed of fine to medium sand and ranged from CMECS Substrate Subgroups of Fine Sand to Slightly Gravelly Sand within the Wind Farm Area, from Silty Sand to Gravelly Sand within the Oyster Creek Offshore Export Cable Route Corridor, and from Sandy Mud to Fine Sand within the BL England Offshore Export Cable Route Corridor (Table 3-2). Sabellariid Reef Substrates were also observed within Sand and Muddy Sand habitats within the Wind Farm Area and the Oyster Creek Offshore Export Cable Route Corridor (Table 3-2).

The CMECS Biotic Subclasses of Soft Sediment Fauna, Worm Reef Biota, Inferred Fauna, and Attached Fauna were observed within Sand and Muddy Sand habitats within the Offshore Project Area (Table 3-2). Of these, Soft Sediment Fauna were observed most frequently, with Worm Reef Biota observed at several stations, and Attached Fauna and Inferred Fauna (epifaunal tracks and trails) observed at a few (Attachments A and C). Soft Sediment Taxa were generally comprised of large and small tube-building taxa, sand dollars, burrowing anemones, amphipods, tunicates, and mobile crustaceans and mollusks (Attachments A and C; Table 3-2; Figure 2-13A). Worm Reef Biota were present as patchy Sabellariid Reefs (Attachments A and C; Table 3-2; Figure 2-13B).

3.2.3 Mud and Sandy Mud

The Mud and Sandy Mud habitat types consist of relatively featureless mud and sand, except where described by modifiers for boulder fields and SAV. The sand to silt/clay ratio within these habitat types is expected to be less than 8:2 (Figure 2-8). The seafloor of these habitats exhibited predominantly low backscatter and SSS data reflectance (Figure 3-7) indicating that the surface is less dense and the sediments more fine-grained compared to other habitat types. These habitats were only observed in the nearshore areas of the BL England Offshore Export Cable Route Corridor and within Barnegat Bay within the Oyster Creek Inshore Export Cable Route Corridor (Table 3-1); bedforms were not observed within these habitats (Table 3-1). The sediments within these habitats were generally composed of sand and mud and ranged from CMECS Substrate Subgroups of Mud to Sand within the Oyster Creek Inshore Export Cable Route Corridor and within the BL England Offshore Export Cable Route Corridor (Table 3-2). These shallow nearshore and Bay waters were only sampled with grab samples analyzed for sediment grain size and, therefore, no specific ground-truth data on biotic communities are available (Attachments A and C; Table 3-2).

3.2.4 Low Density Boulder Fields & Scattered Boulders and Debris

Low density boulder fields were observed in a few discrete areas across the center of the Wind Farm Area within Sand and Muddy Sand habitats (Figure 2-9). Low density boulder fields within Mud and Sandy Mud habitats were present nearshore along the BL England Offshore Export Cable Route Corridor and in one small section of the Oyster Creek Inshore Export Cable Route Corridor (Figure 2-10). These habitats represent a very small portion of the Offshore Project Area (Table 3-1). Scattered boulders and debris were present across all habitat types surveyed with geophysical data (Figures 2-9 and 2-10). Boulders and debris were not identified in SAV habitats as these habitats were not surveyed with geophysical data and were mapped using recent and historical survey data (Ocean Wind, LLC 2021g). These discrete and isolated features can serve as important structure for certain demersal species with EFH in the region and were cross walked to EFH accordingly (Attachment B); additional information and discussion is presented in Section 4.2

3.2.5 Submerged Aquatic Vegetation

Submerged aquatic vegetation was present in both Sand and Muddy Sand and Mud and Sandy Mud habitats within the Oyster Creek Inshore Export Cable Route Corridor (Table 3-1). No benthic ground-truth stations were collected in these SAV habitats (Attachments A and C; Table 3-2); site-specific surveys and historical data were compiled for SAV in Appendix E of the COP (Ocean Wind, LLC 2021g). A small area of SSS data overlapped with an SAV bed and a distinct patchy texture was observed (Figure 3-8). The July 2022 SAV survey results are presented in a separate Addendum to Revision 2 of this Report. The data results presented therein should be considered the most up to date data on recent SAV and macroalgae distributions and coverage within Barnegat Bay in the vicinity of the Ocean Wind export cable and potential landfall locations. SAV habitats serve as important nursery habitat demersal fish and invertebrate species with EFH in the region and were cross walked to EFH accordingly (Attachment B); additional information and discussion is presented in Section 4.2.

Table 3-1. Composition and Characteristics of Mapped Benthic Habitat Types with Modifiers

Wind Farm Area	Presence in Area		Bedforms Type Present in Given Percentage of Habitats				
	Acres	Percentage of Area	Mega-ripples	Ripples	Trenches	Trawl marks	Shallow depressions
Coarse Sediment	1,300	2%	-	-	-	7%	-
Coarse Sediment - Mobile	6,788	12%	2%	100%	-	17%	-
Sand and Muddy Sand with Low Density Boulder Field	254	0.5%	-	99%	-	90%	-
Sand and Muddy Sand - Mobile	45,749	84%	-	100%	-	94%	-
Sand and Muddy Sand	688	1%	-	-	-	6%	-
BL England Offshore Export Cable Route Corridor (inclusive of all landfalls)							
Coarse Sediment	2	0.1%	-	-	-	-	-
Coarse Sediment - Mobile	38	1%	75%	100%	20%	-	-
Sand and Muddy Sand - Mobile	4	0.1%	100%	-	-	-	-
Sand and Muddy Sand	2,893	85%	-	-	-	-	46%
Mud and Sandy Mud with Low Density Boulder Field	60	2%	-	-	-	-	-
Mud and Sandy Mud	410	12%	-	-	-	-	-
Oyster Creek Offshore Export Cable Route Corridor							
Coarse Sediment	387	4%	-	-	-	-	-
Coarse Sediment - Mobile	4,084	45%	-	100%	-	-	-
Sand and Muddy Sand - Mobile	4,408	48%	4%	96%	-	-	-
Sand and Muddy Sand	278	3%	-	-	-	-	-
Oyster Creek Inshore Export Cable Route Corridor (inclusive of all landfalls)							
Sand and Muddy Sand with SAV	40	3%	-	-	-	-	-
Sand and Muddy Sand with Historical SAV	39	3%	-	-	-	-	-
Sand and Muddy Sand	211	18%	-	-	-	-	-
Mud and Sandy Mud with Low Density Boulder Field	6	0.5%	-	-	-	-	-
Mud and Sandy Mud with SAV	81	7%	-	-	-	-	-
Mud and Sandy Mud with Historical SAV	12	1%	-	-	-	-	-
Mud and Sandy Mud	812	68%	-	-	-	-	-
Anthropogenic	0.1	0.01%	-	-	-	-	-

** No Bedforms were identified within Oyster Creek Inshore Export Cable Route Corridor habitats*
"-" Bedform not present

Table 3-2. Ground-Truth Data for Mapped Benthic Habitat Types with Modifiers

Wind Farm Area		Coarse Sediment	Coarse Sediment - Mobile	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand	Sand and Muddy Sand - Mobile
SPI/PV, Grab, Drop Cam Ground-truth Values	Number of SPI/PV stations*	9	34	1	2	141
	Number of Grab, Drop Camera stations	2	13	0	0	9
	CMECS Substrate Subgroups Observed in Ground-truth Data*	Sandy Gravel, Gravelly Sand, Slightly Gravelly Muddy Sand, Medium Sand, Fine Sand, Shell Hash	Pebble/Granule, Sandy Gravel, Gravelly Sand, Slightly Gravelly Sand, Coarse Sand, Coarse Sand and Medium Sand Mix, Medium Sand, Fine Sand, Very Fine Sand, Shell Hash, Sabellariid Reef Substrate	Fine Sand	Fine Sand	Slightly Gravelly Sand, Coarse Sand, Coarse Sand and Medium Sand Mix, Medium Sand, Fine Sand, Sabellariid Reef Substrate
	CMECS Biotic Subclasses Observed in Ground-truth Data*	Soft Sediment Fauna, Worm Reef Biota	Soft Sediment Fauna, Worm Reef Biota, Attached Fauna, Inferred Fauna	Soft Sediment Fauna	Soft Sediment Fauna	Soft Sediment Fauna, Worm Reef Biota, Inferred Fauna
	Maximum Percent Cover of Attached Fauna Observed in Ground-truth Data*	Sparse (1 to <30%)	Trace (<1%)	None	None	None
	Sessile Epifauna Observed in Ground-truth Data	Encrusting Sponge, Podocerid Amphipoda	Bivalve, Podocerid Amphipoda, Sea Cucumber	Podocerid Amphipoda	-	Anemone, Bryozoa, Podocerid Amphipoda, Sea Scallop, Surf Clam, Tunicates
	Mobile Epifauna Observed in Ground-truth Data	Cancer Crabs, Hermit Crabs, Nudibranchs	Cancer Crab(s), Hermit Crab(s), Jonah Crab, Moon Snails, Nudibranch(s), Sand Dollars, Snails	Hermit Crabs, Sand Dollars, Snails	-	Cancer Crab(s), Crab, Gastropod(s), Hermit Crab(s), Jonah Crab, Moon Snail, Nudibranch(s), Sand Dollar(s), Snails

* Updated with 2022 Benthic SPI/PV station results, Pogo PV station results not included

BL England Offshore Export Cable Route Corridor (inclusive of all landfalls)		**Coarse Sediment – Mobile**	**Sand and Muddy Sand**	**Mud and Sandy Mud**	**-**
SPI/PV, Grab, Drop Cam Ground-truth Values	Number of SPI/PV stations	0	5	0	**-**
	Number of Grab, Drop Camera stations	1	10	4	**-**
	CMECS Substrate Subgroups Observed in Ground-truth Data	Muddy Sand	Fine Sand, Muddy Sand, Sandy Mud	Sand, Sandy Mud, Mud	**-**
	CMECS Biotic Subclasses Observed in Ground-truth Data	-	Soft Sediment Fauna	-	**-**
	Maximum Percent Cover of Attached Fauna Observed in Ground-truth Data	-	None	-	**-**
	Sessile Epifauna Observed in Ground-truth Data	-	Anemones, Slipper Shell, Clam	-	**-**
	Mobile Epifauna Observed in Ground-truth Data	-	Cancer Crabs, Hermit Crabs, Gastropod, Snails, Sand Dollars, Nudibranchs	-	**-**

Oyster Creek Offshore Export Cable Route Corridor		Coarse Sediment	Coarse Sediment – Mobile	Sand and Muddy Sand – Mobile	Sand and Muddy Sand
SPI/PV, Grab, Drop Cam Ground-truth Values	Number of SPI/PV stations	2	21	21	0
	Number of Grab, Drop Camera stations	4	0	7	2
	CMECS Substrate Subgroups Observed in Ground-truth Data	Pebble, Gravelly Sand, Sand	Pebble, Granule, Sandy Gravel, Gravelly Sand, Slightly Gravelly Sand, Fine Sand	Gravelly Sand, Slightly Gravelly Sand, Sand, Coarse Sand, Medium Sand, Muddy Sand, Silty Sand, Sabellariid Reef Substrate	Sand, Muddy Sand
	CMECS Biotic Subclasses Observed in Ground-truth Data	Soft Sediment Fauna	Soft Sediment Fauna, Worm Reef Biota	Soft Sediment Fauna, Worm Reef Biota, Attached Fauna	-
	Maximum Percent Cover of Attached Fauna Observed in Ground-truth Data	Sparse (1 to <30%)	Sparse (1 to <30%)	Trace (<1%)	-
	Sessile Epifauna Observed in Ground-truth Data	Barnacles, Hydroids	Bryozoa, Cerianthid(s), Clam(s), Hydroids, Limpets, Podocerid Amphipoda, Sponges, Surf Clam, Tunicates	Bryozoa, Cerianthids, Clam, Hydroids, Limpets, Surf Clam, Tunicates	-
	Mobile Epifauna Observed in Ground-truth Data	Hermit Crabs	Cancer Crabs, Gastropod, Hermit Crabs, Moon Snails, Nudibranch(s), Sand Dollars, Sea Slugs, Snails	Cancer Crab(s), Gastropod, Hermit Crabs, Moon Snails, Nudibranchs, Sand Dollars, Snails	-

Oyster Creek Inshore Export Cable Route Corridor (inclusive of all landfalls)		**Sand and Muddy Sand with SAV**	**Sand and Muddy Sand with Historical SAV**	**Sand and Muddy Sand**	**Mud and Sandy Mud**
SPI/PV, Grab, Drop Cam Ground-truth Values	Number of SPI/PV stations	0	0	0	0
	Number of Grab, Drop Camera stations	1	1	11	15
	CMECS Substrate Subgroups Observed in Ground-truth Data	Sand	Sand	Muddy Sand, Sandy Mud	Sand, Muddy Sand, Sandy Mud, Mud
	CMECS Biotic Subclasses Observed in Ground-truth Data	-	-	-	-
	Maximum Percent Cover of Attached Fauna Observed in Ground-truth Data	-	-	-	-
	Sessile Epifauna Observed in Ground-truth Data	-	-	-	-
	Mobile Epifauna Observed in Ground-truth Data	-	-	-	-

"-" Not present

3.3 Benthic Habitat Distributions

Distributions of benthic habitat types in the Offshore Project Area are related to a combination of ancient and modern geological events in the region. The geophysical and benthic survey data collected by Ocean Wind have refined the understanding of the distribution of the predominantly dynamic sand and gravelly sand habitats within and near the Offshore Project Area. While three benthic habitat types were mapped, eleven with modifiers, not all types were present in each portion of the Offshore Project Area. In addition, a single anthropogenic feature (dock) was also mapped at the shoreline within Barnegat Bay (at the Bay Parkway Landfall option). Habitat composition, characteristics, and corresponding ground-truth data within the Wind Farm Area, the BL England Offshore Export Cable Route Corridor, the Oyster Creek Offshore Export Cable Route Corridor, and the Oyster Creek Inshore Export Cable Route Corridor are provided in Tables 3-1 and 3-2.

3.3.1 Wind Farm Area

Sand and Muddy Sand was the primary habitat type mapped within the Wind Farm Area (46,691 acres; ~ 85% of the area); Coarse Sediment was also mapped within the Wind Farm Area (8,088 acres; ~ 15% of the area) (Table 3-1; Figure 3-9). Nearly all of the benthic habitats mapped within the Wind Farm Area were highly dynamic and mobile with over 52,500 acres (~95% of the area) described further using the Mobile modifier (Table 3-1; Figure 3-10). Ripples observed within these areas were dynamic over relatively short temporal scales with the direction of the ripples often differing between surveys (Ocean Wind, LLC 2021f). Habitats without ripples were relatively small in spatial extent and were distributed mostly in the eastern and southeastern portions of the Wind Farm Area (Coarse Sediment and Sand and Muddy Sand without Mobile modifier; Figure 3-10). The majority of the Wind Farm Area was classified as Sand and Muddy Sand – Mobile and very small to large patches of Coarse Sediment – Mobile were interspersed throughout the area. Bare mobile granules and pebbles and/or shell fragments and hash often were observed within these Coarse Sediment – Mobile areas within the troughs of sand ripples (for an example, see Figure 2-12C and 2-12F) or overlaying sandy sediments (for an example, see Figure 2-12D). Sand and Muddy Sand with Low Density Boulder Field habitats were observed in a few discrete areas, across the center of the Wind Farm Area, totaling approximately 254 acres (Figure 3-10).

The CMECS Substrate Subgroup, Biotic Subclass/Groups, and epifauna presence ground-truth data observed within the Wind Farm Area for each habitat type generally follow the descriptions as provided in Section 3.2. Generally, coarser CMECS Substrate Subgroups corresponded with Coarse Sediment habitats, while Fine to Coarse Sands generally were observed within the Sand and Muddy Sand habitats (Table 3-2; Figure 3-11). Although all habitat types were dominated by Soft Sediment Fauna (Attachments A and C), a few patterns are evident at the Biotic Group classification level (Figure 3-12). Sand Dollar Beds were prevalent in Sand and Muddy Sand habitats, with few observations within Coarse Sediment habitats (Attachment A; Figure 3-12). Similarly, Tunicate Beds generally were observed within Sand and Muddy Sand habitats within the Wind Farm Area (Attachment A; Figure 3-12). Sabellariid Reefs were observed in both habitat types (Attachment A; Figure 3-12).

3.3.1.1 Sand Ridge Area in East Part of Wind Farm Area

Data results from SPI/PV and video collected at the sand ridge area in June 2022 indicate physical and biological differences between the crests and troughs of these ridges (Figure 3-13, 3-14, and 3-15). The sediments on the crests were more homogeneous composed primarily of fine to medium sands (Figure 3-14). The majority of the sediments of the troughs were composed of fine to coarse sands and were more varied with a range of composition from very fine sand to sandy gravel (Figure 3-14). The video data is less resolute regarding variability between fine and coarse sand, and most habitat types recorded on crests and troughs were "sand or finer" (Figure 3-14). "Shelly sand" was also recorded along a portion of each transect along the troughs (Figure 3-14). Sand dollars were present at both crests and troughs, with a distinctly higher average density along the crests (Figure 3-15).

3.3.2 BL England Offshore Export Cable Route Corridor

Similar to the Wind Farm Area, the majority of the BL England Offshore Export Cable Route Corridor was composed of Sand and Muddy Sand (2,897 acres; ~ 85% of the area) (Table 3-1; Figure 3-16). In contrast to the Wind Farm Area, few of these habitats were classified as Mobile (Figure 3-17); closest to the Wind Farm the seafloor was relatively featureless with frequent small depressions of unknown origin (Table 3-1; Figure 2-11). Closer to shore, Mud and Sandy Mud habitats totaling 470 acres (14% of the area) were mapped (Table 3-1; Figure 3-16). A few small areas of Coarse Sediment totaling 40 acres were mapped close to the Wind Farm Area and within a very small linear area mapped near the shoreline at the 35th St. Landfall (Table 3-1; Figure 3-16). Two discrete areas of Mud and Sandy Mud with Low Density Boulder Field habitats were mapped along the corridors approaching the 15th and 5th St. Landfall locations (60 acres, ~2% of the area; Table 3-2; Figure 3-17); these landfalls are no longer under consideration. Habitats mapped within the BL England Offshore Export Cable Route Corridor were relatively homogeneous with ground-truth data revealing sediments composed of varying degrees of sand and mud (Table 3-2; Figure 3-18). Biotic ground-truth data were only available in the portions of the corridor located further from shore (Attachments A and C; Table 3-2; Figure 3-19). All biota observed within Sandy and Muddy Sand habitats along the BL England Offshore Export Cable Route Corridor were Soft Sediment Fauna comprised predominantly of small and large tube-building taxa (Table 3-2; Figure 3-19).

3.3.3 Oyster Creek Offshore Export Cable Route Corridor

The Oyster Creek Offshore Export Cable Route Corridor represents a different composition of habitats than found within the other parts of the Offshore Project Area. The habitats along this corridor were almost evenly split between Sand and Muddy Sand (4,686 acres; ~51% of the area) and Coarse Sediment (4,471 acres; ~49% of the area) (Table 3-1; Figure 3-16). Along the majority of the corridor in federal waters these habitats were highly dynamic and mobile with over 8,400 acres (~93% of the area) described further using the Mobile modifier (Table 3-1;

Figure 3-17). Ripples were not observed in the areas mapped closer to the Atlantic shoreline (Coarse Sediment and Sand and Muddy Sand without Mobile modifier; Figure 3-17). Sand and Muddy Sand – Mobile and Coarse Sediment – Mobile were interspersed and alternating, along the length of the export cable route corridor in federal waters (Figure 3-17).

The CMECS Substrate Subgroup, Biotic Subclass/Groups, and epifauna presence ground-truth data observed within the Oyster Creek Offshore Export Cable Route Corridor for each habitat type generally followed the descriptions as provided in Section 3.2. Similar to those habitats mapped within the Wind Farm Area, generally, coarser CMECS Substrate Subgroups corresponded with Coarse Sediment habitats, while Medium to Slightly Gravelly Sands generally were observed within the Sand and Muddy Sand habitats (Table 3-2; Figure 3-18). Multiple stations classified as Granules were observed near the area of the cable where the corridor splits and rejoins into one corridor (Figure 3-18; for example, ground-truth images see Figures 3-2 and 3-3). These particular habitats were not observed within any other portion of the mapped Offshore Project Area. However, the biota present in these locations (large tubes or tunicates) were observed within other habitats mapped in the Offshore Project Area (Table 3-2; Figures 3-12 and 3-19). Although all habitat types were dominated by Soft Sediment Fauna, in particular Small Tube-Building Fauna (Attachments A and C), a few patterns are evident at the Biotic Group classification level (Figure 3-19). Unlike the Wind Farm Area, where Sand Dollar Beds were prevalent in Sand and Muddy Sand – Mobile habitats, Sand Dollar Beds were found within Coarse Sediment – Mobile habitats in addition to Sand and Muddy Sand – Mobile habitats along the middle portion of the Oyster Creek Offshore Export Cable Route Corridor (Attachment A; Figure 3-19). Sabellariid Reef biota were observed in the northern portion of the cable route and were associated with both Sand and Muddy Sand – Mobile and Coarse Sediment – Mobile habitat types (Attachment A; Figure 3-19).

3.3.4 Oyster Creek Inshore Export Cable Route Corridor

The Oyster Creek Inshore Export Cable Route Corridor is located entirely within the estuary of Barnegat Bay and as such had a different distribution of benthic habitat types compared to the rest of the Offshore Project Area (Figures 3-16 and 3-17). The majority of the mapped area was Mud and Sandy Mud (912 acres; ~ 76% of the area) and the remaining 290 acres (~24% of the area) was mapped as Sand and Muddy Sand (Table 3-1; Figure 3-16). The diversity of habitat types within the Oyster Creek Inshore Export Cable Route Corridor is evident when benthic habitats with modifiers are examined (Table 3-2; Figure 3-17). While about two-thirds of the mapped habitat remains classified as Mud and Sandy Mud and ~18% classified as Sand and Muddy Sand, habitats further described with the SAV modifier comprise approximate 172 acres (~14% of the area), with 121 acres of SAV habitat documented within the past three years and the remaining 51 acres having documented historical presence of SAV (Table 3-1; Figure 3-17; Ocean Wind LLC, 2021g). The Oyster Creek Inshore Export Cable Route Corridor was shifted to the north to the location of a formerly used navigation channel to avoid impacts to continuous SAV beds. Recent surveys documented SAV habitat within the vicinity of the potential landfall locations in shallow waters fringing the coast (Appendix E; Ocean Wind LLC 2021a). In the formerly used navigation channel, water depth limits SAV growth, however SAV were observed with sparse coverage (single or double shoots) within the channel and with patchy or complete coverage along the shallow flanks of the channel as documented in the 2022 and 2021 SAV surveys (Figure 3-20; see SAV Addendum for more details).

In addition, one discrete area of Mud and Sandy Mud with Low Density Boulder Field habitat was mapped near the split for the three landfall options (6 acres, ~0.5% of the area; Table 3-2; Figure 3-17). Sediment composition within habitats mapped in Barnegat Bay were relatively homogeneous with ground-truth data revealing sediments composed of varying degrees of sand and mud (Table 3-2; Figure 3-18). Biotic ground-truth data were not collected at the ground-truth stations sampled within Oyster Creek Inshore Export Cable Route Corridor (Attachments A and C; Table 3-2; Figure 3-19).

3.4 Project Impacts to Benthic Habitats

To provide inventories of the maximum potential acres that may be impacted by the Project to support EFH Consultation, the updated NOAA Habitat Complexity Categories (NOAA Habitat 2021) have been used. The process involved two steps: cross walking benthic habitat types with modifiers to these categories and calculating maximum potential acres of impact to these habitat categories using the permanent and temporary impact footprint measurements and approach detailed in Section 2.4.

3.4.1 NOAA Habitat Complexity Crosswalk

The NOAA Habitat Complexity Categories were defined by NOAA Habitat for the purposes of EFH consultation in their new recommendations (NOAA Habitat 2021). The NOAA Habitat Complexity Categories include soft bottom, complex, heterogeneous complex, and large-grained complex (large boulders). For purposes of the EFH consultation, NOAA has defined complex habitats as SAV and sediments with >5% gravel of any size (pebbles to boulders; CMECS Substrate of Rock, Groups of Gravelly, Gravel Mixes, and Gravels) (NOAA Habitat 2020 & 2021). Heterogenous complex is used for habitats with a combination of soft bottom and complex features (NOAA Habitat 2021). A crosswalk between benthic habitat types with modifiers and NOAA Habitat Complexity Categories is provided in Table 3-3. Six benthic habitat types with modifiers were cross walked to the “complex” category, based either on having >5% gravel or on the recent or historical presence of SAV. Historical presence of SAV is classified the same as recent SAV because the New Jersey Department of Environmental Protection regulates historical SAV as well as current SAV habitat. The three sand and mud habitat types were classified as “soft bottom.” Those soft bottom habitats with low density boulder fields were categorized as “heterogeneous complex”.

Table 3-3. Crosswalk of Benthic Habitat Types with Modifiers Mapped at the Project to NOAA Habitat Complexity Categories

Benthic Habitat Type with Modifiers	NOAA Habitat Complexity Category
Coarse Sediment	Complex

Benthic Habitat Type with Modifiers	NOAA Habitat Complexity Category
Coarse Sediment - Mobile	Complex
Sand and Muddy Sand with Low Density Boulder Field	Heterogeneous Complex
Sand and Muddy Sand - Mobile	Soft Bottom
Sand and Muddy Sand with SAV	Complex
Sand and Muddy Sand with Historical SAV	Complex
Sand and Muddy Sand	Soft Bottom
Mud and Sandy Mud with Low Density Boulder Field	Heterogeneous Complex
Mud and Sandy Mud with SAV	Complex
Mud and Sandy Mud with Historical SAV	Complex
Mud and Sandy Mud	Soft Bottom

3.4.2 Habitat Composition Relative to Potential Maximum Areas for Impact

To provide additional context to the acres calculated for maximum potential impacts, tallies of benthic habitat types by modifiers (Table 3-4) and by NOAA Habitat Complexity Category (Table 3-5) are provided, along with habitats mapped as cross walked NOAA Habitat Complexity Categories (Figures 3-21 and 3-22). These tables include the originally selected landfall for each export cable route (35th Street for BL England and the Farm for Oyster Creek), whereas the totals provided in Table 3-1 include all optional landfall locations mapped for each export cable route corridor. Note that additional landfall options on the western shore of Barnegat Bay are now in consideration and are addressed in the DEIS. The values in these tables remain the same as those originally presented in the original report and April 2022 revision.

Table 3-4. Total Area of Each Habitat Type with Modifiers within the Ocean Wind Offshore Wind Farm Offshore Project Area

	Coarse Sediment		Sand and Muddy Sand					Mud and Sandy Mud				Anthropogenic	Total
	Coarse Sediment	Coarse Sediment - Mobile	Sand and Muddy Sand with Low Density	Sand and Muddy Sand - Mobile	Sand and Muddy Sand with SAV	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud	Anthropogenic	
Wind Farm Area*													
Acres	1,300	6,788	254	45,749	0	0	688	0	0	0	0	0	54,779
Percentage of Area	2%	12%	0.5%	84%	0%	0%	1%	0%	0%	0%	0%	0%	100%
BL England Offshore Export Cable Route Corridor & Landfall, *inclusive of OSS to Sea-to-Shore Transition (35th St. Landfall only)*													
Acres	2	30	0	4	0	0	2,363	0	0	0	165	0	2,563
Percentage of Area	0.1%	1%	0%	0.1%	0%	0%	92%	0%	0%	0%	6%	0%	100%
Oyster Creek Offshore Export Cable Route Corridor & Landfall, *inclusive of OSS to Sea-to-Shore Transition at Island Beach State Park*													
Acres	387	4,084	0	4,408	0	0	278	0	0	0	0	0	9,156
Percentage of Area	4%	45%	0%	48%	0%	0%	3%	0%	0%	0%	0%	0%	100%
Oyster Creek Inshore Export Cable Route Corridor & Landfall, *inclusive of Island Beach State Park to Sea-to-Shore Transition (The Farm Landfall only)*													
Acres	0	0	0	0	12	29	151	2	80	4	598	0	875
Percentage of Area	0%	0%	0%	0%	1%	3%	17%	0.3%	9%	0.4%	68%	0%	100%

* There is a small portion of seafloor outside the Lease Area (42 acres) that may be temporarily impacted during installation activities, no permanent impacts would occur outside the Lease Area.

Table 3-5. Total Area of Benthic Habitats by NOAA Habitat Complexity Category within the Ocean Wind Offshore Wind Farm Project Areas

	Complex	Heterogeneous Complex	Soft Bottom	Total
Wind Farm Area*				
Acres	8,088	254	46,437	54,779
Percentage of Area	15%	0.5%	85%	100%
BL England Offshore Export Cable & Landfall ***inclusive of OSS to Sea-to-Shore Transition (35th St. Landfall only)***				
Acres	32	0	2,531	2,563
Percentage of Area	1%	0%	99%	100%
Oyster Creek Offshore Export Cable & Landfall ***inclusive of OSS to Island Beach State Park***				
Acres	4,470	0	4,686	9,156
Percentage of Area	49%	0%	51%	100%
Oyster Creek Inshore Export Cable & Landfall ***inclusive of Island Beach State Park to Sea-to-Shore Transition (The Farm Landfall only)***				
Acres	124	2	748	875
Percentage of Area	14%	0.3%	86%	100%

* There is a small portion of seafloor outside the Lease Area (42 acres) that may be temporarily impacted during installation activities, no permanent impacts would occur outside the Lease Area.

3.4.3 Impact Calculation Results

Given the uncertainty of the exact locations of impact to the seafloor, a conservative approach, for purposes of EFH consultation, was used to estimate the maximum potential total area and composition of habitats that may be impacted by the Project. Although the same component design parameters (e.g., width of cable protection) as those presented in the COP were used to determine acres of impact, the conservative approach used for this report assumed Project activities would occur over the entirety of the area possible (100% of each cable, rather than the 10% assumed in the COP). In reality, only a fraction of these areas will ultimately be impacted by Project activities. Given this conservative approach, the maximum potentially impacted acres presented in this report will differ from those footprints presented in the COP. The footprint estimates presented in the COP are intended to represent the maximum acres of seafloor (agnostic to habitat type) that may be impacted by each project component (Ocean Wind, LLC 2021a). ***The acres presented in this benthic habitat mapping report are conservative estimates of habitats to which impacts could occur developed for EFH review to describe potential impacts by NOAA Habitat Complexity Category and, therefore, should not be considered representative of the total acres that may be impacted by the Project.***

This report was originally submitted in June 2021 and updated with new habitat impact calculation values and information in April 2022. On June 2, 2022, Ocean Wind received Request for Information (RFI) 33 from BOEM requesting multiple updates to the habitat impact calculations, in support of their EFH Assessment and the Draft Environmental Impact Statement (DEIS). Updated total acres related to current indicative GIS layouts and potential impact footprints were provided in response to RFI 33. Because new landfall options and DEIS foundation Alternatives were included in this RFI that covered areas of the seafloor previously outside the footprint of geophysical data and the area mapped for the original Report, minimal areas of interpolated habitat types were added to the habitat delineation data set for the sole purposes of completing these impact calculations and are not included in habitat summaries here; these data were provided to BOEM along with the RFI 33 response. The updated habitat impact values as provided in response to RFI 33 have been minimally updated with new calculations for the inter-array cables and minor clean-up for presentation in Attachment H to this Revision 2 of this Report. These values supersede those provided with the original Report and in the April 2022 revision. These values were updated again in the October 2022 update to correct the values accompanying the WTGs and IAC for the proposed action to align with the latest layout, which includes a southeastern shift of foundation row 'A'. In addition, values for the OSS Link Cable were separated out from those originally provided as part of the Oyster Creek Offshore Export Cable. In the process of updating the values for the Oyster Creek Offshore Export Cable, an error was discovered that Coarse Sediment – Mobile values had been excluded from the RFI 33 table for the Oyster Creek Offshore Export Cable and the three BL England Offshore Export Cable options; these have been corrected in the October 2022 update.

Using the conservative approach as described above, the potential exists for all three of the NOAA Habitat Complexity Categories cross walked to benthic habitat types to be permanently and/or temporarily impacted by the Project, with the vast majority of the impacts to habitats categorized as soft bottom (Attachment H). Some impacts are expected in habitats characterized as complex (Attachment H). With the exception of SAV habitats, habitats cross walked to the complex NOAA Habitat Complexity Category were characterized as highly dynamic habitats composed of rippled sands with bare granules and pebbles in ripple troughs or pebbles and granules without attached fauna overlaying sandy sediments. These habitats are unlikely to provide an impediment to construction or to be adversely affected by Project activities. A minute fraction of the impacts are expected in habitats characterized as heterogeneous complex (Attachment H).

WTG & OSS Foundations

Impact footprints for WTG and OSS foundations, inclusive of maximum possible scour protection and the seafloor disturbance area in which anchoring and spudding will occur, intersect all three of the NOAA Habitat Complexity Categories cross walked to benthic habitat types (Attachment H). Foundation footprints would permanently impact habitats categorized as soft bottom, heterogeneous complex, and complex, the majority of which was classified as soft bottom habitat (~ 85%; Attachment H). Most of the remaining area intersects habitats categorized as complex (~ 15%; Attachment H). A very small area categorized as heterogeneous complex (< 1%; Attachment H).

The Project as designed would not disproportionately affect any particular benthic habitat given that the composition of habitats that may be impacted by foundation activities (Attachment H) is very similar to the composition observed within the Wind Farm Area (Table 3-5; Figure 3-21). The soft bottom habitats that would potentially be impacted were generally mapped as Sand and Muddy Sand – Mobile and the habitats categorized as complex were generally mapped as Coarse Sediment – Mobile (Table 3-4; Figure 3-10). Sand and Muddy Sand with Low Density Boulder Field habitats were categorized as heterogeneous complex (Table 3-4; Figure 3-10).

Array & Substation Interconnection Cables

Array and substation interconnection cable impact footprints intersect all three of the NOAA Habitat Complexity Categories cross walked to benthic habitat types (Attachment H). Cable impact footprints include areas that may be impacted by seafloor preparation activities, cable installation, and cable protection. Impact footprints were calculated along indicative cable centerlines. Temporary disturbance activities to prepare the seafloor and lay the cables may potentially impact habitats primarily categorized as soft bottom (~ 85%), with some area categorized as complex (~ 15%) and heterogeneous complex (< 1%) (Attachment H). The area of the full corridor of seafloor disturbance represents a conservative assumption for maximum temporary seafloor disturbance; it is anticipated that less than the full area will be temporarily disturbed by seafloor preparation and cable installation activities. Cable protection may be required for up to 10% of the route, but the locations where cable protection will be required are not known and the exact habitats to be impacted cannot be determined. The majority of the area that may be impacted by cable protection was classified as soft bottom habitat (~85%; Attachment H). Most of the remaining area (~15%) intersects habitats categorized as complex and a very small area (< 1%) categorized as heterogeneous complex (Attachment H).

The Project as designed would not disproportionately affect any particular benthic habitat given that the composition of habitats that may be impacted by the array and substation interconnection cables (Attachment H) is very similar to the composition observed within the Wind Farm Area (Table 3-5; Figure 3-21). The soft bottom habitats that would potentially be impacted were generally mapped as Sand and Muddy Sand – Mobile and the habitats categorized as complex were generally mapped as Coarse Sediment – Mobile (Table 3-4;

Figure 3-10). Sand and Muddy Sand with Low Density Boulder Field habitats were categorized as heterogeneous complex (Table 3-4; Figure 3-10).

BL England Offshore Export Cable

The impact footprints associated with the BL England Offshore Export Cable to be laid within the BL England Offshore Export Cable Route Corridor intersect the two NOAA Habitat Complexity Categories cross walked to benthic habitat types mapped within this area (Attachment H). Impact footprints include those for seabed preparation activities, cable installation, installation of cable protection, and anchoring and sediment excavation associated with HDD at landfall. These footprints were calculated along an indicative cable centerline. Temporary disturbance activities to prepare the seafloor and lay the cable may potentially impact seafloor this is primarily soft bottom habitat (97 - 99%; Attachment H), with the remainder classified as complex or heterogeneous complex depending on the landfall alternative (1 – 3%; Attachment H). This area of the full corridor of seafloor disturbance represents a conservative assumption for maximum temporary seafloor disturbance; it is anticipated that less than the full area will be temporarily disturbed by seafloor preparation and cable installation activities. Cable protection may be required for up to 10% of the route, but the locations where cable protection will be required are not known and the exact habitats to be impacted cannot be determined. The majority of the area that may be impacted by cable protection was classified as soft bottom (97 - 99%; Attachment H).

The Project as designed would not disproportionately affect any particular benthic habitat given that the composition of habitats that may be impacted by the BL England Offshore Export Cable (Attachment H) is very similar to the composition observed within the BL England Offshore Export Cable Route Corridor (Table 3-5; Figure 3-22). The soft bottom habitats that would potentially be impacted were generally mapped as Sand and Muddy Sand and the habitats categorized as complex were generally mapped as Coarse Sediment – Mobile (Table 3-4; Figure 3-17).

Oyster Creek Offshore & Inshore Export Cable

The impact footprints associated with the two cables to be laid within the Oyster Creek Export Cable Route Corridor intersect two of the three NOAA Habitat Complexity Categories cross walked to benthic habitat types mapped within this project area (Attachment H). Impact footprints include those for seabed preparation activities, cable installation, installation of cable protection, and anchoring and sediment excavation associated with HDD activities. These footprints were calculated along two indicative cable centerlines and assuming HDD on both the Atlantic and Barnegat Bay sides of Island Beach State Park and various HDD and/or open cut options depending on the landfall option on the western shore of Barnegat Bay (Attachment H; DEIS). The impact footprints do not intersect the Mud and Sandy Mud with Low Density Boulder Field habitat categorized as heterogeneous complex that occupies two acres within the Oyster Creek Inshore Export Cable Route Corridor (Table 3-4). Disturbance activities associated with the Offshore Export Cable Route Corridor may potentially impact seafloor that is split relatively evenly between habitats classified as complex or soft bottom (Attachment H). Disturbance activities associated with the Inshore Export Cable Route Corridor were composed primarily of soft bottom habitats, ranging from 47 to 100% depending on landfall option (Attachment H). This area of the full corridor of seafloor disturbance represents a conservative assumption for maximum temporary seafloor disturbance; it is anticipated that less than the full area will be temporarily disturbed by seafloor preparation and cable installation activities. As with the other cables, cable protection may be required for up to 10% of the route, but the locations where cable protection will be required are not known and the exact habitats to be impacted cannot be determined.

The Project as designed would not disproportionately affect any particular benthic habitat given that the composition of habitats that may be impacted by the Oyster Creek export cable and landfalls (Attachment H) is very similar to the composition observed within the Oyster Creek Offshore and Inshore Export Cable Route Corridors, respectively (Table 3-5; Figure 3-22). The soft bottom habitats that would potentially be impacted in the Oyster Creek Offshore Export Cable Route Corridor were generally mapped as Sand and Muddy Sand, while those within the Oyster Creek Inshore Export Cable Route Corridor were generally mapped as Mud and Sandy Mud (Table 3-4; Figure 3-17). The habitats categorized as complex in the Oyster Creek Offshore Export Cable Route Corridor were generally mapped as Coarse Sediment – Mobile, while those within the Oyster Creek Inshore Export Cable Route Corridor were mapped as sand and mud habitats with recent or historical SAV presence (Table 3-4; Figures 3-17 and 3-20).

3.5 Project Impacts to Benthic EFH for Priority Species

The results of the full EFH benthic habitat crosswalk are presented in Attachment B. All species are presented in the table with presence of EFH by primary benthic habitat type and specific project area are indicated. Gray cells in the table indicate that mapped EFH does not overlap with the specified project area and blank cells indicate that the species/ life stage is not anticipated to utilize the given habitat type as EFH. There were various levels of EFH information available to support the crosswalk depending on the species. Some species have more explicitly identified preferred and essential substrates, while others, such as ocean quahog and spiny dogfish, have limited information. For species with limited information, or broader substrate preferences, a conservative approach was taken when cross walking EFH to specific habitats. For example, scup adults are associated with soft, sandy bottoms; mixed sand; and mud; but prefer soft bottoms near structure. Habitats with scattered boulders or SAV are much more likely to have sand near structure than other primary benthic habitat types, and thus may have a “higher value” for these species than others. However, because sandy bottom is found in portions of the three primary habitats within the Offshore Project Area, the conservative crosswalk maps adult scup to all mapped habitat types (Attachment B).

In total, 24 benthic/demersal species and 47 life stages with designated EFH within the Offshore Project Area have been cross walked to mapped benthic habitats. All 47 species/life stages have been cross walked to Coarse Sediment habitats, 44 to Sand and Muddy Sand habitats, and 31 to Mud and Sandy Mud habitats, 10 to SAV habitats, and 10 to structure within any habitat type. All life stages with mapped EFH in the Offshore Project Area were cross walked to the Coarse Sediment habitats due to the variability of sediments found in that category. Many species/life stages have preferences for sand, rock or gravel, all of which may be found in the Coarse Sediment habitats. In addition, 12 species and 27 life stages were cross walked to all three primary benthic habitat types. These species generally have broad sediment preferences or, as is the case of most of the demersal shark species, very limited information is available on their sediment preferences, if any. A list of 14 priority species are discussed in more detail in Section 4.2.

4.0 DISCUSSION

4.1 Project Impacts to Benthic Habitats

The Project design envelope approach detailed in the COP (Ocean Wind, LLC 2021a) paired with the conservative approach utilized provide extremely conservative estimates for the maximum total area of each benthic habitat type categorized by NOAA Habitat Complexity Category that may be permanently or temporarily impacted by each Project component. With few exceptions, the composition of benthic habitats cross walked to NOAA Habitat Complexity Categories included in potential permanent and temporary impact footprints (Attachment H) was similar to the composition documented within the given project component area (Wind Farm Area: Figure 3-21; Export Cable Route Corridors: Figure 3-22). These results indicate that altered layouts would do little to measurably shift the overall composition of benthic habitats impacted by the Project.

Most of the habitats categorized as complex using the NOAA Habitat Complexity Categories across the Project were Coarse Sediment – Mobile habitats (Tables 3-1 and 3-4; Figures 3-10, 3-17, 3-21 and 3-22). With few exceptions, these areas are characterized as highly dynamic habitats composed of rippled sands with shell fragments or hash and/or bare granules and pebbles in ripple troughs (for an example, see Figure 2-12C) or pebbles and granules without attached fauna overlaying sandy sediments (for an example, see Figure 2-12D). Exceptions were three stations (330, 334, 339) classified as Granules in the CMECS Substrate Subgroup that were observed in the Oyster Creek Offshore Export Cable Route Corridor where the corridor splits and rejoins into one corridor (Figures 3-18 and 3-22; for ground-truth images see Figures 3-2 and 3-5). These particular habitats were not observed within any other portion of the mapped Offshore Project Area. However, these habitats do not comprise a specific EFH habitat definition or use. In addition, the biota present in these locations (large tubes or tunicates) were observed within other habitats mapped in the Offshore Project Area (Table 3-2; Figures 3-12 and 3-19) and are not known to be particularly sensitive taxa that would be adversely affected by the Project. Therefore, it is reasonable to conclude that most the mapped habitats that crosswalk to the complex NOAA Habitat Complexity Category are unlikely to provide an impediment to construction or to be adversely affected by Project activities. The one exception is where SAV habitats observed within the Oyster Creek Inshore Export Cable Route Corridor within Barnegat Bay, intersect with the planned cable route near the shore at Island Beach State Park and the landfall locations on the western shore (Figures 3-17 and 3-20). The July 2022 SAV survey results are presented in a separate Addendum to Revision 2 of this Report. The data results presented therein should be considered the most up to date data on recent SAV and macroalgae distributions and coverage within Barnegat Bay in the vicinity of the Ocean Wind export cable and potential landfall locations. Mitigation measures (Section 4.3) are planned to avoid impacts to these sensitive habitats known to serve key ecological function and to be important to a variety of benthic invertebrates and demersal fish.

Due to the conservative design parameters detailed in the COP (Ocean Wind, LLC 2021a), the conservative approach used in this report, the estimated total acreage of benthic habitats potentially permanently and temporarily impacted by the array and substation interconnection cables and the export cables represent a conservative overestimate of maximum impacts. For example, calculations of maximum potential areas of impact assume the cable protection will be placed on all portions of the array and substation interconnection cables and export cables, however, it is estimated that approximately only up to 10% of the array cables and substation interconnection and export cables will need cable protection (Ocean Wind, LLC 2021a). While it cannot be predicted precisely where the engineering need for cable protection will occur, the likelihood of use is highest in areas with boulder fields are present. Boulder fields are limited in their distribution within the Offshore Project Area and, where present, are found in low densities (Figures 3-11 and 3-18).

4.2 Project Impacts to Benthic EFH for Priority Species

Species with demersal/ benthic life stages are most vulnerable to permanent project impacts. Species with EFH that includes sandy habitats are more likely to experience these long-term impacts from the conversion of sand habitat into hard bottom habitat associated with cable armoring and scour protection. While other construction impacts are expected to have effects on EFH for demersal/benthic life stages, they are also anticipated to be temporary.

A list of 14 priority species (6 finfish, 3 skates, 2 sharks, and 3 invertebrates) were vetted with NOAA Habitat and are highlighted and discussed in more detail below; additional detailed information on impact assessments for these and all other species and life stages with EFH in the Offshore Project Area, as well as mitigation measures are provided in the COP (Ocean Wind, LLC. 2021a) and related EFH Appendix (Ocean Wind, LLC. 2021b). Only impact producing factors related to physical seafloor disturbance and suspended sediment deposition are considered here. Due to the conservative approach used in cross walking species to benthic habitat types and, in a number of cases, the limited information on species' sediment preferences, it should be kept in mind that there are likely much smaller areas within each mapped habitat type that may be more valuable for each species/life stage than others. Because of the conservative crosswalk approach utilized, impacts to a given habitat may not necessarily affect all species with EFH cross walked to that habitat type.

4.2.1 Finfish

Black Sea Bass

Black sea bass juveniles and adults are well documented as having strong associations with structured habitats, including natural and artificial reefs, shellfish beds, shell hash, vegetated bottom (such as SAV), cobble, gravel, and boulder habitats (Drohan et al. 2007). Within the Offshore Project Area, existing structure is limited to low density boulder fields, scattered boulders and debris, and patches of mobile small gravels. Black sea bass were also cross walked to Coarse Sediment within the wind and the offshore portions of both export cables.

Black sea bass may experience impacts to their habitat from project activities that permanently and temporarily disturb the seafloor and result in temporary sediment suspension and deposition (detailed impacts to EFH discussed in COP Appendix P) (Ocean Wind, LLC. 2021b). Juveniles and adults may be less impacted by winter project activities as the migrate to deep waters on the shelf break in the winter and return inshore in the spring (potentially as early as March) (Drohan et al. 2007; Kimmel 1973). Long term adverse impacts to both adult and juvenile EFH are expected to be minor as the species is expected to recolonize the area post construction. Any permanent impacts to these habitats may also be offset with the creation of new structured hard bottom habitat, preferred by black sea bass, where scour protection or cable armoring is needed. Additional measures to prevent negative impacts on black sea bass EFH can be found in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

Scup

Scup are a common demersal species in Mid-Atlantic waters, sought by both commercial and recreational anglers. Both juvenile and adult scup prefer soft, sandy bottoms, on or near structures including rocky ledges, wrecks, and natural and artificial reefs (ASMFC 2018); juveniles have also been found over unstructured bottom (Able and Fahay 2010). Juveniles and adults are primarily caught in depths less than 20 m in the summer and fall, but in the winter, they migrate to deeper waters between 75 and 185 m (Morse 1978; Bowman et al. 1987; Steimle et al. 1999). Scup were identified as a warm season dominant species in the Offshore Project Area by Guida et al. (2017). Due to the lack of specific substrate preferences, juvenile and adult scup EFH has been mapped to all habitats within the Offshore Project Area including structured habitats created by boulders and SAV. Specifically, EFH for juveniles and adults may be found during the summer and fall within the wind farm, particularly in the shallower areas, and along the BL England Offshore and Oyster Creek Offshore and Inshore Export Cable Route Corridors.

Scup may experience impacts to their habitat from project activities that permanently and temporarily disturb the seafloor and result in temporary sediment suspension and deposition (detailed impacts to EFH discussed in COP Appendix P) (Ocean Wind, LLC. 2021b). Disturbance of the seafloor will be mitigated by use of installation technology designed to minimize sediment disturbance and temporary or permanent alteration of sensitive demersal finfish habitat and benthic resources. Long term adverse impacts to both adult and juvenile EFH are not expected as the species is expected to recolonize the area post construction. Due to the large amount of alternate suitable habitat and their preference for sandy habitats near structure, long-term habitat loss for scup is not expected due to habitat conversion where scour protection or cable armoring may be required. Additional measures to prevent negative impacts on scup EFH can be found in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

Red Hake

Red hake have demersal juvenile and adult life stages and are associated with soft bottom and structure. Juveniles are pelagic for about 2 months before settling to the bottom, generally between September and December (Collette and Klein-MacPhee 2002). Shelter, such as shells or depressions in the seafloor, is essential for these recently settled juveniles for avoiding predation (Steiner et al. 1982, Able and Fahay 1998). Juveniles may be found in larger estuaries (although EFH does not specifically include Barnegat Bay) in colder months and in coastal, continental shelf waters in warmer months (Jury et al. 1994; Stone et al. 1994; Wilk et al. 1998). Adult red hake are associated with depressions in soft sediments and shell beds; are not as likely to be found on gravel, hard bottom, or open sandy bottom; and are most common between 30 and 370 m (NEFSC 2004a; Fritz 1965). EFH for juveniles is expected throughout the wind farm and both potential offshore export cable route corridors, as there is likely to be suitable shelter to aid in avoiding predation for both newly settled and older juveniles within all habitat types (pebbles and boulders in Coarse Sediment habitats and depressions and shell fragments in the Sand and Muddy Sand habitats and Mud and Sandy Mud habitats). Similarly, adult red hake EFH is likely to be found in all habitat types within the wind farm as well as within the deeper areas of both export cable routes, however older juveniles and adults undergo nearshore to offshore seasonal migrations and are less likely to inhabit the Offshore Project Area in the warmer months when they migrate further offshore (Bigelow and Schroeder 1953, Dery 1988).

Juvenile and adult red hake may experience impacts to their habitat from project activities that permanently and temporarily disturb the seafloor and result in temporary sediment suspension and deposition (detailed impacts to EFH discussed in COP Appendix P) (Ocean Wind, LLC. 2021b). Activities that will cause seafloor disturbance include the construction, installation, and decommissioning of WTG foundations, the OSS, array and substation interconnection cables, and export cable. Seafloor preparation may cause injury, displacement, or mortality to red hake adults and juveniles, although juveniles may be more vulnerable to impacts as they are more likely to be present at the depths and habitats found within the majority of the Offshore Project Area. These impacts are expected to be temporary as the direct impacts will cease after seafloor preparation is completed, and minor as they will disturb a small portion of available EFH in the area. Installation of project components (WTGs, array and substation interconnection cables, and export cables) will occur using appropriate installation technology designed to minimize sediment disturbance and temporary or permanent alteration of sensitive demersal finfish habitat and benthic resources. Red hake are expected to recolonize project areas once construction is complete. Additional measures to prevent negative impacts on red hake EFH can be found in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

Summer Flounder

Juvenile and adult summer flounder have both been documented as having a preference for sandy habitats (Timmons 1995; Bigelow and Schroeder 1953; Schwartz 1964; Smith 1969) but are also commonly found in mudflats and seagrass beds within coastal bays and estuaries (Packer et al. 1999; MAFMC 1998). All native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed (SAV) within EFH are designated as a habitat area of particular concern (HAPC) for juvenile and adult summer flounder. Similar to many species found within the Offshore Project Area, summer flounder participate in seasonal nearshore to offshore migrations and are not likely to have essential habitats within the Offshore Project Area year-round. In general, adult and older juveniles can be found in shallow, inshore and estuarine waters during the summer and fall and then move offshore to deeper waters in the winter and spring, although some juveniles will remain in the bays and estuaries for the winter (Packer et al. 1999; Smith and Daiber 1977; Able and Kaiser 1994). Juvenile and adult summer flounder EFH has been mapped to the Coarse Sediment, Sand and Muddy Sand habitats, and Mud and Sandy Mud habitats within the Offshore Project Area. Specifically, EFH for juveniles (year-round) and adults (summer and fall) may be found within the wind farm, BL England Offshore Export Cable Route Corridor, Oyster Creek Offshore Export Cable Route Corridor and the Oyster Creek Inshore Export Cable Route Corridor, including areas with SAV.

Habitat for juvenile and adult summer flounder are likely to be temporarily impacted from Project activities that disrupt the benthos such as installation, and decommissioning of WTG foundations, the OSS, array and substation interconnection cables, and export cable (detailed impacts to EFH discussed in COP Appendix II.I) (Ocean Wind, LLC. 2021a). Summer flounder are expected to be able to recolonize most areas once construction is complete, however they may experience some permanent habitat loss in areas that are converted from sandy and gravelly sediments to hard bottom habitats around the WTGs where scour protection is needed, and sections of the array and substation interconnection and export cables where protective armoring may be required. Loss of habitat due to conversion to hard bottom is not expected to have a long-term impact due to the large area of alternate suitable habitat available. Impacts to HAPC will be minimized by the use of trenchless technologies such as horizontal directional drilling (HDD) or direct pipe, as practicable, which can be used to install the cable beneath overlying sediments and SAV without direct physical disturbance. Many of the potential negative effects to essential summer flounder habitat will be mitigated by the measures laid out in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

Windowpane Flounder

Windowpane flounder juveniles and adults primarily utilize fine sandy sediments (Chang et al. 1999). Year round they can be found in less than 50 m of water off southern New Jersey and within New Jersey inland bays and are found in the largest numbers nearshore in the summer (NEFSC 2004b, Chang et al. 1999, NEFMC 2017). Windowpane EFH has been mapped to the three primary habitats within the Offshore Project Area, as sand or mud may be found in each, and is expected to occur within all project areas, including inshore bays.

Juvenile and adult flounder are likely to be temporarily displaced by seafloor preparation activities that disrupt the benthos such as installation, and decommissioning of WTG foundations, the OSS, array and substation interconnection cables, and export cable (detailed impacts to EFH discussed in COP Appendix P) (Ocean Wind, LLC. 2021b), however they are expected to recolonize most areas once construction is complete. Impacts from sedimentation during cable installation will be mitigated with the use of a mechanical/hydro-jet plow, compared to open cut dredging/trenching, which will minimize sediment disturbance and temporary or permanent alteration of demersal finfish habitat. Permanent habitat loss may occur in areas that are converted from sandy or muddy bottom to hard bottom habitats around the WTGs where scour protection is needed, and sections of the array and substation interconnection and export cables where protective armoring may be required. As stated for other species with a preference for sandy bottoms, loss of habitat due to habitat conversion is not expected to have a long-term impact due to the large amounts of alternate suitable habitat available in the vicinity of the Project. As noted in the COP, Vol. II, Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind LLC, 2021b), Ocean Wind will coordinate with NJDEP, NMFS and USACE regarding time of year restrictions for winter flounder and river herring, as well as summer flounder HAPC.

Winter Flounder

Winter flounder egg clusters stick to the substrates on which they are laid which include mud, muddy sand, gravel, macroalgae and SAV (NEFMC 2017). Essential habitats for winter flounder eggs, young-of-the-year (YOY) juveniles, and spawning adults are likely to be found from January through July (NEFMC 2016) in coastal sand and muddy sand or mud and sandy mud habitats where depths are between 0-5 m (Phelan et al. 2001; NEFMC 2017), specifically within the shallow portions of the Oyster Creek Offshore and Inshore Export Cable Route Corridors. Impacts from project activities related to installation of the export cable may temporarily directly affect winter flounder eggs, YOY, and spawning adults (detailed impacts to EFH discussed in COP Appendix P) (Ocean Wind, LLC 2021b). Eggs are common throughout the NJ Inland Bay System from January through March (Stone et al. 1994) and could be entrained within the jet plow or experience increased mortality due to sediment suspension (Berry et al. 2011). These impacts are expected to be minor as they will disturb a small portion of available EFH in the area and temporary because the substrates within the export cable route corridors are expected to remain fundamentally the same as pre-existing conditions and would therefore allow for continued use by spawning winter flounder, YOY, and eggs. Some of the potential negative effects to winter flounder eggs, YOY, and spawning adults will be mitigated by using reasonable actions to minimize seabed disturbance and sediment dispersion during cable installation as well as coordination with the New Jersey Department of Environmental Protection, NOAA Fisheries and U.S. Army Corps of Engineers regarding time of year restrictions for winter flounder.

Non-spawning winter flounder adults and older juveniles are found in continental shelf benthic habitats and deeper coastal waters than eggs and YOY (Phelan 1992; NEFMC 2017). They utilize muddy and sandy substrates, and hard bottoms on offshore banks (NEFMC 2017). EFH for non-spawning winter flounder adults and older juveniles are expected within Coarse Sediment, Sand and Muddy Sand, Mud and Sandy Mud and SAV on Sand/Mud habitats within the Oyster Creek Offshore and Inshore Export Cable Route Corridors. Winter flounder juveniles and adults are expected to experience similar impacts as discussed for windowpane flounder juveniles and adults in these areas and mitigation measures will be the same for these species and life stages. As noted in the COP, Vol. II, Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind LLC, 2021b), Ocean Wind will coordinate with NJDEP, NMFS and USACE regarding time of year restrictions for winter flounder and river herring, as well as summer flounder HAPC.

4.2.2 Highly Migratory Species - Sharks

Impacts to habitats utilized by highly migratory species (HMS) are generally not expected from project activities as these species primarily occupy open ocean waters, however some species use coastal and inshore New Jersey habitats to aggregate, pup, or give birth (NOAA Fisheries 2017). HMS species with EFH in New Jersey bays and estuaries include sandbar sharks and sand tiger sharks (NOAA Fisheries 2017). Dusky sharks are present within the project are but all life stages are primarily pelagic, therefore, will experience little to no impact from benthic disruption. Sand tiger and sandbar sharks are discussed in detail below.

Sandbar Shark

Sandbar sharks are HMS common in many coastal habitats from inland bays out to the continental shelf break (NOAA Fisheries 2017). They are a bottom-dwelling species and are found over a wide range of benthic habitats; EFH for neonates and juveniles includes mud, sand, shell, and rocky habitats between 0.8 and 23 m (NOAA Fisheries 2017). They migrate along the coast seasonally with neonates and juveniles using inland waters as nursery areas. Great Bay, New Jersey is one of these nursery areas on the US East Coast (Merson and Pratt 2002, 2007) and has been designated as HAPC for sandbar sharks, although the Project does not intersect the area designated as HAPC. EFH for all life stages of sandbar sharks has been mapped to the three primary habitats within the Offshore Project Area. All life stages are expected to transit the Offshore Project Area during seasonal migrations in late spring and fall, particularly in nearshore waters of the export cable route corridors when water temperatures are within the species thermal preferences (15 to 30 °C), with adults and larger juveniles being widely distributed throughout the area in the summer months.

Impacts to sandbar shark EFH from construction, operation and maintenance, and decommissioning of the project are expected to be temporary as sandbar sharks are a large, mobile species that are likely to move to adjacent habitats away from any disturbances. In addition, impacts to sandbar shark HAPC are not anticipated as the mapped HAPC ends several kilometers north (~7 km) of the BL England Offshore Export Cable Route Corridor and several kilometers west of the Oyster Creek Offshore Export Cable Route Corridor (~5 km), though sandbar sharks will still utilize the export cable areas during the summer and during spring and fall migrations. The new structured habitat provided by turbine foundations and scour protection may prove beneficial to this species as shelter as well as attracting structure-associated prey species. Many of the potential negative impacts on sandbar shark EFH will be mitigated by the measures laid out in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

Sand Tiger Shark

Sand tiger sharks are large, highly migratory, coastal sharks, frequently found in very shallow nearshore waters (Castro 2011). Sand tiger sharks undergo extensive seasonal migrations in coastal waters from summer habitats to the north (Maine to Delaware Bay) to winter habitats farther south (Cape Hatteras to Florida) with juveniles exhibiting more extensive migratory routes than adults (Kneebone et al. 2014; Teter et al. 2015). EFH for neonates and juveniles includes shallow (2.8-7.0 m) sand and mud sediments in coastal areas. (NOAA Fisheries 2017). Adult EFH includes Atlantic OCS waters south of Delaware Bay, and therefore is not discussed in this report (NOAA Fisheries 2017). EFH for neonates and juveniles has been mapped to the three primary habitats within the BL England Offshore Export Cable Route Corridor and Oyster Creek Offshore and Inshore Export Cable Route Corridors. Occurrence of sand tigers is expected spring through fall in the Offshore Project Area when water temperatures are within their thermal preferences (Haulsee et al. 2015, Kneebone et al. 2014, Teter et al. 2015).

Impacts to sand tiger shark EFH are expected to be similar to those discussed for sandbar shark above.

4.2.3 Skates

Within the Offshore Project Area there are three species of skates with mapped EFH, clearnose skate, little skate, and winter skate. Due to similarities in their preferred habitat and similar expectations for the impacts they may experience from Project activities they are discussed together. Clearnose skate juveniles and adults occur on soft, rocky, or gravelly sediments in continental shelf waters from Maine to North Carolina, but primarily occupy the southern part of this range (Bullis and Thompson 1965; Struhsaker 1969; Bigelow and Schroeder 1953). Similar to clearnose skates, little and winter skate juveniles and adults are likely to be found on sandy or gravelly substrate in the Mid-Atlantic (Bigelow and Schroeder 1953). For all three species, adult and juvenile EFH has been cross walked to the three primary habitats within the Wind Farm Area and export cable route corridors as all have some component with sand, gravel, or mud. However, their presence in the Offshore Project Area is expected to vary seasonally as shown by Guida et al. (2017). Data from seasonal NEFSC survey trawls from 2008 to 2016 within the New Jersey Wind Energy Area show that little and winter skates were much more likely to be caught in the area in the cold season, while clearnose skates were exclusively caught in warm season trawls (Guida et al. 2017).

Given the broad distribution of these species throughout the Offshore Project Area there are likely to be some temporary and permanent impacts to their preferred habitats. These species may be temporarily displaced by seafloor preparation activities that disrupt the benthos such as installation and decommissioning of WTG foundations, the OSS, array and substation interconnection cables, and export cable (detailed impacts to EFH discussed in COP Appendix P) (Ocean Wind, LLC. 2021b). Skates are anticipated to recolonize most areas once construction and decommissioning is complete. Due to the large amount of alternate suitable habitat within the Offshore Project Area, skates should be able to adjust to any habitat loss from the conversion of sandy and gravelly sediments to hard bottom habitats where scour protection or cable armoring may be required. Some of the potential negative effects to essential skate habitat will be mitigated by the measures laid out in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

4.2.4 Invertebrates

Guida et al. (2017) has identified Atlantic surfclam, Atlantic sea scallop, and ocean quahog as species of concern that may potentially occur in the Offshore Project Area. According to survey results summarized in Guida et al. (2017), sea scallops are not abundant within the Offshore Project Area and the current EFH designation does not intersect with any of the project components, therefore sea scallops have not been identified as a priority species for discussion in the report, however if present, they may be expected to experience similar impacts as other shellfish species such as Atlantic surfclam discussed below.

Atlantic surfclam

Atlantic surfclams are found in medium to coarse sand and gravel substrates and can also be found in fine or silty sand, but not in mud (Dames and Moore, Inc. 1993; MacKenzie et al. 1985; Cargnelli et al. 1999). They are usually found in water depths between 8 and 66 m beyond the surf zone (Fay et al. 1983) and have been identified in beam trawl and grab sample catches throughout the New Jersey Wind Energy Area (Guida et al. 2017). EFH for juvenile and adult surf clams has been mapped to the Coarse Sediment, and Sand and Muddy Sand habitats within the Offshore Project Area, which includes the entire Wind Farm Area and portions of the BL England Offshore and Oyster Creek Offshore Export Cable Route Corridors. South of Cape Cod, surf clams occur progressively farther offshore (MAFMC 1998), therefore it is unlikely that they would be found in high concentrations in New Jersey state waters.

Atlantic surfclam EFH may experience temporary and permanent direct impacts from seafloor preparation activities that disrupt the benthos (detailed impacts to EFH discussed in COP Appendix P) (Ocean Wind, LLC. 2021b). Activities that will cause seafloor disturbance include the construction, installation, and decommissioning of WTG foundations, the OSS, array and substation interconnection cables, and export cable. These activities are expected to disturb only a small portion of available EFH in the area and will be temporary as the direct impacts will cease after seafloor preparation is complete. Due to their lack of mobility it is possible that seafloor preparation could cause injury, displacement, or mortality to shellfish of all species. Shellfish will be able to recolonize most areas once construction is complete, however they may experience small amounts of permanent habitat loss in areas around the WTGs where scour protection is needed and sections of the array and substation interconnection and export cables where protective armoring may be required as they will not be able to colonize the new structured habitat. Some of the potential negative effects to surf clams and other shellfish will be mitigated by the measures laid out in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

Longfin Squid (eggs)

Little information is available on egg habitat locations for longfin squid (Jacobson 2005), however egg mops are often found attached to cobbles and boulders on sandy or muddy bottoms or attached to aquatic vegetation (Arnold et al. 1974; Griswold and Prezioso 1981; Summers 1983). Due to the limited information available on suitable egg habitat, it is assumed that egg mops could be present on any substrates within adult spawning habitat and has been mapped to all project habitats within the bounds of mapped EFH for longfin squid eggs. Specifically, EFH for eggs may be found during the main spawning period of spring to late autumn, although spawning can occur throughout the year in the northwest Atlantic (Summers 1971; Macy 1980; Brodziak and Macy 1996) within the Oyster Creek Inshore and Offshore Export Cable Route Corridors.

Longfin squid egg mop habitat may be temporarily adversely affected by activities that will cause seafloor disturbance and suspended sediments including the installation and decommissioning of the OSS and export cable (detailed impacts to EFH discussed in COP Appendix P) (Ocean Wind, LLC. 2021b). Cable laying activities may cause injury, displacement, or mortality to egg mops if installation activities overlap with squid spawning season, however most impacts are expected to be temporary as the direct impacts will cease after cable laying has been completed and minimal as only a small amount of available habitat will be disturbed. Additional measures to prevent negative impacts on longfin squid egg EFH can be found in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

Ocean Quahog

Ocean quahog EFH does intersect with the wind farm (and BL England Offshore Export Cable Route Corridor only where it spatially overlaps with the wind farm) and has been cross walked to Coarse Sediment habitats in the wind farm area. Ocean quahogs survive best at bottom temperatures below 60°F and are not expected to occur in high numbers in the wind farm area where bottom temperatures can regularly exceed this threshold in September and October (Guida et al. 2017; Weinberg et al. 2002).

4.3 Minimization/Mitigation of Potential Impacts to Benthic Habitats & EFH

Ocean Wind proposes the following mitigation measures to ensure that impacts to benthic habitat designated as EFH and to EFH-designated species/life stages are minimal. Only those measures directly related to potential impacts to benthic habitats and/or EFH are included here. Additional minimization/mitigation measures proposed for EFH and EFH-designated species can be found in Ocean Wind COP Volume II: Table 1.1-2 Applicant Proposed Measures to Avoid, Minimize, or Mitigate Impacts (Ocean Wind, LLC. 2021a).

- Site cable landfall and offshore facilities to avoid known locations of sensitive benthic habitat; to the extent practicable. Avoid hard-bottom habitats and SAV communities, where practicable, and restore any damage to these communities.

- Avoid areas that would require extensive seabed or onshore alterations to the extent practicable.

- Bury onshore and offshore cables below the surface or seabed to the extent practicable and inspect offshore cable burial depth periodically during project operation, as described in the Project Description (see COP Volume I, Ocean Wind, LLC 2021a), to ensure that adequate coverage is maintained to avoid interference with fishing gear/activity.

- Use existing port and onshore operations and maintenance (office, warehouse, and workshop) facilities to the extent practicable and minimize impacts to seagrass by restricting vessel traffic to established traffic routes where these resources are present.

- Develop and implement a site-specific monitoring program to ensure that environmental conditions are monitored during construction, operation, and decommissioning phases, designed to ensure environmental conditions are monitored and reasonable actions are taken to avoid and/or minimize seabed disturbance and sediment dispersion, consistent with permit conditions. The monitoring plan will be developed during the permitting process, in consultation with resource agencies.

- To the extent practicable, use appropriate installation technology designed to minimize disturbance to the seabed and sensitive habitat (such as beaches and dunes, wetlands and associated buffers, streams, hard-bottom habitats, seagrass beds, and the near-shore zone); avoid anchoring on sensitive habitat; and implement turbidity reduction measures to minimize impacts to sensitive habitat from construction activities.

- Take reasonable actions (use best management practices) to minimize seabed disturbance and sediment dispersion during cable installation and construction of project facilities.

- Coordinate with the New Jersey Department of Environmental Protection and United States Fish and Wildlife Service to identify unique or protected habitat or known habitat for threatened or endangered and candidate species and avoid these areas to the extent practicable.

- Conduct maintenance and repair activities in a manner to avoid or minimize impacts to sensitive species and habitat such as beaches, dunes, and the near-shore zone.

- Evaluate geotechnical and geophysical survey results to identify sensitive habitats (e.g., shellfish and SAV beds) and avoid these areas during construction, to the extent practicable.

- Ocean Wind will coordinate with the New Jersey Department of Environmental Protection, NOAA Fisheries, and U.S. Army Corps of Engineers regarding time of year restrictions for winter flounder and river herring, as well as summer flounder HAPC.

5.0 CONCLUSIONS

An extremely conservative approach was used to calculate the maximum potential total area and composition of habitats cross walked to NOAA Habitat Complexity Categories that may be impacted by the Project for purposes of EFH consultation. In reality, only a fraction of these areas will ultimately be impacted by Project activities. Given this conservative approach, the maximum potentially impacted acres presented in this report will differ from those footprints presented in the COP. The footprint estimates presented in the COP are intended to represent the total actual acres of seafloor (agnostic to habitat type) that will be impacted by each project component. ***The acres presented in this benthic habitat mapping report are conservative estimates developed for EFH review to describe potential impacts by habitat type and therefore, should not be considered representative of the total acres that may be impacted by the Project.***

The primary conclusions of this benthic habitat mapping assessment to support EFH consultations are:

1. Three primary benthic habitat types were mapped within the Offshore Project Area: Coarse Sediment, Sand and Muddy Sand, and Mud and Sandy Mud. When further characterized by modifiers, a total of 11 benthic habitat types were mapped within the Offshore Project Area.

    a. The Wind Farm Area was dominated by Sand and Muddy Sand – Mobile habitats interspersed with small to large patches of Coarse Sediment – Mobile habitats. Additionally, small areas of Sand and Muddy Sand with Low Density Boulder Field, Coarse Sediment, and Sand and Muddy Sand habitats were documented. Data collected in the sand ridge area in the east of the Wind Farm Area indicated that the crests are primarily of fine to medium sands with an abundance of sand dollars, and the sediments in troughs are more varied with a range of composition from very fine sand to sandy gravel and with variable presence of shell fragments/hash and with generally fewer sand dollars than the crests.

    b. The BL England Offshore Export Cable Route Corridor was dominated by Sand and Muddy Sand habitats, with Mud and Sandy Mud habitats located near the Atlantic shoreline. Additional small areas of Coarse Sediment – Mobile, Coarse Sediment, Mud and Sandy Mud with Low Density Boulder Field, and Sand and Muddy Sand – Mobile were documented.

    c. The Oyster Creek Offshore Export Cable Route Corridor was equally comprised of Sand and Muddy Sand – Mobile and Coarse Sediment – Mobile habitats, which were interspersed and alternating throughout the portion of the cable corridor located in federal waters. Small areas of Coarse Sediment and Sand and Muddy Sand (without the Mobile modifier) were present within the portion of the cable corridor located in state waters.

    d. The Oyster Creek Inshore Export Cable Route Corridor was dominated by Mud and Sandy Mud. Areas of recent and historical SAV habitats were documented near the shorelines of Barnegat Bay west of Island Beach State Park and close to the shoreline of all three mapped landfall options. One small area of Mud and Sandy Mud with Low Density Boulder Field was documented near the split for the landfalls, and a single anthropogenic feature (dock) was also mapped at the shoreline within Barnegat Bay near the Bay Parkway Landfall option.

2. Habitats were cross walked to NOAA Habitat Complexity Categories (NOAA Habitat 2021) to provide inventories of the maximum potential acres that may be impacted by the Project for the purposes of supporting EFH consultation. Six benthic habitat types with modifiers were cross walked to the complex category, based either on having >5% gravel or on the recent or historical presence of SAV. The three sand and mud habitat types were classified as soft bottom, and those soft bottom habitats with low density boulder fields were categories as heterogeneous complex. No habitats within the Offshore Project Area were cross walked to large-grained complex habitats.
    a. Habitats cross walked to soft bottom habitats comprise most of the potential acres that may be permanently and temporarily impacted by project.
    b. A portion of the impacts are expected in habitats characterized as complex.
    c. A minute fraction of the impacts is expected in habitats characterized as heterogeneous complex.
    d. SAV habitats mapped within Barnegat Bay represent sensitive and ecologically important habitat and mitigation measures are planned (Section 4.3).
    e. With the exception of SAV habitats, habitats cross walked to the complex NOAA Habitat Complexity Category were characterized as highly dynamic habitats composed of rippled sands with bare granules and pebbles in ripple troughs or pebbles and granules without attached fauna overlaying sandy sediments. These habitats are unlikely to provide an impediment to construction or to be adversely affected by Project activities.
3. The Project as designed would not disproportionately affect any particular benthic habitat given that the composition of habitats that may be impacted by each respective project component is very similar to the composition of habitats mapped within the respectively project area.
4. Based on the available data and project design to date, it appears all the proposed project design locations and routes are appropriate for installation.
5. A complete crosswalk of delineated benthic habitat types to EFH for all demersal species/life stage with designated EFH in the Offshore Project Area provides detailed

information to facilitate review of potential impacts to each species/life stage. In total, 24 benthic/demersal species and 47 life stages with designated EFH within the Offshore Project Area have been cross walked to mapped benthic habitats: 47 to Coarse Sediment habitats, 44 to Sand and Muddy sand habitats, 31 to Mud and Sandy Mud habitats, 10 to SAV habitats, and 10 to structure (boulders, debris, etc.) within any habitat type.

a. Species with demersal/ benthic life stages are most vulnerable to permanent project impacts. Species with EFH that includes sandy habitats are more likely to experience these long-term impacts from the conversion of sand habitat into hard bottom habitat associated with cable protection and scour protection. While other construction impacts are expected to have effects on EFH for demersal/benthic life stages, they are also anticipated to be temporary.

b. Due to the conservative approach used in cross walking species to benthic habitat types and, in a number of cases, the limited information on species' sediment preferences, impacts to a given habitat may not necessarily affect all species with EFH cross walked to that habitat type.

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Ocean Wind Offshore Wind Farm Benthic Habitat Mapping and Benthic Assessment to Support Essential Fish Habitat Consultation

FIGURES

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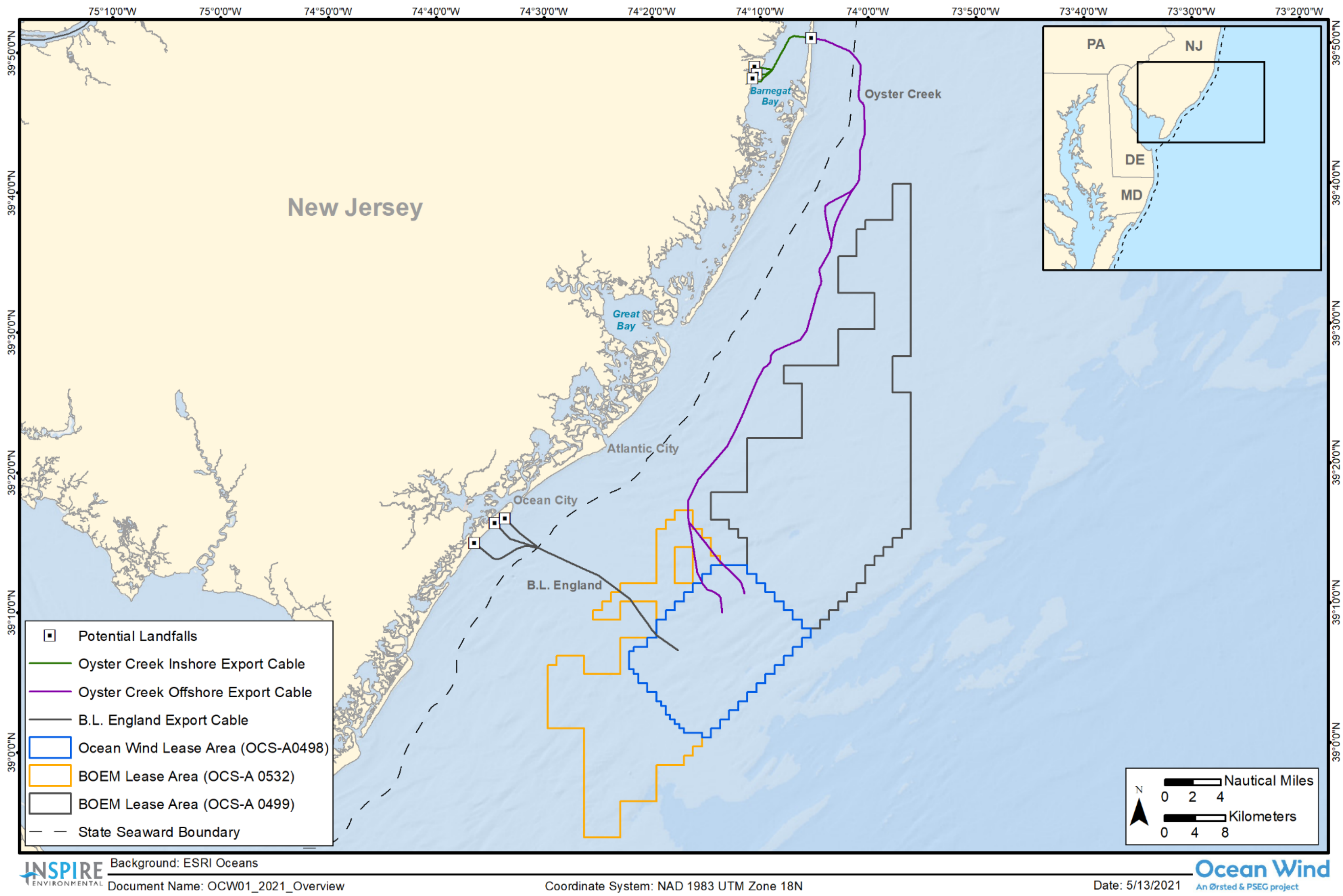

Figure 1-1. Location of the planned Ocean Wind Offshore Wind Farm and offshore export cable route corridors along the BL England route to potential landfalls south of Ocean City and along the Oyster Creek route to potential landfall in Barnegat Bay

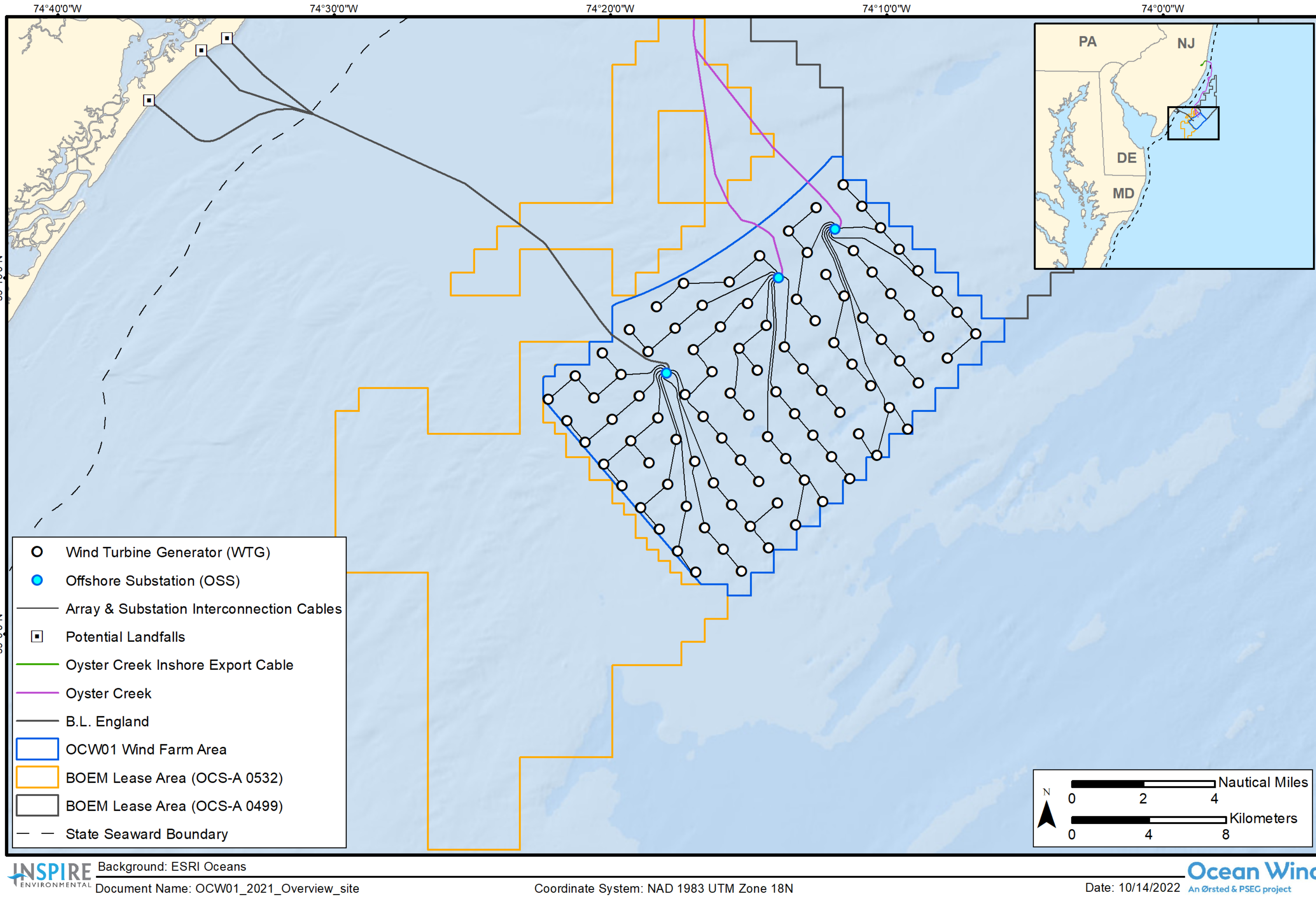

Figure 1-2. Ocean Wind Offshore Wind Farm proposed layout of 98 wind turbine generators, 3 offshore substations, and array and substation interconnection cables

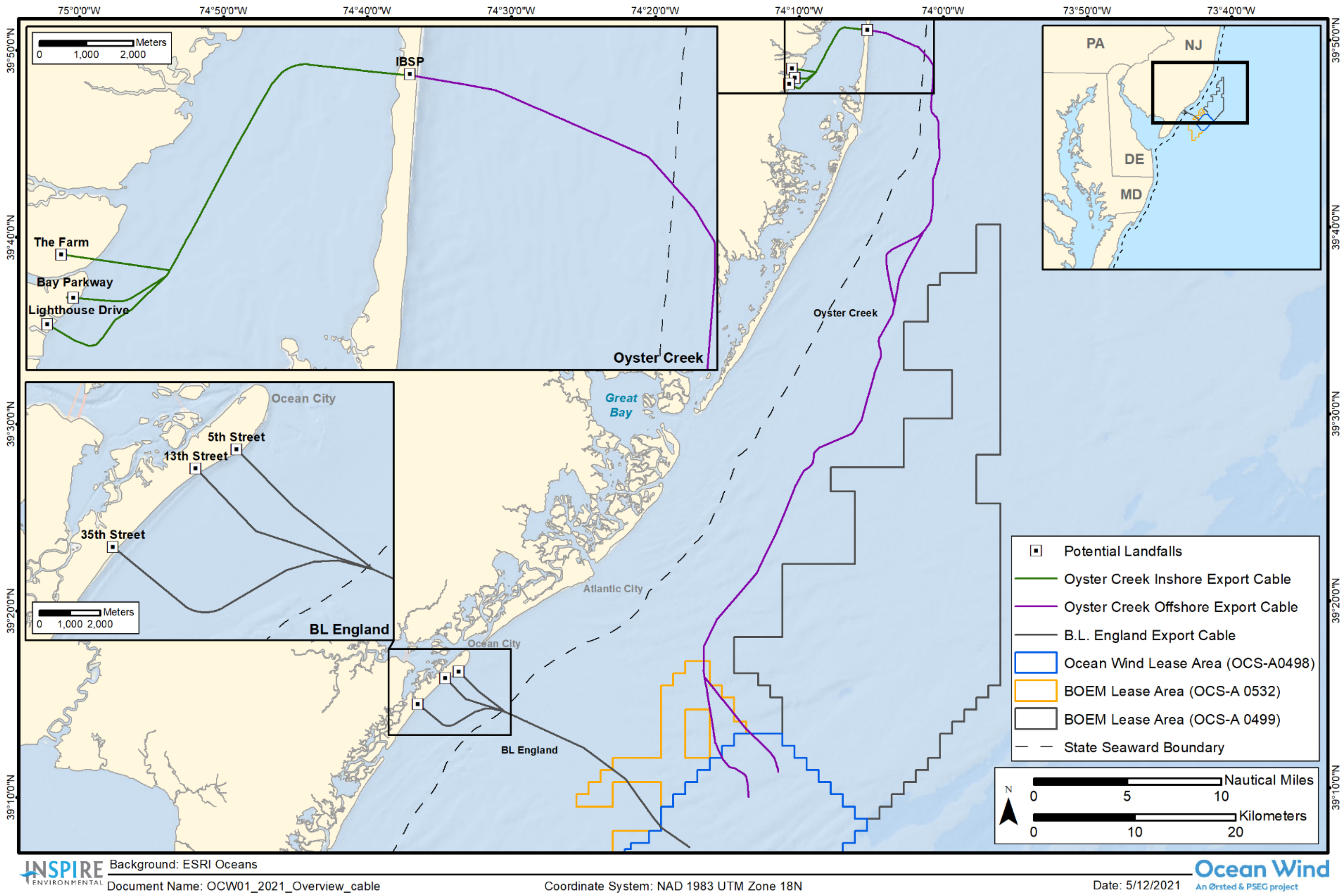

Figure 1-3. Potential landfalls of the BL England export cable at 5th St., 13th St., and 35th St.; and the Oyster Creek export cable transition from offshore to inshore at Island Beach State Park (IBSP) and potential landfalls within Barnegat Bay at Lighthouse Drive, Bay Parkway, and The Farm

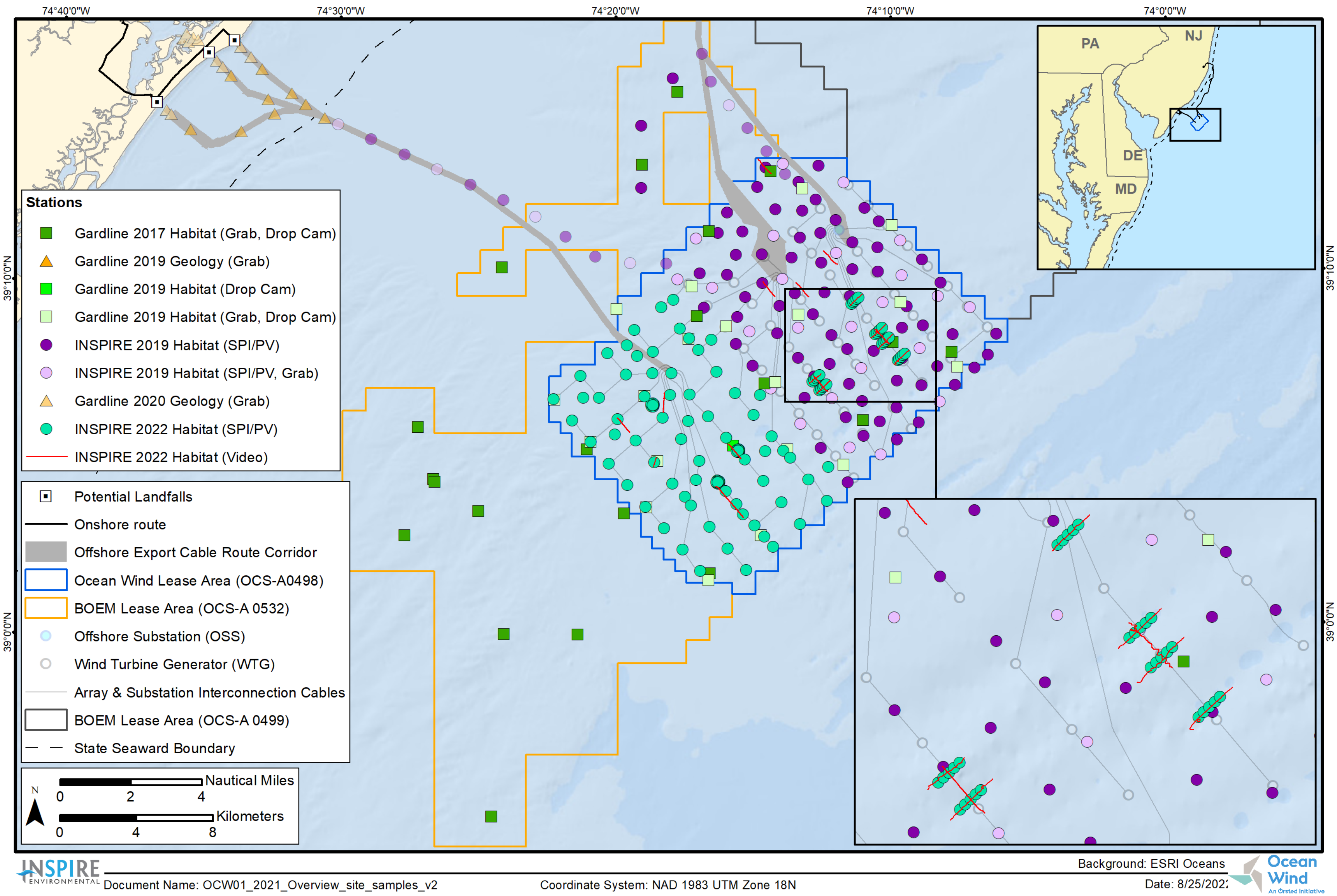

Figure 1-4. Locations sampled with sediment profile and plan view imaging (SPI/PV), sediment grabs, drop cameras, and towed video used in ground-truthing geophysical data and habitat type interpretations at the Wind Farm Area

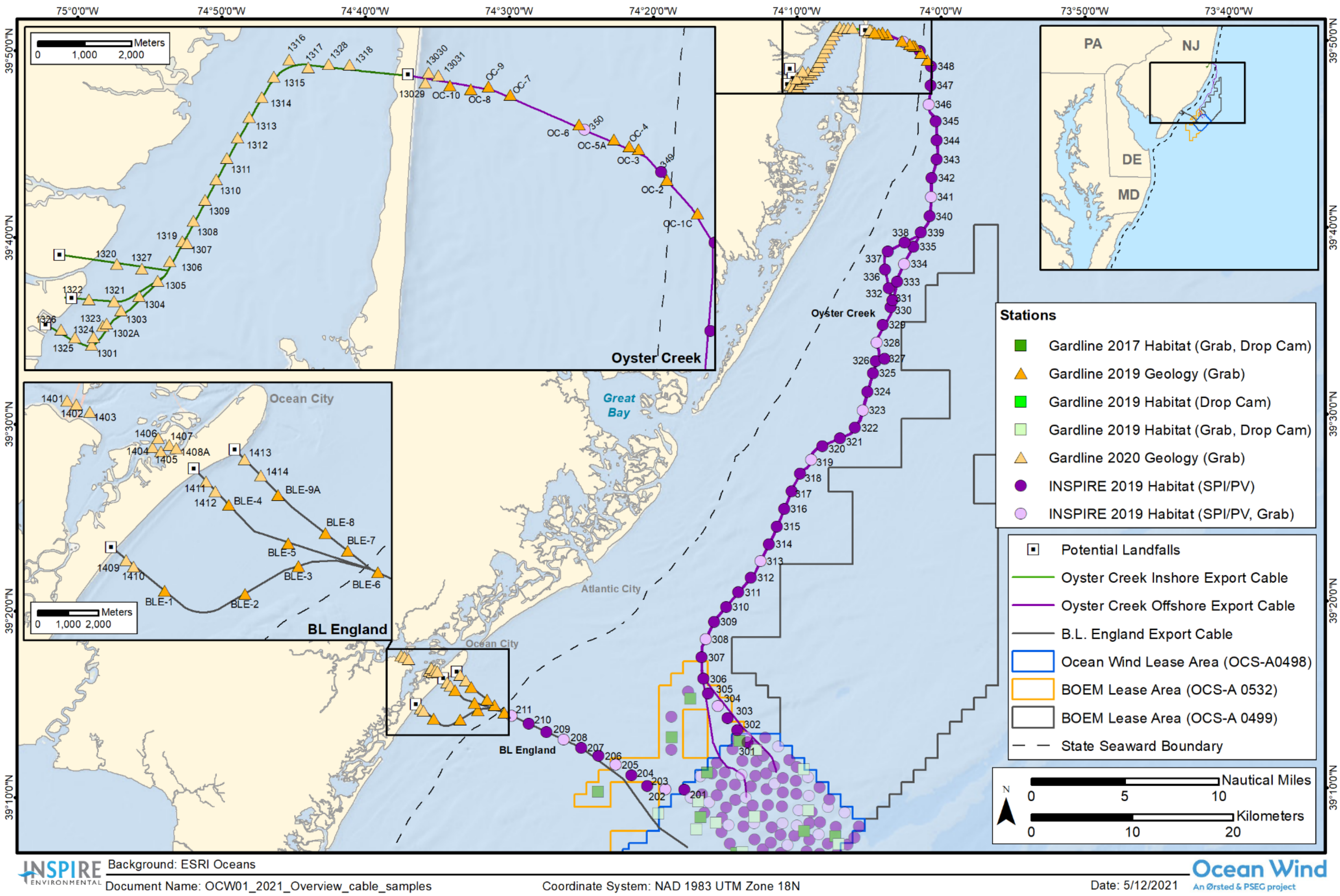

Figure 1-5. Locations sampled with sediment profile and plan view imaging (SPI/PV), sediment grabs, and drop cameras used in ground-truthing geophysical data and habitat type interpretations along the BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors

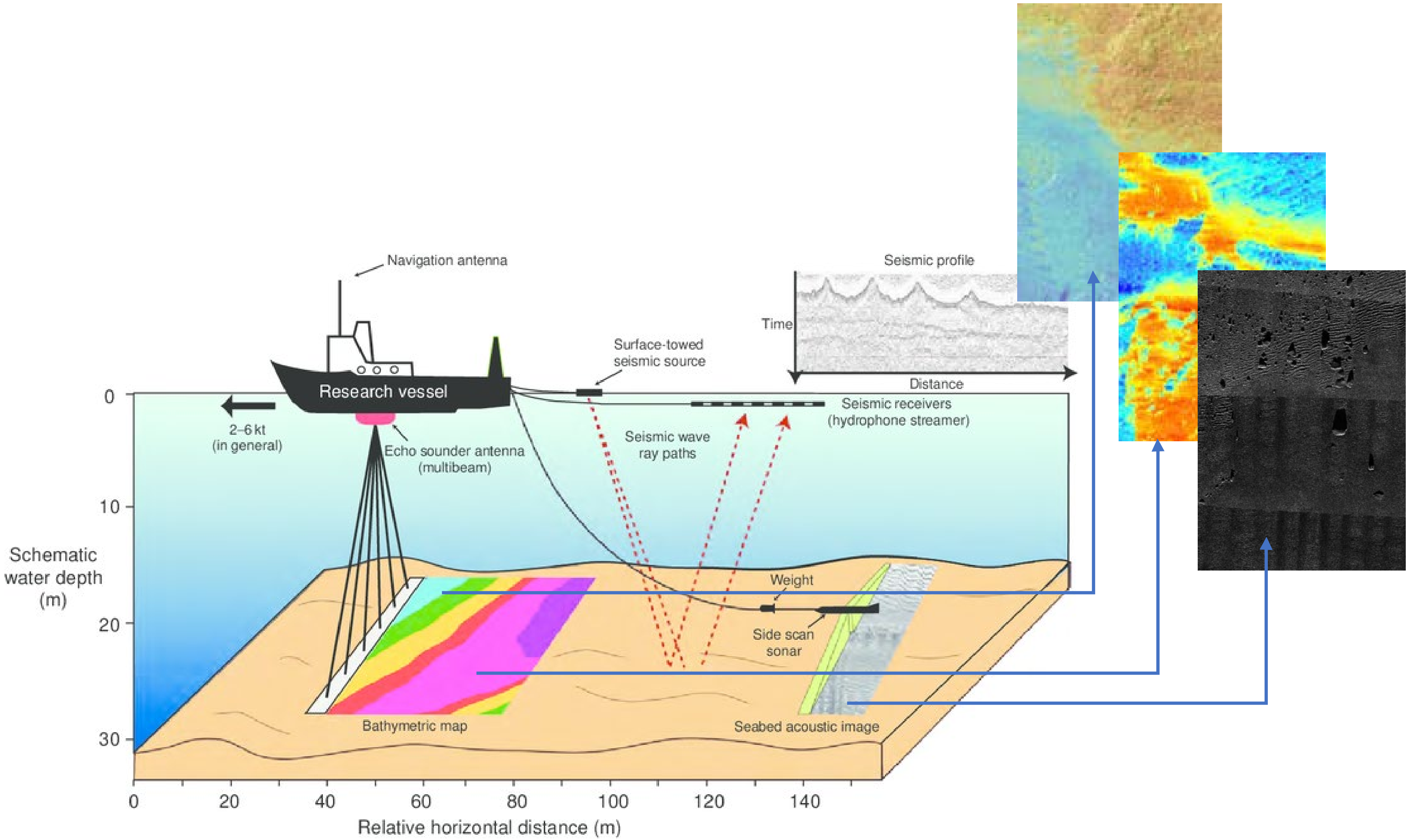

Figure 2-1. Schematic depicting a standard geophysical and geotechnical survey vessel set-up and data collection (after Garel et al. 2019)

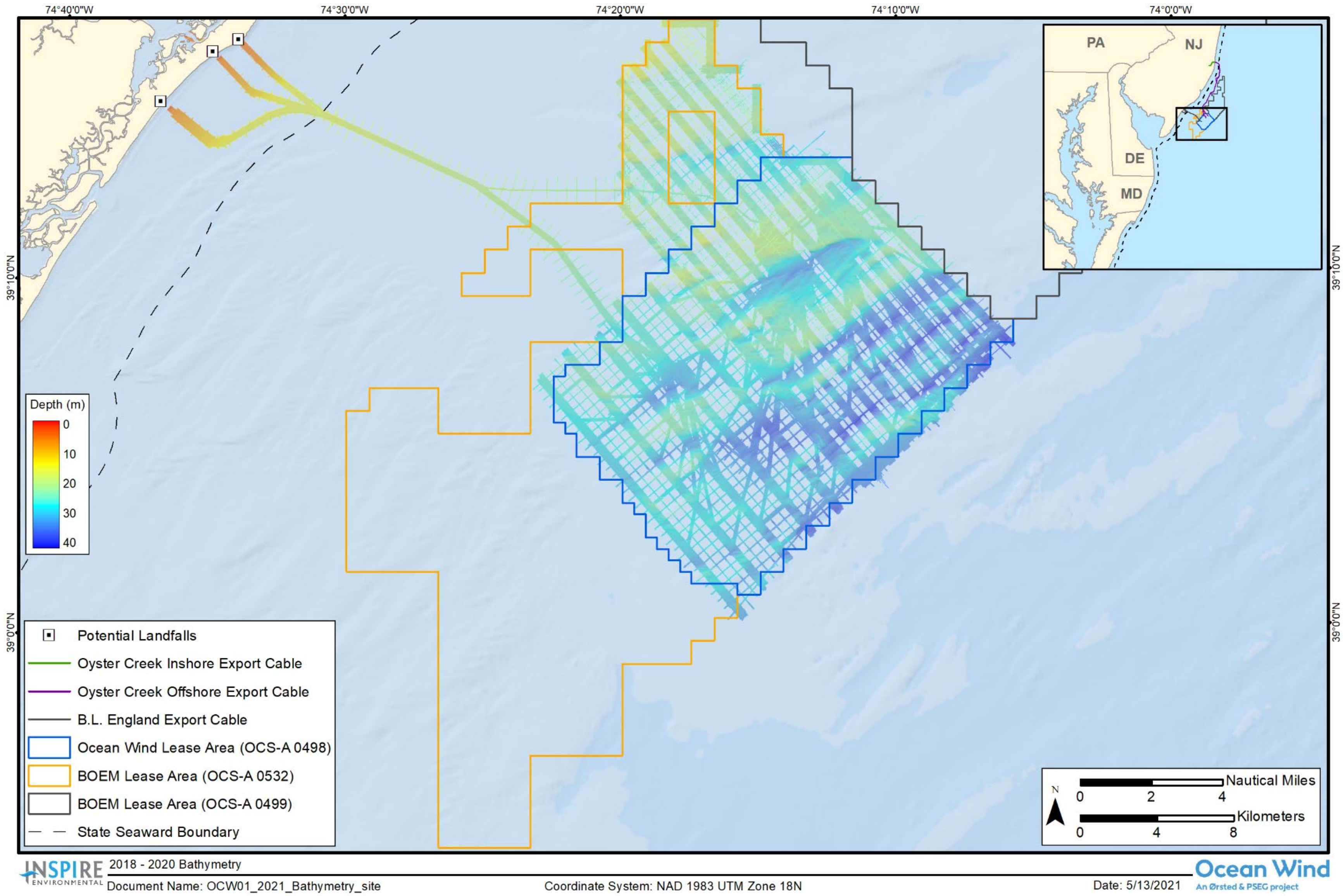

Figure 2-2. Bathymetric data at the Wind Farm Area

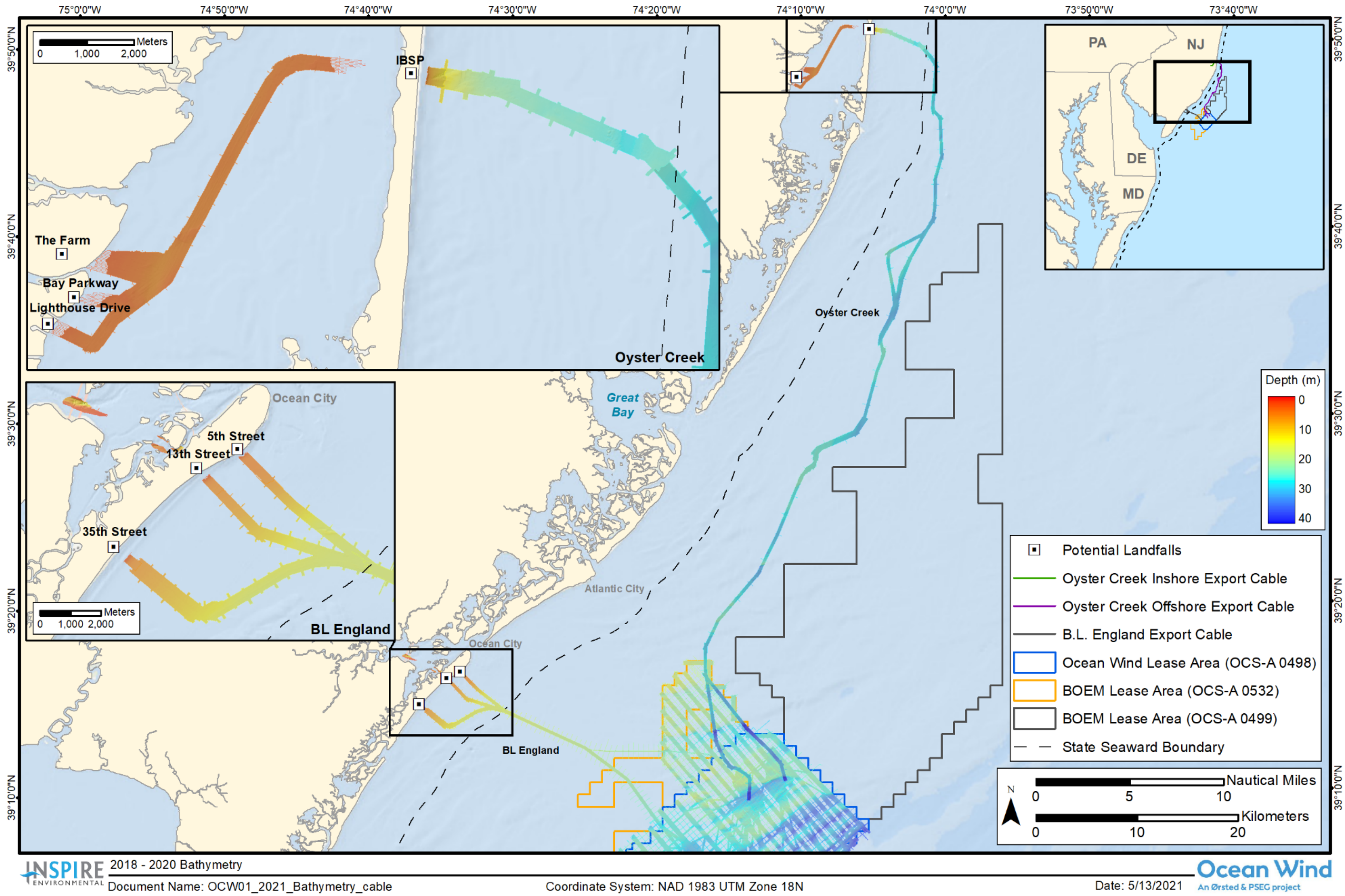

Figure 2-3. Bathymetric data along the BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors

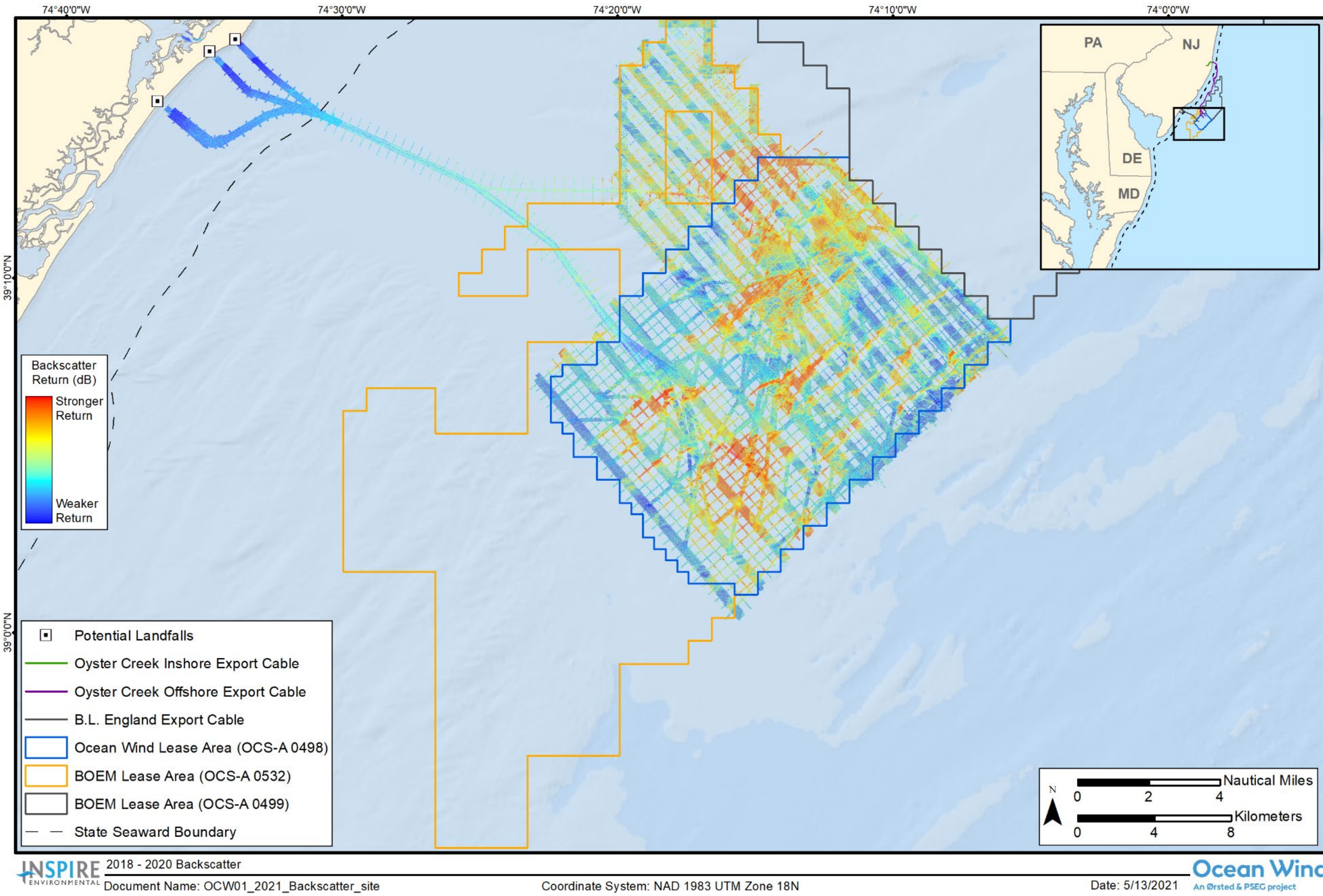

Figure 2-4. Backscatter data over hill-shaded bathymetry at the Wind Farm Area

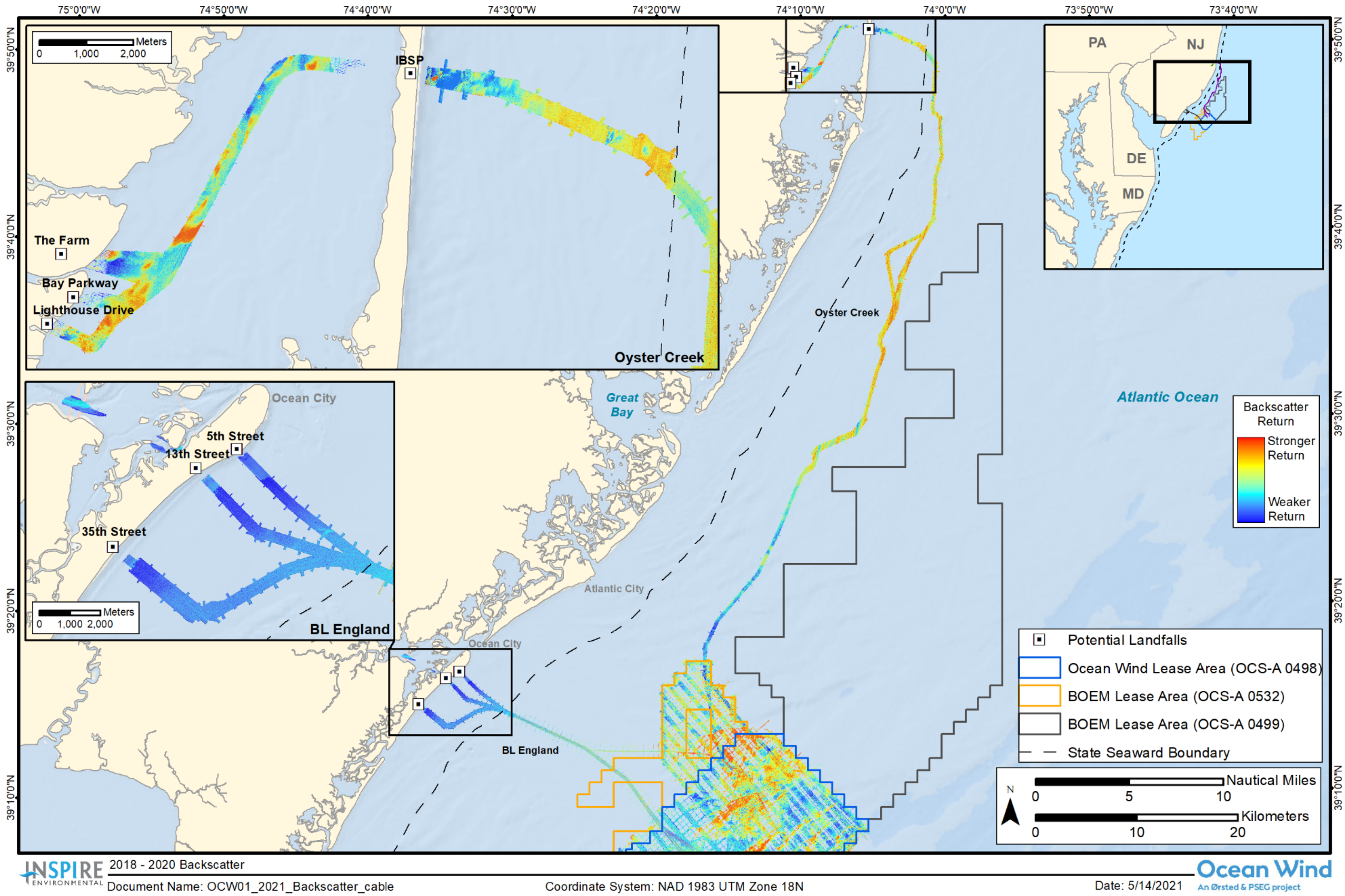

Figure 2-5. Backscatter data over hill-shaded bathymetry along the BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors

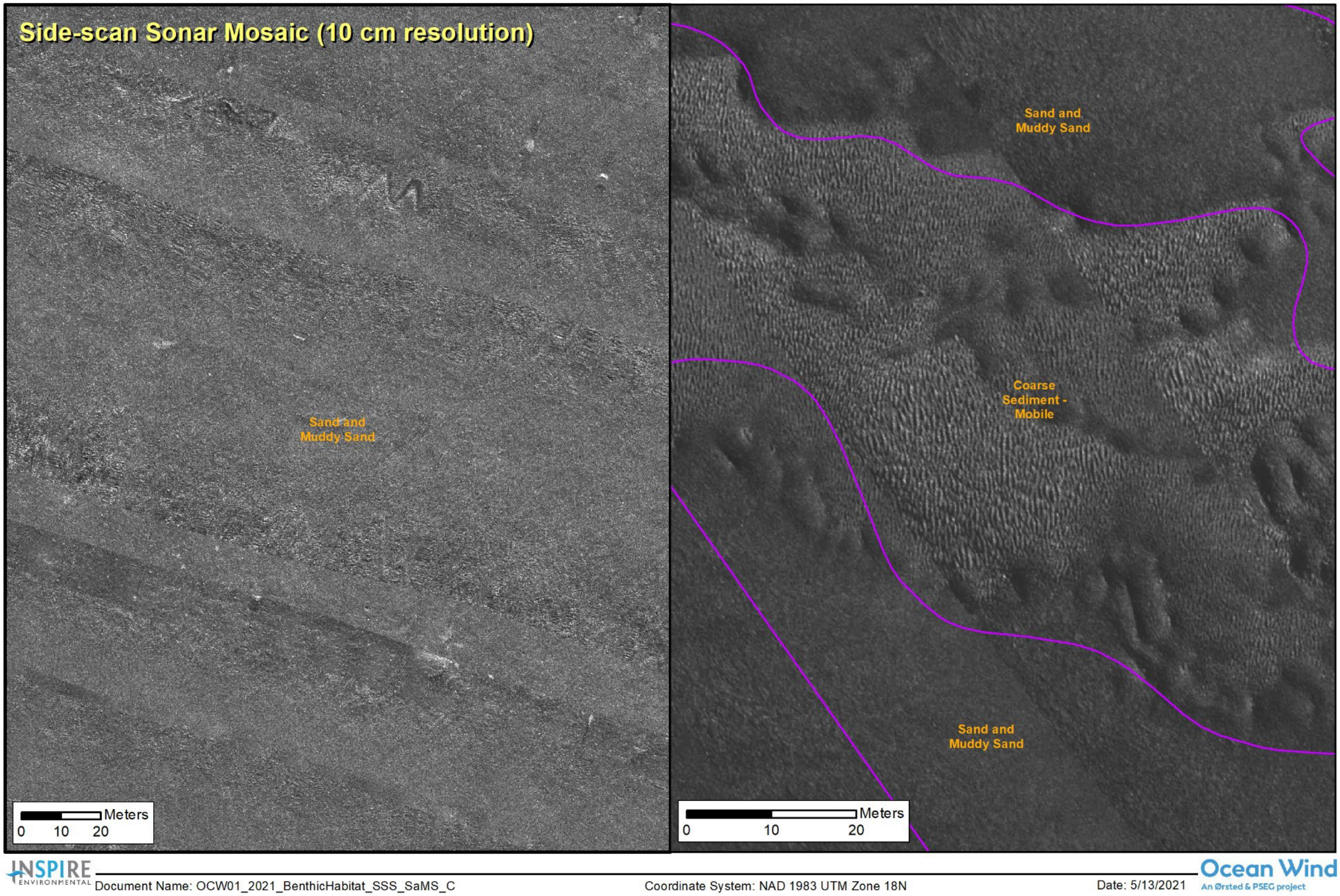

Figure 2-6. Examples of side-scan sonar data showing soft benthic habitats of sand and mud (left) and coarse rippled gravelly sands (right)

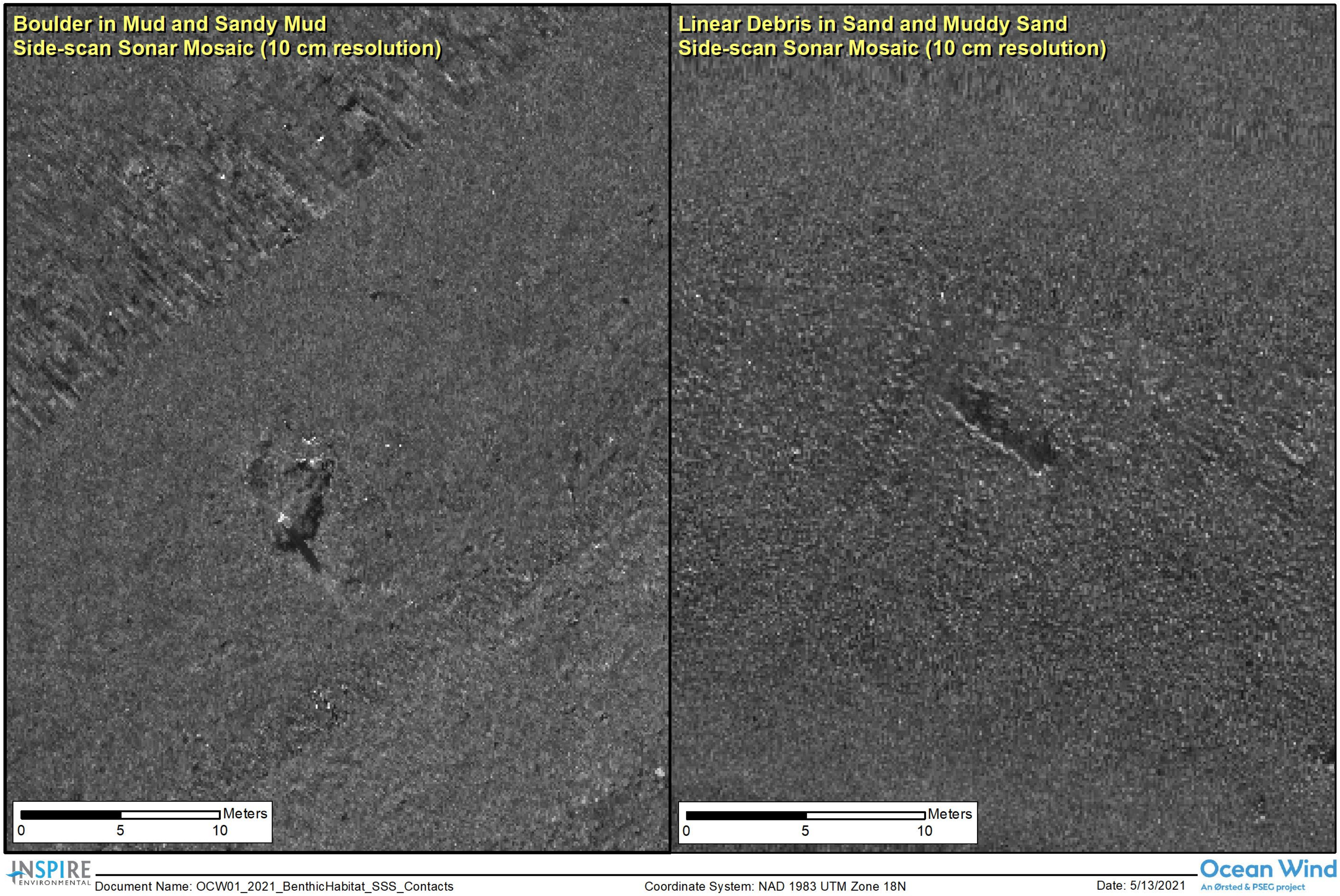

Figure 2.7. Examples of side-scan sonar data showing individual objects on the seafloor, identified as boulders (left) and debris (right)

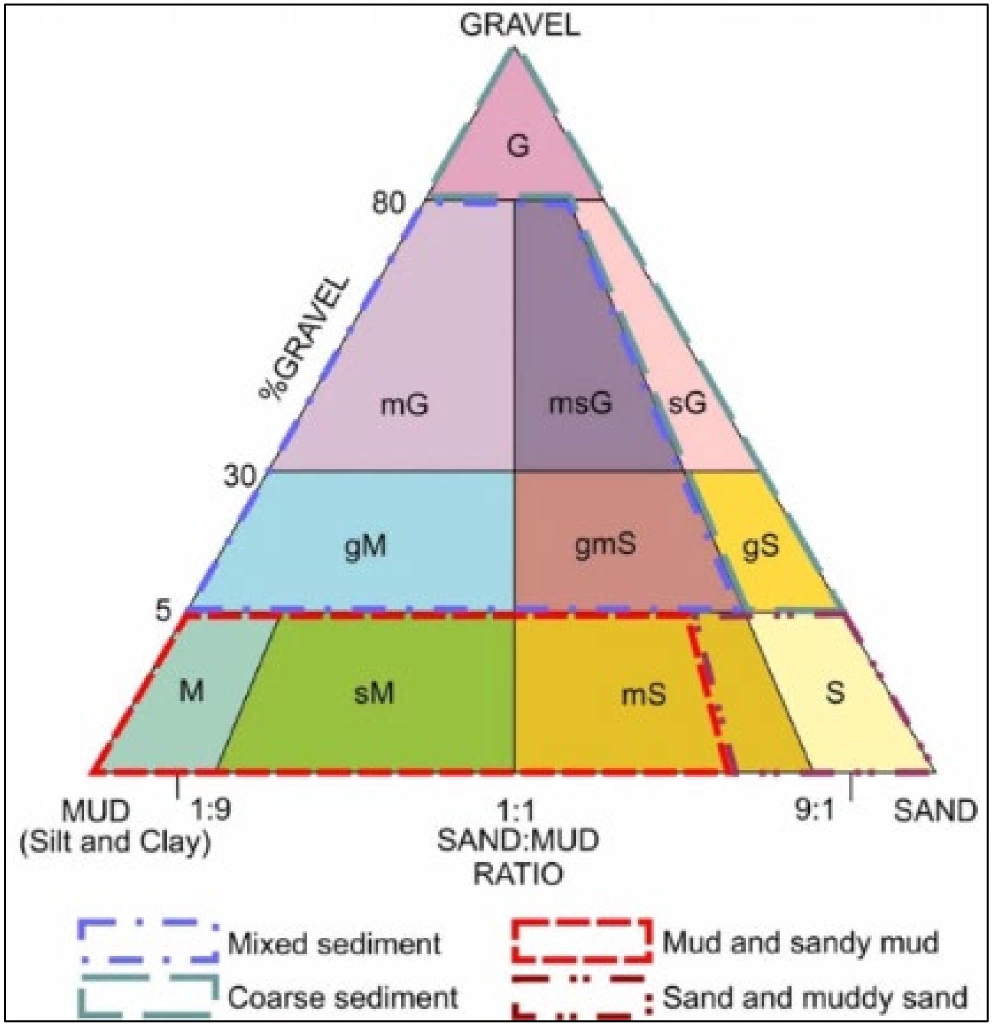

Figure 2-8. CMECS ternary diagram with Orsted's geological seabed interpretation categories

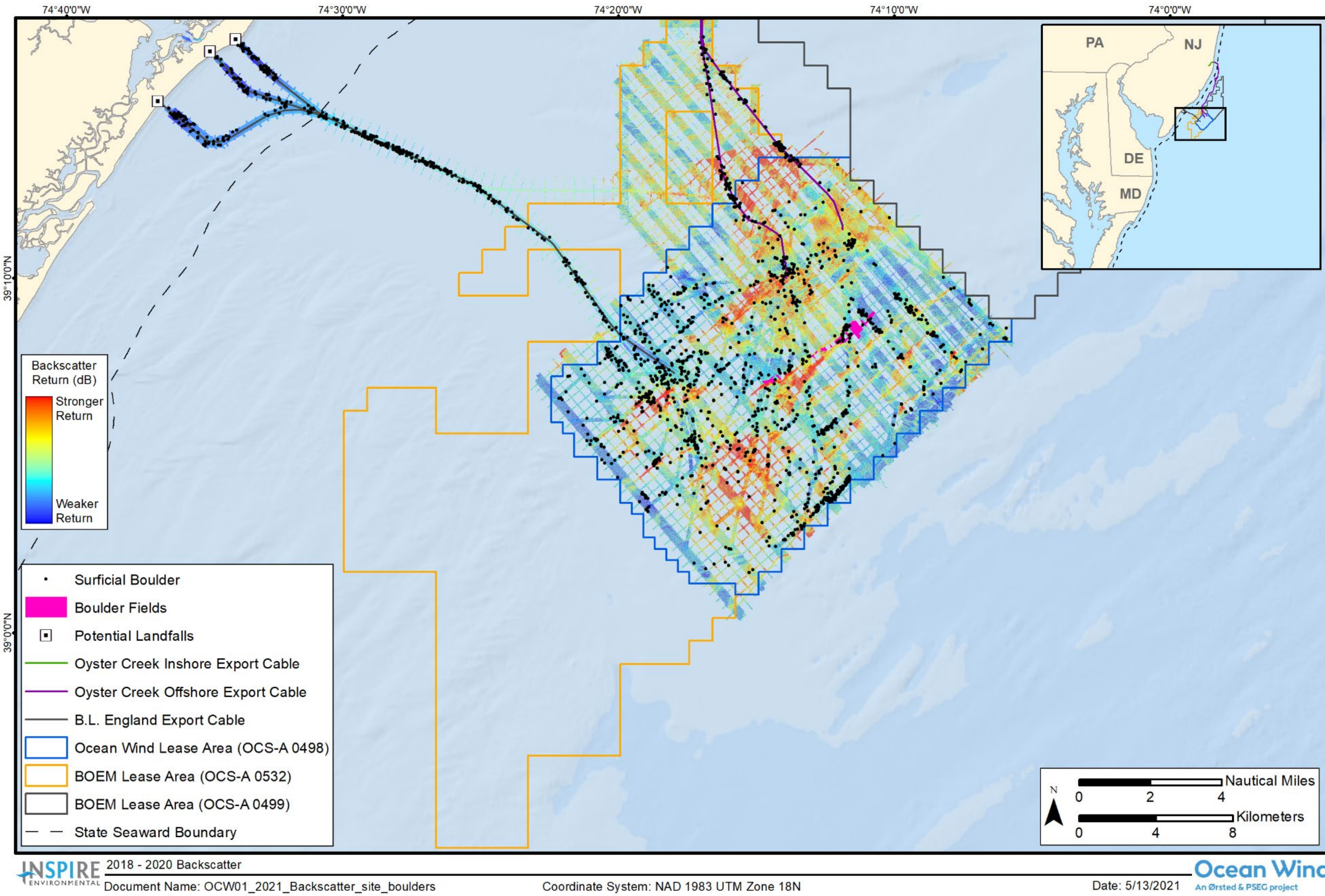

Figure 2-9. Boulder fields and individual boulders on backscatter data over hill-shaded bathymetry at the Wind Farm Area

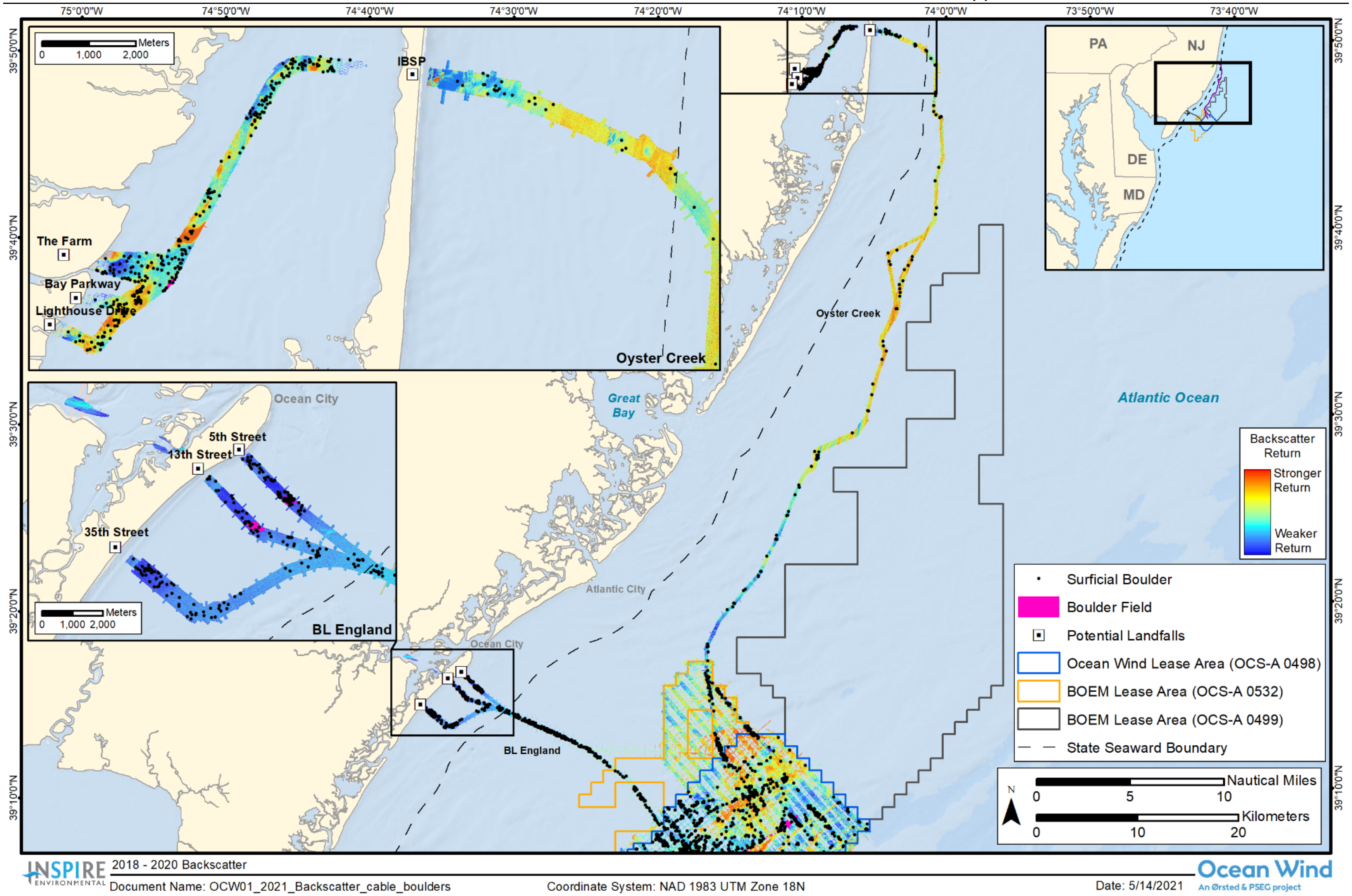

Figure 2-10. Boulder fields and individual boulders on backscatter over hill-shaded bathymetry data along the BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors

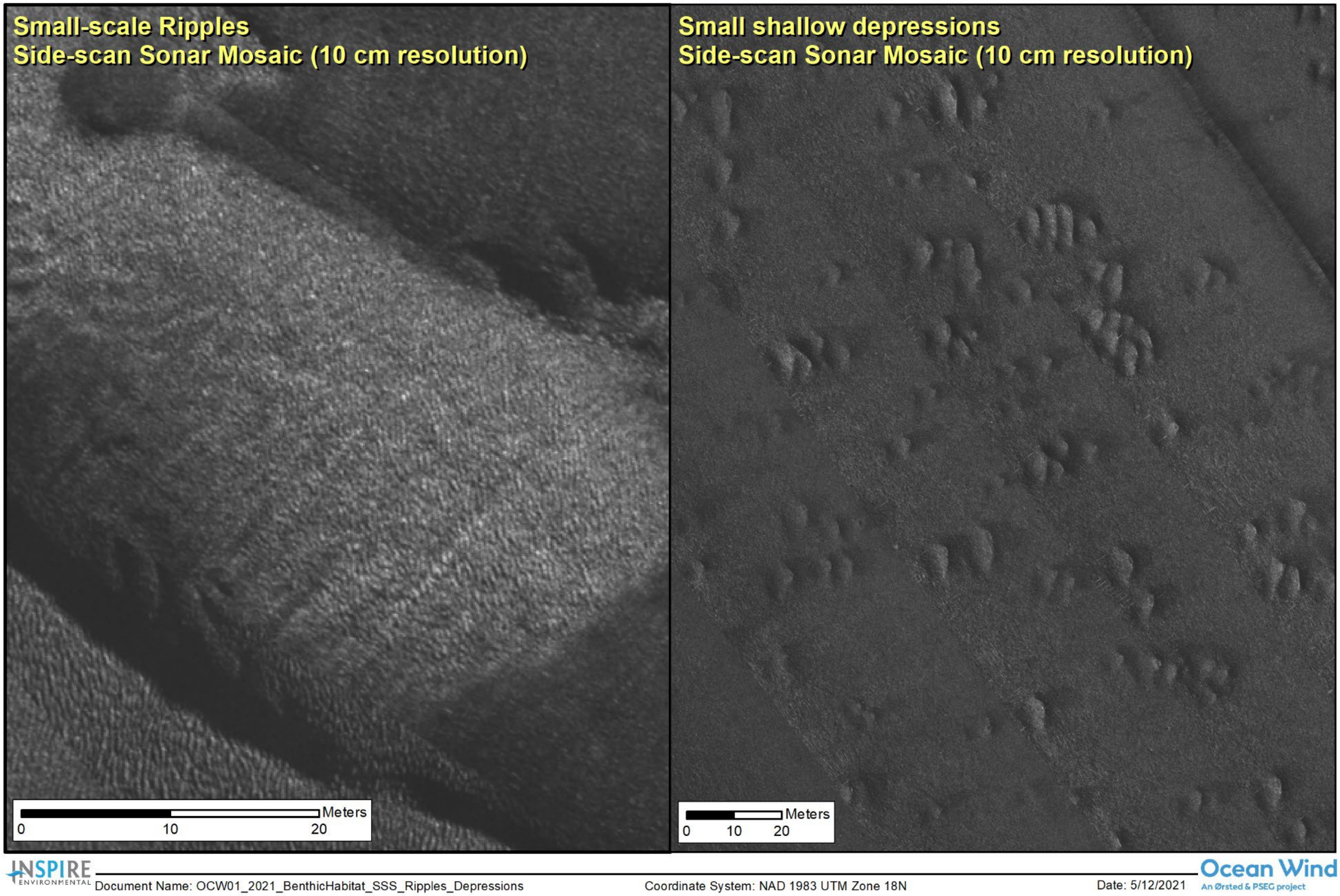

Figure 2-11. Small-scale ripples (left) and small shallow (10-20 cm) depressions of unknown origin (right) visible in side-scan sonar data

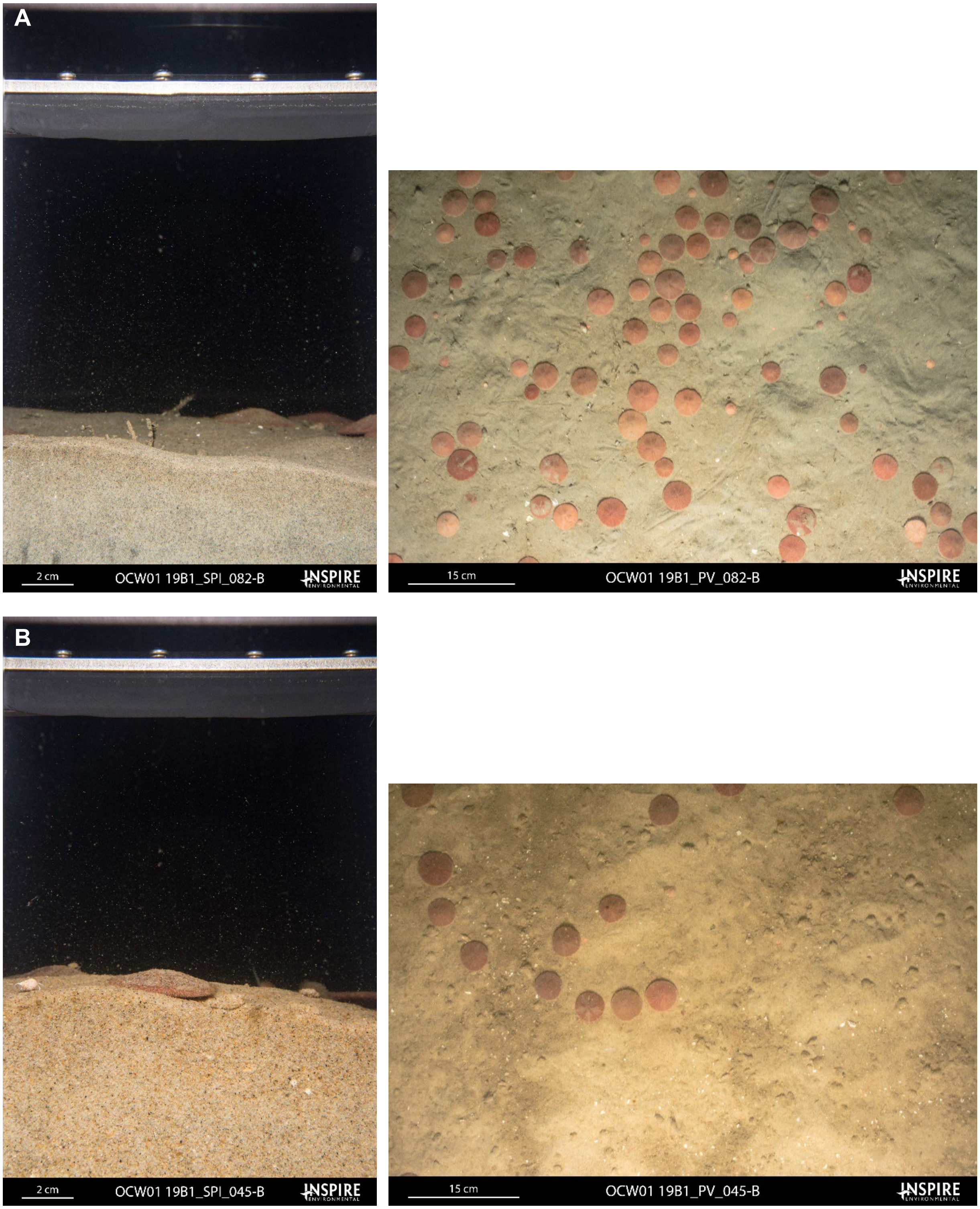

Figure 2-12. Representative SPI (left) and PV (right) images depicting the range of CMECS Substrate Subgroups across the Offshore Project Area: (A) Fine Sand; (B) Coarse Sand; (C) Gravelly Sand (PV) on mixed Coarse and Medium Sand (SPI); (D) Pebble (PV) over Coarse Sand (SPI); (E) Granule over Very Coarse Sand; (F) Shell Hash on mixed Very Coarse and Coarse Sand (SPI)

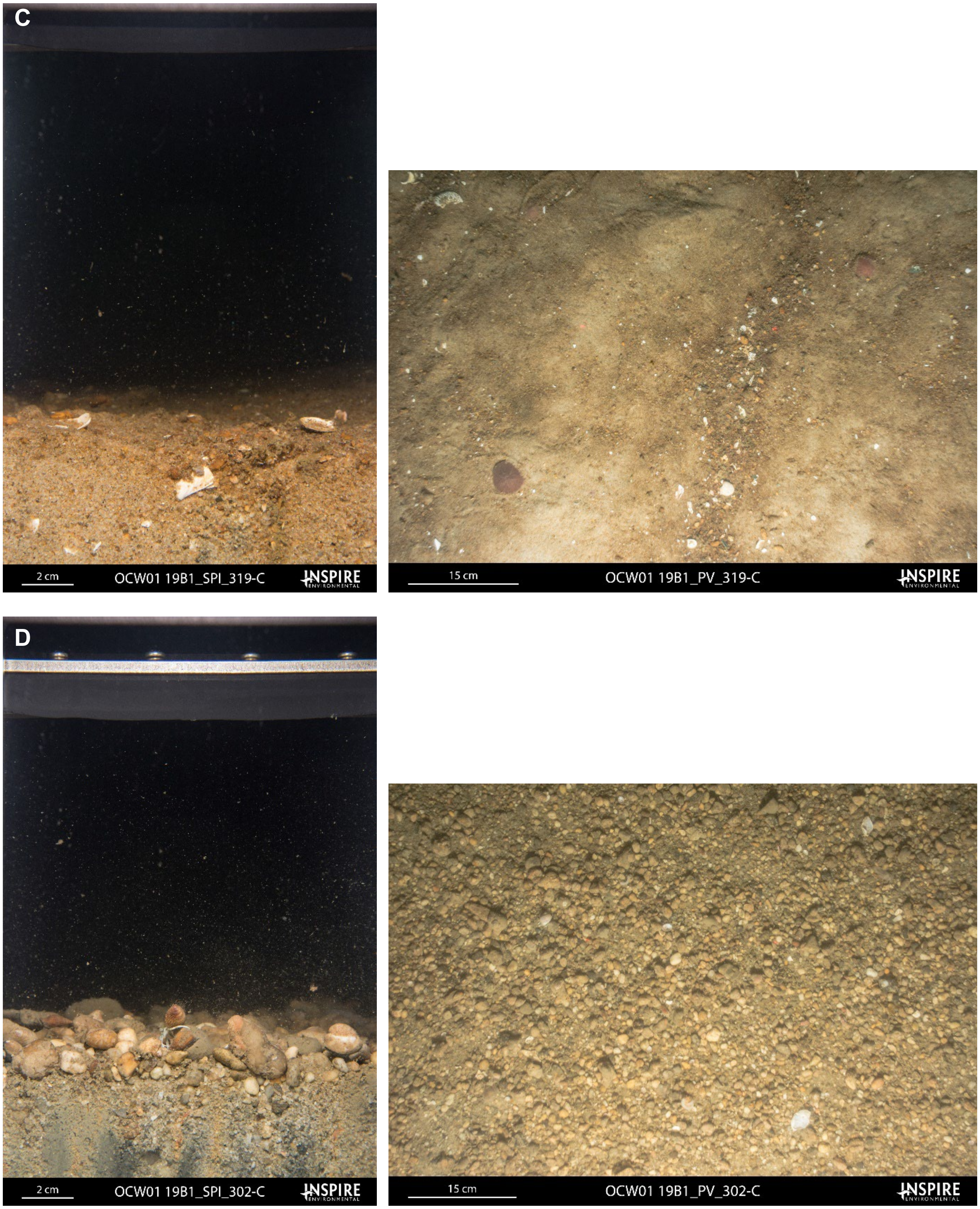

Figure 2-12 (continued). **Representative SPI and PV images depicting the range of CMECS Substrate Subgroups across the Offshore Project Area: (A) Fine Sand; (B) Coarse Sand; (C) Gravelly Sand (PV) on mixed Coarse and Medium Sand (SPI); (D) Pebble (PV) over Coarse Sand (SPI); (E) Granule over Very Coarse Sand; (F) Shell Hash on mixed Very Coarse and Coarse Sand (SPI)**

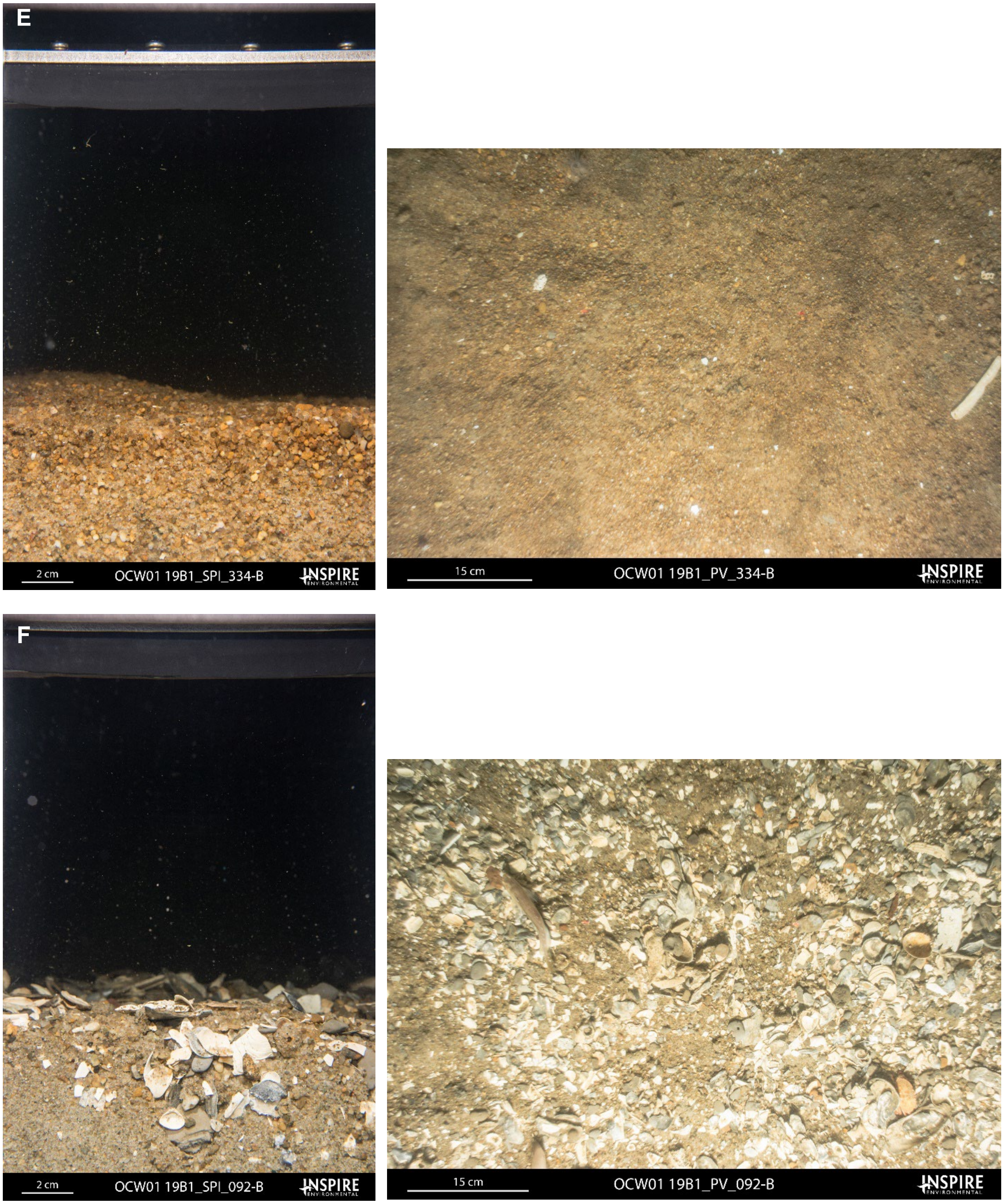

Figure 2-12 (continued). Representative SPI and PV images depicting the range of CMECS Substrate Subgroups across the Offshore Project Area: (A) Fine Sand; (B) Coarse Sand; (C) Gravelly Sand (PV) on mixed Coarse and Medium Sand (SPI); (D) Pebble (PV) over Coarse Sand (SPI); (E) Granule over Very Coarse Sand; (F) Shell Hash on mixed Very Coarse and Coarse Sand (SPI)

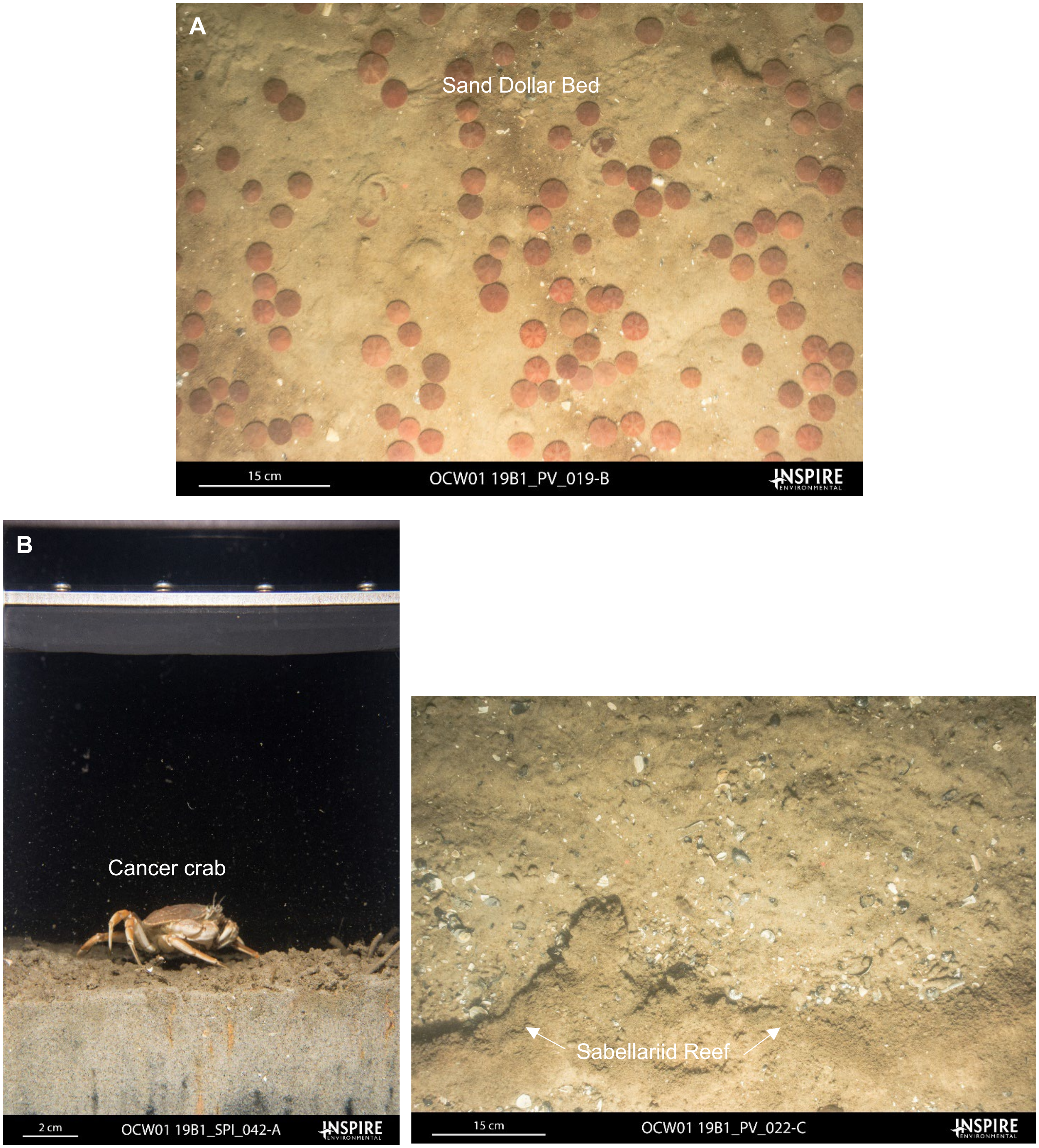

Figure 2-13. Representative SPI and PV images depicting CMECS Biotic Group and infaunal and epifaunal communities observed across the Offshore Project Area: (A) Sand Dollar Bed; (B) Sabellariid Worm Reef with Cancer crab in SPI; (C) Tunicate Bed of *Molgula* tunicates along with burrowing anemones (Cerianthids), nudibranchs, and a moon snail egg case; (D) and (E) Larger Tube-Building Fauna, along with a Cancer crab, nudibranch, and squid egg casings (D), and with sand dollars (E)

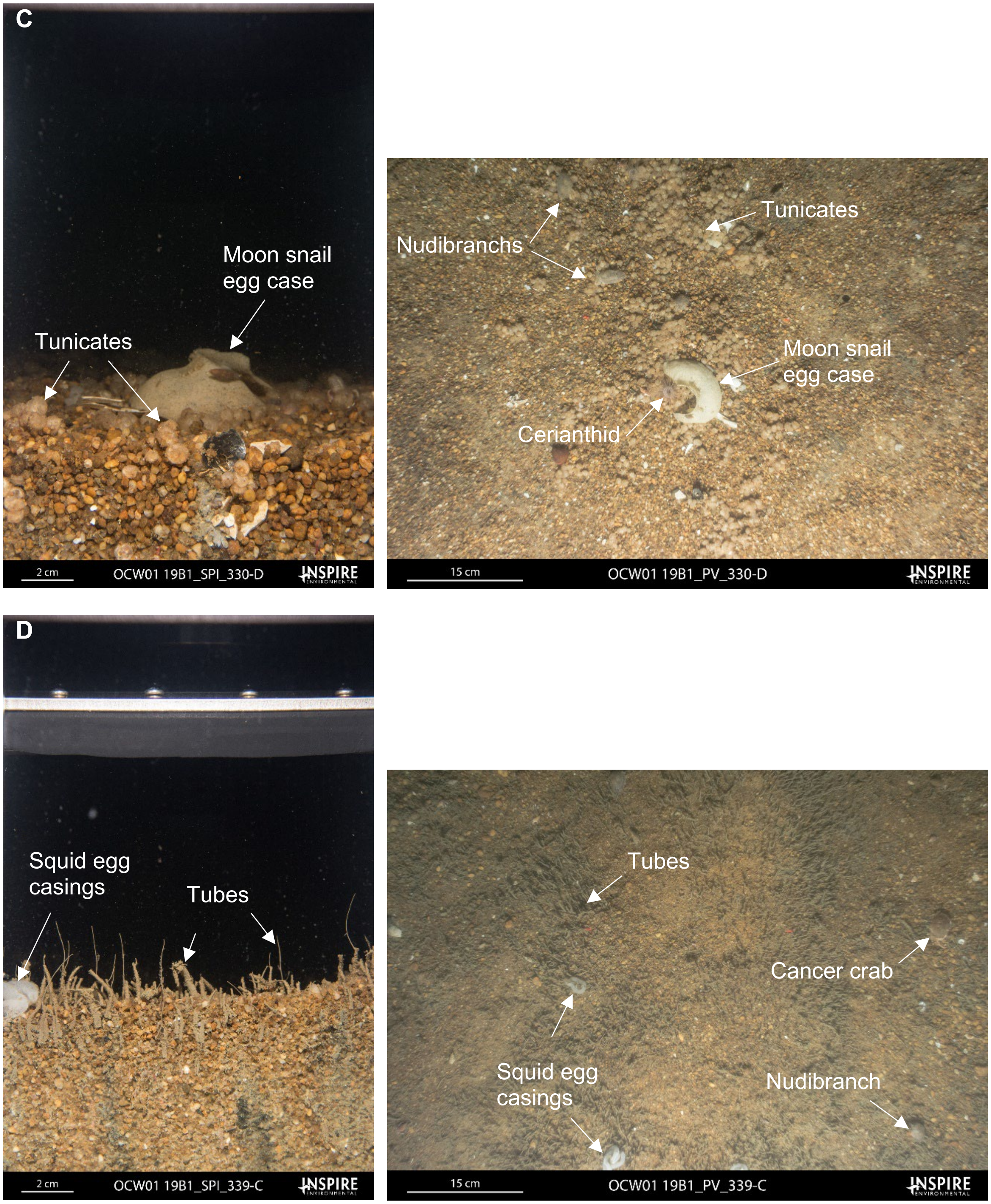

Figure 2-13 (continued). Representative SPI and PV images depicting CMECS Biotic Group and infaunal and epifaunal communities observed across the Offshore Project Area: (A) Sand Dollar Bed; (B) Sabellariid Worm Reef with Cancer crab in SPI; (C) Tunicate Bed of *Molgula* tunicates along with burrowing anemones (Cerianthids), nudibranchs, and a moon snail egg case; (D) and (E) Larger Tube-Building Fauna, along with a Cancer crab, nudibranch, and squid egg casings (D), and with sand dollars (E)

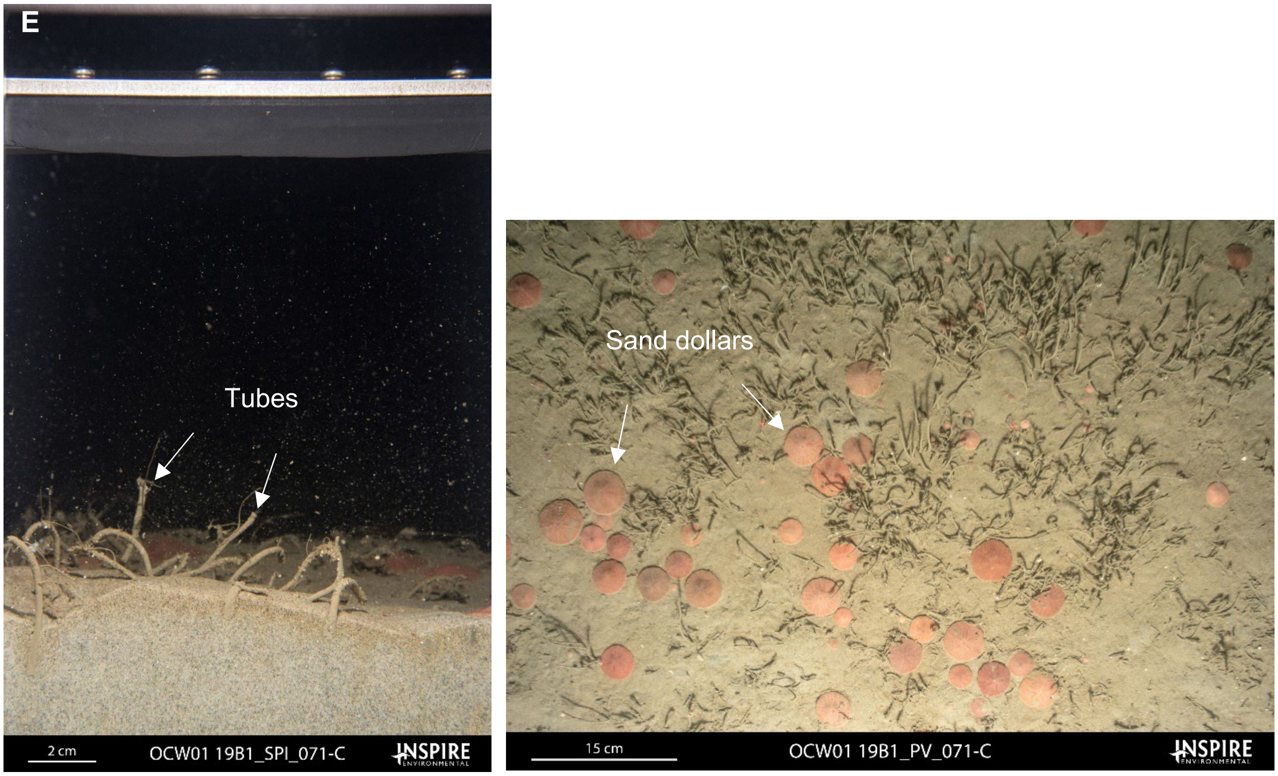

Figure 2-13 (continued). Representative SPI and PV images depicting CMECS Biotic Group and infaunal and epifaunal communities observed across the Offshore Project Area: (A) Sand Dollar Bed; (B) Sabellariid Worm Reef with Cancer crab in SPI; (C) Tunicate Bed of *Molgula* tunicates along with burrowing anemones (Cerianthids), nudibranchs, and a moon snail egg case; (D) and (E) Larger Tube-Building Fauna, along with a Cancer crab, nudibranch, and squid egg casings (D), and with sand dollars (E)

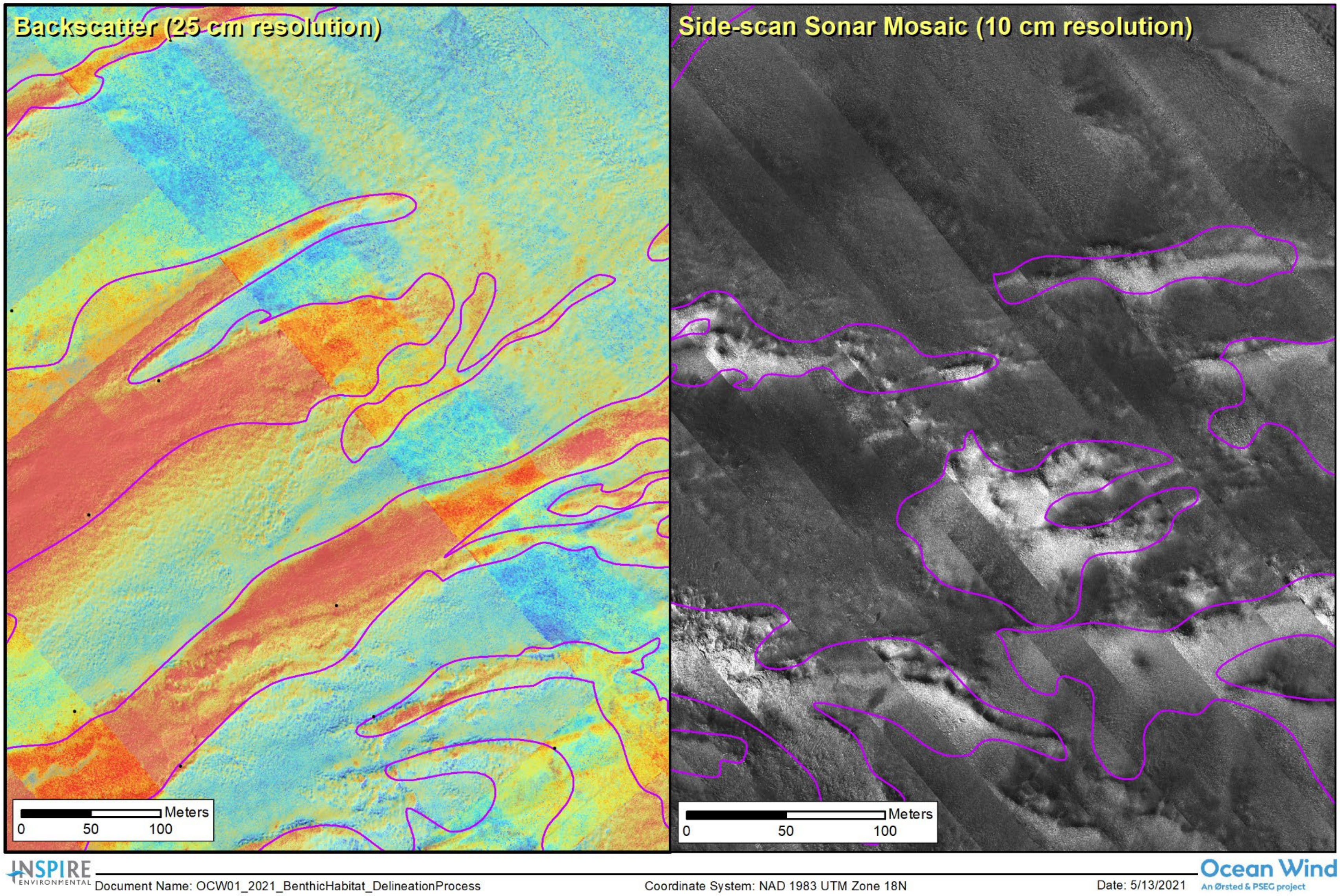

Figure 2-14. Example of using backscatter over hill-shaded bathymetry (left) and SSS (right) data to delineate seabed types

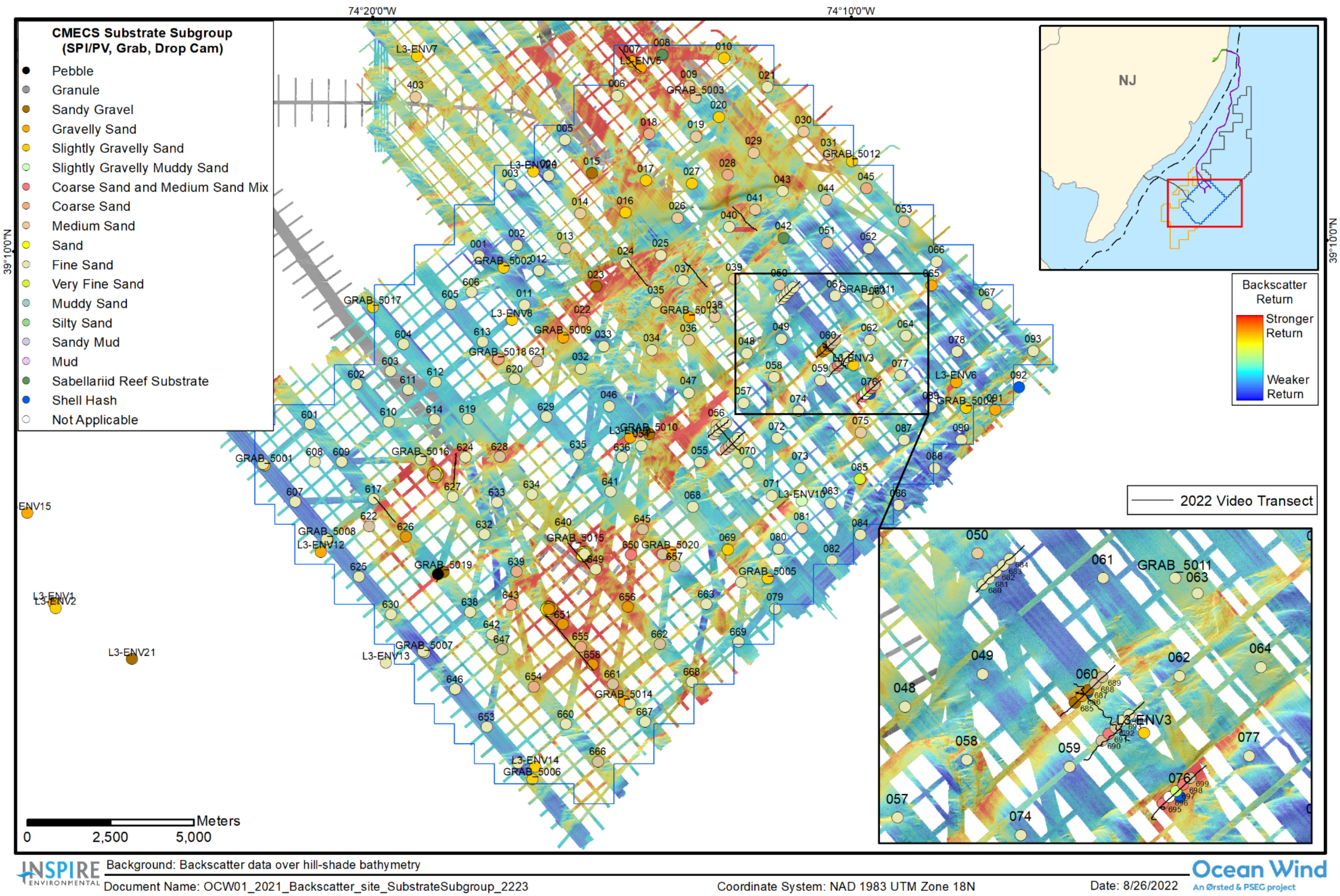

Figure 2-15. Ground-truth data for CMECS Substrate Subgroup on backscatter data over hill-shade bathymetry

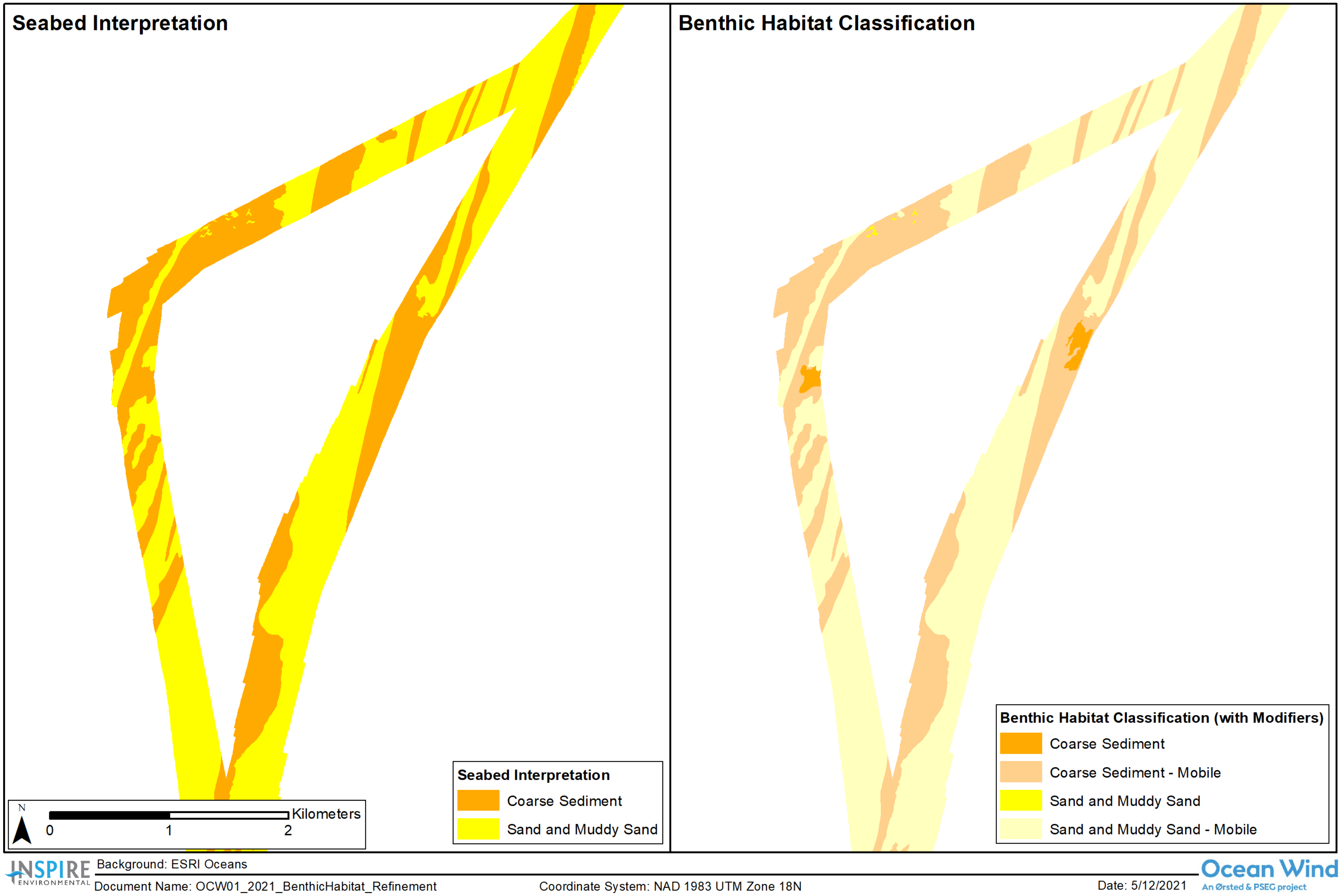

Figure 2-16. Geological seabed interpretations refined to benthic habitat types with modifiers for purposes of assessing potential impacts to essential fish habitat

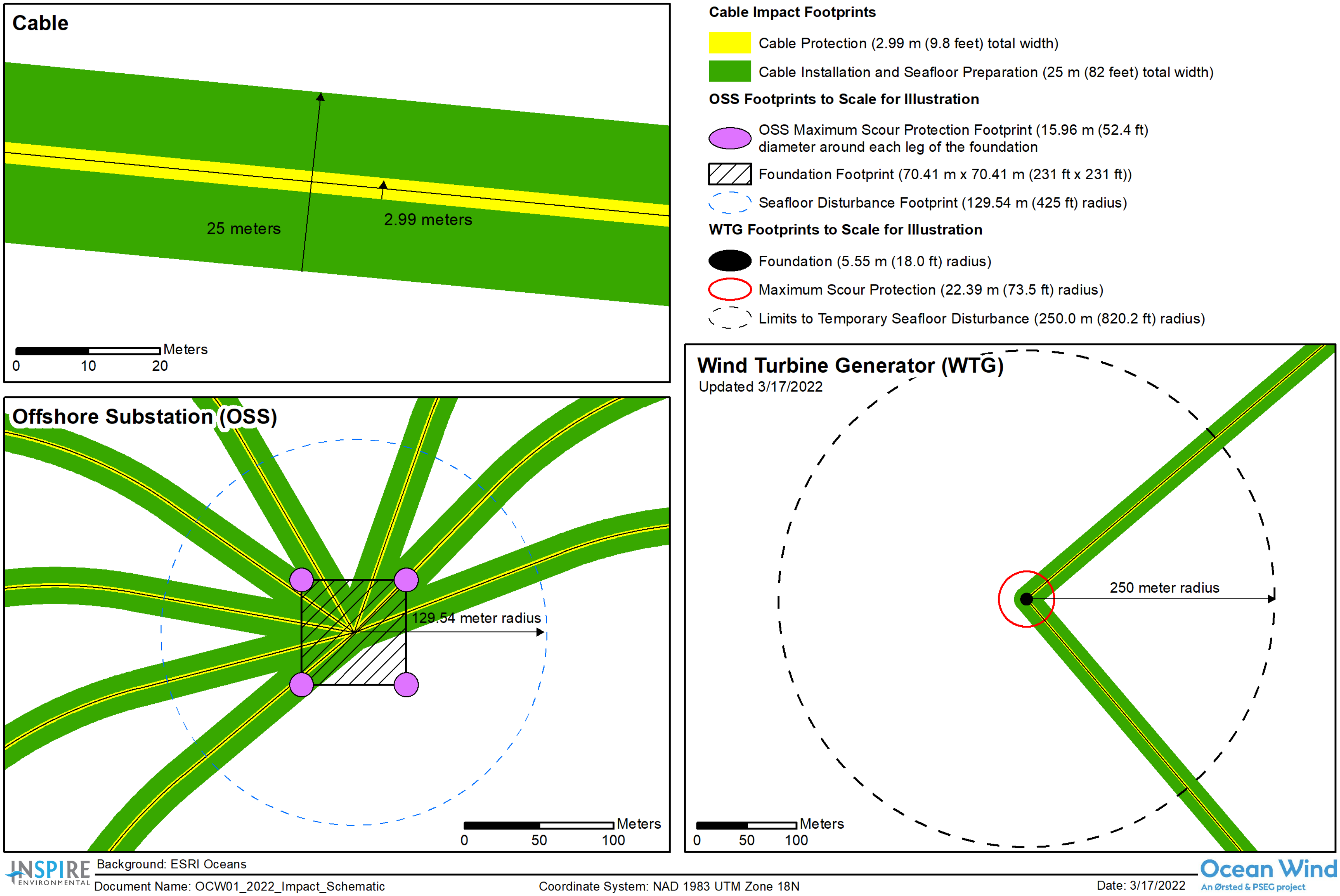

Figure 2-17. Representative wind turbine generator foundation (right), offshore substation foundation (lower left), array cable, substation interconnection, and/or single export cable (top left) and maximum areas of potential permanent and temporary disturbance to the seafloor associated with construction activities

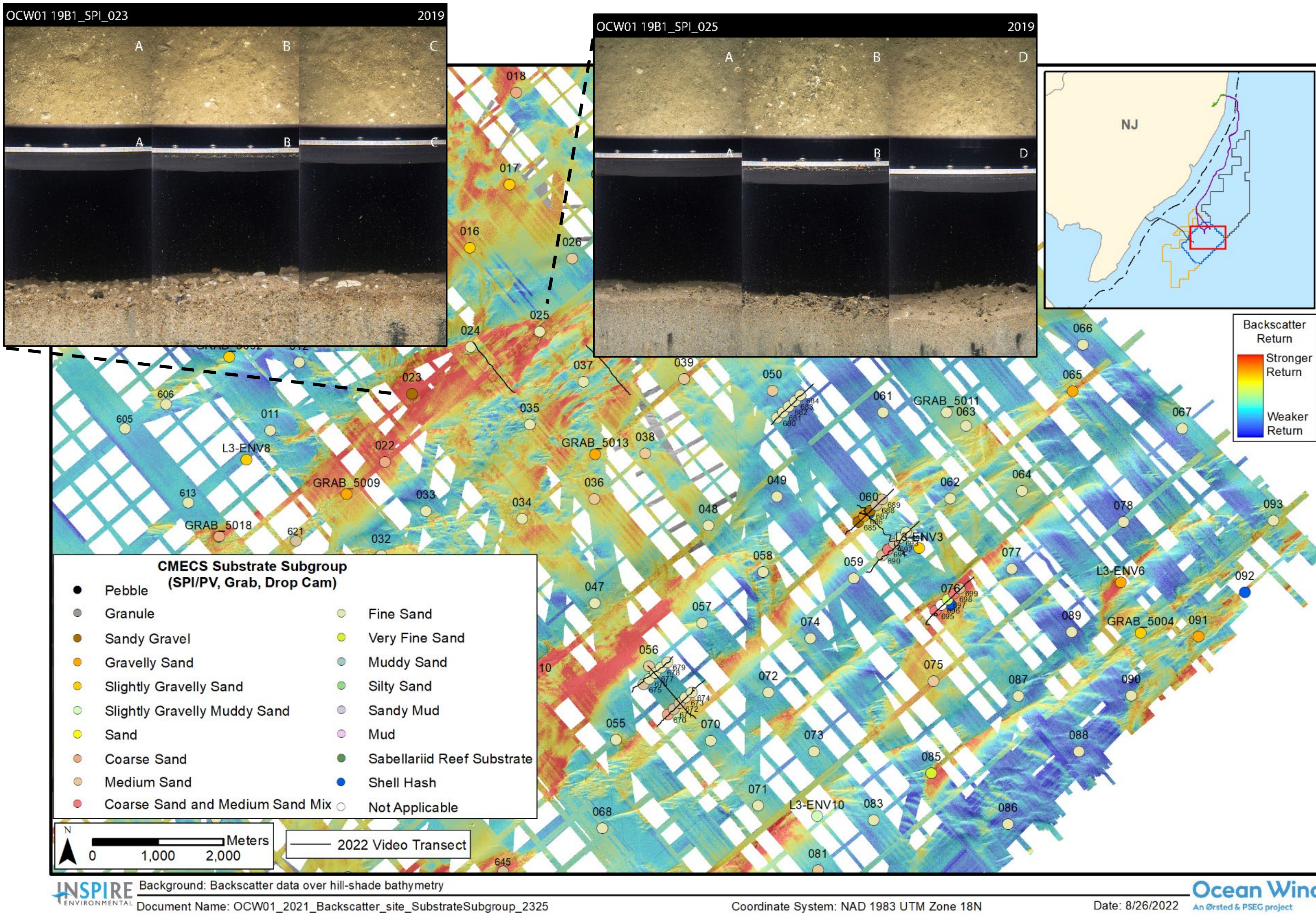

Figure 3-1. Coarse Sediment habitat as detected in backscatter data over hill-shade bathymetry and ground-truth data; inset images for Stations 023 and 025 show three paired replicate PV images (top) and SPI images (bottom)

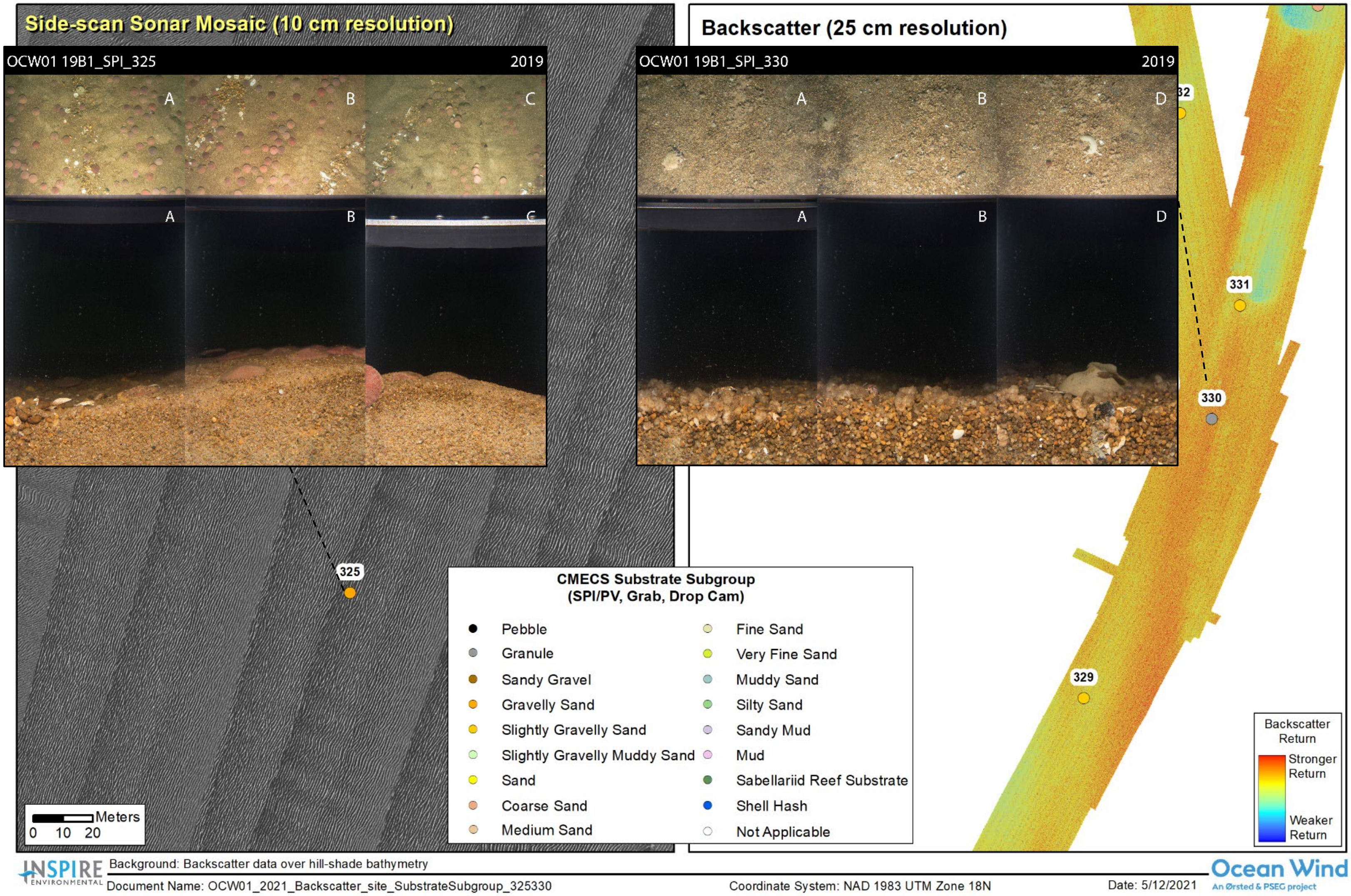

Figure 3-2. Coarse Sediment - Mobile as detected in side-scan sonar data and refined as mobile Gravelly Sand based on ground-truth data (left) and as detected in backscatter data over hill-shade bathymetry and refined as mobile Sandy Gravel based on higher relative backscatter returns and ground-truth data (right); inset images for Stations 325 and 330 show three paired replicate PV images (top) and SPI images (bottom)

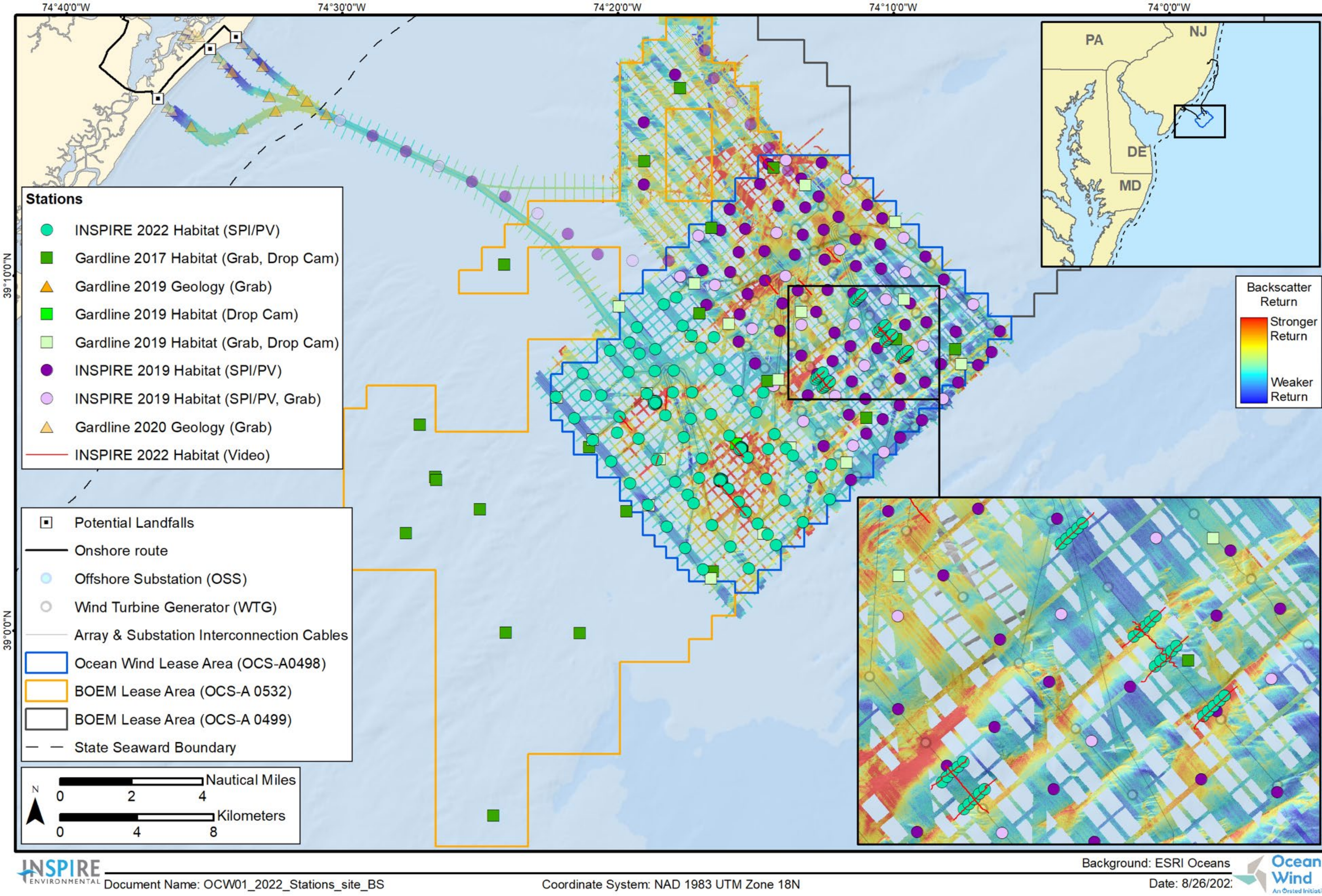

Figure 3-3. Locations sampled with sediment profile and plan view imaging (SPI/PV), sediment grabs, drop cameras, and towed video used in ground-truthing geophysical data and habitat type interpretations at the Wind Farm Area; shown here over backscatter data over hill-shaded bathymetry

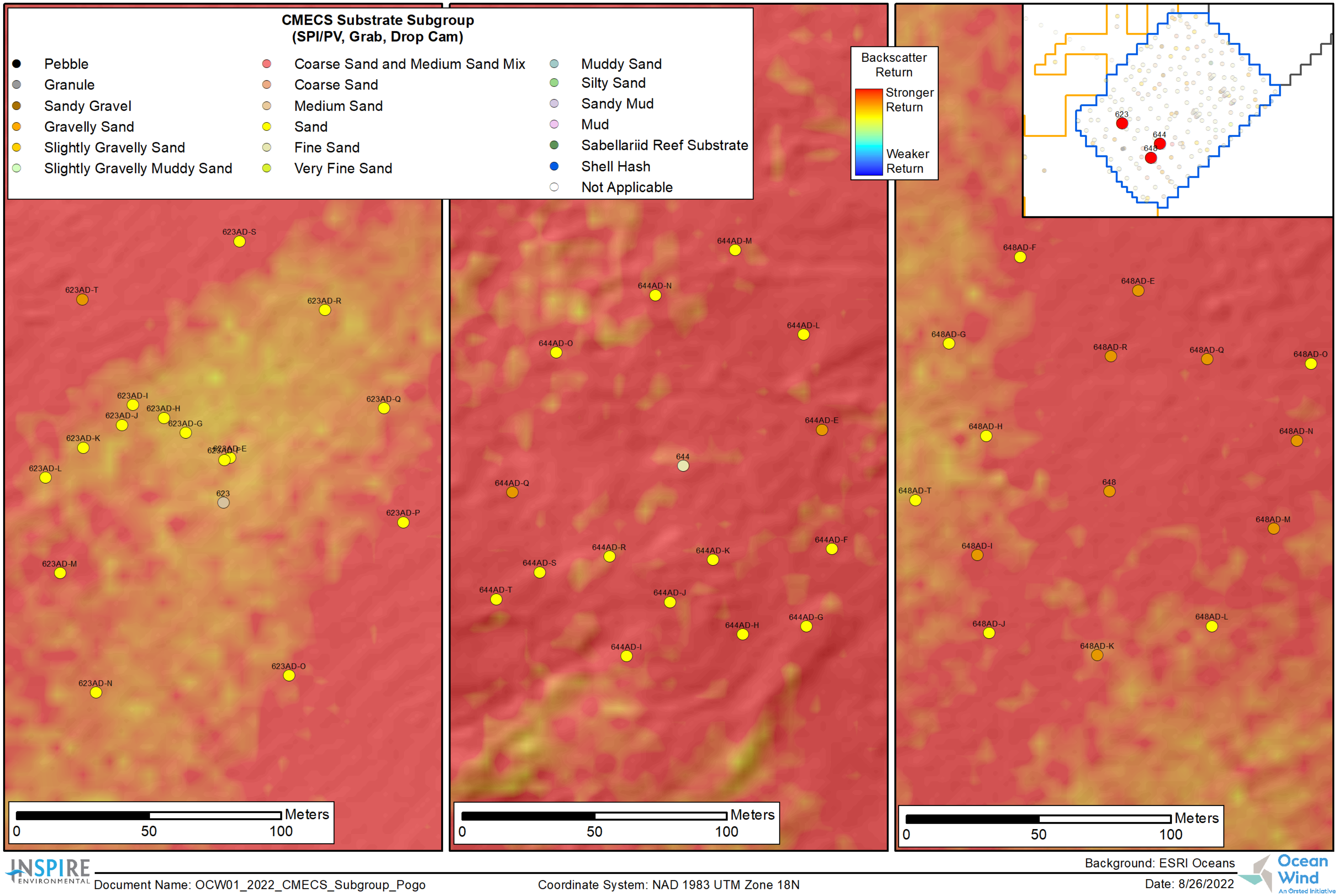

Figure 3-4. CMECS Substrate Subgroup values at three locations sampled with pogo PV to increase replication within areas of relative high backscatter previously delineated as Coarse Sediment

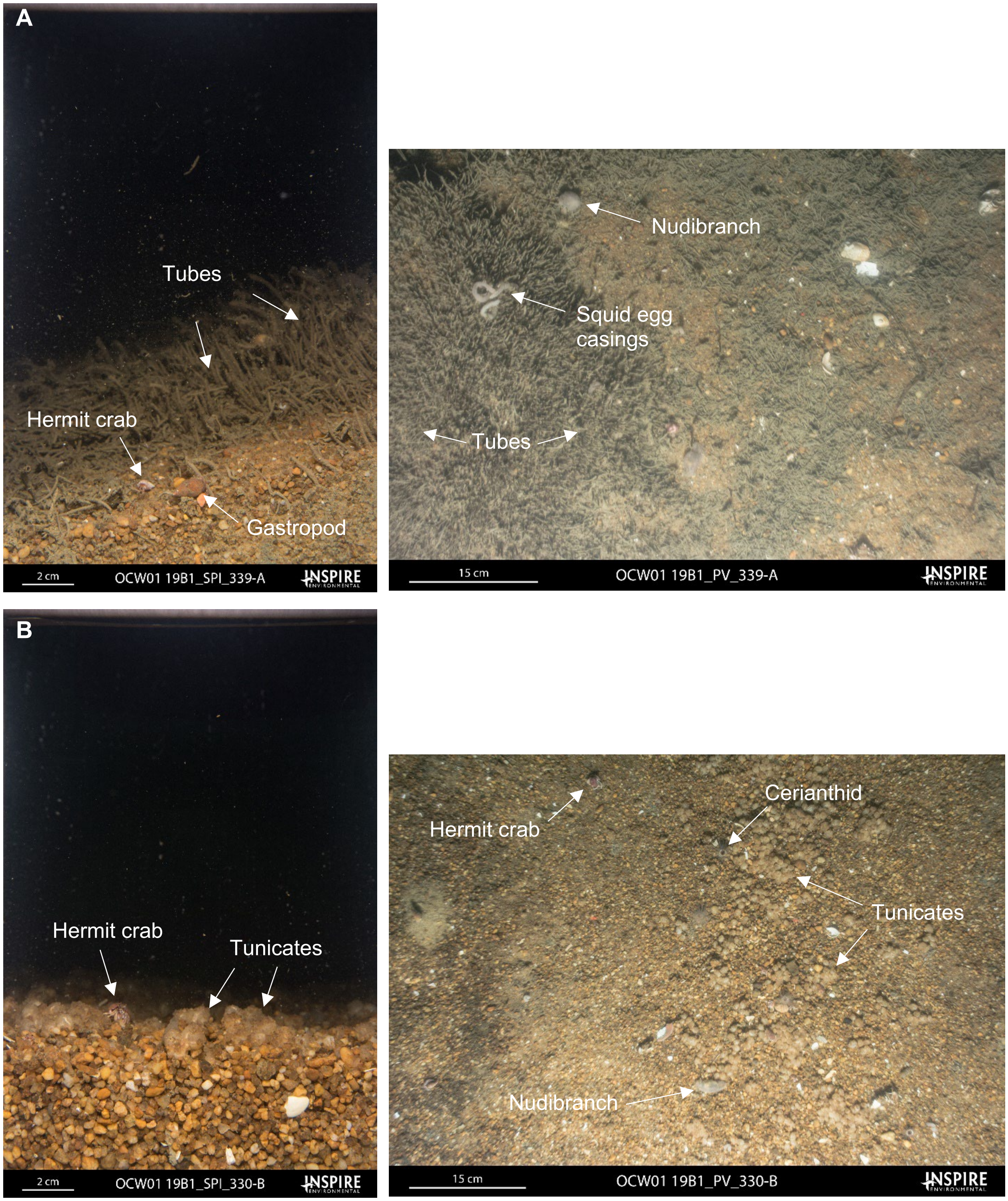

Figure 3-5. Examples of variable biotic use of Coarse Sediment habitats: (A) Larger-Tube Building Fauna CMECS Biotic Group along with nudibranchs, squid egg casings, and small mobile gastropods and hermit crabs; (B) Tunicate Bed CMECS Biotic Group of *Molgula* tunicates along with burrowing anemones (Cerianthids), nudibranchs, and hermit crabs ; (C) Larger Tube-Building Fauna CMECS Biotic Group with large tubes evident in both PV and SPI, podocerid amphipod fecal stacks visible in SPI, and a Cancer crab visible in the PV

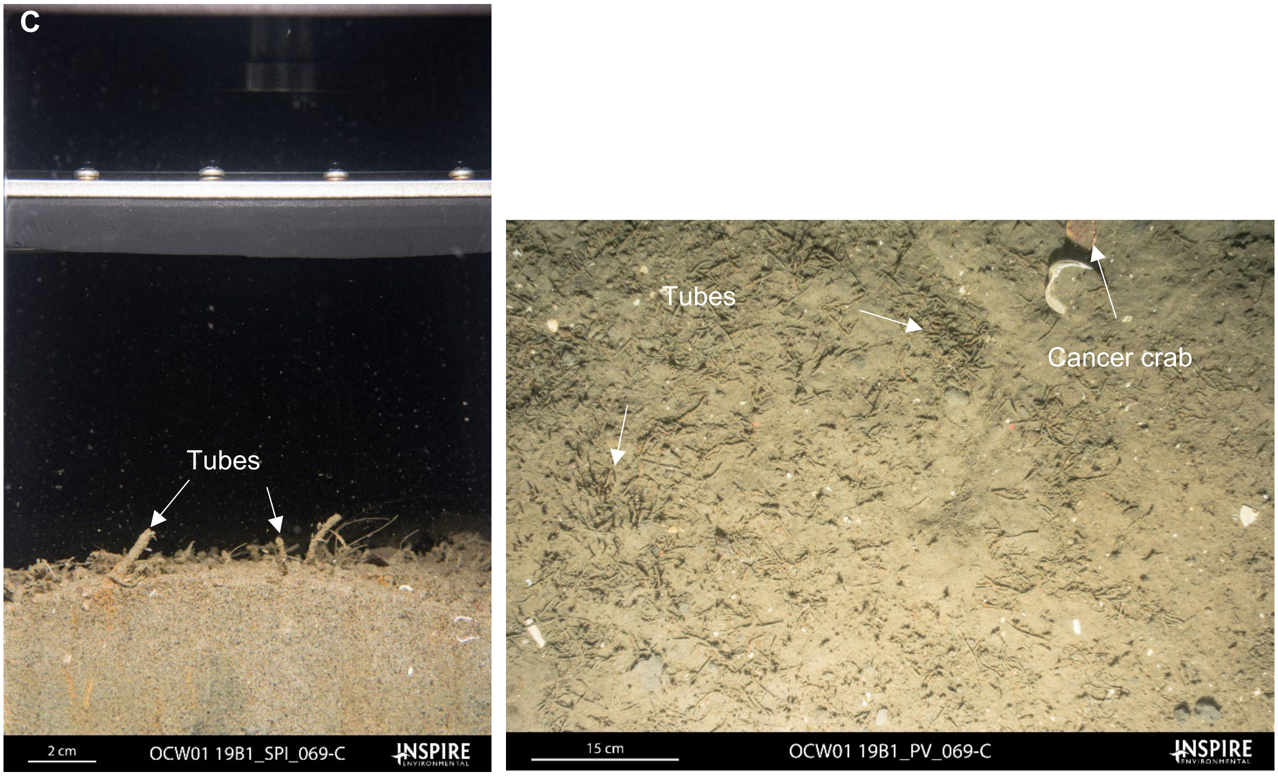

Figure 3-5 (continued). Examples of variable biotic use of Coarse Sediment habitats: (A) Larger-Tube Building Fauna CMECS Biotic Group along with nudibranchs, squid egg casings, and small mobile gastropods and hermit crabs; (B) Tunicate Bed CMECS Biotic Group of *Molgula* tunicates along with burrowing anemones (Cerianthids), nudibranchs, and hermit crabs ; (C) Larger Tube-Building Fauna CMECS Biotic Group with large tubes evident in both PV and SPI, podocerid amphipod fecal stacks visible in SPI, and a Cancer crab visible in the PV

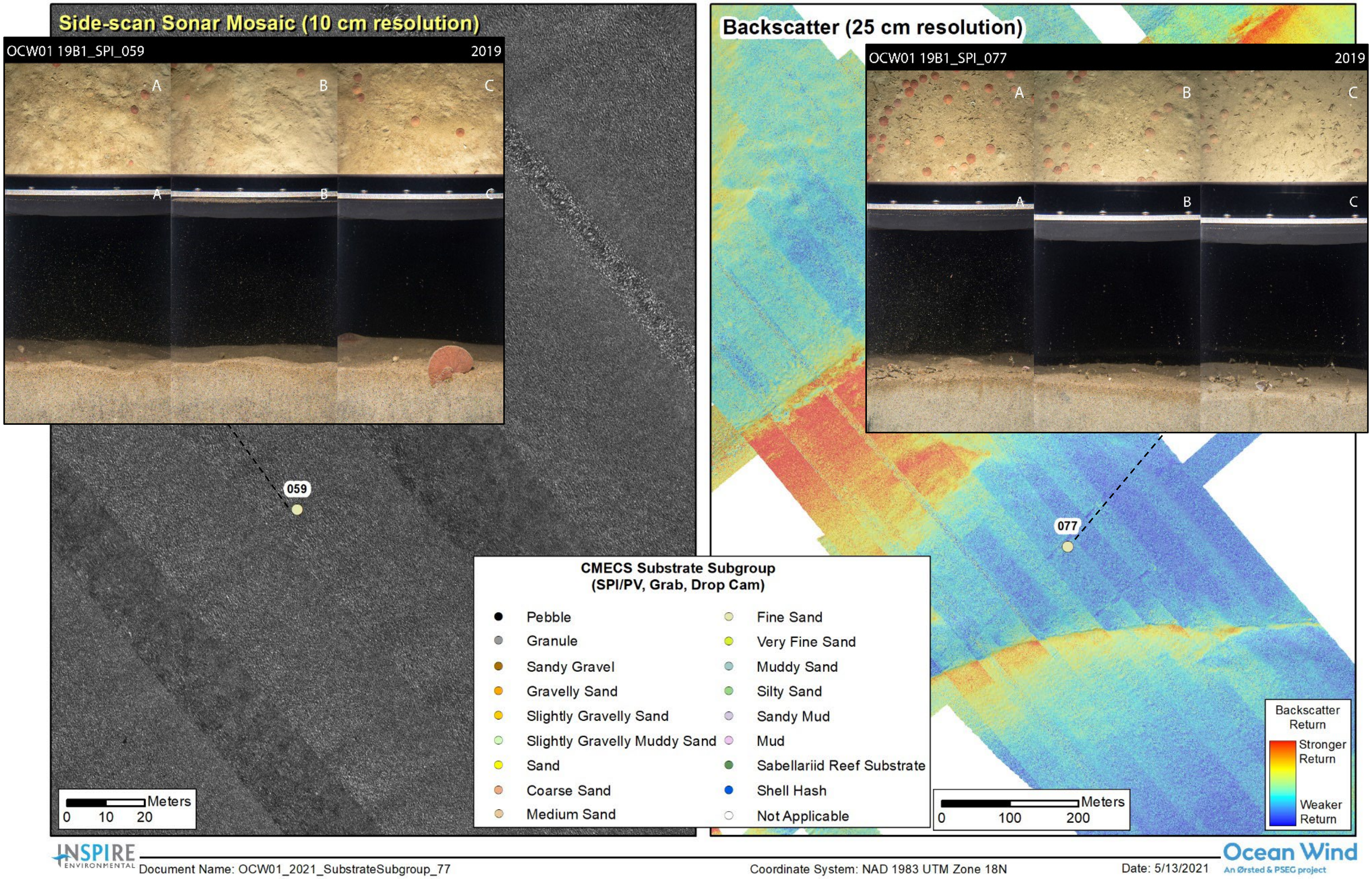

Figure 3-6. Sand and Muddy Sand habitat as detected in geophysical and ground-truth data; inset images for Stations 59 and 077 show three paired replicate PV images (top) and SPI images (bottom)

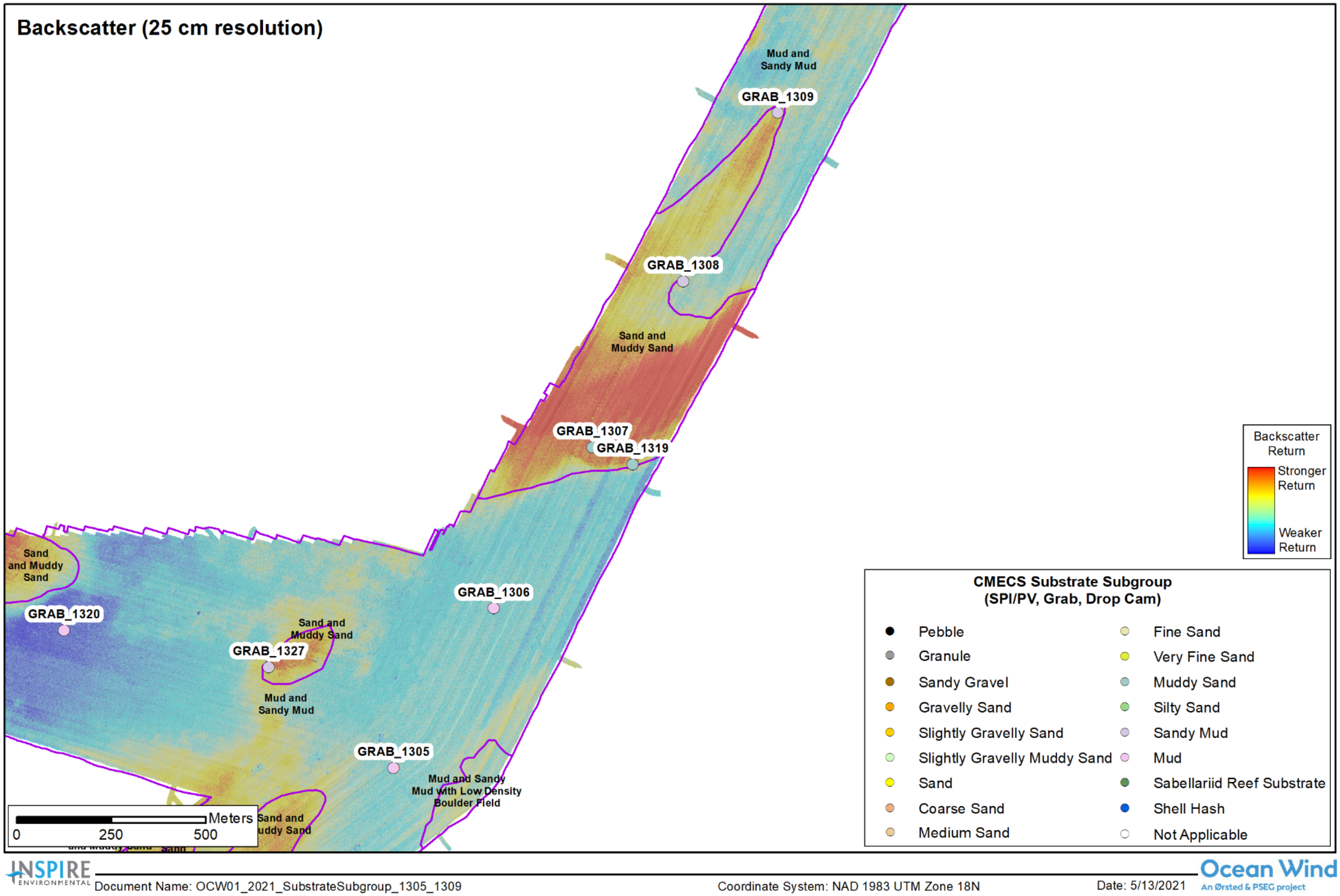

Figure 3-7. Mud and Sandy Mud habitat as detected in backscatter data over hill-shade bathymetry and ground-truth data (only sediment grabs were collected in Barnegat Bay)

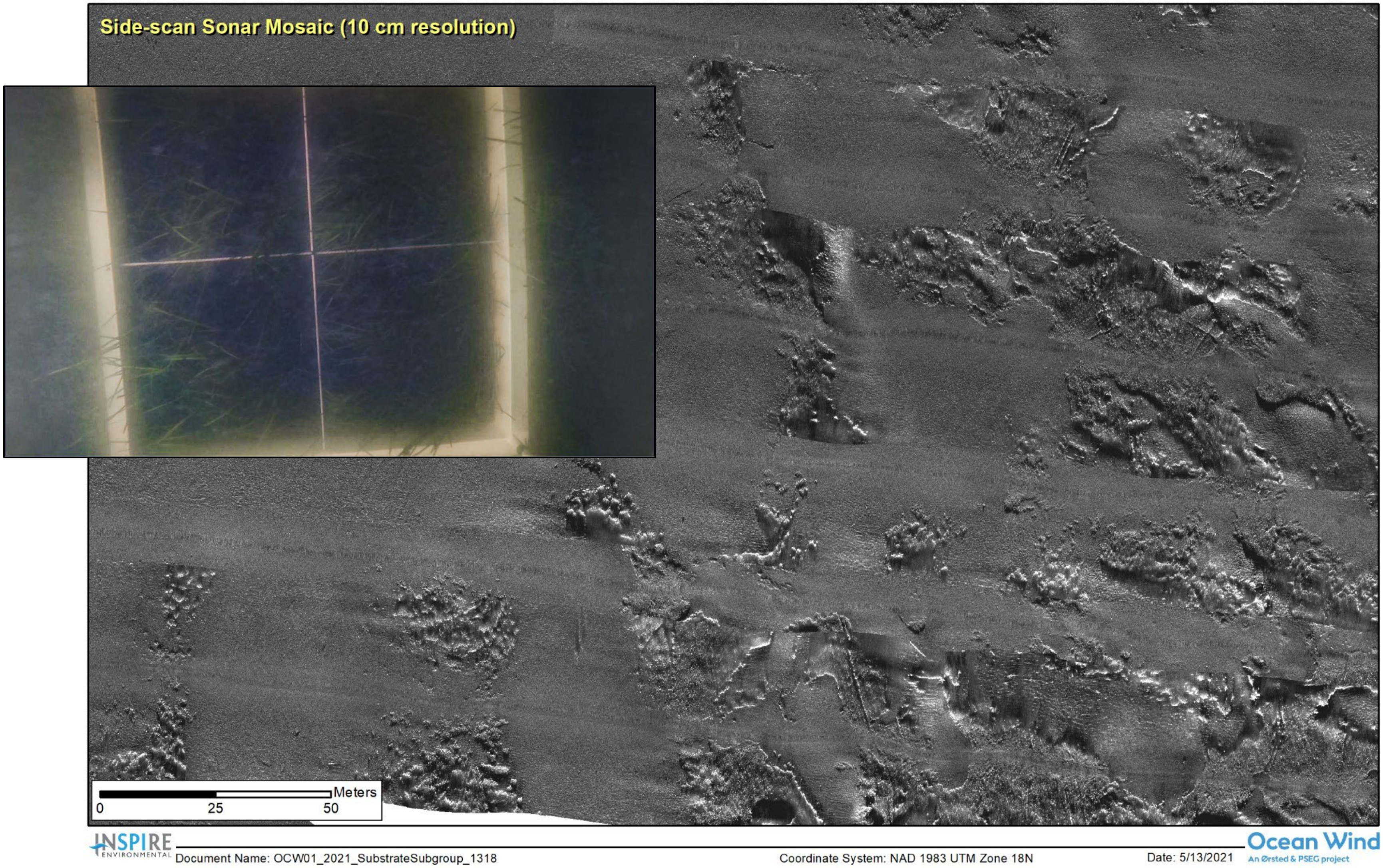

Figure 3-8. Mud and Sandy Mud with Submerged Aquatic Vegetation (SAV) habitat as detected in side-scan sonar and ground-truth data; inset image shows underwater camera/quadrat sample collected during 2020 SAV surveys (Ocean Wind, LLC 2021g)

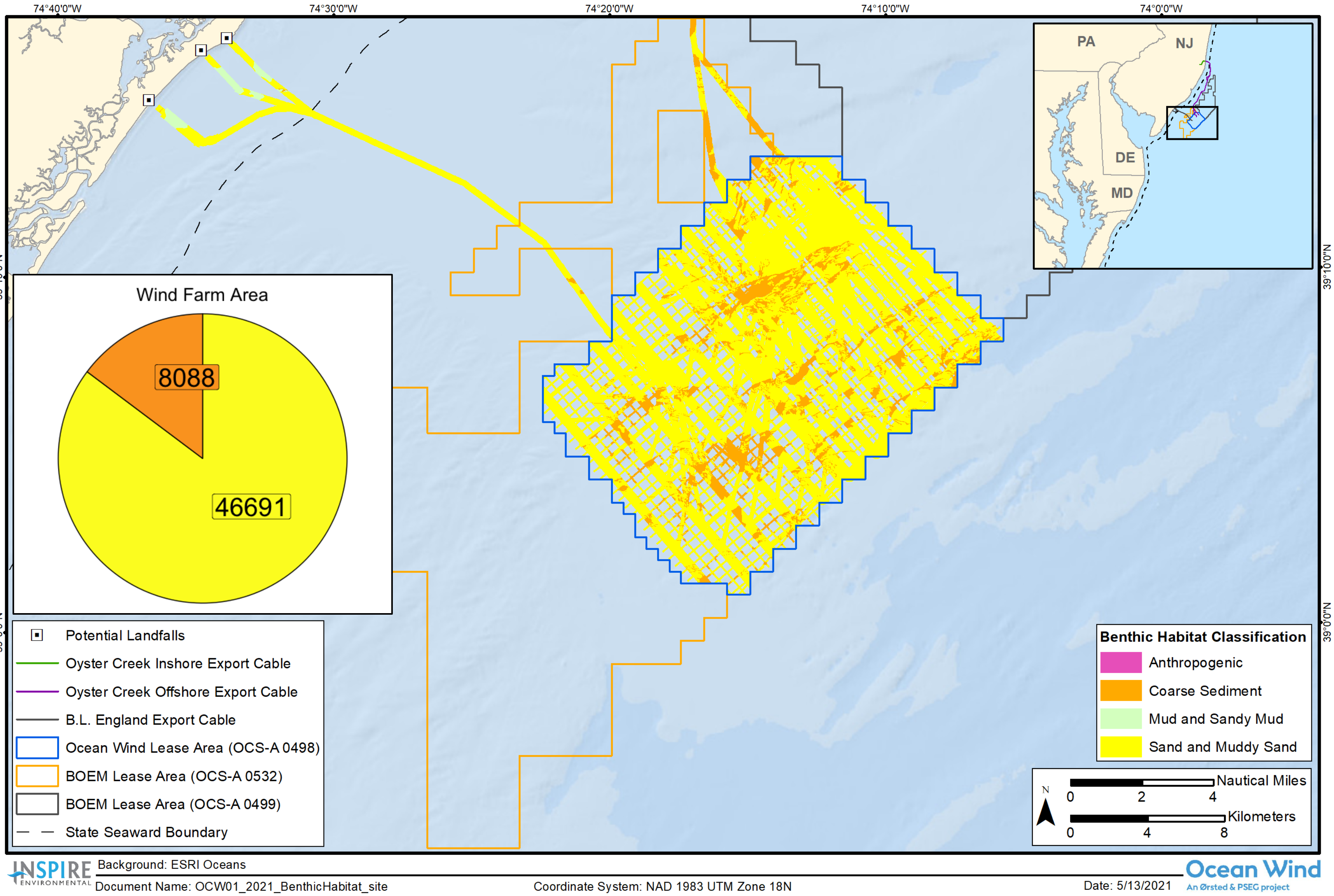

Figure 3-9. Benthic habitat types mapped at the Wind Farm Area and pie chart of habitat composition with total acres presented as values

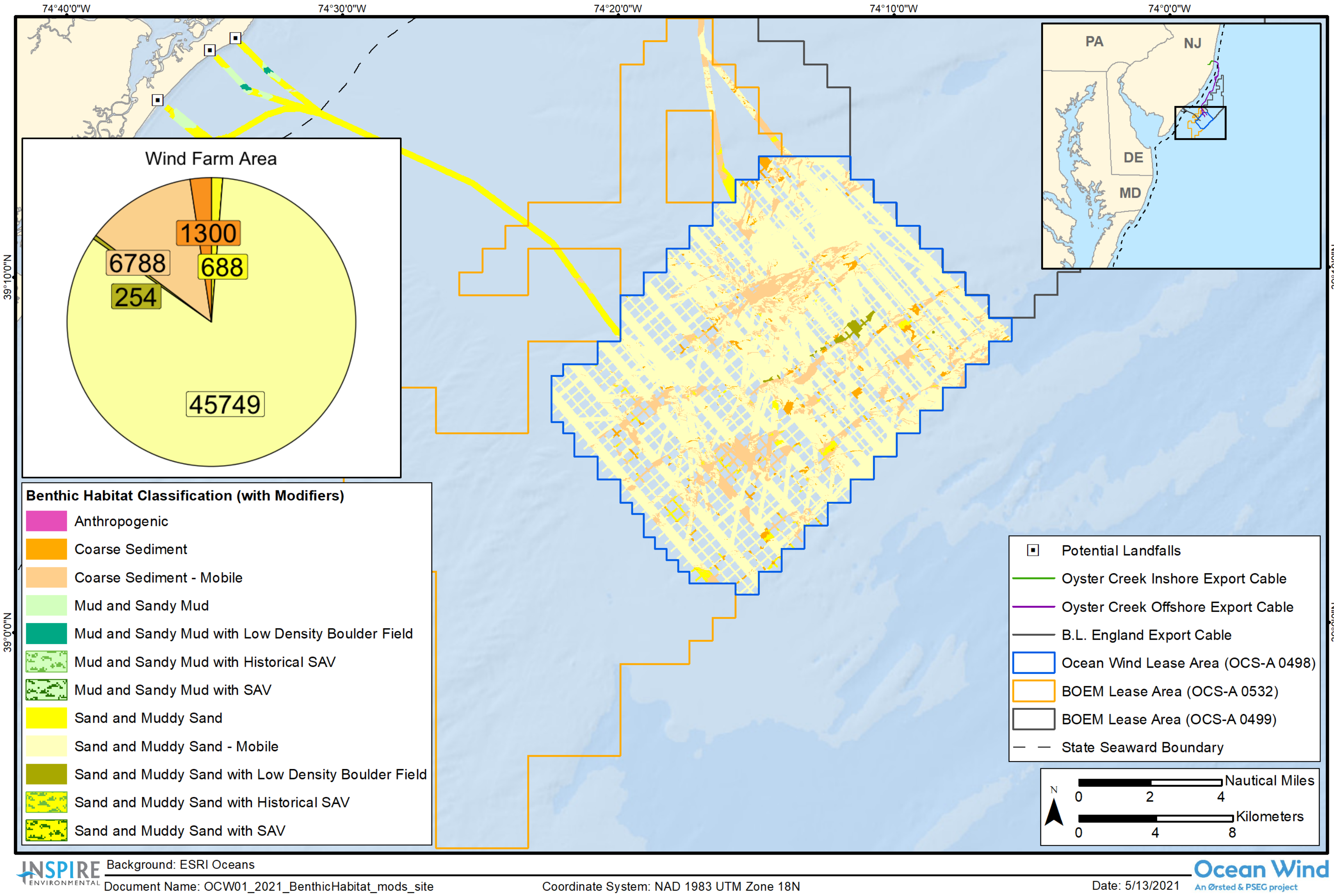

Figure 3-10. Benthic habitat types with modifiers mapped at the Wind Farm Area and pie chart of habitat composition with total acres presented as values

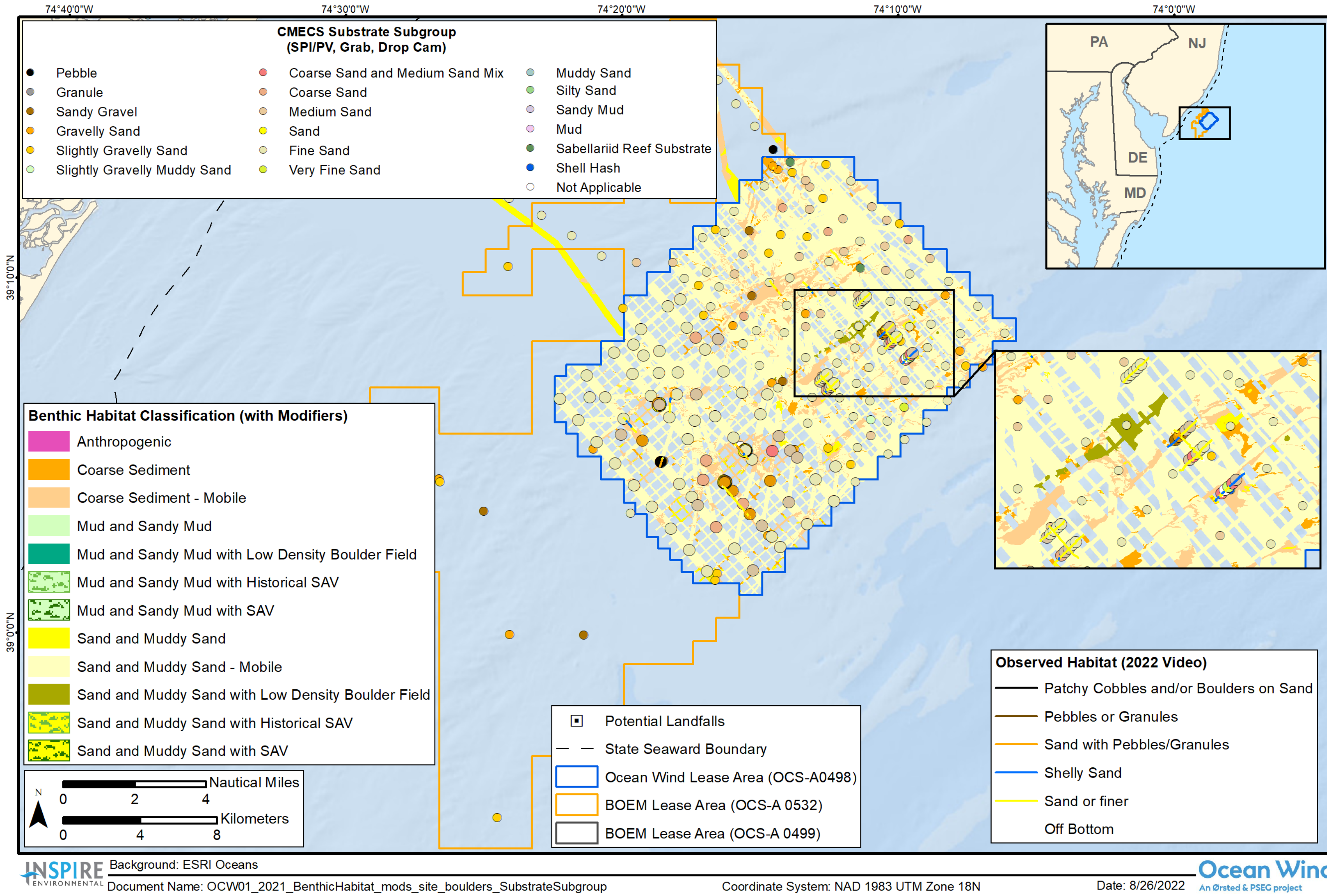

Figure 3-11. Benthic habitat types with modifiers and ground-truth CMECS Substrate Subgroup and video data for habitat type at the Wind Farm Area

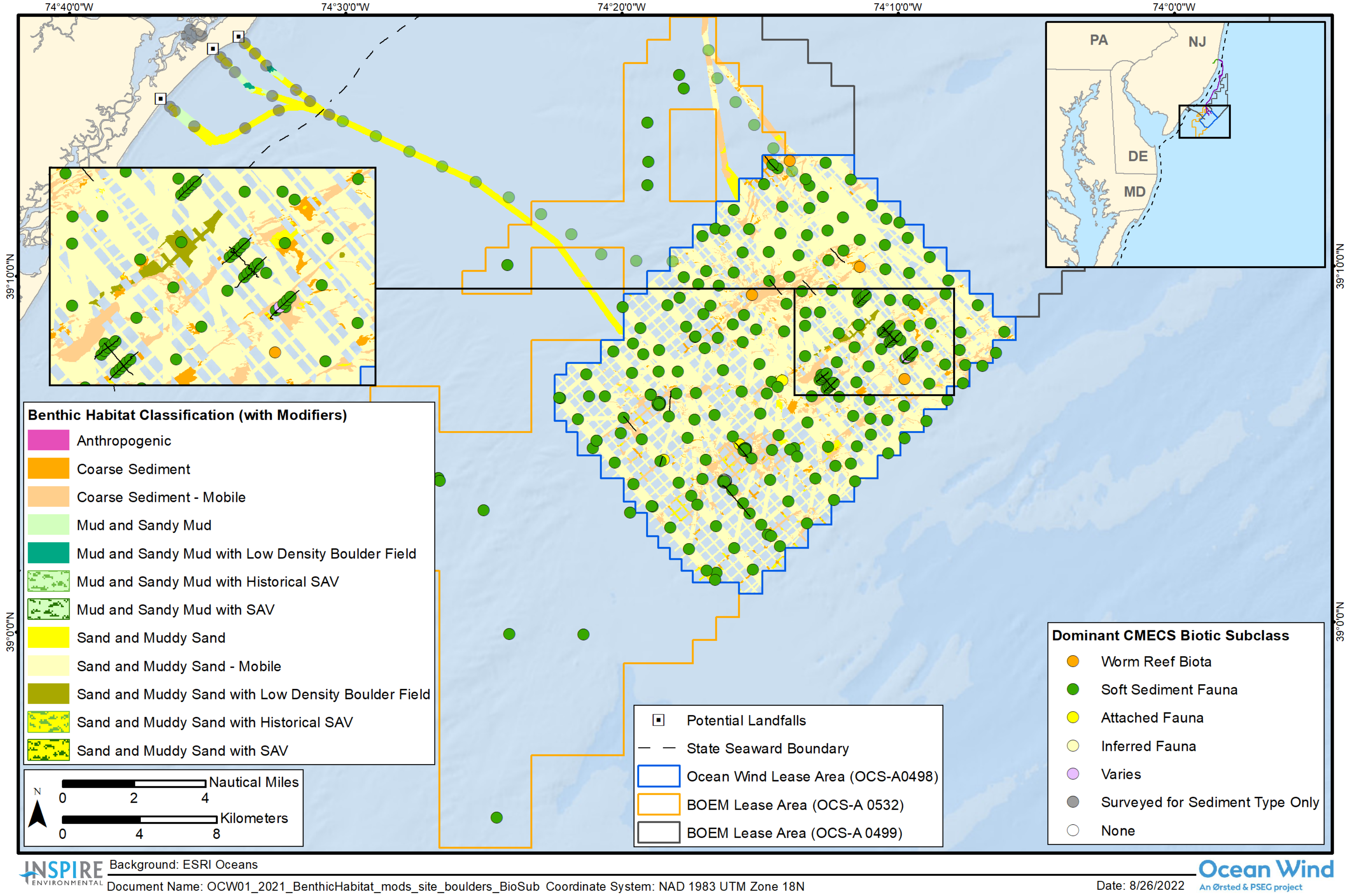

Figure 3-12. Benthic habitat types with modifiers and ground-truth CMECS Biotic Subclass at the Wind Farm Area

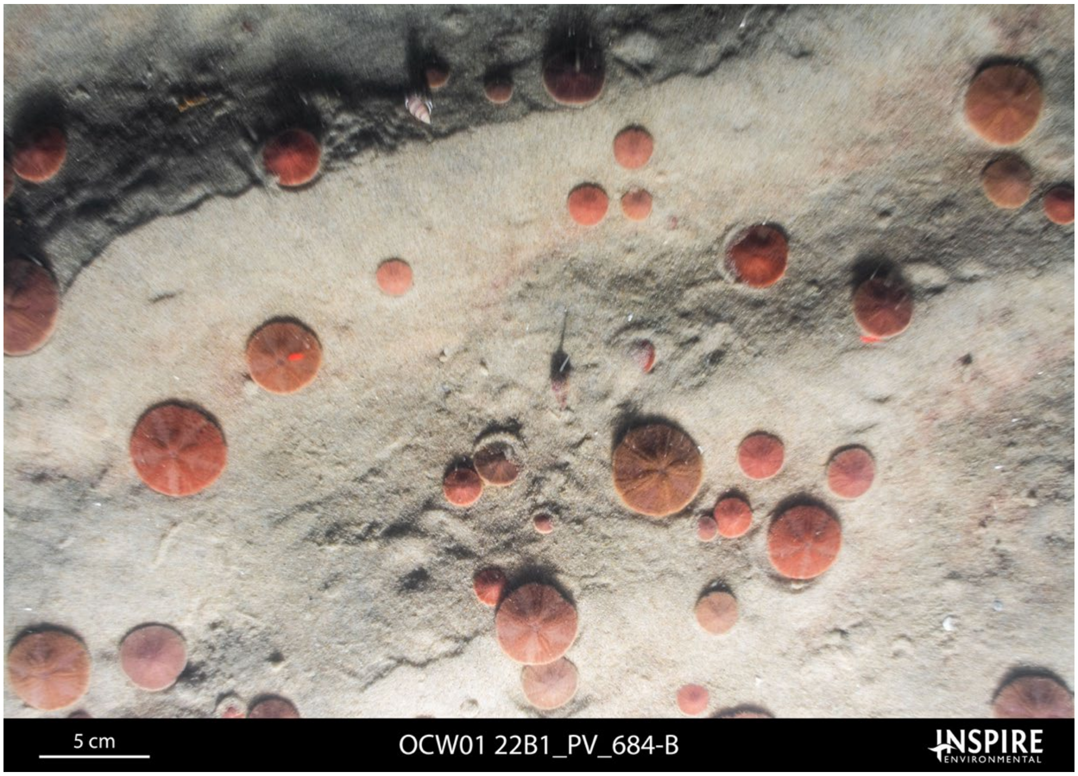

Figure 3-13. Representative PV images along the crests (top) and troughs (bottom) of the sand ridges

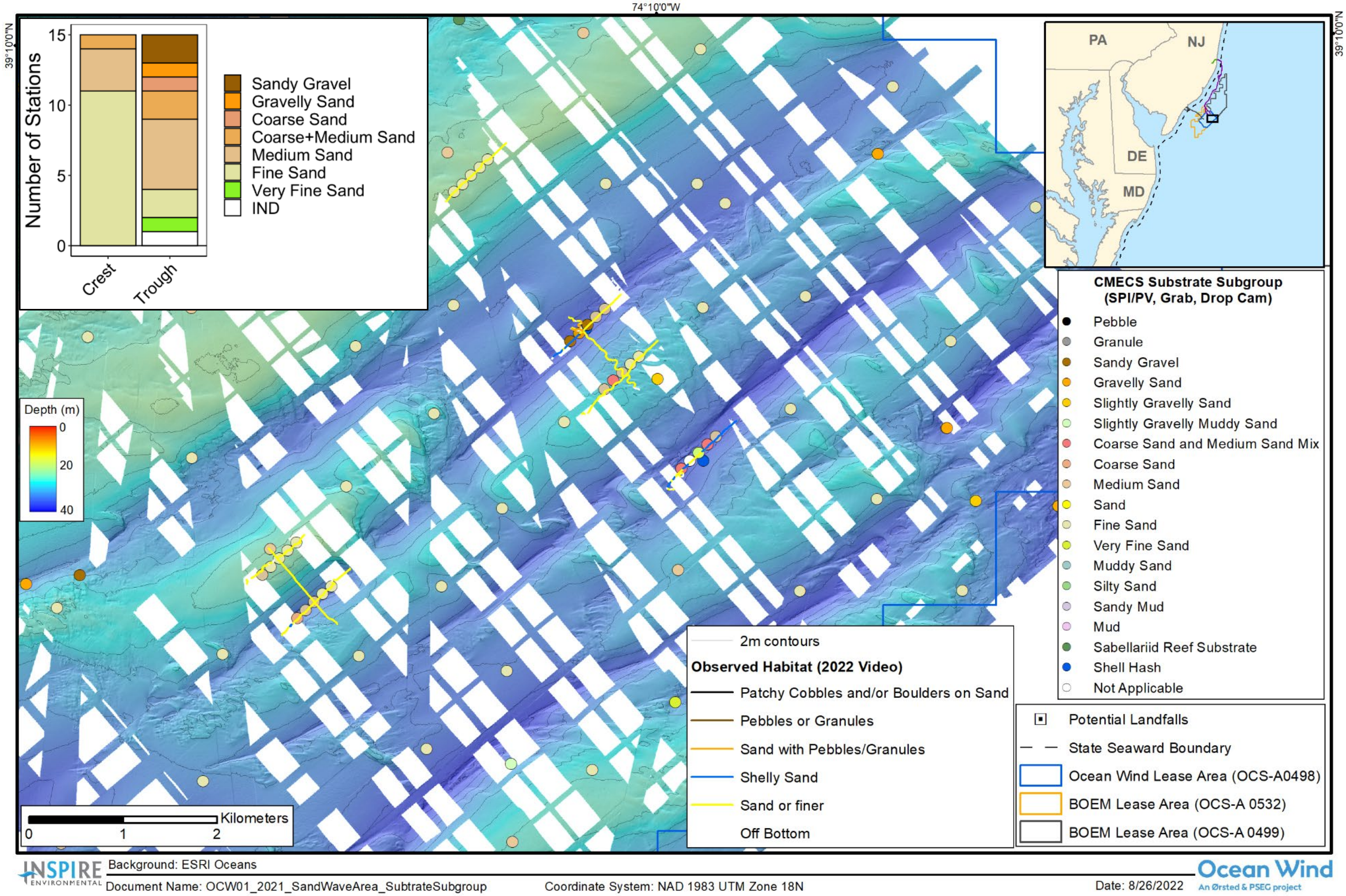

Figure 3-14. CMECS Substrate Subgroup from SPI/PV and habitat type from video at the sand ridges area, shown here over bathymetry and 2-m contours, along with a stacked bar plot of Substrate Subgroup comparing crests and troughs

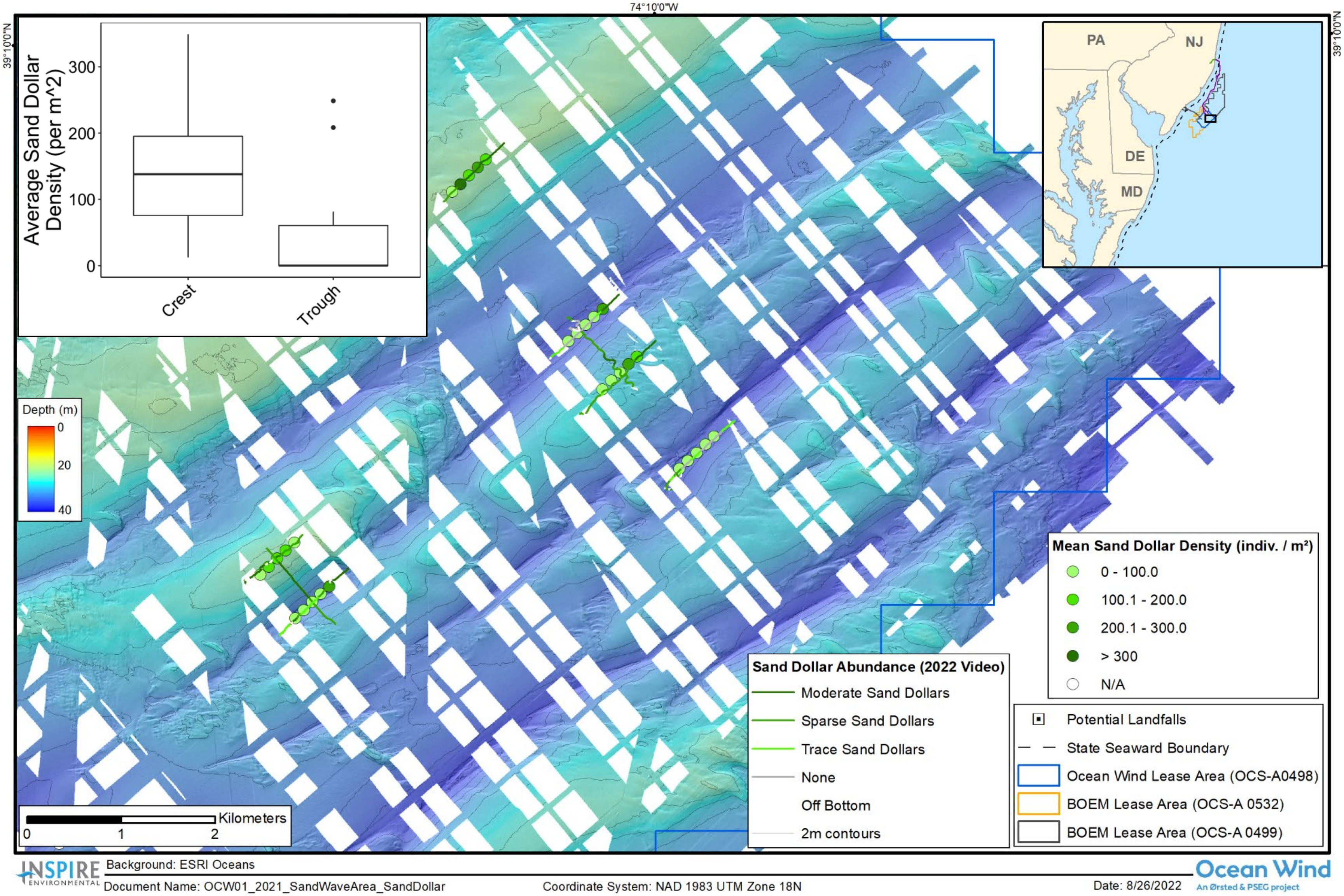

Figure 3-15. Mean sand dollar density assessed from PV and relative abundance assessed from video at the sand ridges area, shown here over bathymetry and 2-m contours, along with a boxplot of average sand dollar density comparing crests and troughs

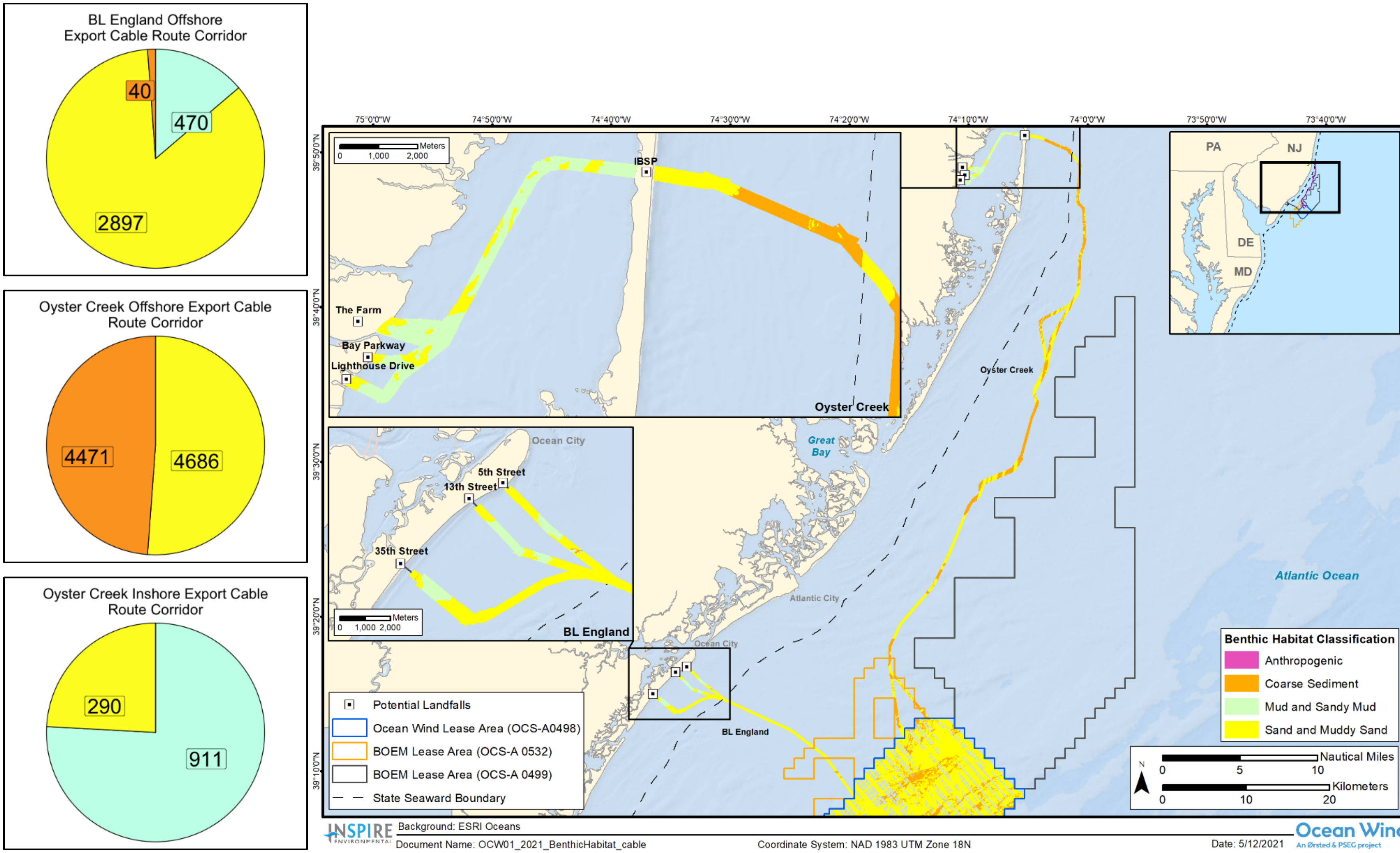

Figure 3-16. Benthic habitat types mapped along the BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors and pie charts of habitat composition with total acres presented as values for each

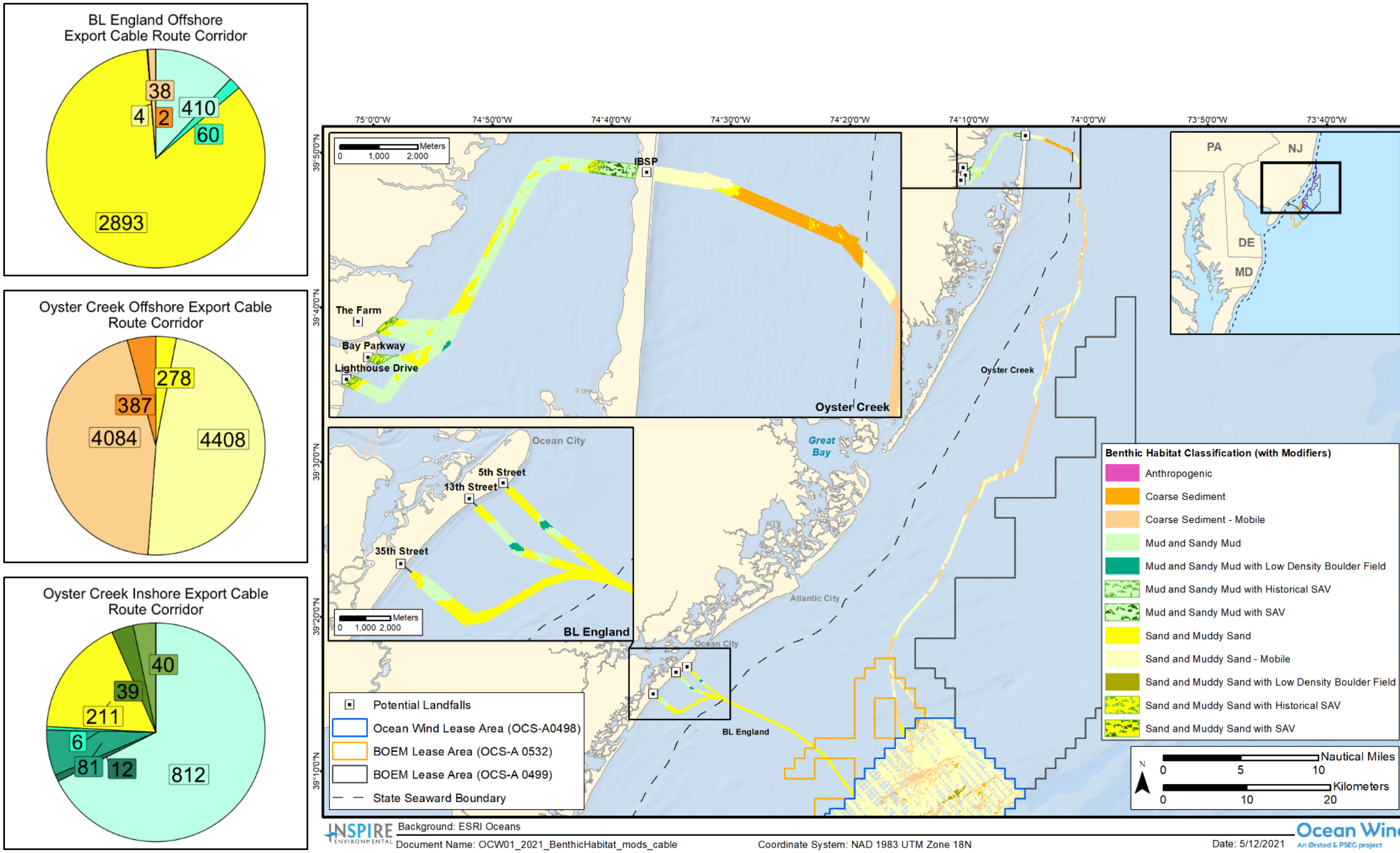

Figure 3-17. Benthic habitat types with modifiers mapped along the BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors and pie charts of habitat composition with total acres presented as values

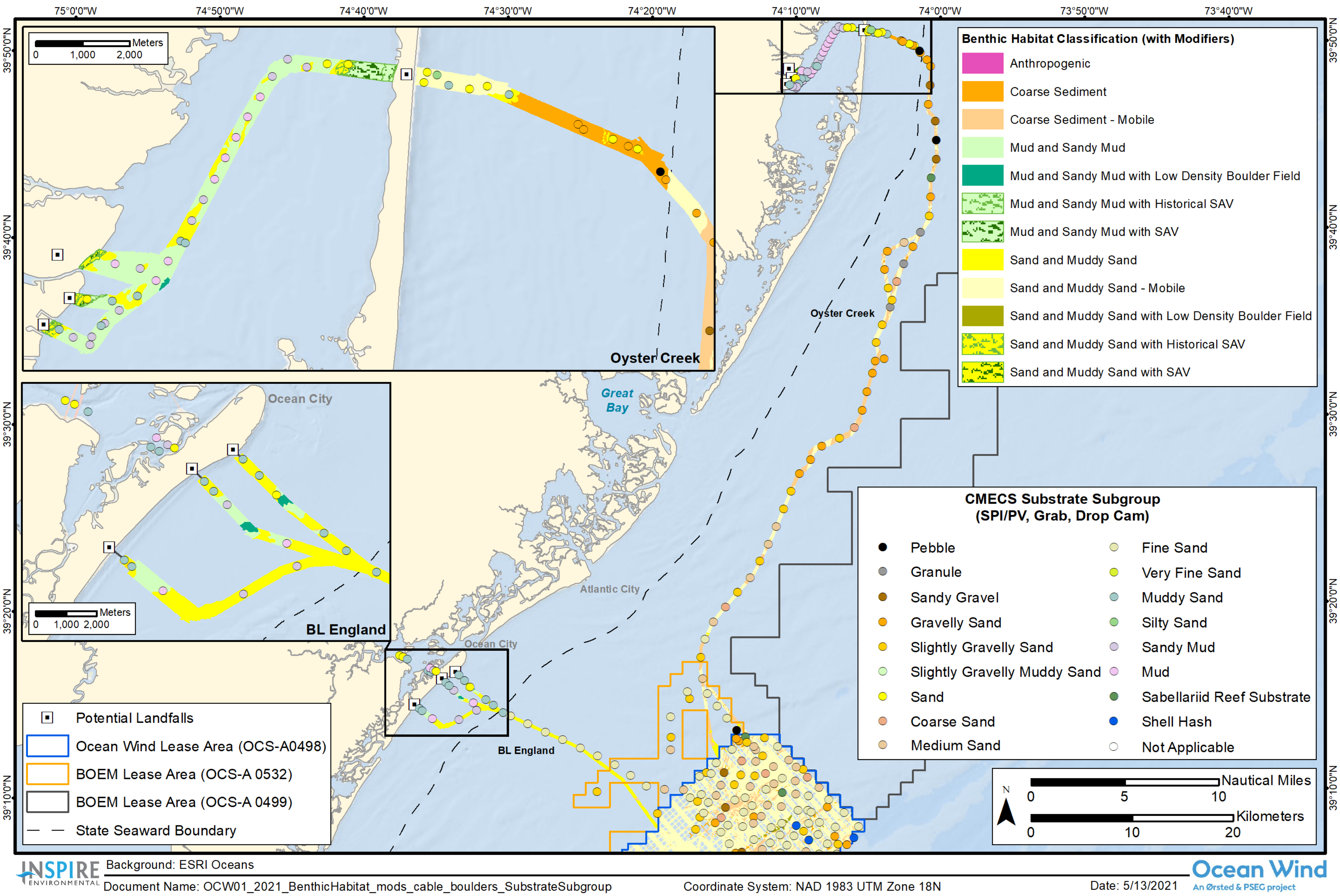

Figure 3-18. Benthic habitat types with modifier and ground-truth CMECS Substrate Subgroup along BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors

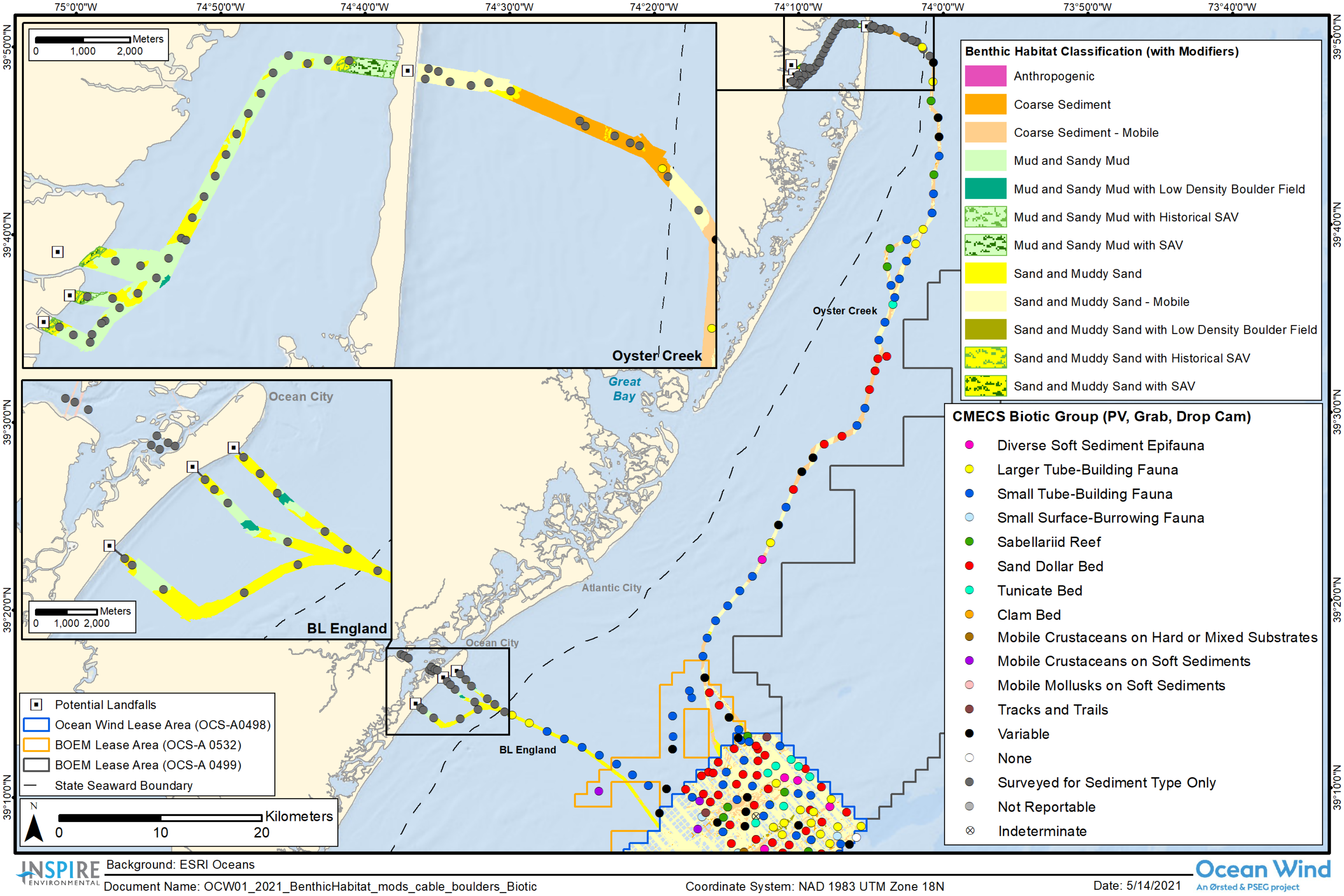

Figure 3-19. Benthic habitat types with modifiers and ground-truth CMECS Biotic Group BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors

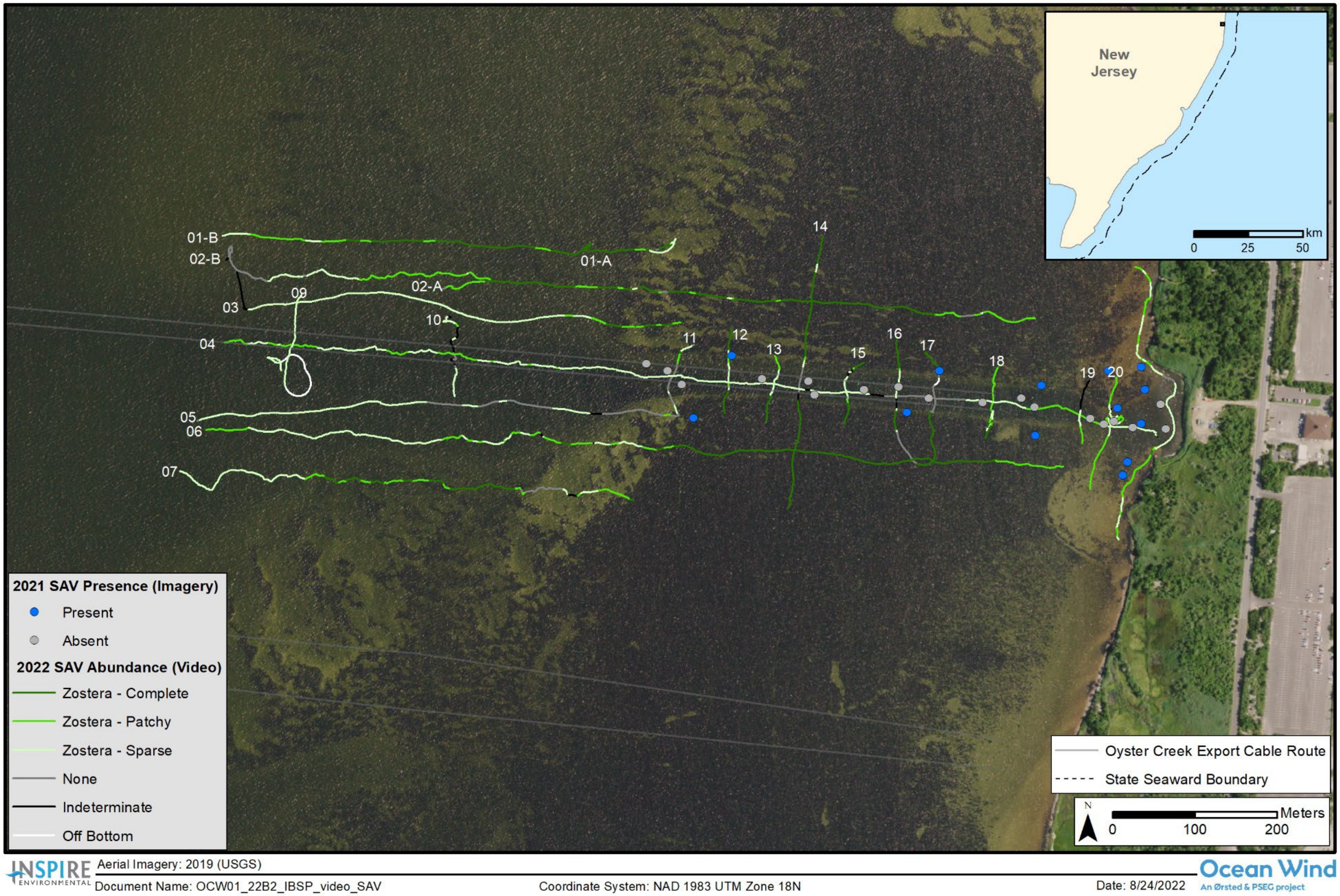

Figure 3-20. Results of 2021 and 2022 SAV surveys at the prior navigation channel where the new Oyster Creek Inshore Export Cable Route Corridor is planned

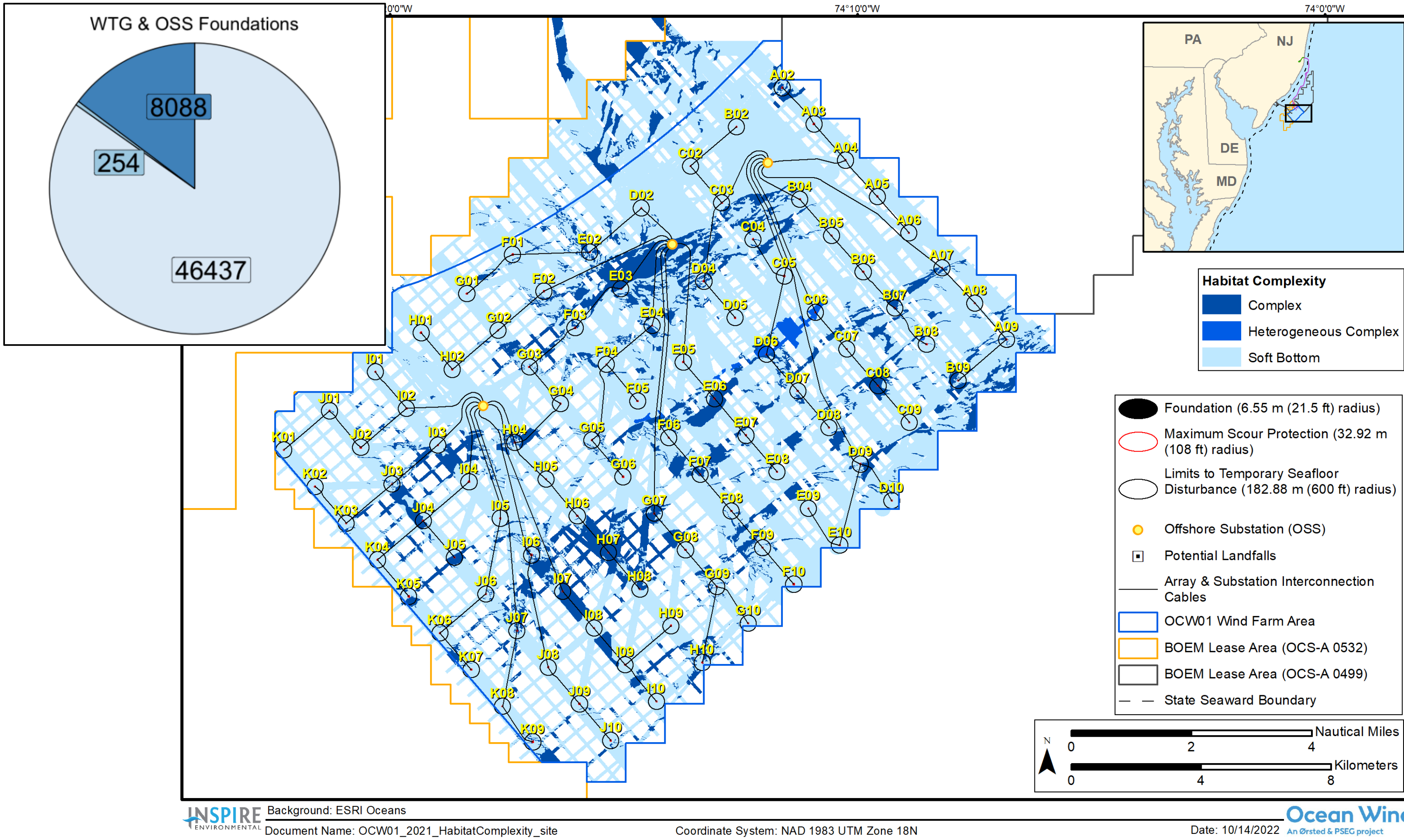

Figure 3-21. Benthic habitats categorized by NOAA Complexity Category at the Wind Farm Area, foundation footprints, array cables, substation interconnection cables, and export cables, along with a pie chart of NOAA Complexity Category composition with total acres presented as values

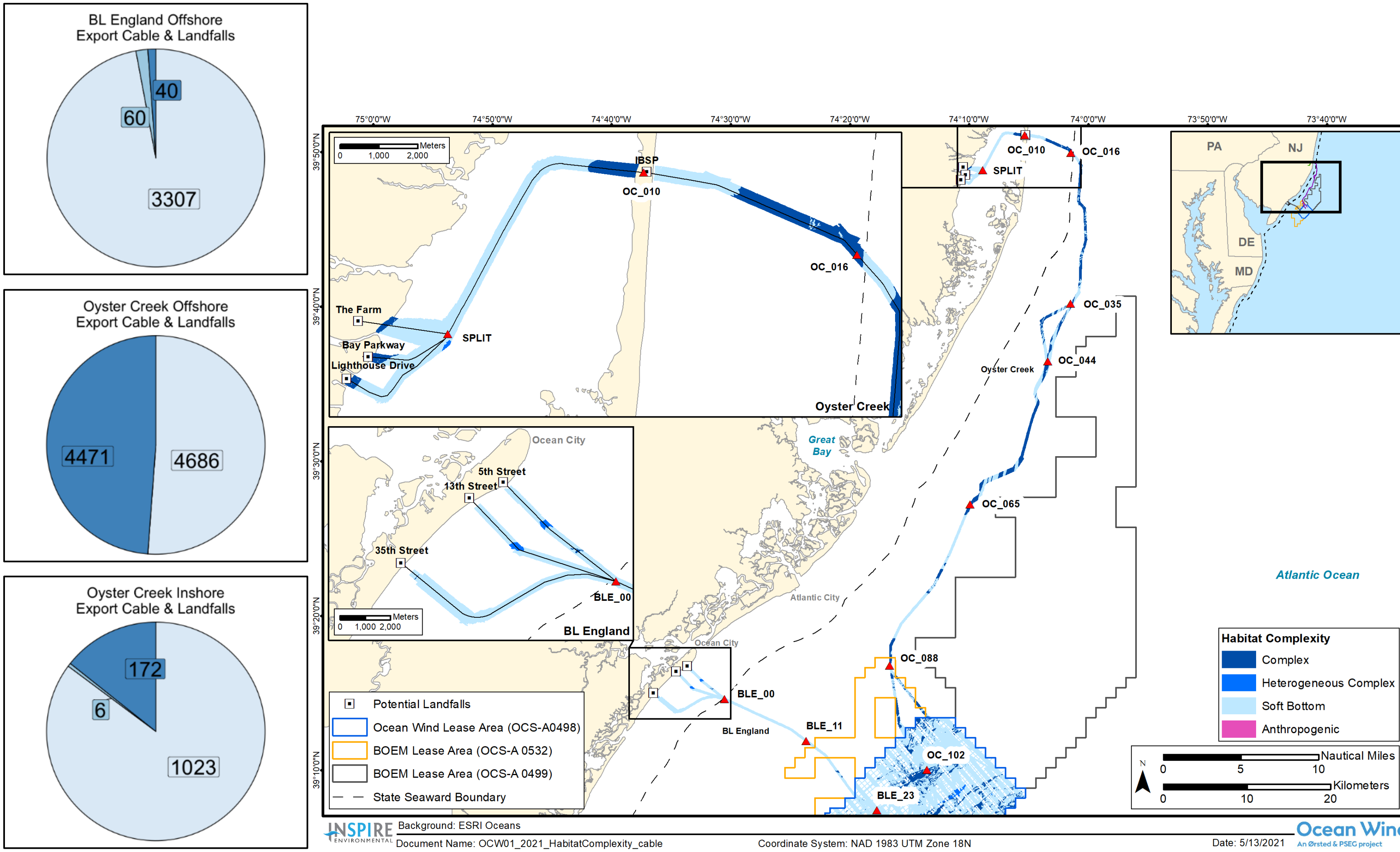

Figure 3-22. Benthic habitats categorized by NOAA Complexity Category BL England Offshore Export Cable Route Corridor and the Oyster Creek Offshore and Inshore Export Cable Route Corridors and pie charts of NOAA Complexity Category composition with total acres presented as values for each

Ocean Wind Offshore Wind Farm Benthic Habitat Mapping and Benthic Assessment to Support Essential Fish Habitat Consultation

ATTACHMENTS

Prepared for:
HDR Engineering

Submitted by:

INSPIRE Environmental
Newport, Rhode Island 02840

Originally Submitted June 28, 2021
Revised April 2022 re: Habitat Impact Acres
Revision 2: August 2022; Updated: September 2022;
Updated: October 2022

LIST OF ATTACHMENTS

Attachment A – Compiled Benthic Data Analysis and Ground-Truthing Results

Notes:

Attachment A includes (1) ground-truthing results from Gardline and INSPIRE benthic surveys, (2) INSPIRE 2022 SPI/PV sand ridge stations, and (2) 2022 Wind Farm Area video analysis results.

IND=Indeterminate

N/A=Not Applicable

N/R=Not Reportable

[1]Variable determined from combined SPI and PV analysis

[2]Maximum Gravel Size Category for 2022 stations only

Survey ID	Area	Station ID	Pogo PV Replicate	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV, Grab, Drop Cam CMECS Substrate Group	SPI/PV, Grab, Drop Cam CMECS Substrate Subgroup[1]	PV CMECS Gravel Type or Maximum CMECS Gravel Size Category[2]	PV, Grab, Drop Cam CMECS Biotic Subclasses (# of PV reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV, Grab, Drop Cam CMECS Biotic Groups (# of PV reps)	PV CMECS Co-occurring Biotic Groups (# of reps)	PV Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	SPI Replicate (n)	SPI/PV, Drop Cam Sensitive Taxa Type[1]	SPI/PV, Drop Cam Species of Concern[1]	SPI/PV Epifauna Present[1]
OCW_19B1	Wind Farm Area	001	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Sand Dollars, Snails
OCW_19B1	Wind Farm Area	002	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None (2), Tracks and Trails (1)	None	3	None	None	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	003	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None	None	3	None	None	Hermit Crabs, Sand Dollars
OCW_19B1	Wind Farm Area	004	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Mobile Mollusks on Soft Sediments (1), Tracks and Trails (2)	None	3	None	None	Hermit Crab, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	005	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None (1), Tracks and Trails (2)	None	3	None	None	Sand Dollars
OCW_19B1	Wind Farm Area	006	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Mobile Mollusks on Soft Sediments (1), None (2)	None	3	None	None	Cancer Crab, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	007	N/A	3	Coarse Sediment	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	None (2), Worm Reef Biota (1)	IND (1), Mobile Crustaceans on Soft Sediments (1), Small Tube-Building Fauna (1)	None (2), Sabellariid Reef (1)	Sparse (1 to <30%)	3	None	None	Encrusting Sponge, Hermit Crabs
OCW_19B1	Wind Farm Area	008	N/A	3	Coarse Sediment - Mobile	Worm Reef	Worm Substrate	Sabellariid Reef Substrate	Granule	Soft Sediment Fauna (1), Worm Reef Biota (2)	Soft Sediment Fauna (2), Worm Reef Biota (1)	Sabellariid Reef (2), Small Tube-Building Fauna (1)	Mobile Crustaceans on Soft Sediments (1), None (1), Sabellariid Reef (1)	None	3	None	None	Cancer Crab, Hermit Crabs, Nudibranch, Podocerid Amphipoda
OCW_19B1	Wind Farm Area	009	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Tracks and Trails (3)	None	3	None	None	Hermit Crabs, Moon Snail, Sand Dollars
OCW_19B1	Wind Farm Area	010	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	Pebble	Inferred Fauna (1), Soft Sediment Fauna (2)	Inferred Fauna (2), None (1)	Tracks and Trails (3)	None	None	3	None	None	Crab, Gastropod, Hermit Crabs, Sand Dollar, Snails
OCW_19B1	Wind Farm Area	011	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (1), Tracks and Trails (2)	None (1), Sand Dollar Bed (1), Tracks and Trails (1)	None	3	None	None	Hermit Crab, Sand Dollars
OCW_19B1	Wind Farm Area	012	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (2), Tracks and Trails (1)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails, Unidentified
OCW_19B1	Wind Farm Area	013	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	IND (1), Sand Dollar Bed (2)	None	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	014	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	None	None	3	None	None	Hermit Crabs, Snails
OCW_19B1	Wind Farm Area	015	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel and Shell Hash	Gravel Mixes	Sandy Gravel	Granule	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (1), Small Tube-Building Fauna (2)	Mobile Crustaceans on Soft Sediments (1), None (1), Sand Dollar Bed (1)	None	3	None	None	Cancer Crab, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	016	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (1), Tracks and Trails (2)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails

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OCW_19B1	Wind Farm Area	017	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (1), Tracks and Trails (2)	None	3	None	None	Sand Dollars
OCW_19B1	Wind Farm Area	018	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Coarse Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (2), Tracks and Trails (1)	None (1), Tracks and Trails (2)	None	3	None	None	Hermit Crab, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	019	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (1), Tracks and Trails (2)	None	3	None	None	Hermit Crabs, Sand Dollars
OCW_19B1	Wind Farm Area	020	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (1), None (2)	None	3	None	None	Anemone, Cancer Crab, Hermit Crabs, Sand Dollars
OCW_19B1	Wind Farm Area	021	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (2)	None	3	None	None	Hermit Crabs, Sand Dollars
OCW_19B1	Wind Farm Area	022	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Coarse Sand	IND	Soft Sediment Fauna (2), Worm Reef Biota (1)	Inferred Fauna (1), Soft Sediment Fauna (1), Worm Reef Biota (1)	Larger Tube-Building Fauna (1), Sabellariid Reef (2)	Diverse Soft Sediment Epifauna (1), Larger Tube-Building Fauna (1), None (1)	None	3	None	None	Hermit Crabs, Nudibranch
OCW_19B1	Wind Farm Area	023	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	Pebble	Soft Sediment Fauna (1), Worm Reef Biota (2)	Inferred Fauna (1), Soft Sediment Fauna (2)	Mobile Crustaceans on Soft Sediments (1), Sabellariid Reef (2)	Mobile Crustaceans on Hard or Mixed Substrates (2), None (1)	None	3	None	None	Cancer Crabs, Hermit Crabs, Moon Snails
OCW_19B1	Wind Farm Area	024	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (3)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	025	N/A	3	Coarse Sediment - Mobile	Sand Sheet	Sand or finer	Fine Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (1), Sabellariid Reef (1), Small Tube-Building Fauna (1)	Mobile Crustaceans on Soft Sediments (1), None (2)	None	3	None	None	Cancer Crab, Hermit Crabs, Podocerid Amphipoda
OCW_19B1	Wind Farm Area	026	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Cancer Crab, Gastropod, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	027	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (1), Sand Dollar Bed (2)	IND (1), None (1), Tracks and Trails (1)	None	3	None	None	Cancer Crab, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	028	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Coarse Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Tunicate Bed (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None	3	None	None	Gastropod, Hermit Crab, Nudibranch, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	029	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Tunicate Bed (3)	Mobile Crustaceans on Soft Sediments (1), None (2)	None	3	None	None	Hermit Crabs, Sand Dollars, Tunicates
OCW_19B1	Wind Farm Area	030	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Tunicate Bed (3)	Sand Dollar Bed (3)	None	3	None	None	Sand Dollars, Snails, Surf Clam, Tunicates
OCW_19B1	Wind Farm Area	031	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Tunicate Bed (3)	None (1), Sand Dollar Bed (2)	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	032	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (1), Small Tube-Building Fauna (2)	None (1), Sand Dollar Bed (2)	None	3	None	None	Hermit Crabs, Sand Dollars

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OCW_19B1	Wind Farm Area	**033**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (2), Small Tube-Building Fauna (1)	None	3	None	None	Hermit Crabs, Sand Dollars
OCW_19B1	Wind Farm Area	**034**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (2), Worm Reef Biota (1)	Inferred Fauna (1), None (1), Soft Sediment Fauna (1)	Diverse Soft Sediment Epifauna (1), Sabellariid Reef (1), Tunicate Bed (1)	Mobile Mollusks on Soft Sediments (1), None (1), Small Tube-Building Fauna (1)	None	3	None	None	Hermit Crabs, Nudibranchs, Snails, Tunicates
OCW_19B1	Wind Farm Area	**035**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (2), Worm Reef Biota (1)	Inferred Fauna (1), Soft Sediment Fauna (1), Worm Reef Biota (1)	Diverse Soft Sediment Epifauna (1), Sabellariid Reef (1), Small Tube-Building Fauna (1)	Diverse Soft Sediment Epifauna (1), None (1), Small Tube-Building Fauna (1)	None	3	None	None	Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**036**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Tunicate Bed (3)	None	None	3	None	None	Snails, Tunicates
OCW_19B1	Wind Farm Area	**037**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (1), Worm Reef Biota (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (1), Small Tube-Building Fauna (2)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**038**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Tunicate Bed (2)	None	3	None	None	Gastropod, Hermit Crabs, Nudibranch, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**039**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (1), Small Tube-Building Fauna (2)	Diverse Soft Sediment Epifauna (2), Small Tube-Building Fauna (1)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**040**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (3)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**041**	N/A	3	Coarse Sediment - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (2), Tracks and Trails (1)	None	3	None	None	Hermit Crabs, Nudibranchs, Sea Cucumber, Snails
OCW_19B1	Wind Farm Area	**042**	N/A	3	Sand and Muddy Sand - Mobile	Worm Reef	Worm Substrate	Sabellariid Reef Substrate	IND	Soft Sediment Fauna (1), Worm Reef Biota (2)	Inferred Fauna (1), Soft Sediment Fauna (2)	Larger Tube-Building Fauna (1), Sabellariid Reef (2)	Diverse Soft Sediment Epifauna (1), Mobile Crustaceans on Soft Sediments (2)	None	3	None	None	Cancer Crabs, Hermit Crabs, Jonah Crab, Podocerid Amphipoda, Sand Dollars
OCW_19B1	Wind Farm Area	**043**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	Larger Tube-Building Fauna (2), Mobile Crustaceans on Soft Sediments (1)	None	3	None	None	Bryozoa, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**044**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None (2), Small Tube-Building Fauna (1)	None	3	None	None	Anemone, Hermit Crabs, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**045**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Coarse Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Tunicate Bed (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**046**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (1), Small Tube-Building Fauna (2)	None	3	None	None	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails

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OCW_19B1	Wind Farm Area	**047**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	3	None	Sea Scallop	Gastropods, Hermit Crabs, Sand Dollars, Sea Scallop
OCW_19B1	Wind Farm Area	**048**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**049**	N/A	3	Sand and Muddy Sand with Low Density Boulder Field	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**050**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (1), Tunicate Bed (2)	Sand Dollar Bed (1), Small Surface-Burrowing Fauna (1), Tunicate Bed (1)	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**051**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (3)	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**052**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Sand Dollar Bed (2)	None	3	None	None	Cancer Crabs, Gastropod, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**053**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Tunicate Bed (3)	None	3	None	None	Gastropod, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**054**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (1), Larger Tube-Building Fauna (2)	Diverse Soft Sediment Epifauna (2), Larger Tube-Building Fauna (1)	None	3	None	None	Cancer Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**055**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), Worm Reef Biota (2)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**056**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (3)	Small Tube-Building Fauna (3)	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**057**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (2), Small Tube-Building Fauna (1)	Diverse Soft Sediment Epifauna (1), Small Tube-Building Fauna (2)	None	3	None	None	Cancer Crabs, Gastropod, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**058**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**059**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails

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OCW_19B1	Wind Farm Area	**060**	N/A	3	Coarse Sediment	Sand with Mobile Gravel and Shell Hash	Shell Substrate	Shell Hash	Pebble	Soft Sediment Fauna (2), Worm Reef Biota (1)	Soft Sediment Fauna (1), Worm Reef Biota (2)	Larger Tube-Building Fauna (1), Sabellariid Reef (1), Tunicate Bed (1)	Sabellariid Reef (2), Tunicate Bed (1)	None	3	None	None	Cancer Crabs, Hermit Crabs, Nudibranchs
OCW_19B1	Wind Farm Area	**061**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**062**	N/A	3	Coarse Sediment	Sand Sheet	Sand or finer	Fine Sand	Pebble	Soft Sediment Fauna (2), Worm Reef Biota (1)	Soft Sediment Fauna (1), Worm Reef Biota (2)	Larger Tube-Building Fauna (2), Sabellariid Reef (1)	None (2), Sabellariid Reef (1)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda
OCW_19B1	Wind Farm Area	**063**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	Mobile Crustaceans on Soft Sediments (1), Sand Dollar Bed (2)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**064**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), Worm Reef Biota (1)	Larger Tube-Building Fauna (1), Sand Dollar Bed (2)	Larger Tube-Building Fauna (2), Sabellariid Reef (1)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**065**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	None (2), Worm Reef Biota (1)	Diverse Soft Sediment Epifauna (2), Mobile Crustaceans on Hard or Mixed Substrates (1)	Larger Tube-Building Fauna (1), None (1), Sabellariid Reef (1)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**066**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Cancer Crab, Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**067**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**068**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**069**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel and Shell Hash	Slightly Gravelly	Slightly Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	None	None	3	None	None	Cancer Crabs, Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Sand Dollars
OCW_19B1	Wind Farm Area	**070**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	3	None	None	Cancer Crabs, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**071**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails

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OCW_19B1	Wind Farm Area	**072**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	3	None	None	Hermit Crabs, Nudibranch, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**073**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**074**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	3	None	None	Cancer Crabs, Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**075**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Worm Reef Biota (3)	Inferred Fauna (1), None (1), Soft Sediment Fauna (1)	Sabellariid Reef (3)	Larger Tube-Building Fauna (1), None (2)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**076**	N/A	3	Coarse Sediment - Mobile	Continuous Shell Hash on Sand	Shell Substrate	Shell Hash	IND	Soft Sediment Fauna (3)	None	IND (1), Small Tube-Building Fauna (2)	Larger Tube-Building Fauna (1), None (2)	None	3	None	None	Hermit Crab, Jonah Crab
OCW_19B1	Wind Farm Area	**077**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Gastropod, Hermit Crabs, Jonah Crab, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**078**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (2), Sand Dollar Bed (1)	Larger Tube-Building Fauna (1), Sand Dollar Bed (2)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**079**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	3	None	None	Cancer Crabs, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**080**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Mobile Crustaceans on Soft Sediments (1), Small Tube-Building Fauna (2)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**081**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Sand Dollar Bed (2)	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates
OCW_19B1	Wind Farm Area	**082**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (3)	None	3	None	None	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**083**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None	3	None	None	Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails

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OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**084**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (1), Small Surface-Burrowing Fauna (1), Small Tube-Building Fauna (1)	None	3	None	None	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**085**	N/A	3	Coarse Sediment - Mobile	Sand Sheet	Sand or finer	Very Fine Sand	IND	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Mobile Mollusks on Soft Sediments (2)	None	3	None	None	Bivalve, Cancer Crabs, Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**086**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (3)	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**087**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	3	None	None	Gastropod, Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**088**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**089**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (2), Sand Dollar Bed (1)	Larger Tube-Building Fauna (1), Sand Dollar Bed (2)	None	3	None	None	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**090**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (1), Sand Dollar Bed (1)	None	3	None	None	Hermit Crab, Nudibranchs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**091**	N/A	3	N/A	Sand with Mobile Gravel and Shell Hash	Slightly Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (2), Worm Reef Biota (1)	None (2), Soft Sediment Fauna (1)	Larger Tube-Building Fauna (1), Sabellariid Reef (1), Small Tube-Building Fauna (1)	Attached Bryozoans (1), Attached Hydroids (1), None (1)	Sparse (1 to <30%)	3	None	None	Boring Sponge, Bryozoa, Cancer Crabs, Hermit Crabs, Hydroids, Snails, Sponge
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**092**	N/A	3	N/A	Sand with Mobile Gravel and Shell Hash	Shell Substrate	Shell Hash	Pebble	Soft Sediment Fauna (3)	None	None	None	None	3	None	None	Cancer Crab, Hermit Crabs
OCW_19B1	Wind Farm Area	**093**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails
OCW_19B1	Wind Farm Area	**201**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (2), Small Tube-Building Fauna (1)	Diverse Soft Sediment Epifauna (1), Small Tube-Building Fauna (2)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails

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OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**202**	N/A	3	N/A	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (1), Mobile Crustaceans on Soft Sediments (1), None (1)	None	None	3	None	None	Cancer Crabs, Hermit Crabs, Moon Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**203**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (1), Tracks and Trails (2)	None	3	None	None	Sand Dollars, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**204**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (1), Tracks and Trails (1)	None	3	None	None	Cancer Crabs, Crab, Hermit Crabs, Nudibranchs, Sand Dollars, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**205**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Mobile Crustaceans on Soft Sediments (1), None (1), Tracks and Trails (1)	None	3	None	None	Hermit Crabs, Nudibranchs, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**206**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	3	None	None	Cancer Crabs, Hermit Crabs, Nudibranchs
OCW_19B1	BL England Offshore Export Cable Route Corridor	**207**	N/A	3	Sand and Muddy Sand	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	3	None	None	Cancer Crabs, Hermit Crabs, Snails
OCW_19B1	BL England Offshore Export Cable Route Corridor	**208**	N/A	3	Sand and Muddy Sand	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Mobile Mollusks on Soft Sediments (1), None (2)	None	3	None	None	Cancer Crabs, Hermit Crabs, Nudibranchs, Snails
OCW_19B1	BL England Offshore Export Cable Route Corridor	**209**	N/A	3	Sand and Muddy Sand	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	3	None	None	Cancer Crabs, Gastropod, Hermit Crabs, Snails
OCW_19B1	BL England Offshore Export Cable Route Corridor	**210**	N/A	3	Sand and Muddy Sand	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (3)	None	None	3	None	None	Hermit Crabs, Snails
OCW_19B1	BL England Offshore Export Cable Route Corridor	**211**	N/A	3	Sand and Muddy Sand	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (2)	None	3	None	None	Anemones, Hermit Crabs, Sand Dollars, Slipper Shell Clam, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**301**	N/A	3	N/A	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Pebble	Soft Sediment Fauna (3)	None (1), Worm Reef Biota (2)	Sabellariid Reef (1), Small Tube-Building Fauna (2)	None	None	3	None	None	Cerianthids, Hermit Crabs, Sand Dollars, Snails, Surf Clam
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**302**	N/A	3	N/A	Continuous Pebbles on Sand	Gravel	Pebble	Pebble	Soft Sediment Fauna (3)	None (1), Worm Reef Biota (2)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (3)	Trace (<1%)	3	None	None	Bryozoa, Hermit Crabs, Nudibranchs, Snails, Unidentified Clam
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**303**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (1), Small Tube-Building Fauna (1), Tracks and Trails (1)	None (2), Sand Dollar Bed (1)	None	3	None	None	Cancer Crabs, Sand Dollars, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**304**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (2), Tracks and Trails (1)	None	3	None	None	Hermit Crabs, Sand Dollars, Snails, Surf Clam

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OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**305**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	None	Sand Dollar Bed (3)	Small Tube-Building Fauna (3)	None	3	None	None	Cancer Crabs, Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**306**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Mobile Mollusks on Soft Sediments (1), Small Tube-Building Fauna (1), Tracks and Trails (1)	None (2), Sand Dollar Bed (1)	None	3	None	None	Cancer Crab, Nudibranchs, Sand Dollars, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**307**	N/A	3	Coarse Sediment - Mobile	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (2), Tracks and Trails (1)	None	3	None	None	Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**308**	N/A	3	Coarse Sediment - Mobile	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	3	None	None	Cerianthids, Hermit Crabs, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**309**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	3	None	None	Hermit Crabs, Nudibranchs, Sand Dollars, Snails, Unidentified Organism
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**310**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Coarse Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Hermit Crabs, Sand Dollars
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**311**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (1), Small Tube-Building Fauna (2)	Larger Tube-Building Fauna (1), None (2)	None	3	None	None	Nudibranchs, Sand Dollars, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**312**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (2), Sand Dollar Bed (1)	None	3	None	None	Nudibranchs, Sand Dollars
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**313**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Diverse Soft Sediment Epifauna (2), Larger Tube-Building Fauna (1)	None	None	3	None	None	Hermit Crabs, Limpets, Nudibranch, Sand Dollars
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**314**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (1), Sand Dollar Bed (1)	None	3	None	None	Hermit Crabs, Nudibranchs, Sand Dollars
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**315**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (1), Sand Dollar Bed (1), Small Tube-Building Fauna (1)	Diverse Soft Sediment Epifauna (2), Small Tube-Building Fauna (1)	None	3	None	None	Bryozoa, Hermit Crabs, Nudibranchs, Sand Dollars, Surf Clam, Tunicates
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**316**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (1), Small Tube-Building Fauna (2)	None (1), Sand Dollar Bed (2)	None	3	None	None	Cerianthids, Sand Dollars, Surf Clam
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**317**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (2), Tracks and Trails (1)	None	3	None	None	Cerianthids, Sand Dollars, Surf Clam
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**318**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Diverse Soft Sediment Epifauna (1), None (1), Sand Dollar Bed (1)	Attached Sponges (1), None (2)	Sparse (1 to <30%)	3	None	None	Hermit Crabs, Hydroids, Nudibranchs, Sand Dollars, Snails, Sponges
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**319**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Diverse Soft Sediment Epifauna (1), None (1), Sand Dollar Bed (1)	None	None	3	None	None	Nudibranchs, Sand Dollars, Snails, Surf Clam

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OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**320**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None	None	3	None	None	Cerianthids, Sand Dollars
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**321**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (1), Tracks and Trails (2)	None	3	None	None	Sand Dollars, Snails, Surf Clam
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**322**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Coarse Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (1), Small Tube-Building Fauna (2)	Sand Dollar Bed (2), Small Tube-Building Fauna (1)	Trace (<1%)	3	None	None	Bryozoa, Cancer Crabs, Sand Dollars, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**323**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	Clam Bed (2), Diverse Soft Sediment Epifauna (1)	None	3	None	None	Hermit Crabs, Nudibranchs, Sand Dollars, Surf Clam
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**324**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	None	Sand Dollar Bed (3)	Clam Bed (2), Diverse Soft Sediment Epifauna (1)	None	3	None	None	Cerianthids, Hermit Crabs, Moon Snails, Sand Dollars, Surf Clam
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**325**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	None	Sand Dollar Bed (3)	None	None	3	None	None	Hermit Crabs, Sand Dollars, Snails, Surf Clam
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**326**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (3)	None	Trace (<1%)	3	None	None	Bryozoa, Hermit Crabs, Nudibranchs, Sand Dollars, Surf Clam
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**327**	N/A	3	N/A	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (3)	None	Trace (<1%)	3	None	None	Cerianthids, Hermit Crabs, Hydroid, Sand Dollars, Surf Clam
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**328**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	None (1), Small Tube-Building Fauna (2)	None	None	3	None	None	Hermit Crabs, Moon Snails, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**329**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Sand Dollar Bed (2)	None	3	None	None	Hermit Crabs, Nudibranchs, Sand Dollars, Tunicates
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**330**	N/A	3	Coarse Sediment - Mobile	Continuous Granules	Gravel	Granule	Granule	Soft Sediment Fauna (3)	None	Tunicate Bed (3)	Diverse Soft Sediment Epifauna (3)	None	3	None	None	Cerianthids, Gastropod, Hermit Crabs, Nudibranchs, Sea Slugs, Snails, Surf Clam, Tunicates
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**331**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Granule	Soft Sediment Fauna (2), Worm Reef Biota (1)	None (1), Soft Sediment Fauna (1), Worm Reef Biota (1)	Sabellariid Reef (1), Small Tube-Building Fauna (2)	Diverse Soft Sediment Epifauna (1), None (2)	None	3	None	None	Cerianthids, Clam, Hermit Crabs, Nudibranchs, Sand Dollars, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**332**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Granule	Attached Fauna (1), Soft Sediment Fauna (2)	Inferred Fauna (2), None (1)	Small Tube-Building Fauna (3)	None	Trace (<1%)	3	None	None	Hydroids, Sand Dollars, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**333**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Coarse Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (2), Sand Dollar Bed (1)	None	3	None	None	Cerianthids, Hermit Crabs, Sand Dollars

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OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**334**	N/A	3	Coarse Sediment - Mobile	Continuous Granules	Gravel	Granule	Granule	Soft Sediment Fauna (3)	None	Small Tube-Building Fauna (2), Tunicate Bed (1)	Diverse Soft Sediment Epifauna (1), None (2)	Trace (<1%)	3	None	None	Ceriantids, Gastropod, Hermit Crabs, Hydroids, Snails, Surf Clam, Tunicates
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**335**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (1), None (2)	None	Trace (<1%)	3	None	None	Cerianthids, Hermit Crabs, Hydroids, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**336**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Worm Reef Biota (3)	Inferred Fauna (1), Soft Sediment Fauna (2)	Sabellariid Reef (3)	Larger Tube-Building Fauna (2), None (1)	None	3	None	None	Cerianthids, Clam, Hermit Crabs, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**337**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Worm Reef Biota (3)	None	Sabellariid Reef (3)	Diverse Soft Sediment Epifauna (1), None (2)	None	3	None	None	Bryozoa, Hermit Crabs, Limpets, Nudibranchs
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**338**	N/A	3	Sand and Muddy Sand - Mobile	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (2), Tracks and Trails (1)	None	3	None	None	Gastropod, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**339**	N/A	3	Coarse Sediment - Mobile	Continuous Granules	Gravel	Granule	Pebble	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (2), None (1)	None	3	None	None	Cancer Crabs, Cerianthids, Clams, Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**340**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	None	Trace (<1%)	3	None	None	Bryozoa, Cerianthids
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**341**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	None	Small Tube-Building Fauna (3)	None	Trace (<1%)	3	Squid Eggs	None	Cerianthids, Clam, Hermit Crabs, Hydroids
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**342**	N/A	3	Sand and Muddy Sand - Mobile	Worm Reef	Worm Substrate	Sabellariid Reef Substrate	Pebble	Worm Reef Biota (3)	Inferred Fauna (1), None (1), Soft Sediment Fauna (1)	Sabellariid Reef (3)	Diverse Soft Sediment Epifauna (2), None (1)	Trace (<1%)	3	None	None	Cerianthids, Clam, Hermit Crabs, Hydroids, Limpets
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**343**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	Pebble	Soft Sediment Fauna (3)	None	Small Tube-Building Fauna (3)	Larger Tube-Building Fauna (1), None (2)	Trace (<1%)	3	None	None	Cerianthids, Clams, Hermit Crabs, Hydroids
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**344**	N/A	3	Coarse Sediment - Mobile	Continuous Pebbles on Sand	Gravel	Pebble	Pebble	Soft Sediment Fauna (3)	None	Attached Hydroids (1), Mobile Crustaceans on Hard or Mixed Substrates (1), Small Tube-Building Fauna (1)	Burrowing Anemones (1), Mobile Crustaceans on Hard or Mixed Substrates (2)	Sparse (1 to <30%)	3	None	None	Bryozoa, Cerianthids, Hermit Crabs, Hydroids, Snails
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**345**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Burrowing Anemones (1), Mobile Crustaceans on Hard or Mixed Substrates (1), Small Tube-Building Fauna (1)	Burrowing Anemones (1), Diverse Soft Sediment Epifauna (1), Mobile Crustaceans on Hard or Mixed Substrates (1)	None	3	None	None	Cerianthids, Hermit Crabs, Tunicates
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**346**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	Pebble	Worm Reef Biota (3)	Soft Sediment Fauna (3)	Sabellariid Reef (3)	Mobile Crustaceans on Soft Sediments (2), None (1)	Sparse (1 to <30%)	3	None	None	Cerianthids, Hermit Crabs, Hydroids
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**347**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	Pebble	Soft Sediment Fauna (3)	None	Burrowing Anemones (1), Larger Tube-Building Fauna (2)	Burrowing Anemones (1), None (2)	None	3	None	None	Cerianthids, Clams, Gastropod, Snails

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OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**348**	N/A	3	Coarse Sediment - Mobile	Sand with Mobile Gravel	Gravelly	Gravelly Sand	Pebble	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Diverse Soft Sediment Epifauna (1), Larger Tube-Building Fauna (1), None (1)	None	None	3	None	None	Cerianthid, Clam, Hermit Crabs
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**349**	N/A	3	Coarse Sediment	Continuous Pebbles on Sand	Gravel	Pebble	Pebble	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (2), None (1)	None	Sparse (1 to <30%)	3	None	None	Barnacles, Hermit Crabs, Hydroids
OCW_19B1	Oyster Creek Offshore Export Cable Route Corridor	**350**	N/A	3	Coarse Sediment	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	IND	Soft Sediment Fauna (1), IND (2)	IND (2), None (1)	IND	IND	None	3	None	None	Hermit Crabs
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**401**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	3	None	None	Cancer Crabs, Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails, Tunicate
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**402**	N/A	3	N/A	Sand Sheet	Sand or finer	Fine Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None	3	None	None	Gastropod, Hermit Crabs, Sand Dollars, Snails
OCW_19B1	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**403**	N/A	3	N/A	Sand Sheet	Sand or finer	Medium Sand	IND	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (1), Mobile Crustaceans on Soft Sediments (1), Mobile Mollusks on Soft Sediments (1)	None	None	3	None	None	Cancer Crabs, Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-1**	N/A	N/A	Mud and Sandy Mud	N/A	Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-2**	N/A	N/A	Sand and Muddy Sand	N/A	Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-3**	N/A	N/A	Sand and Muddy Sand	N/A	Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-4**	N/A	N/A	Mud and Sandy Mud	N/A	Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-5**	N/A	N/A	Mud and Sandy Mud	N/A	Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-6**	N/A	N/A	Sand and Muddy Sand	N/A	Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-7**	N/A	N/A	Sand and Muddy Sand	N/A	Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-8**	N/A	N/A	Coarse Sediment - Mobile	N/A	Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	BL England Offshore Export Cable Route Corridor	**BL-Grab-9A**	N/A	N/A	Mud and Sandy Mud	N/A	Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1301**	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Offshore Export Cable Route Corridor	**GRAB_13029**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Sand and Muddy Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1302A	N/A	N/A	Sand and Muddy Sand	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1303	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Offshore Export Cable Route Corridor	GRAB_13030	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Sand and Muddy Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Offshore Export Cable Route Corridor	GRAB_13031	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Sand and Muddy Sand	Silty Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1304	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1305	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1306	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1307	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1308	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1309	N/A	N/A	Sand and Muddy Sand	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1310	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1311	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1312	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1313	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1314	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1315	N/A	N/A	Sand and Muddy Sand	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1316	N/A	N/A	Sand and Muddy Sand	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1317	N/A	N/A	Sand and Muddy Sand	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1318	N/A	N/A	Sand and Muddy Sand with Historical SAV	N/A	Sand and Muddy Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	GRAB_1319	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1320**	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1321**	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1322**	N/A	N/A	Sand and Muddy Sand with SAV	N/A	Sand and Muddy Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1323**	N/A	N/A	Mud and Sandy Mud	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1324**	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1325**	N/A	N/A	Mud and Sandy Mud	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1326**	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1327**	N/A	N/A	Sand and Muddy Sand	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Oyster Creek Inshore Export Cable Route Corridor	**GRAB_1328**	N/A	N/A	Mud and Sandy Mud	N/A	Sand and Muddy Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_1401**	N/A	N/A	N/A	N/A	Sand and Muddy Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_1402**	N/A	N/A	N/A	N/A	Sand and Muddy Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_1403**	N/A	N/A	N/A	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_1404**	N/A	N/A	N/A	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_1405**	N/A	N/A	N/A	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_1406**	N/A	N/A	N/A	N/A	Mud and Sandy Mud	Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_1407**	N/A	N/A	N/A	N/A	Mud and Sandy Mud	Sandy Mud	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_1408A**	N/A	N/A	N/A	N/A	Sand and Muddy Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	BL England Offshore Export Cable Route Corridor	**GRAB_1409**	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Gardline_2020_Geo	BL England Offshore Export Cable Route Corridor	**GRAB_1410**	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	BL England Offshore Export Cable Route Corridor	**GRAB_1411**	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	BL England Offshore Export Cable Route Corridor	**GRAB_1412**	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	BL England Offshore Export Cable Route Corridor	**GRAB_1413**	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2020_Geo	BL England Offshore Export Cable Route Corridor	**GRAB_1414**	N/A	N/A	Sand and Muddy Sand	N/A	Sand and Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5001**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	Squid	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5002**	N/A	N/A	Coarse Sediment - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Crustaceans on Soft Sediments	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5003**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Sand	Medium Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5004**	N/A	N/A	Coarse Sediment - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Tube-Building Fauna	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5005**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5006**	N/A	N/A	Coarse Sediment - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Mollusks on Soft Sediments	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5007**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Sand	Fine Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5008**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Mollusks on Soft Sediments	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5009**	N/A	N/A	Coarse Sediment - Mobile	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Crustaceans on Soft Sediments, Mobile Mollusks on Soft Sediments, Small Tube-Building Fauna	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5010**	N/A	N/A	Coarse Sediment - Mobile	N/A	Gravel Mixes	Sandy Gravel	N/A	Attached Fauna	N/A	Mobile Crustaceans on Hard or Mixed Substrates	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5011**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Sand	Fine Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5012**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5013**	N/A	N/A	Coarse Sediment - Mobile	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	IND	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5014**	N/A	N/A	Coarse Sediment	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Crustaceans on Soft Sediments, Soft Sediment Fauna, Larger Tube-Building Fauna	N/A	N/A	N/A	None	None	N/A

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Gardline_2019_HabChar	Wind Farm Area	**GRAB_5015**	N/A	N/A	Coarse Sediment - Mobile	N/A	N/A	N/A	N/A	Attached Fauna	N/A	Mobile Crustaceans on Hard or Mixed Substrates, Mobile Mollusks on Hard or Mixed Substrates	N/A	N/A	N/A	None	Scallop	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5016**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Mollusks on Soft Sediments	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**GRAB_5017**	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed, Larger Tube-Building Fauna	N/A	N/A	N/A	Squid	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5018**	N/A	N/A	Coarse Sediment - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Crustaceans on Soft Sediments	N/A	N/A	N/A	None	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5019**	N/A	N/A	Coarse Sediment - Mobile	N/A	Gravel Mixes	Sandy Gravel	N/A	Attached Fauna	N/A	Mobile Crustaceans on Hard or Mixed Substrates	N/A	N/A	N/A	Squid	None	N/A
Gardline_2019_HabChar	Wind Farm Area	**GRAB_5020**	N/A	N/A	Coarse Sediment - Mobile	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Larger Tube-Building Fauna	N/A	N/A	N/A	None	None	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV1**	N/A	N/A	N/A	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Tube-Building Fauna	N/A	N/A	N/A	None	None	N/A
Gardline_2017_HabChar	Wind Farm Area	**L3-ENV10**	N/A	N/A	Coarse Sediment	N/A	Slightly Gravelly	Slightly Gravelly Muddy Sand	N/A	Soft Sediment Fauna	N/A	Clam Bed	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV11**	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Crustaceans on Soft Sediments	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV12**	N/A	N/A	N/A	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Surface-Burrowing Fauna	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV13**	N/A	N/A	N/A	N/A	Sand	Fine Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	None	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV14**	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Surface-Burrowing Fauna	N/A	N/A	N/A	None	Atlantic Surfclam, Scallop	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV15**	N/A	N/A	N/A	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Tube-Building Fauna	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV16**	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Crustaceans on Soft Sediments	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV17**	N/A	N/A	N/A	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	**L3-ENV18**	N/A	N/A	N/A	N/A	Gravel Mixes	Sandy Gravel	N/A	Soft Sediment Fauna	N/A	Small Surface-Burrowing Fauna	N/A	N/A	N/A	None	Atlantic Surfclam	N/A

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Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	L3-ENV19	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Mobile Crustaceans on Soft Sediments	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	L3-ENV2	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	N/R	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	L3-ENV20	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	L3-ENV21	N/A	N/A	N/A	N/A	Gravel Mixes	Sandy Gravel	N/A	Soft Sediment Fauna	N/A	Small Tube-Building Fauna	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	L3-ENV3	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Sand Dollar Bed	N/A	N/A	N/A	None	None	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	L3-ENV4	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Tube-Building Fauna	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Wind Farm Area	L3-ENV5	N/A	N/A	Coarse Sediment - Mobile	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Tube-Building Fauna	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Wind Farm Area	L3-ENV6	N/A	N/A	Coarse Sediment - Mobile	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Surface-Burrowing Fauna	N/A	N/A	N/A	None	Scallop	N/A
Gardline_2017_HabChar	Outside of Ocean Wind Offshore Wind Farm Offshore Project Area	L3-ENV7	N/A	N/A	N/A	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Tube-Building Fauna	N/A	N/A	N/A	None	None	N/A
Gardline_2017_HabChar	Wind Farm Area	L3-ENV8	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Slightly Gravelly	Slightly Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Surface-Burrowing Fauna	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2017_HabChar	Wind Farm Area	L3-ENV9	N/A	N/A	Coarse Sediment - Mobile	N/A	Gravelly	Gravelly Sand	N/A	Soft Sediment Fauna	N/A	Small Surface-Burrowing Fauna	N/A	N/A	N/A	None	Atlantic Surfclam	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	OC-Grab-10	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	OC-Grab-1C	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Gravelly	Gravelly Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	OC-Grab-2	N/A	N/A	Coarse Sediment	N/A	Gravelly	Gravelly Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	OC-Grab-3	N/A	N/A	Coarse Sediment	N/A	Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	OC-Grab-4	N/A	N/A	Coarse Sediment	N/A	Gravelly	Gravelly Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	OC-Grab-5A	N/A	N/A	Sand and Muddy Sand	N/A	Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	OC-Grab-6	N/A	N/A	Coarse Sediment	N/A	Gravelly	Gravelly Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey ID	Area	Station ID	Pogo PV Replicate	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV, Grab, Drop Cam CMECS Substrate Group	SPI/PV, Grab, Drop Cam CMECS Substrate Subgroup[1]	PV CMECS Gravel Type or Maximum CMECS Gravel Size Category[2]	PV, Grab, Drop Cam CMECS Biotic Subclasses (# of PV reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV, Grab, Drop Cam CMECS Biotic Groups (# of PV reps)	PV CMECS Co-occurring Biotic Groups (# of reps)	PV Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	SPI Replicate (n)	SPI/PV, Drop Cam Sensitive Taxa Type[1]	SPI/PV, Drop Cam Species of Concern[1]	SPI/PV Epifauna Present[1]
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	**OC-Grab-7**	N/A	N/A	Sand and Muddy Sand	N/A	Muddy Sand	Muddy Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	**OC-Grab-8**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gardline_2019_Geo	Oyster Creek Offshore Export Cable Route Corridor	**OC-Grab-9**	N/A	N/A	Sand and Muddy Sand - Mobile	N/A	Sand	Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
OCW01_22B1	Wind Farm Area	**600**	N/A	2	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (2)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**601**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**602**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**603**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**604**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**605**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**606**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**607**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**608**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**609**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**610**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**611**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**612**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**613**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**614**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**615**	N/A	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**616**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A

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OCW01_22B1	Wind Farm Area	**617**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**618**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**619**	N/A	2	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (2)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**620**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**621**	N/A	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**622**	N/A	3	Coarse Sediment	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**623**	N/A	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	E	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	F	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	G	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	H	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	I	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	J	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	K	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	L	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	M	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	N	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	O	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	P	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	Q	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	R	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A

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OCW01_22B1	Wind Farm Area	**623AD**	S	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**623AD**	T	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**624**	N/A	2	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (2)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**625**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**626**	N/A	3	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**627**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**628**	N/A	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**629**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**630**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**631**	N/A	3	Coarse Sediment - Mobile	Pebbles/Granules	Gravel	Pebble/Granule	Pebble/Granule	Soft Sediment Fauna (2), None (1)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**632**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**633**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**634**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**635**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**636**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**637**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**638**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**639**	N/A	3	Coarse Sediment - Mobile	Sand	Sand or finer	Coarse Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**640**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**641**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A

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OCW01_22B1	Wind Farm Area	**642**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**643**	N/A	3	Coarse Sediment - Mobile	Sand	Sand or finer	Coarse Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**644**	N/A	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	Pebble/Granule	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	E	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	F	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	None (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	G	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	H	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	I	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	J	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	K	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	L	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	M	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	N	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	O	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	Q	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	R	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	S	1	Coarse Sediment - Mobile	IND	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**644AD**	T	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**645**	N/A	3	Coarse Sediment - Mobile	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**646**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A

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OCW01_22B1	Wind Farm Area	**647**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**648**	N/A	3	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (1), None (2)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	E	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	F	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	None (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	G	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Inferred Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	H	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	None (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	I	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	J	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	K	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Inferred Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	L	1	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Sand or finer	N/A	Inferred Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	M	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	N	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	O	1	Coarse Sediment - Mobile	Sand	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	Q	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	None (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	R	1	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	None (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**648AD**	T	1	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Sand or finer	N/A	Soft Sediment Fauna (1)	N/A	N/A	N/A	None	N/A	None	None	N/A
OCW01_22B1	Wind Farm Area	**649**	N/A	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**650**	N/A	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Coarse Sand and Medium Sand Mix	Pebble/Granule	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**651**	N/A	3	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**652**	N/A	3	Coarse Sediment - Mobile	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A

Survey ID	Area	Station ID	Pogo PV Replicate	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV, Grab, Drop Cam CMECS Substrate Group	SPI/PV, Grab, Drop Cam CMECS Substrate Subgroup[1]	PV CMECS Gravel Type or Maximum CMECS Gravel Size Category[2]	PV, Grab, Drop Cam CMECS Biotic Subclasses (# of PV reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV, Grab, Drop Cam CMECS Biotic Groups (# of PV reps)	PV CMECS Co-occurring Biotic Groups (# of reps)	PV Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	SPI Replicate (n)	SPI/PV, Drop Cam Sensitive Taxa Type[1]	SPI/PV, Drop Cam Species of Concern[1]	SPI/PV Epifauna Present[1]
OCW01_22B1	Wind Farm Area	**653**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**654**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**655**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Coarse Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**656**	N/A	3	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (2), None (1)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**657**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**658**	N/A	3	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (2), None (1)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**659**	N/A	3	Sand and Muddy Sand	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**660**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**661**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**662**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**663**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**664**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**665**	N/A	3	Sand and Muddy Sand	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**666**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**667**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**668**	N/A	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A
OCW01_22B1	Wind Farm Area	**669**	N/A	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	3	None	None	N/A

Survey ID	Area	Category	Station ID	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV, Grab, Drop Cam CMECS Substrate Group	SPI/PV, Grab, Drop Cam CMECS Substrate Subgroup[1]	Maximum CMECS Gravel Size Category	PV, Grab, Drop Cam CMECS Biotic Subclasses (# of PV reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV, Grab, Drop Cam CMECS Biotic Groups (# of PV reps)	PV CMECS Co-occurring Biotic Groups (# of reps)	PV Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Mean Sand Dollar Density (indiv./m^2)	SPI Replicate (n)	Successional Stage (by replicate)			SPI/PV, Drop Cam Sensitive Taxa Type[1]	SPI/PV, Drop Cam Species of Concern[1]	SPI/PV Epifauna Present[1]
OCW01_22B1	Wind Farm Area	Trough	**670**	3	Coarse Sediment - Mobile	Sand	Sand or finer	Coarse Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	68.9	3	2	IND	IND	None	None	Hermit Crab(s), Nudibranch, Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Trough	**671**	3	Coarse Sediment - Mobile	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	Trace (<1%)	52.3	3	2	IND	IND	None	None	Barnacles, Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Trough	**672**	3	Coarse Sediment - Mobile	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	14.8	3	2	2	IND	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Trough	**673**	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	81.7	3	2	2	2	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Trough	**674**	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	208.4	3	2	2	2 -> 3	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**675**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	95.7	3	2	2	2	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**676**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	137.9	3	2	2	2	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**677**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	171.3	3	2	IND	IND	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s), Unidentified
OCW01_22B1	Wind Farm Area	Crest	**678**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	136.0	3	2	2	2	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**679**	3	N/A	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	55.8	3	2	2 -> 3	IND	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**680**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	48.3	3	2 -> 3	2 -> 3	2 -> 3	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**681**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	349.0	3	2 -> 3	2 -> 3	2 -> 3	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**682**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	195.8	3	2	2	IND	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**683**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	261.2	3	2 -> 3	2 -> 3	2 -> 3	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**684**	3	Sand and Muddy Sand - Mobile	Sand with Ripples	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	194.6	3	2	2	2 -> 3	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Trough	**685**	3	Coarse Sediment	Sand with Pebbles/Granules	Gravel Mixes	Sandy Gravel	Pebble/Granule	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	0.0	3	IND	IND	IND	None	None	Hermit Crab(s)
OCW01_22B1	Wind Farm Area	Trough	**686**	3	Coarse Sediment	Sand with Pebbles/Granules	Gravelly	Gravelly Sand	Pebble/Granule	Soft Sediment Fauna (3)	N/A	N/A	N/A	Sparse (1 to <30%)	0.0	3	2	2	2	None	None	Bryozoa/Hydroids, Gastropod(s), Hermit Crab(s), Moon Snail
OCW01_22B1	Wind Farm Area	Trough	**687**	3	Coarse Sediment	Sand with Pebbles/Granules	Gravel Mixes	Sandy Gravel	Pebble/Granule	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	0.0	3	2	IND	IND	None	None	Gastropod(s), Hermit Crab(s)
OCW01_22B1	Wind Farm Area	Trough	**688**	3	Coarse Sediment	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	0.0	3	2	2	IND	None	None	Hermit Crab(s)

Survey ID	Area	Category	Station ID	PV Replicate (n)	Mapped Habitat Type	SPI/PV Macrohabitat[1]	PV, Grab, Drop Cam CMECS Substrate Group	SPI/PV, Grab, Drop Cam CMECS Substrate Subgroup[1]	Maximum CMECS Gravel Size Category	PV, Grab, Drop Cam CMECS Biotic Subclasses (# of PV reps)	PV CMECS Co-occurring Biotic Subclasses (# of reps)	PV, Grab, Drop Cam CMECS Biotic Groups (# of PV reps)	PV CMECS Co-occurring Biotic Groups (# of reps)	PV Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Mean Sand Dollar Density (indiv./m^2)	SPI Replicate (n)	Successional Stage (by replicate)			SPI/PV, Drop Cam Sensitive Taxa Type[1]	SPI/PV, Drop Cam Species of Concern[1]	SPI/PV Epifauna Present[1]
OCW01_22B1	Wind Farm Area	Trough	**689**	3	Coarse Sediment	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	248.7	3	2	IND	IND	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**690**	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	43.1	3	2	2	2 -> 3	None	None	Gastropod(s), Moon Snail, Nudibranch, Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**691**	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Coarse Sand and Medium Sand Mix	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	12.4	3	2	IND	IND	None	None	Gastropod(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**692**	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	95.9	3	2	2	2	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**693**	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	287.7	3	2	2	2	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Crest	**694**	3	Sand and Muddy Sand - Mobile	Sand	Sand or finer	Fine Sand	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	166.6	3	2 -> 3	IND	IND	None	None	Gastropod(s), Hermit Crab(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Trough	**695**	3	Coarse Sediment - Mobile	Sand	Sand or finer	Coarse Sand and Medium Sand Mix	N/A	Soft Sediment Fauna (3)	N/A	N/A	N/A	None	9.4	3	2 -> 3	IND	IND	None	None	Gastropod(s), Sand Dollar(s)
OCW01_22B1	Wind Farm Area	Trough	**696**	3	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Sand or finer	IND	Pebble/Granule	Inferred Fauna (1), Soft Sediment Fauna (1), IND (1)	N/A	N/A	N/A	None	0.0	3	IND	IND	IND	None	None	Gastropod(s), Hermit Crab(s)
OCW01_22B1	Wind Farm Area	Trough	**697**	3	Coarse Sediment - Mobile	Sand and Mud with Ripples	Sand or finer	Very Fine Sand	N/A	Soft Sediment Fauna (1), IND (2)	N/A	N/A	N/A	None	0.0	3	IND	IND	IND	None	None	Gastropod(s), Hermit Crab(s)
OCW01_22B1	Wind Farm Area	Trough	**698**	3	Coarse Sediment - Mobile	Sand with Pebbles/Granules	Sand or finer	Coarse Sand and Medium Sand Mix	Pebble/Granule	Soft Sediment Fauna (1), IND (2)	N/A	N/A	N/A	None	0.0	3	2	2	IND	None	None	Moon Snail
OCW01_22B1	Wind Farm Area	Trough	**699**	3	Coarse Sediment - Mobile	Sand	Sand or finer	Medium Sand	N/A	Soft Sediment Fauna (2), IND (1)	N/A	N/A	N/A	None	0.0	3	IND	IND	IND	None	None	Gastropod(s), Unidentified

Transect ID	Date	Time	Transect	Habitat Period	Habitat	Sand Dollar Period	Relative Sand Dollar Abundance
08	6/4/2022	16:48:31	Start	Start	Sand or finer	-	N/A
08	6/4/2022	16:48:45	-	End	Sand or finer	-	N/A
08	6/4/2022	16:48:46	-	Start	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	16:50:11	-	End	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	16:50:12	-	Start	Sand or finer	-	N/A
08	6/4/2022	16:53:07	-	End	Sand or finer	-	N/A
08	6/4/2022	16:53:08	-	Start	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	16:59:57	-	End	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	16:59:58	-	Start	Sand or finer	-	N/A
08	6/4/2022	17:06:05	-	End	Sand or finer	-	N/A
08	6/4/2022	17:06:06	-	Start	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	17:10:12	-	End	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	17:10:13	-	Start	Sand or finer	-	N/A
08	6/4/2022	17:12:06	-	End	Sand or finer	-	N/A
08	6/4/2022	17:12:07	-	Start	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	17:15:26	-	End	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	17:15:27	-	Start	Sand or finer	-	N/A
08	6/4/2022	17:17:15	-	End	Sand or finer	-	N/A
08	6/4/2022	17:17:16	-	Start	Sand with Pebbles/Granules	-	N/A
08	6/4/2022	17:31:44	End	End	Sand with Pebbles/Granules	-	N/A
03	6/4/2022	18:11:41	Start	Start	Sand or finer	-	N/A
03	6/4/2022	18:12:52	-	End	Sand or finer	-	N/A
03	6/4/2022	18:12:53	-	Start	Off Bottom	-	N/A
03	6/4/2022	18:16:16	-	End	Off Bottom	-	N/A
03	6/4/2022	18:16:17	-	Start	Sand or finer	-	N/A
03	6/4/2022	18:54:55	End	End	Sand or finer	-	N/A
01	6/4/2022	19:20:47	Start	Start	Off Bottom	-	N/A
01	6/4/2022	19:21:38	-	End	Off Bottom	-	N/A
01	6/4/2022	19:21:39	-	Start	Sand with Pebbles/Granules	-	N/A
01	6/4/2022	19:24:17	-	End	Sand with Pebbles/Granules	-	N/A
01	6/4/2022	19:24:18	-	Start	Sand or finer	-	N/A
01	6/4/2022	19:39:13	-	End	Sand or finer	-	N/A
01	6/4/2022	19:39:14	-	Start	Sand with Pebbles/Granules	-	N/A
01	6/4/2022	19:43:04	-	End	Sand with Pebbles/Granules	-	N/A
01	6/4/2022	19:43:05	-	Start	Sand or finer	-	N/A
01	6/4/2022	20:12:31	End	End	Sand or finer	-	N/A
02	6/4/2022	20:33:31	Start	Start	Sand or finer	-	N/A
02	6/4/2022	20:34:51	-	End	Sand or finer	-	N/A
02	6/4/2022	20:34:52	-	Start	Sand with Pebbles/Granules	-	N/A
02	6/4/2022	20:42:06	-	End	Sand with Pebbles/Granules	-	N/A
02	6/4/2022	20:42:07	-	Start	Sand or finer	-	N/A
02	6/4/2022	20:44:25	-	End	Sand or finer	-	N/A
02	6/4/2022	20:44:26	-	Start	Shelly Sand	-	N/A
02	6/4/2022	20:45:40	-	End	Shelly Sand	-	N/A
02	6/4/2022	20:45:41	-	Start	Sand or finer	-	N/A
02	6/4/2022	20:53:38	-	End	Sand or finer	-	N/A
02	6/4/2022	20:53:39	-	Start	Shelly Sand	-	N/A
02	6/4/2022	20:54:56	-	End	Shelly Sand	-	N/A
02	6/4/2022	20:54:57	-	Start	Sand or finer	-	N/A
02	6/4/2022	20:57:54	-	End	Sand or finer	-	N/A
02	6/4/2022	20:57:55	-	Start	Shelly Sand	-	N/A
02	6/4/2022	20:59:52	-	End	Shelly Sand	-	N/A
02	6/4/2022	20:59:53	-	Start	Sand or finer	-	N/A
02	6/4/2022	21:15:11	End	End	Sand or finer	-	N/A
12	6/4/2022	21:44:19	Start	Start	Sand or finer	Start	Sparse Sand Dollars
12	6/4/2022	21:53:42	-	-	Sand or finer	End	Sparse Sand Dollars
12	6/4/2022	21:53:43	-	-	Sand or finer	Start	Moderate Sand Dollars
12	6/4/2022	22:23:55	End	End	Sand or finer	End	Moderate Sand Dollars
11	6/4/2022	22:46:41	Start	Start	Off Bottom	-	N/A
11	6/4/2022	22:48:46	-	End	Off Bottom	-	N/A

Transect ID	Date	Time	Transect	Habitat Period	Habitat	Sand Dollar Period	Relative Sand Dollar Abundance
11	6/4/2022	22:48:47	-	Start	Shelly Sand	Start	Trace Sand Dollars
11	6/4/2022	22:53:40	-	End	Shelly Sand	-	Trace Sand Dollars
11	6/4/2022	22:53:41	-	Start	Sand or finer	-	Trace Sand Dollars
11	6/4/2022	22:54:54	-	-	Sand or finer	End	Trace Sand Dollars
11	6/4/2022	22:55:01	-	End	Sand or finer	-	None
11	6/4/2022	22:55:02	-	Start	Shelly Sand	-	None
11	6/4/2022	23:04:54	-	End	Shelly Sand	-	None
11	6/4/2022	23:04:55	-	Start	Patchy Cobbles and/or Boulders on Sand	-	None
11	6/4/2022	23:05:57	-	End	Patchy Cobbles and/or Boulders on Sand	-	None
11	6/4/2022	23:05:58	-	Start	Sand or finer	-	None
11	6/4/2022	23:20:18	-	-	Sand or finer	Start	Trace Sand Dollars
11	6/4/2022	23:24:09	-	-	Sand or finer	End	Trace Sand Dollars
11	6/4/2022	23:24:10	-	-	Sand or finer	Start	Sparse Sand Dollars
11	6/4/2022	23:24:28	-	-	Sand or finer	End	Sparse Sand Dollars
11	6/4/2022	23:24:29	-	-	Sand or finer	Start	Moderate Sand Dollars
11	6/4/2022	23:43:14	End	End	Sand or finer	End	Moderate Sand Dollars
10	6/5/2022	0:13:59	Start	Start	Sand or finer	Start	Sparse Sand Dollars
10	6/5/2022	0:16:27	-	End	Sand or finer	End	Sparse Sand Dollars
10	6/5/2022	0:16:28	-	Start	Off Bottom	-	N/A
10	6/5/2022	0:17:17	-	End	Off Bottom	-	N/A
10	6/5/2022	0:17:18	-	Start	Sand or finer	Start	Sparse Sand Dollars
10	6/5/2022	0:31:27	-	-	Sand or finer	End	Sparse Sand Dollars
10	6/5/2022	0:31:28	-	-	Sand or finer	Start	Trace Sand Dollars
10	6/5/2022	0:33:59	-	-	Sand or finer	End	Trace Sand Dollars
10	6/5/2022	0:34:00	-	-	Sand or finer	Start	Sparse Sand Dollars
10	6/5/2022	0:56:30	-	-	Sand or finer	End	Sparse Sand Dollars
10	6/5/2022	0:56:31	-	-	Sand or finer	Start	Moderate Sand Dollars
10	6/5/2022	1:09:55	End	End	Sand or finer	End	Moderate Sand Dollars
09	6/5/2022	1:50:00	Start	Start	Sand or finer	Start	Sparse Sand Dollars
09	6/5/2022	1:50:28	-	End	Sand or finer	End	Sparse Sand Dollars
09	6/5/2022	1:50:29	-	Start	Off Bottom	-	N/A
09	6/5/2022	1:51:28	-	End	Off Bottom	-	N/A
09	6/5/2022	1:51:29	-	Start	Sand or finer	Start	Sparse Sand Dollars
09	6/5/2022	1:52:08	-	End	Sand or finer	End	Sparse Sand Dollars
09	6/5/2022	1:52:09	-	Start	Off Bottom	-	N/A
09	6/5/2022	1:53:21	-	End	Off Bottom	-	N/A
09	6/5/2022	1:53:22	-	Start	Shelly Sand	Start	Sparse Sand Dollars
09	6/5/2022	1:55:58	-	End	Shelly Sand	-	Sparse Sand Dollars
09	6/5/2022	1:55:59	-	Start	Sand or finer	-	Sparse Sand Dollars
09	6/5/2022	1:57:07	-	-	Sand or finer	End	Sparse Sand Dollars
09	6/5/2022	1:57:08	-	-	Sand or finer	Start	Trace Sand Dollars
09	6/5/2022	1:57:43	-	End	Sand or finer	-	Trace Sand Dollars
09	6/5/2022	1:57:44	-	Start	Shelly Sand	-	Trace Sand Dollars
09	6/5/2022	1:59:01	-	End	Shelly Sand	-	Trace Sand Dollars
09	6/5/2022	1:59:02	-	Start	Sand or finer	-	Trace Sand Dollars
09	6/5/2022	1:59:40	-	-	Sand or finer	End	Trace Sand Dollars
09	6/5/2022	1:59:41	-	-	Sand or finer	Start	Sparse Sand Dollars
09	6/5/2022	2:05:55	-	End	Sand or finer	End	Sparse Sand Dollars
09	6/5/2022	2:05:56	-	Start	Off Bottom	-	N/A
09	6/5/2022	2:08:04	-	End	Off Bottom	-	N/A
09	6/5/2022	2:08:05	-	Start	Sand or finer	-	None
09	6/5/2022	2:08:07	-	-	Sand or finer	Start	Trace Sand Dollars
09	6/5/2022	2:08:37	-	End	Sand or finer	End	Trace Sand Dollars
09	6/5/2022	2:08:38	-	Start	Off Bottom	-	N/A
09	6/5/2022	2:09:32	-	End	Off Bottom	-	N/A
09	6/5/2022	2:09:33	-	Start	Sand or finer	Start	Sparse Sand Dollars
09	6/5/2022	2:13:31	-	-	Sand or finer	End	Sparse Sand Dollars
09	6/5/2022	2:14:26	-	End	Sand or finer	-	None
09	6/5/2022	2:14:27	-	Start	Shelly Sand	-	None
09	6/5/2022	2:18:17	-	End	Shelly Sand	-	None

Transect ID	Date	Time	Transect	Habitat Period	Habitat	Sand Dollar Period	Relative Sand Dollar Abundance
09	6/5/2022	2:18:18	-	Start	Sand or finer	-	None
09	6/5/2022	2:23:31	-	-	Sand or finer	Start	Trace Sand Dollars
09	6/5/2022	2:30:08	-	-	Sand or finer	End	Trace Sand Dollars
09	6/5/2022	2:30:33	-	End	Sand or finer	-	None
09	6/5/2022	2:30:34	-	Start	Shelly Sand	-	None
09	6/5/2022	2:31:36	-	End	Shelly Sand	-	None
09	6/5/2022	2:31:37	-	Start	Sand or finer	-	None
09	6/5/2022	2:32:09	-	End	Sand or finer	-	None
09	6/5/2022	2:32:10	-	Start	Shelly Sand	-	None
09	6/5/2022	2:32:42	-	End	Shelly Sand	-	None
09	6/5/2022	2:32:43	-	Start	Sand or finer	-	None
09	6/5/2022	2:33:39	-	End	Sand or finer	-	None
09	6/5/2022	2:33:40	-	Start	Shelly Sand	-	None
09	6/5/2022	2:50:26	-	-	Shelly Sand	Start	Trace Sand Dollars
09	6/5/2022	2:59:33	-	-	Shelly Sand	End	Trace Sand Dollars
09	6/5/2022	2:59:35	End	End	Shelly Sand	-	None
16	6/5/2022	3:33:07	Start	Start	Off Bottom	-	N/A
16	6/5/2022	3:36:16	-	End	Off Bottom	-	N/A
16	6/5/2022	3:36:17	-	Start	Sand or finer	Start	Sparse Sand Dollars
16	6/5/2022	3:58:23	-	-	Sand or finer	End	Sparse Sand Dollars
16	6/5/2022	3:58:24	-	-	Sand or finer	Start	Moderate Sand Dollars
16	6/5/2022	4:11:40	-	-	Sand or finer	End	Moderate Sand Dollars
16	6/5/2022	4:11:41	-	-	Sand or finer	Start	Sparse Sand Dollars
16	6/5/2022	4:28:46	-	-	Sand or finer	End	Sparse Sand Dollars
16	6/5/2022	4:29:35	-	End	Sand or finer	-	None
16	6/5/2022	4:29:36	-	Start	Sand with Pebbles/Granules	-	None
16	6/5/2022	4:34:28	-	End	Sand with Pebbles/Granules	-	None
16	6/5/2022	4:34:29	-	Start	Sand or finer	-	None
16	6/5/2022	4:36:01	-	End	Sand or finer	-	None
16	6/5/2022	4:36:02	-	Start	Off Bottom	-	N/A
16	6/5/2022	4:39:04	-	End	Off Bottom	-	N/A
16	6/5/2022	4:39:05	-	Start	Sand with Pebbles/Granules	-	None
16	6/5/2022	4:40:15	-	End	Sand with Pebbles/Granules	-	None
16	6/5/2022	4:40:16	-	Start	Sand or finer	-	None
16	6/5/2022	4:41:15	-	End	Sand or finer	-	None
16	6/5/2022	4:41:16	-	Start	Sand with Pebbles/Granules	-	None
16	6/5/2022	4:41:43	-	End	Sand with Pebbles/Granules	-	None
16	6/5/2022	4:41:44	-	Start	Sand or finer	-	None
16	6/5/2022	4:42:47	-	End	Sand or finer	-	None
16	6/5/2022	4:42:48	-	Start	Off Bottom	-	N/A
16	6/5/2022	4:43:29	-	End	Off Bottom	-	N/A
16	6/5/2022	4:43:30	-	Start	Sand or finer	-	None
16	6/5/2022	4:43:48	-	-	Sand or finer	Start	Sparse Sand Dollars
16	6/5/2022	4:46:08	End	End	Sand or finer	End	Sparse Sand Dollars
13	6/5/2022	5:31:58	Start	Start	Sand or finer	Start	Sparse Sand Dollars
13	6/5/2022	5:48:30	-	-	Sand or finer	End	Sparse Sand Dollars
13	6/5/2022	5:48:31	-	-	Sand or finer	Start	Moderate Sand Dollars
13	6/5/2022	5:51:26	-	End	Sand or finer	End	Moderate Sand Dollars
13	6/5/2022	5:51:27	-	Start	Off Bottom	-	N/A
13	6/5/2022	5:52:34	-	End	Off Bottom	-	N/A
13	6/5/2022	5:52:35	-	Start	Sand or finer	Start	Moderate Sand Dollars
13	6/5/2022	5:53:37	-	End	Sand or finer	End	Moderate Sand Dollars
13	6/5/2022	5:53:38	-	Start	Off Bottom	-	N/A
13	6/5/2022	5:54:12	-	End	Off Bottom	-	N/A
13	6/5/2022	5:54:13	-	Start	Sand or finer	Start	Moderate Sand Dollars
13	6/5/2022	6:05:12	-	End	Sand or finer	End	Moderate Sand Dollars
13	6/5/2022	6:05:13	-	Start	Off Bottom	-	N/A
13	6/5/2022	6:06:22	-	End	Off Bottom	-	N/A
13	6/5/2022	6:06:23	-	Start	Sand or finer	Start	Moderate Sand Dollars
13	6/5/2022	6:09:53	-	End	Sand or finer	End	Moderate Sand Dollars

Transect ID	Date	Time	Transect	Habitat Period	Habitat	Sand Dollar Period	Relative Sand Dollar Abundance
13	6/5/2022	6:09:54	-	Start	Off Bottom	-	N/A
13	6/5/2022	6:10:15	End	End	Off Bottom	-	N/A
06	6/6/2022	15:36:39	Start	Start	Sand or finer	-	N/A
06	6/6/2022	16:04:54	-	End	Sand or finer	-	N/A
06	6/6/2022	16:04:55	-	Start	Shelly Sand	-	N/A
06	6/6/2022	16:06:59	-	End	Shelly Sand	-	N/A
06	6/6/2022	16:07:00	-	Start	Sand or finer	-	N/A
06	6/6/2022	16:09:43	-	End	Sand or finer	-	N/A
06	6/6/2022	16:09:44	-	Start	Shelly Sand	-	N/A
06	6/6/2022	16:15:37	-	End	Shelly Sand	-	N/A
06	6/6/2022	16:15:38	-	Start	Sand with Pebbles/Granules	-	N/A
06	6/6/2022	16:33:07	End	End	Sand with Pebbles/Granules	-	N/A
07	6/6/2022	16:56:13	Start	Start	Sand or finer	-	N/A
07	6/6/2022	17:11:13	-	End	Sand or finer	-	N/A
07	6/6/2022	17:11:14	-	Start	Shelly Sand	-	N/A
07	6/6/2022	17:13:22	-	End	Shelly Sand	-	N/A
07	6/6/2022	17:13:23	-	Start	Sand with Pebbles/Granules	-	N/A
07	6/6/2022	17:19:56	-	End	Sand with Pebbles/Granules	-	N/A
07	6/6/2022	17:19:57	-	Start	Shelly Sand	-	N/A
07	6/6/2022	17:33:20	-	End	Shelly Sand	-	N/A
07	6/6/2022	17:33:21	-	Start	Sand or finer	-	N/A
07	6/6/2022	17:34:40	-	End	Sand or finer	-	N/A
07	6/6/2022	17:34:41	-	Start	Shelly Sand	-	N/A
07	6/6/2022	17:36:07	-	End	Shelly Sand	-	N/A
07	6/6/2022	17:36:08	-	Start	Sand or finer	-	N/A
07	6/6/2022	17:40:06	-	End	Sand or finer	-	N/A
07	6/6/2022	17:40:07	-	Start	Shelly Sand	-	N/A
07	6/6/2022	17:41:12	-	End	Shelly Sand	-	N/A
07	6/6/2022	17:41:13	-	Start	Sand or finer	-	N/A
07	6/6/2022	17:54:16	End	End	Sand or finer	-	N/A
17	6/6/2022	18:28:28	Start	Start	Off Bottom	-	N/A
17	6/6/2022	18:28:42	-	End	Off Bottom	-	N/A
17	6/6/2022	18:28:43	-	Start	Sand or finer	-	N/A
17	6/6/2022	18:36:25	-	End	Sand or finer	-	N/A
17	6/6/2022	18:36:26	-	Start	Sand with Pebbles/Granules	-	N/A
17	6/6/2022	18:36:59	-	End	Sand with Pebbles/Granules	-	N/A
17	6/6/2022	18:37:00	-	Start	Pebbles or Granules	-	N/A
17	6/6/2022	18:37:42	-	End	Pebbles or Granules	-	N/A
17	6/6/2022	18:37:43	-	Start	Sand with Pebbles/Granules	-	N/A
17	6/6/2022	18:40:42	-	End	Sand with Pebbles/Granules	-	N/A
17	6/6/2022	18:40:43	-	Start	Pebbles or Granules	-	N/A
17	6/6/2022	18:44:15	-	End	Pebbles or Granules	-	N/A
17	6/6/2022	18:44:16	-	Start	Sand with Pebbles/Granules	-	N/A
17	6/6/2022	18:53:39	-	End	Sand with Pebbles/Granules	-	N/A
17	6/6/2022	18:53:40	-	Start	Sand or finer	-	N/A
17	6/6/2022	18:56:31	End	End	Sand or finer	-	N/A
04	6/6/2022	19:22:58	Start	Start	Sand or finer	-	N/A
04	6/6/2022	19:30:01	-	End	Sand or finer	-	N/A
04	6/6/2022	19:30:02	-	Start	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	19:43:57	-	End	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	19:43:58	-	Start	Sand or finer	-	N/A
04	6/6/2022	19:46:20	-	End	Sand or finer	-	N/A
04	6/6/2022	19:46:21	-	Start	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	19:48:31	-	End	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	19:48:32	-	Start	Sand or finer	-	N/A
04	6/6/2022	19:50:54	-	End	Sand or finer	-	N/A
04	6/6/2022	19:50:55	-	Start	Shelly Sand	-	N/A
04	6/6/2022	19:51:46	-	End	Shelly Sand	-	N/A
04	6/6/2022	19:51:47	-	Start	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	19:53:07	-	End	Sand with Pebbles/Granules	-	N/A

Transect ID	Date	Time	Transect	Habitat Period	Habitat	Sand Dollar Period	Relative Sand Dollar Abundance
04	6/6/2022	19:53:08	-	Start	Sand or finer	-	N/A
04	6/6/2022	19:57:09	-	End	Sand or finer	-	N/A
04	6/6/2022	19:57:10	-	Start	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	19:58:32	-	End	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	19:58:33	-	Start	Sand or finer	-	N/A
04	6/6/2022	19:59:45	-	End	Sand or finer	-	N/A
04	6/6/2022	19:59:46	-	Start	Shelly Sand	-	N/A
04	6/6/2022	20:01:57	-	End	Shelly Sand	-	N/A
04	6/6/2022	20:01:58	-	Start	Sand or finer	-	N/A
04	6/6/2022	20:15:54	-	End	Sand or finer	-	N/A
04	6/6/2022	20:15:55	-	Start	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	20:17:14	-	End	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	20:17:15	-	Start	Sand or finer	-	N/A
04	6/6/2022	20:19:46	-	End	Sand or finer	-	N/A
04	6/6/2022	20:19:47	-	Start	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	20:20:32	-	End	Sand with Pebbles/Granules	-	N/A
04	6/6/2022	20:20:33	-	Start	Sand or finer	-	N/A
04	6/6/2022	20:20:50	End	End	Sand or finer	-	N/A
05	6/6/2022	20:49:34	Start	Start	Off Bottom	-	N/A
05	6/6/2022	20:51:18	-	End	Off Bottom	-	N/A
05	6/6/2022	20:51:19	-	Start	Sand or finer	-	N/A
05	6/6/2022	22:55:23	-	End	Sand or finer	-	N/A
05	6/6/2022	22:55:24	-	Start	Sand with Pebbles/Granules	-	N/A
05	6/6/2022	23:03:15	-	End	Sand with Pebbles/Granules	-	N/A
05	6/6/2022	23:03:16	-	Start	Sand or finer	-	N/A
05	6/6/2022	23:17:00	-	End	Sand or finer	-	N/A
05	6/6/2022	23:17:01	-	Start	Sand with Pebbles/Granules	-	N/A
05	6/6/2022	23:23:14	-	End	Sand with Pebbles/Granules	-	N/A
05	6/6/2022	23:23:15	-	Start	Sand or finer	-	N/A
05	6/6/2022	23:26:28	End	End	Sand or finer	-	N/A
14	6/7/2022	0:38:25	Start	Start	Sand or finer	Start	Trace Sand Dollars
14	6/7/2022	0:46:54	-	End	Sand or finer	-	Trace Sand Dollars
14	6/7/2022	0:46:55	-	Start	Shelly Sand	-	Trace Sand Dollars
14	6/7/2022	0:48:49	-	End	Shelly Sand	-	Trace Sand Dollars
14	6/7/2022	0:48:50	-	Start	Sand or finer	-	Trace Sand Dollars
14	6/7/2022	0:49:02	-	-	Sand or finer	End	Trace Sand Dollars
14	6/7/2022	0:49:03	-	-	Sand or finer	Start	Moderate Sand Dollars
14	6/7/2022	0:49:28	-	End	Sand or finer	End	Moderate Sand Dollars
14	6/7/2022	0:49:29	-	Start	Off Bottom	-	N/A
14	6/7/2022	0:50:13	-	End	Off Bottom	-	N/A
14	6/7/2022	0:50:14	-	Start	Sand or finer	Start	Moderate Sand Dollars
14	6/7/2022	0:54:21	-	-	Sand or finer	End	Moderate Sand Dollars
14	6/7/2022	0:54:22	-	-	Sand or finer	Start	Sparse Sand Dollars
14	6/7/2022	0:57:00	-	-	Sand or finer	End	Sparse Sand Dollars
14	6/7/2022	0:57:01	-	-	Sand or finer	Start	Trace Sand Dollars
14	6/7/2022	1:12:33	-	-	Sand or finer	End	Trace Sand Dollars
14	6/7/2022	1:12:34	-	-	Sand or finer	Start	Sparse Sand Dollars
14	6/7/2022	1:22:50	-	-	Sand or finer	End	Sparse Sand Dollars
14	6/7/2022	1:22:51	-	-	Sand or finer	Start	Moderate Sand Dollars
14	6/7/2022	1:26:27	-	End	Sand or finer	End	Moderate Sand Dollars
14	6/7/2022	1:26:28	-	Start	Off Bottom	-	N/A
14	6/7/2022	1:27:18	-	End	Off Bottom	-	N/A
14	6/7/2022	1:27:19	-	Start	Sand or finer	Start	Moderate Sand Dollars
14	6/7/2022	1:36:47	End	End	Sand or finer	End	Moderate Sand Dollars
15	6/7/2022	1:59:31	Start	Start	Sand or finer	Start	Sparse Sand Dollars
15	6/7/2022	2:19:04	-	-	Sand or finer	End	Sparse Sand Dollars
15	6/7/2022	2:19:05	-	-	Sand or finer	Start	Moderate Sand Dollars
15	6/7/2022	2:46:18	-	-	Sand or finer	End	Moderate Sand Dollars
15	6/7/2022	2:46:19	-	-	Sand or finer	Start	Sparse Sand Dollars
15	6/7/2022	2:56:28	End	End	Sand or finer	End	Sparse Sand Dollars

Attachment B – Benthic Species Life Stages with EFH in the Offshore Project Area Cross Walked to Mapped Benthic Habitat Types

Notes:

Gray cells indicate mapped EFH does not overlap with the specified project area, and blank cells indicate that the species/ life stage is not anticipated to utilize the given habitat type as EFH.

[a]Unlikely to be found in 'mobile' habitats

[b]Species/lifestage that may be present on any given habitat with the added presence of structure.

Species Name	Benthic Lifestages	Habitat Types Mapped within the Ocean Wind Offshore Wind Farm Offshore Project Area											
		Coarse Sediment			Sand & Muddy Sand				Mud and Sandy Mud			SAV on Sand/Mud	Structure (e.g., boulder, SAV, debris) on any Substrate[b]
		Wind Farm Area	BL England Offshore Export Cable Route Corridor	Oyster Creek Offshore Export Cable Route Corridor	Wind Farm Area	BL England Offshore Export Cable Route Corridor	Oyster Creek Offshore Export Cable Route Corridor	Oyster Creek Inshore Export Cable Route Corridor	BL England Offshore Export Cable Route Corridor	Oyster Creek Offshore Export Cable Route Corridor	Oyster Creek Inshore Export Cable Route Corridor	Oyster Creek Inshore Export Cable Route Corridor	
New England Finfish Species													
Atlantic cod	Adults	•											•
Ocean pout	Adults[a]	•[a]		•[a]	•[a]		•[a]						•
Red hake	Juveniles	•	•	•	•	•	•		•	•			•
	Adults	•	•	•	•	•	•		•	•			•
Silver hake	Adults			•			•						
White hake	Adult		•	•		•	•						
Windowpane flounder	Juveniles	•	•	•	•	•	•	•	•	•	•		
	Adults	•	•	•	•	•	•	•	•	•	•		
Winter flounder	Eggs[a]			•[a]			•[a]			•[a]	•[a]	•	•
	Juveniles			•			•	•		•	•	•	
	Adults			•			•	•		•	•	•	
Witch Flounder	Adults				•								
Yellowtail Flounder	Juveniles	•			•								
	Adults	•		•	•		•						
Mid-Atlantic Finfish species													
Black sea bass	Juveniles	•	•	•								•	•
	Adults	•	•	•								•	•
Scup	Juveniles	•	•	•	•	•	•	•	•	•	•	•	•
	Adults	•	•	•	•	•	•	•	•	•	•	•	•
Summer Flounder	Juveniles	•	•	•	•	•	•	•	•	•	•	HAPC	
	Adults	•	•	•	•	•	•	•	•	•	•	HAPC	
Sharks													
Atlantic Angel Shark	Neonate/YOY	•			•								
	Juvenile	•			•								
	Adult	•			•								
Dusky Shark	Neonate/YOY	•	•	•	•	•	•	•	•	•	•		
	Juvenile	•	•	•	•	•	•		•	•			
Sand tiger shark	Neonate/YOY		•	•		•	•	•	•	•	•		
	Juvenile		•	•		•	•	•	•	•	•		•
Sandbar Shark	Neonate/YOY	•	•	•	•	•	•	•	•	•	•		
	Juvenile	•	•	•	•	•	•	•	•	•	•		
	Adult	•	•	•	•	•	•		•	•			

Species Name	Benthic Lifestages	Habitat Types Mapped within the Ocean Wind Offshore Wind Farm Offshore Project Area											
		Coarse Sediment			Sand & Muddy Sand				Mud and Sandy Mud			SAV on Sand/Mud	Structure (e.g., boulder, SAV, debris) on any Substrate[b]
		Wind Farm Area	BL England Offshore Export Cable Route Corridor	Oyster Creek Offshore Export Cable Route Corridor	Wind Farm Area	BL England Offshore Export Cable Route Corridor	Oyster Creek Offshore Export Cable Route Corridor	Oyster Creek Inshore Export Cable Route Corridor	BL England Offshore Export Cable Route Corridor	Oyster Creek Offshore Export Cable Route Corridor	Oyster Creek Inshore Export Cable Route Corridor	Oyster Creek Inshore Export Cable Route Corridor	
Smoothhound Shark	Neonate/YOY	•	•	•	•	•	•	•	•	•	•		
	Juvenile	•	•	•	•	•	•	•	•	•	•		
	Adult	•	•	•	•	•	•	•	•	•	•		
Spiny dogfish	Sub-Adults (female)	•	•	•	•	•	•	•	•	•	•		
	Adults (female)	•	•	•	•	•	•	•	•	•	•		
	Adults (male)	•	•	•	•	•	•	•	•	•	•		
Skates													
Clearnose skate	Juveniles	•	•	•	•	•	•	•	•	•	•		
	Adults	•	•	•	•	•	•	•	•	•	•		
Little skate	Juveniles	•	•	•	•	•	•	•	•	•	•		
	Adults	•	•	•	•	•	•	•	•	•	•		
Winter skate	Juveniles	•	•	•	•	•	•	•	•	•	•		
	Adults	•	•	•	•	•	•	•	•	•	•		
Invertebrates													
Atlantic surfclam	Juveniles	•	•	•	•	•	•	•					
	Adults	•	•	•	•	•	•	•					
Longfin squid	Eggs[a]			•[a]			•[a]	•		•[a]	•[a]	•	•
Ocean Quahog	Juveniles	•	•		•								
	Adults	•	•		•								

Attachment C – Compiled Benthic Assessment Maps

Ocean Wind Offshore Wind Farm Benthic Habitat Mapping and Benthic Assessment to Support Essential Fish Habitat Consultation

Attachment C
Compiled Benthic Assessment Maps

Prepared for:
HDR Engineering

Submitted by:

INSPIRE Environmental
Newport, Rhode Island 02840

Originally Submitted June 28, 2021
Revised April 2022 re: Habitat Impact Acres
Revision 2: August 2022

LIST OF FIGURES

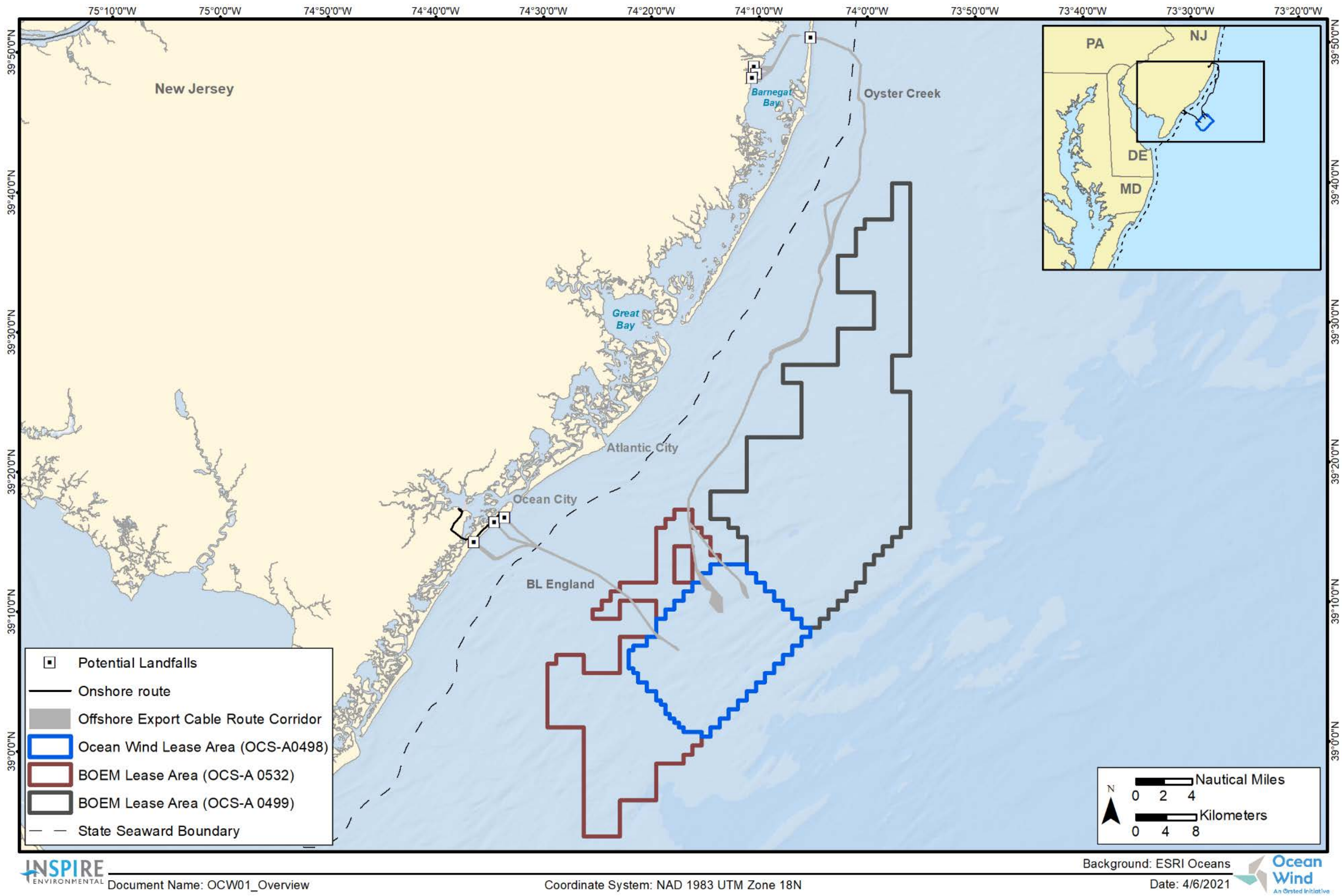

Figure 1. Location of the Ocean Wind Lease Area (OCS-A-0498) and proposed export cable route corridors

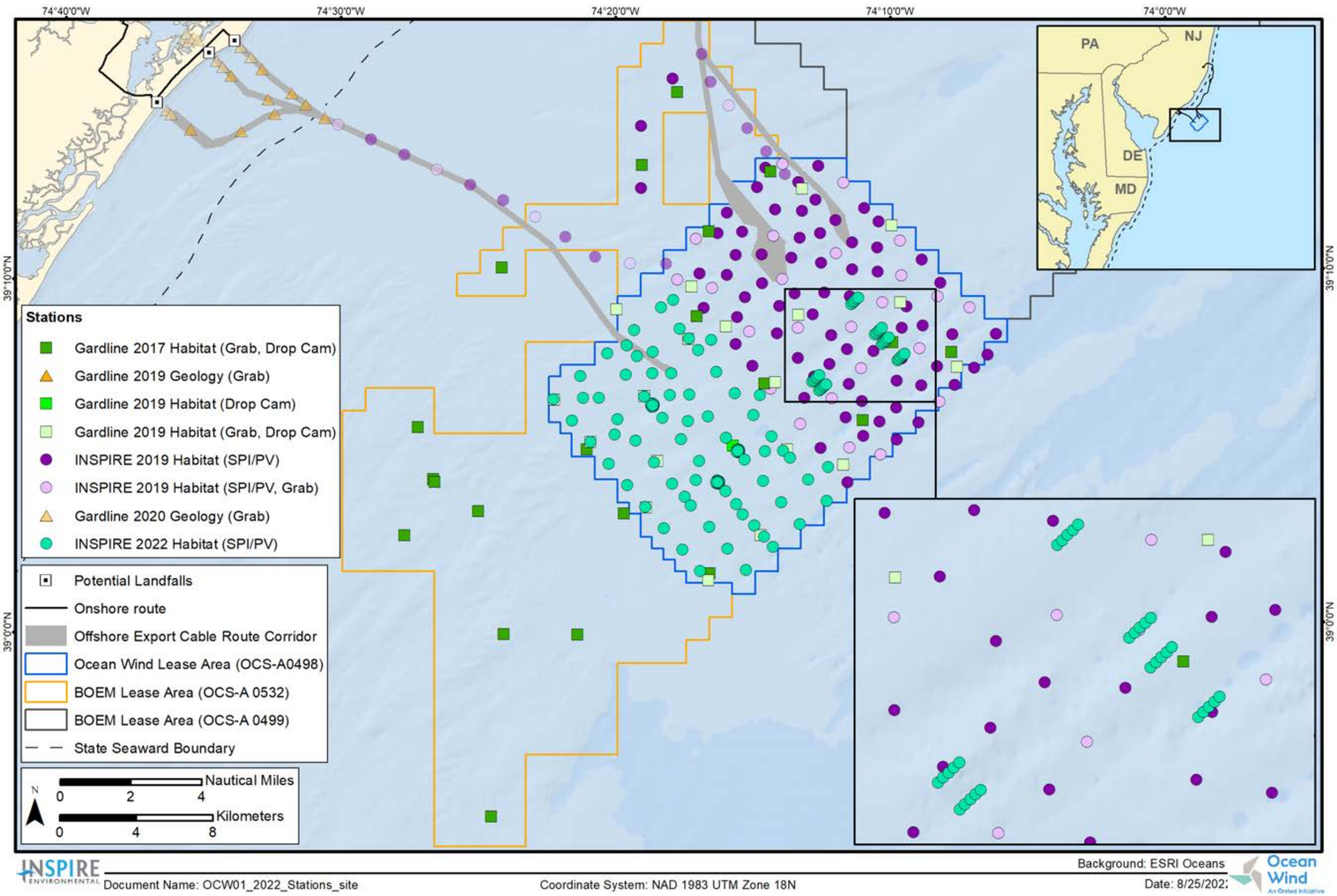

Figure 2. Station locations sampled at the Ocean Wind Lease Area

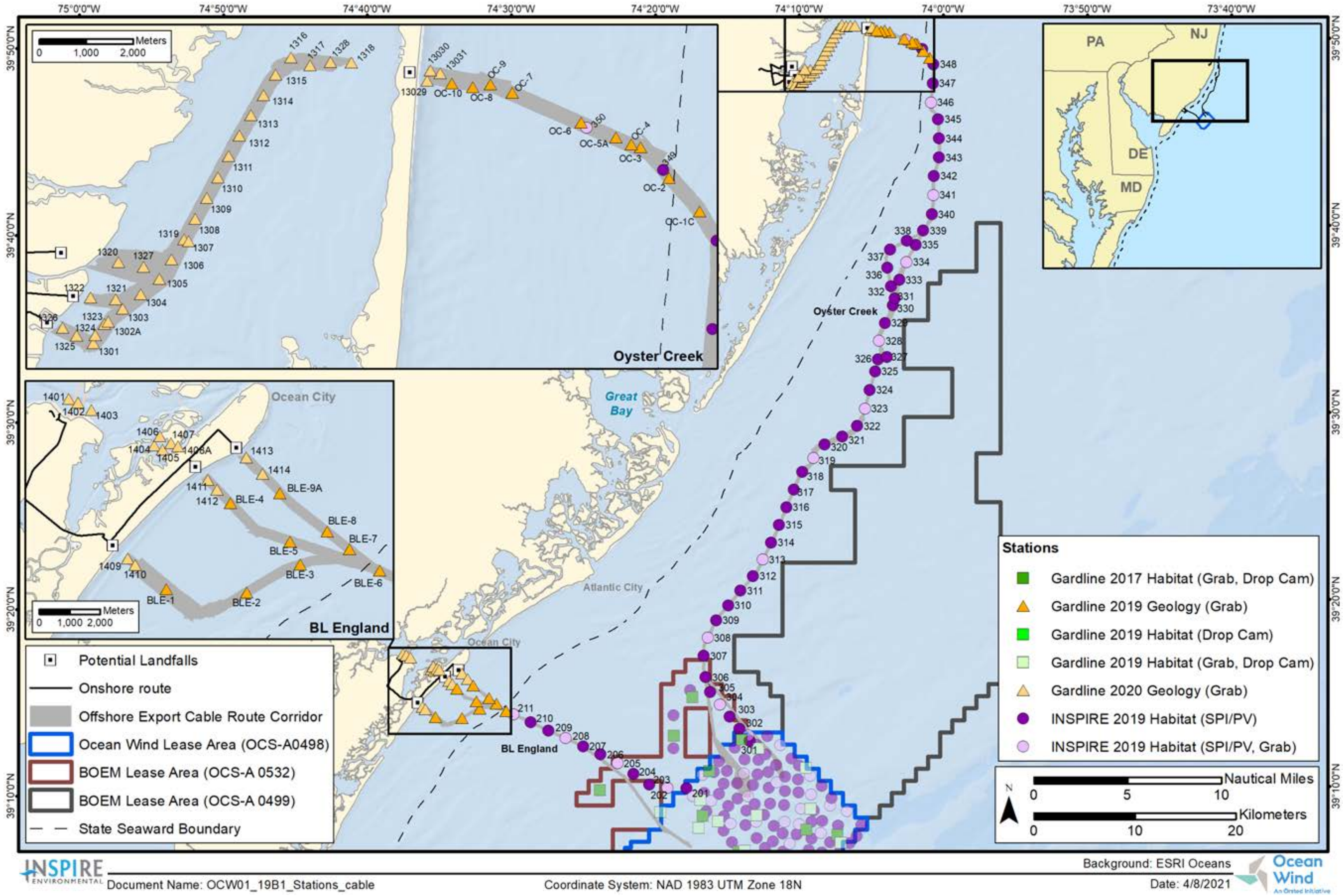

Figure 3. Station locations sampled along the proposed export cable route corridors

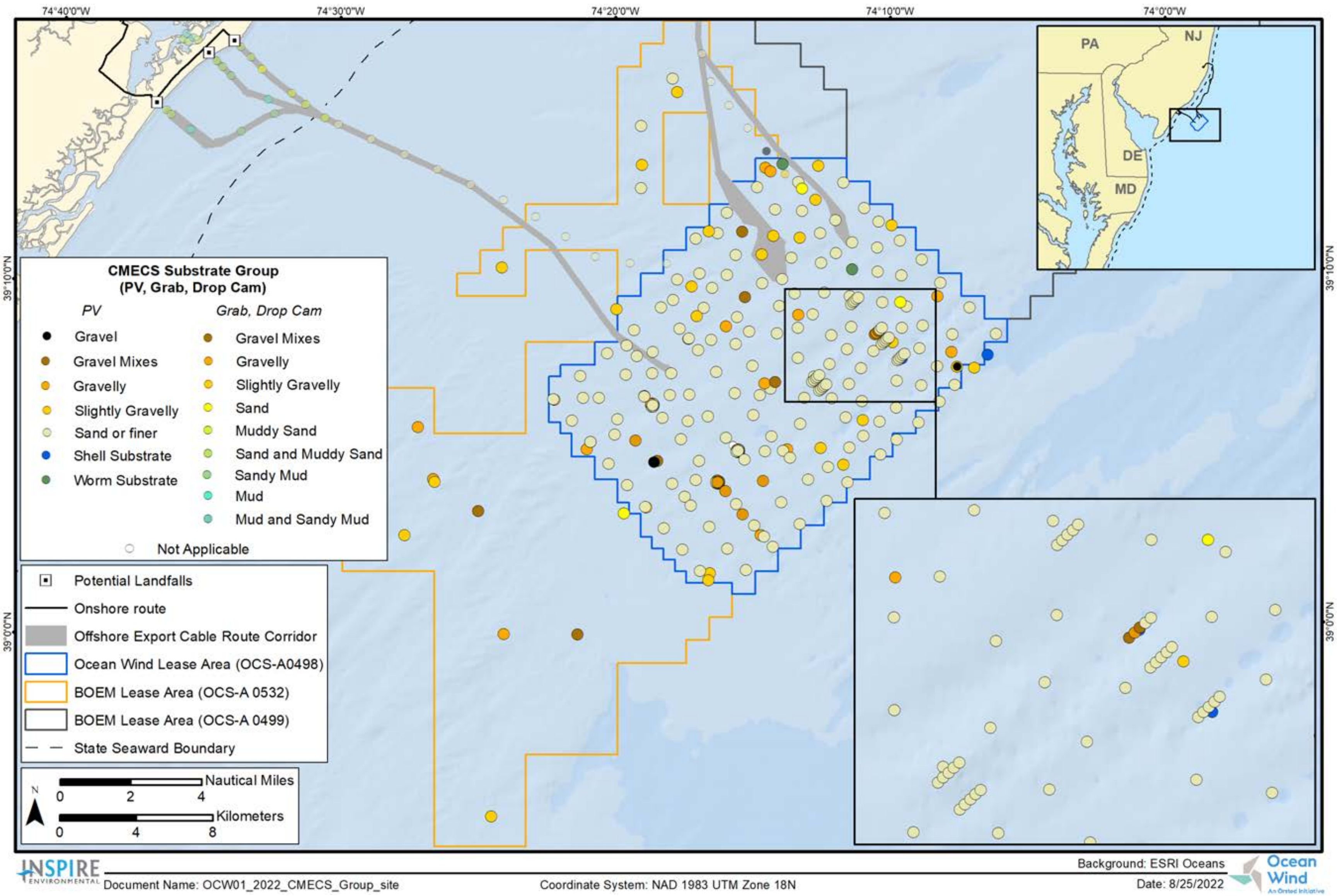

Figure 4. CMECS Substrate Group at stations sampled at the Ocean Wind Lease Area

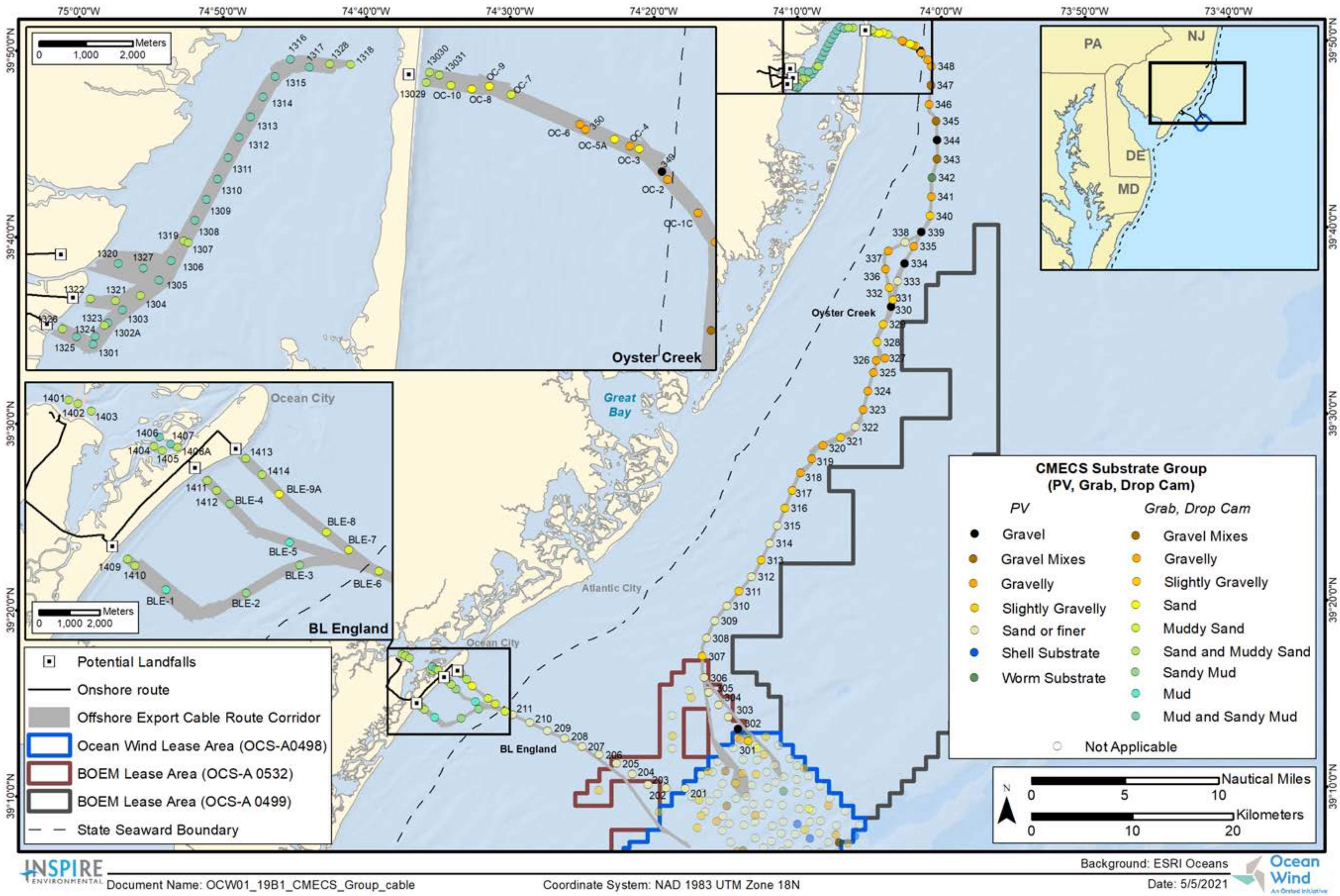

Figure 5. CMECS Substrate Group at stations sampled along the export cable route corridors

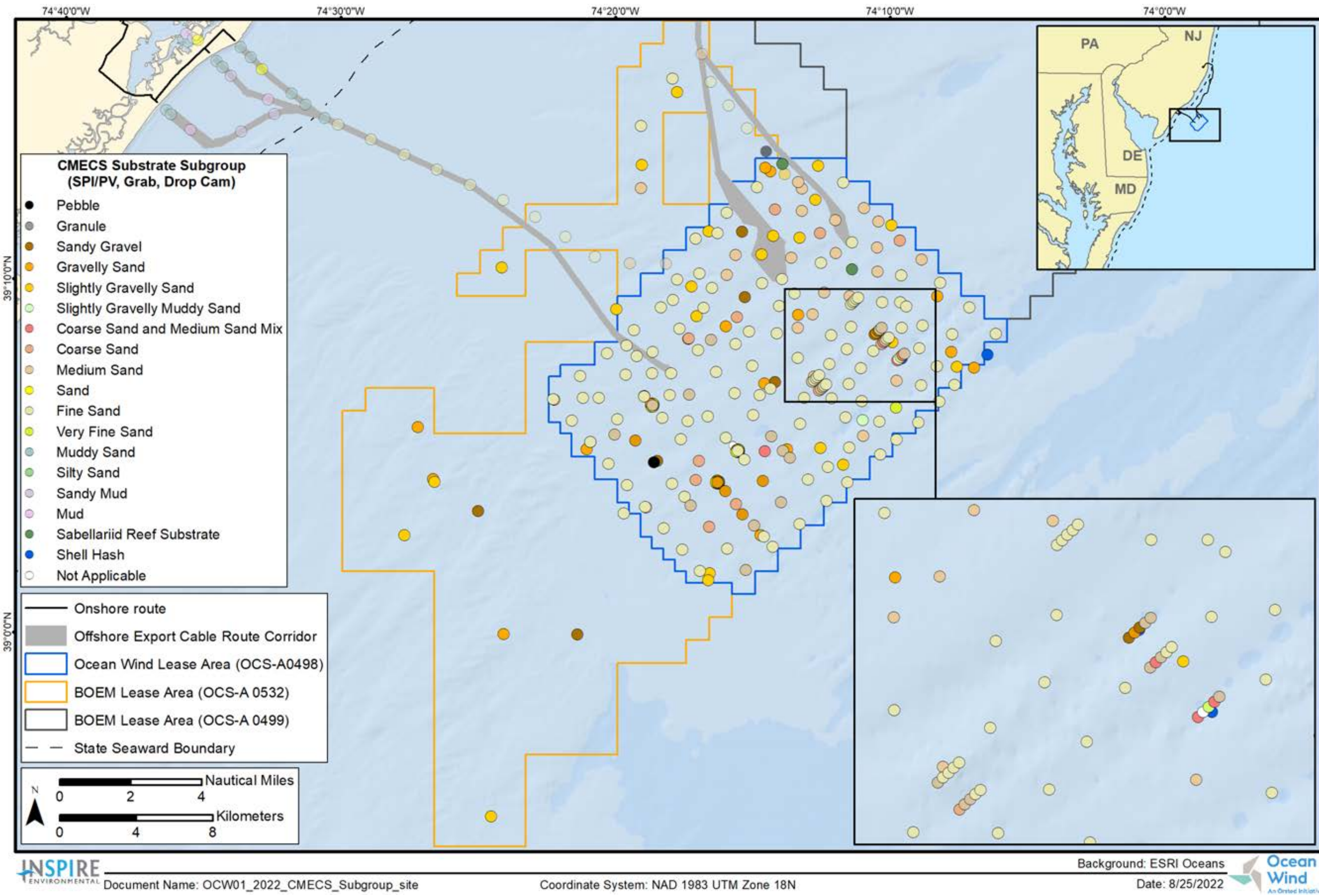

Figure 6. CMECS Substrate Subgroup at stations sampled at the Ocean Wind Lease Area

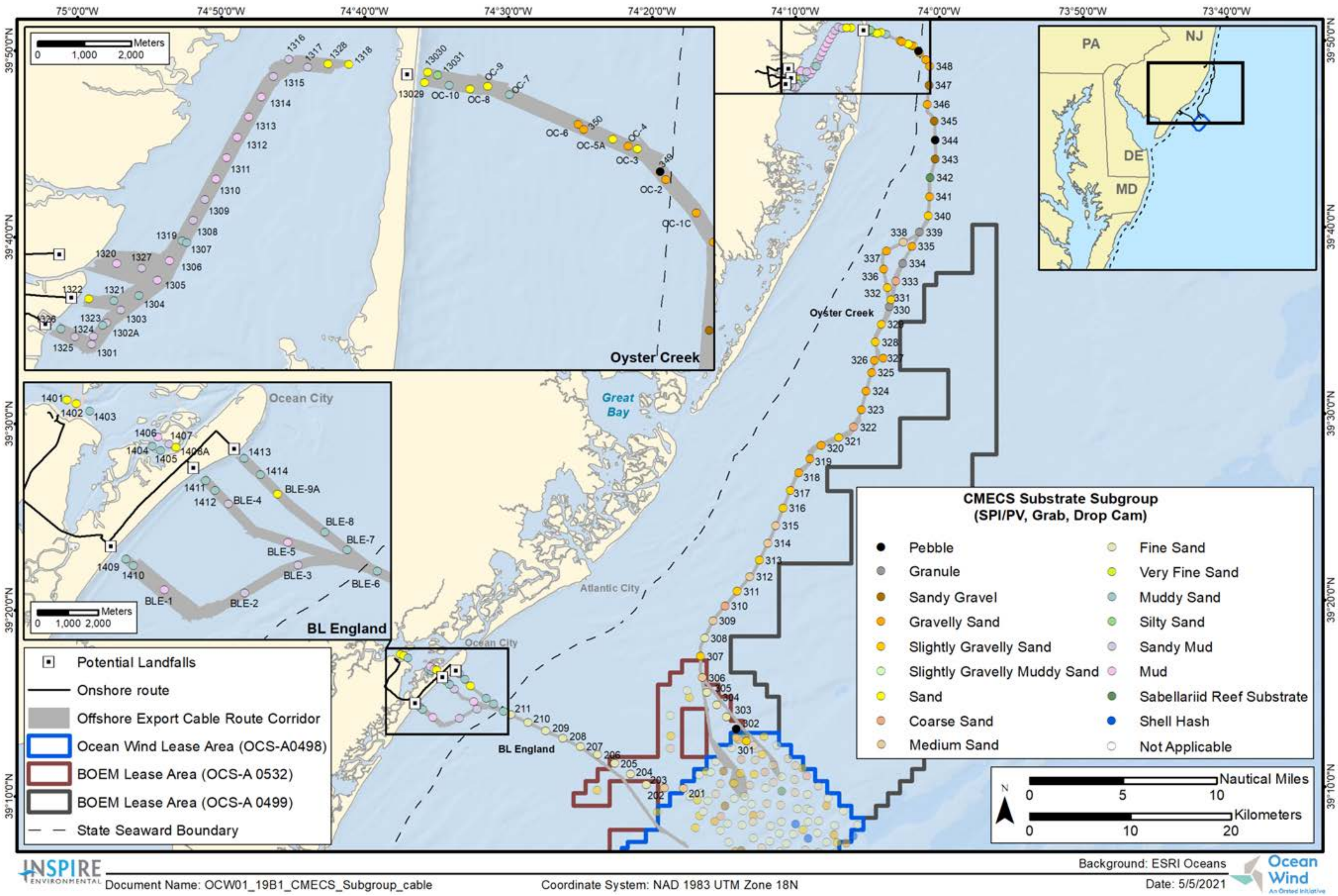

Figure 7. CMECS Substrate Subgroup at stations sampled along the export cable route corridors

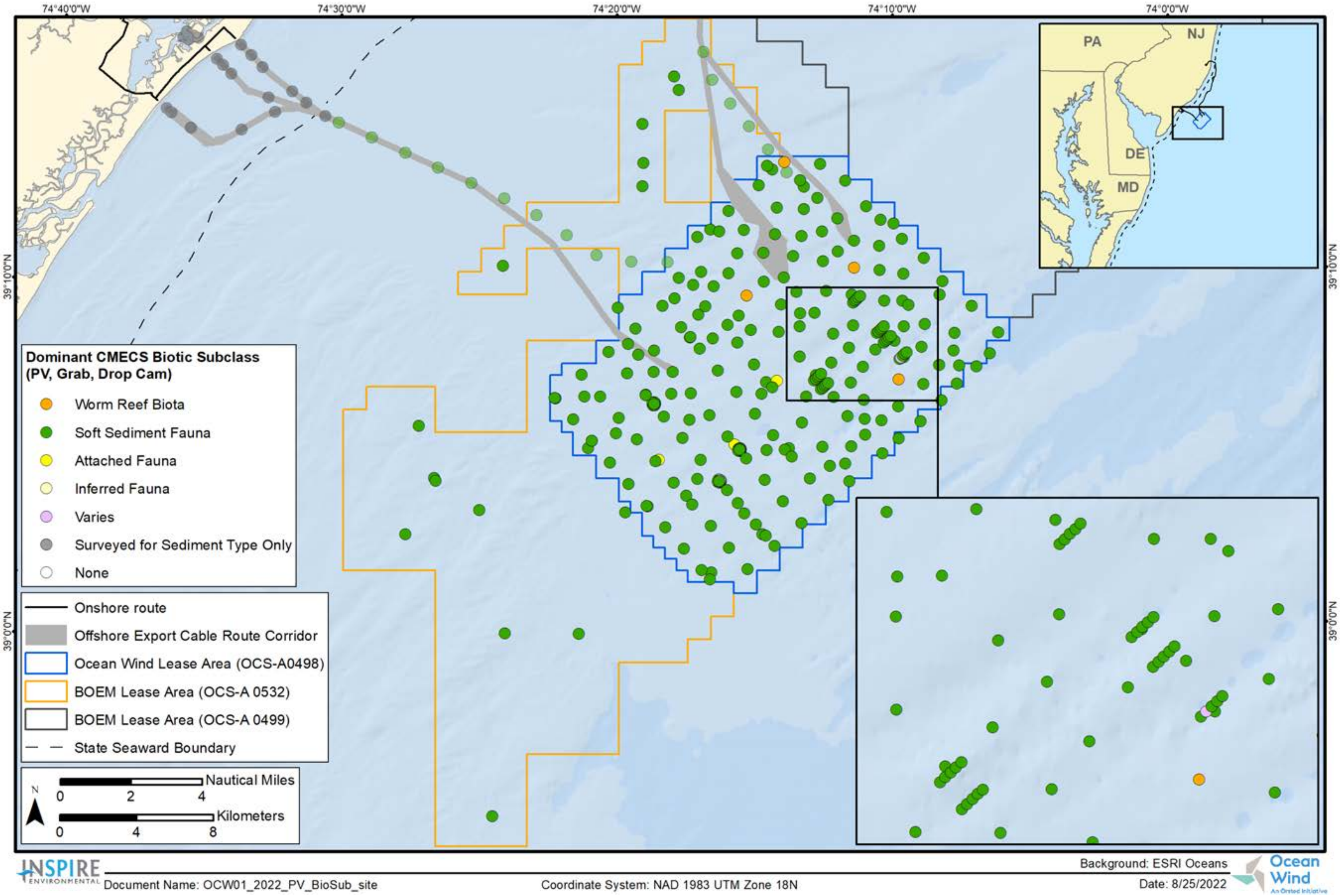

Figure 8. CMECS Biotic Subclass at stations sampled at the Ocean Wind Lease Area

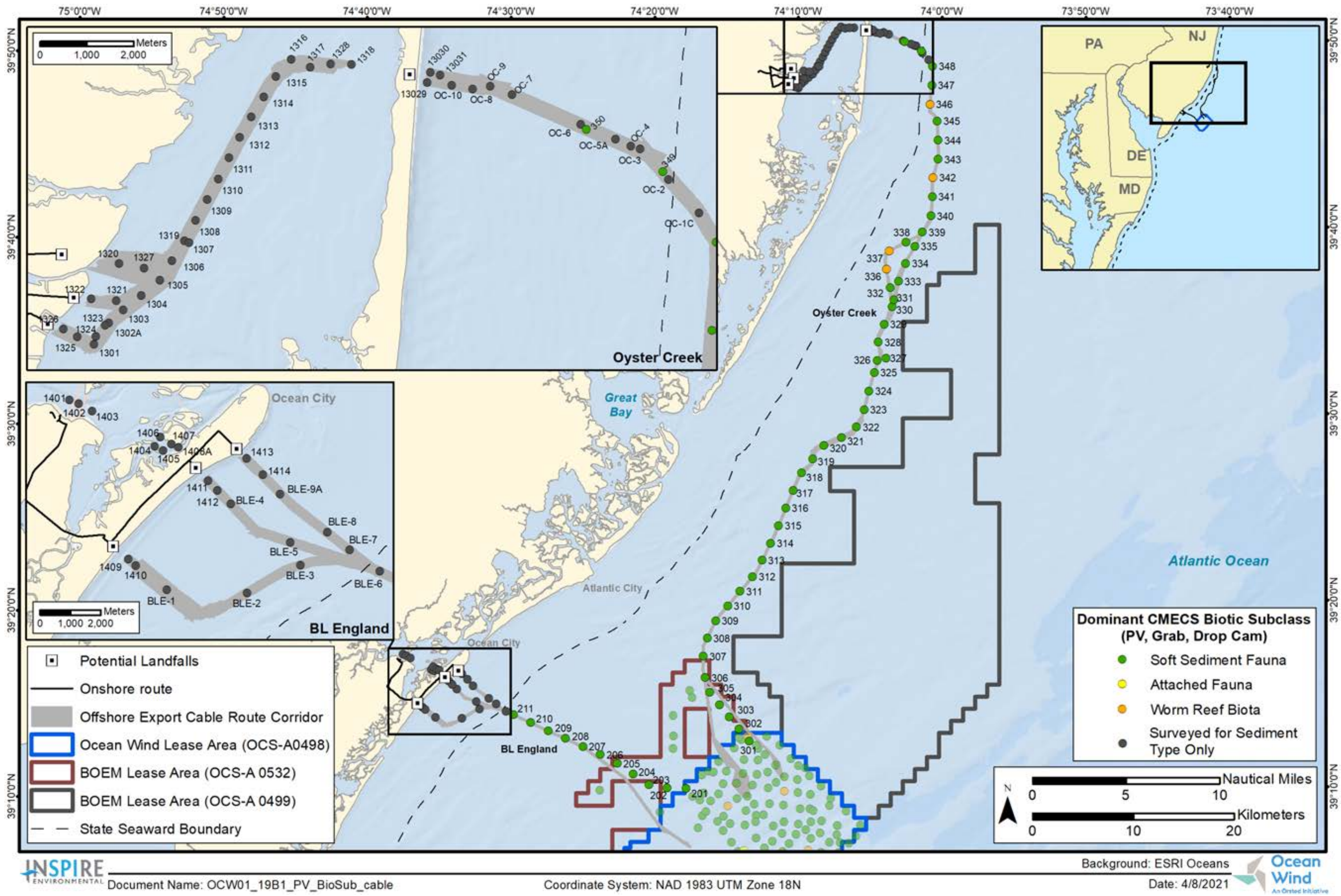

Figure 9. CMECS Biotic Subclass at stations sampled along the export cable route corridors

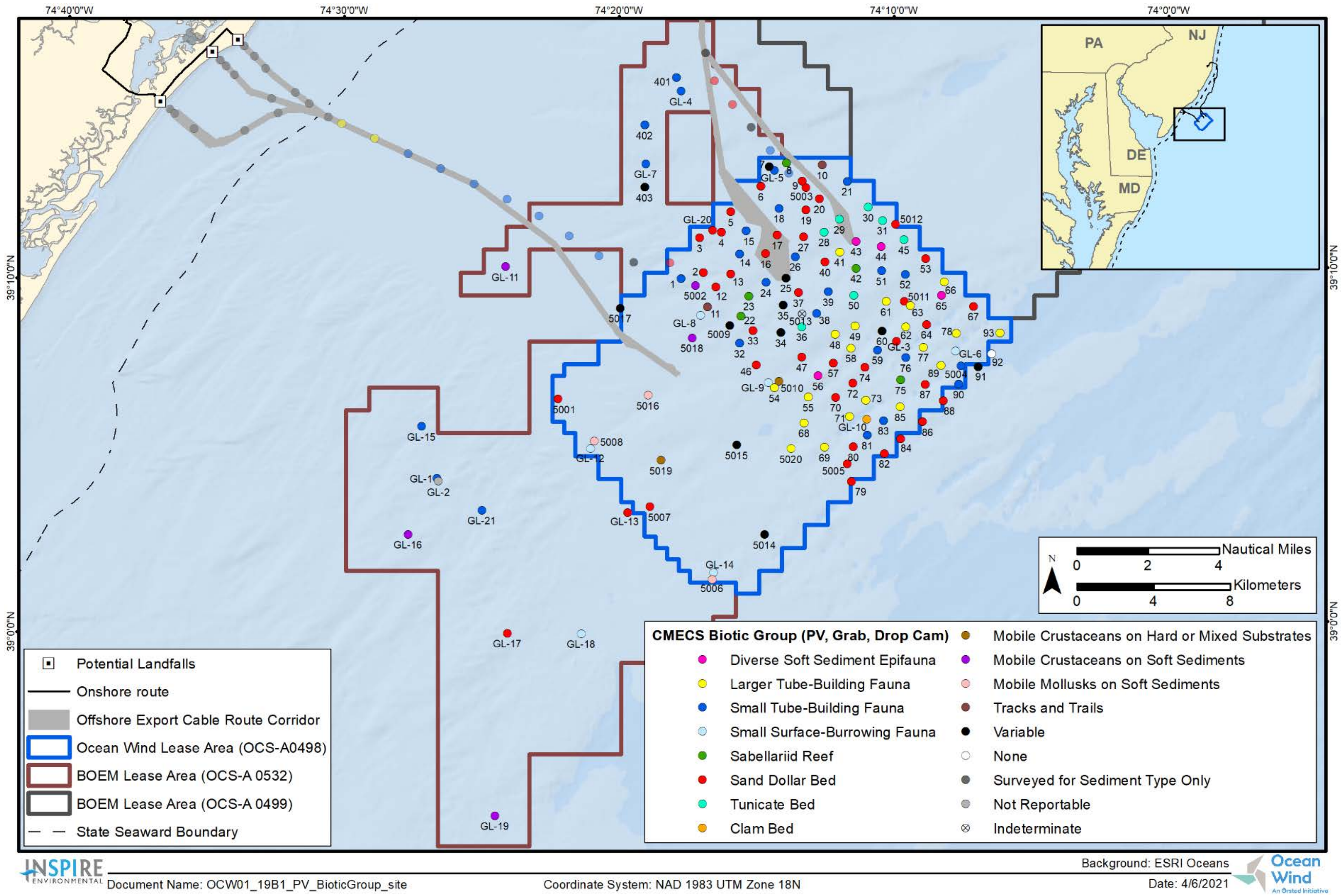

Figure 10. CMECS Biotic Group at stations sampled at the Ocean Wind Lease Area, * Biotic Group was not analyzed in from 2022 data, these stations have not been added to the map

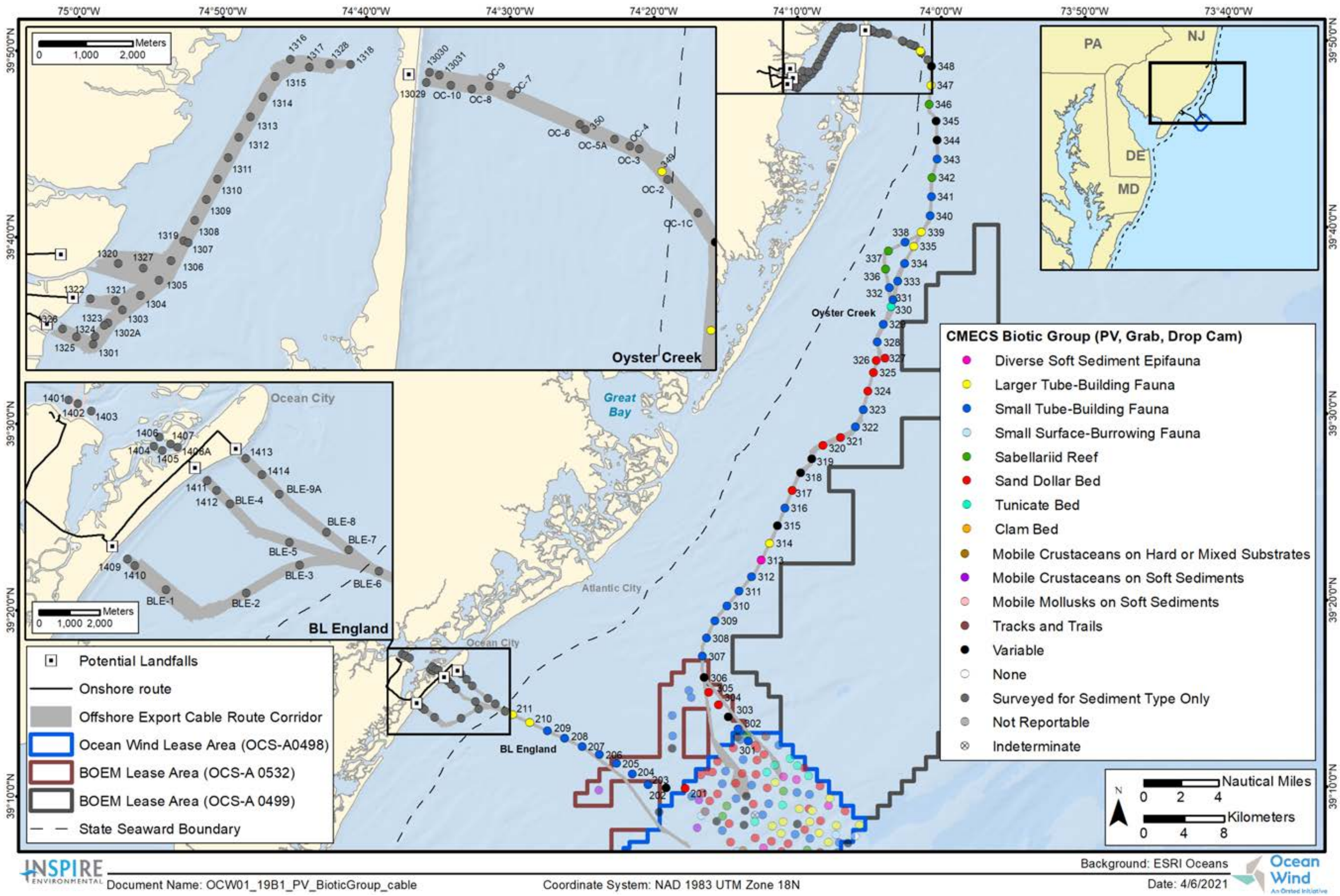

Figure 11. CMECS Biotic Group at stations sampled along the export cable route corridors

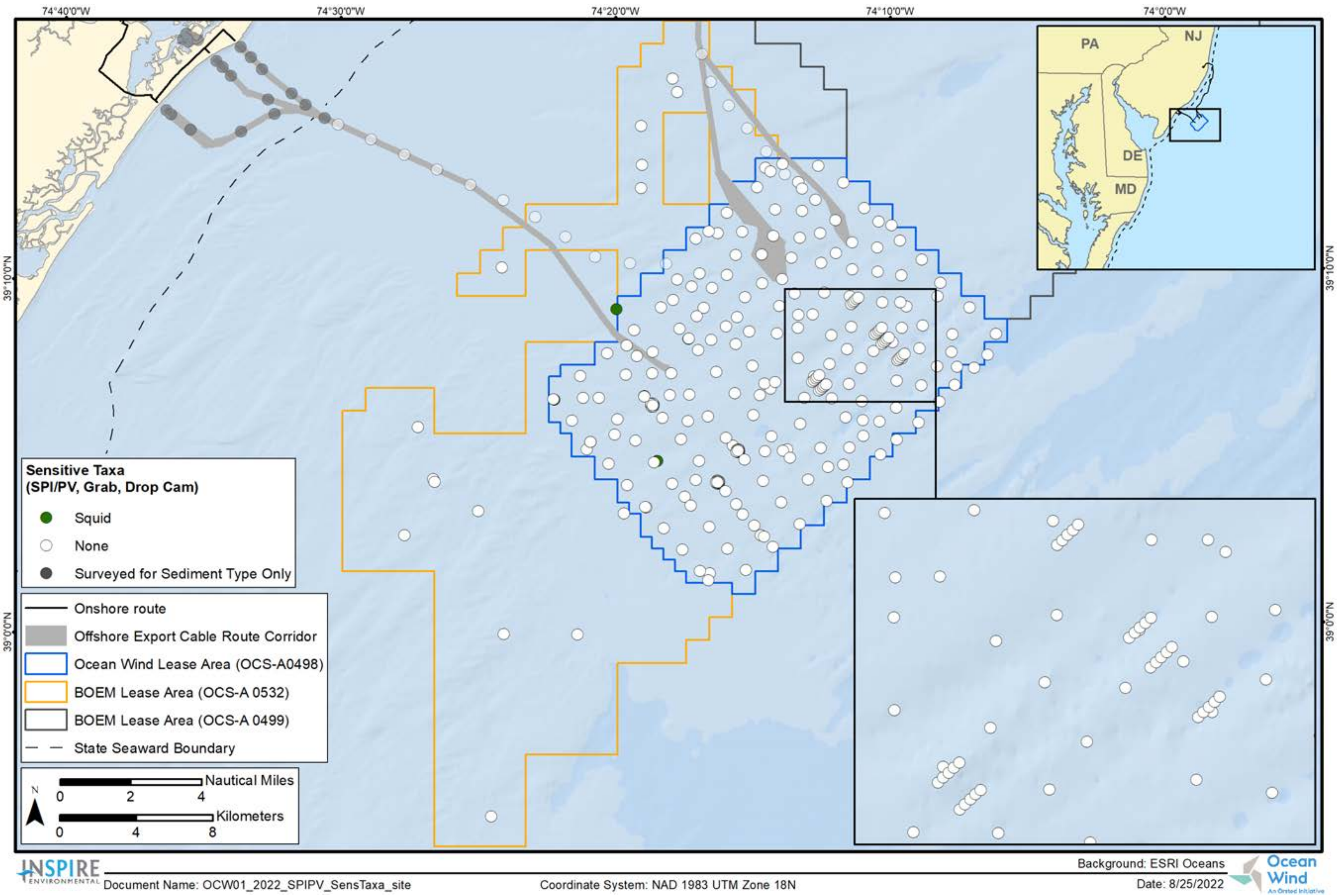

Figure 12. Opportunistic observations of squid (in drop cam imagery) at the Ocean Wind Lease Area; these pelagic species utilize stable hard surfaces, such as gravels, on the seafloor to lay their eggs. Presence of squid eggs is considered presence of sensitive taxa by federal agencies.

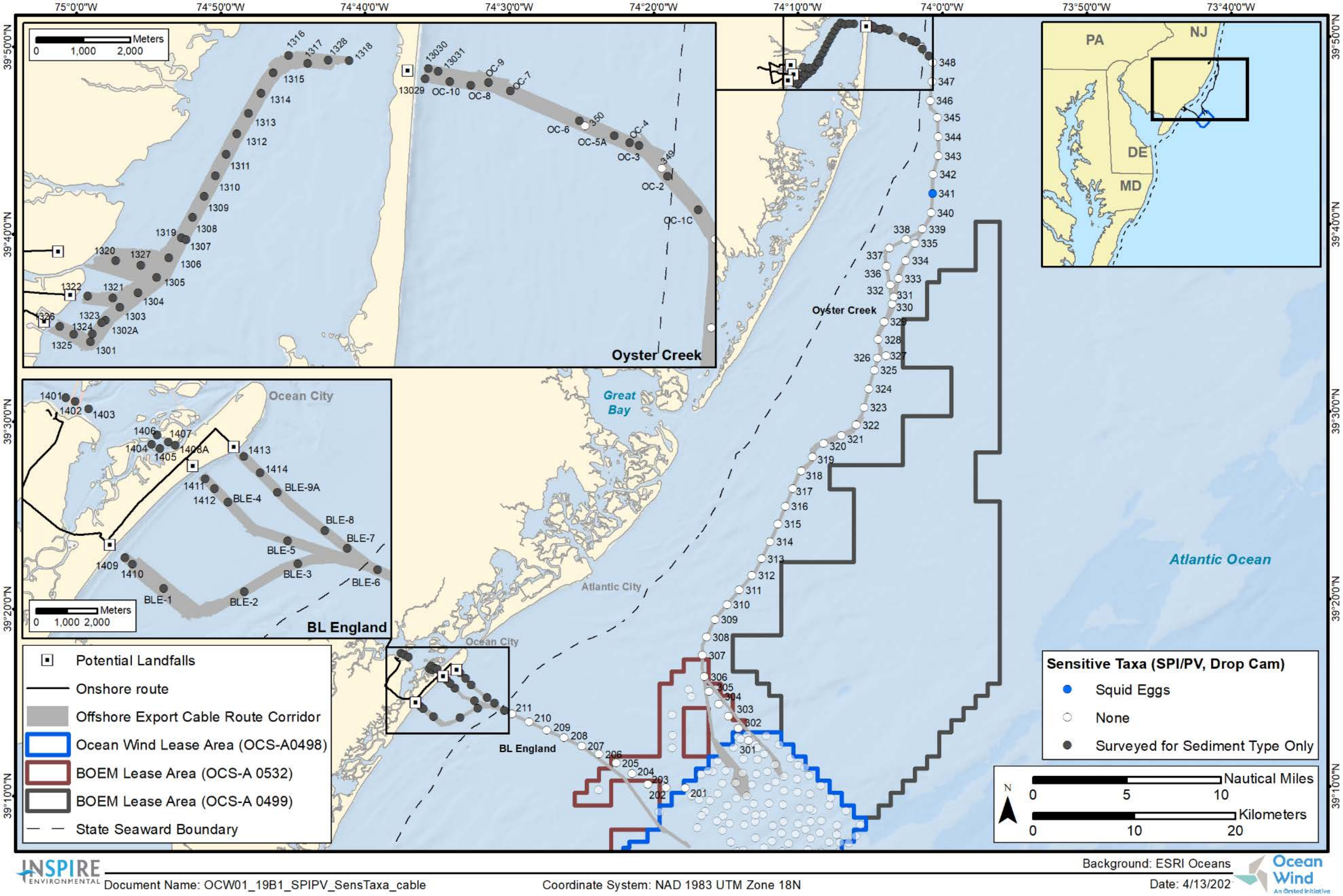

Figure 13. Distribution of sensitive taxa, squid eggs, along the export cable route corridors

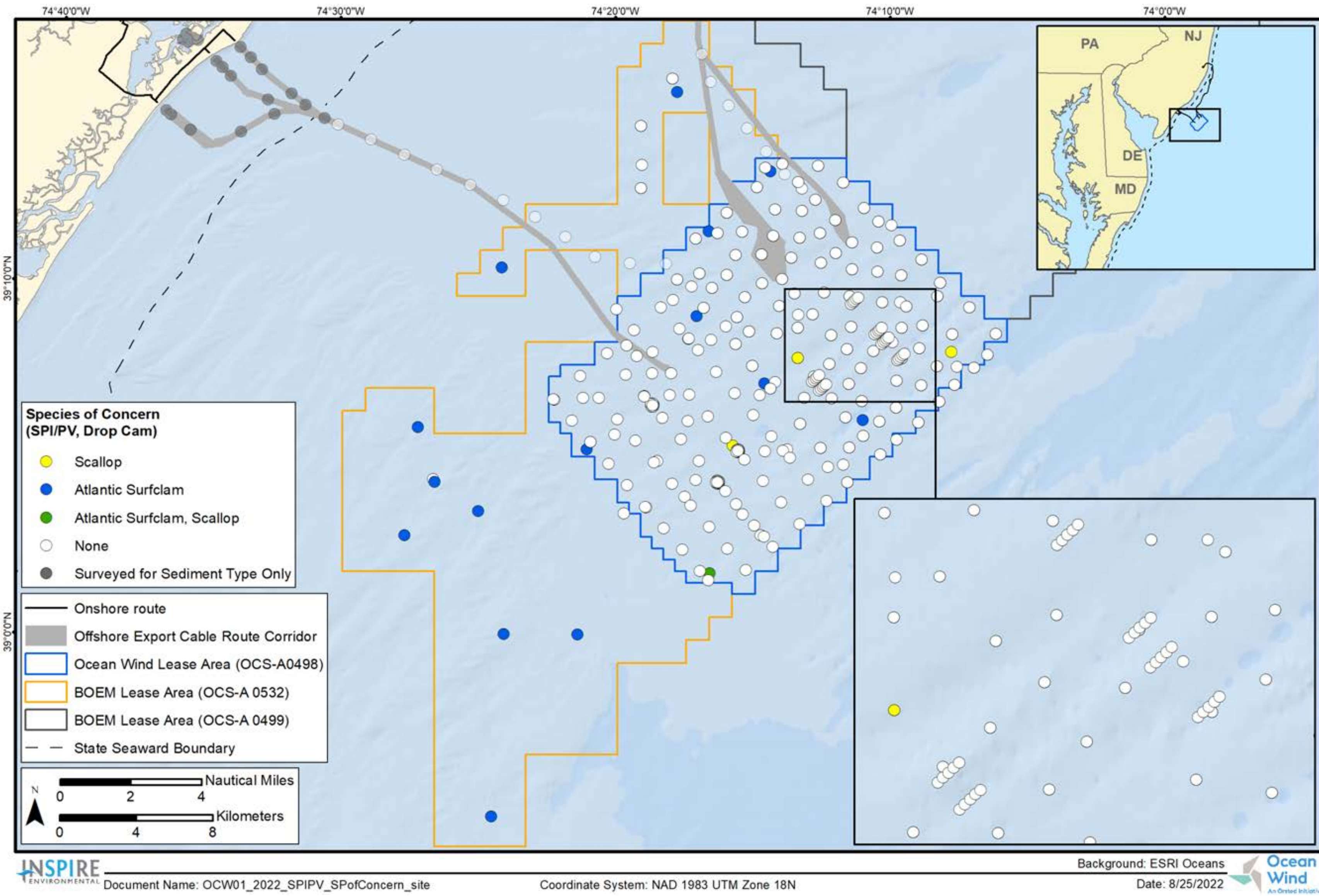

Figure 14. **Distribution of species of concern at stations sampled at the Ocean Wind Lease Area (none were observed along the export cable route corridors)**

Attachment D – Sediment Profile and Plan View Imaging Physical Ground-Truth Survey in Support of the Ocean Wind Offshore Wind Farm Site Assessment, INSPIRE, January 2020

Sediment Profile and Plan View Imaging Physical Ground-Truth Survey in Support of the Ocean Wind Offshore Wind Farm Site Assessment

DATA REPORT

Survey Conducted 18-21 July 2019

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January 2020

REVISION HISTORY

Date	Revision	Note	Prepared	Reviewed	Approved
01/24/2020	Final	Issued to Client	EBF	MG	JB
10/30/2019	Draft	Issued to Client for Review	ZM	JJ/KS	KS

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LIST OF ACRONYMS

BOEM	Bureau of Ocean Energy Management
CMECS	Coastal and Marine Ecological Classification Standard
COP	Construction and Operations Plan
DSLR	Digital single-lens reflex
FGDC	Federal Geographic Data Committee
Fugro	Fugro USA Marine
G&G	Geological and Geophysical
GPS	Global Positioning System
INSPIRE	INSPIRE Environmental, LLC
NEF	Nikon Electronic Format
OCS	Outer Continental Shelf
OCW	Ocean Wind Offshore Wind Farm
PSD	Photoshop Document
PV	Plan View
R/V	Research Vessel
SPI	Sediment Profile Imaging

EXECUTIVE SUMMARY

As part of Fugro USA Marine's Geological and Geophysical (G&G) survey for the Ocean Wind Offshore Wind Farm (OCW), proposed by Ørsted U.S. (Ørsted), scientists from INSPIRE Environmental performed a combined Sediment Profile and Plan View Imaging (SPI/PV) survey at stations inside the OCW Phase 1 survey area (Lease OCS-A-0498), and along two proposed cable routes that terminate in New Jersey: one leading toward Ocean City (B.L. England Export Cable); and one leading toward Oyster Creek (Oyster Creek Export Cable). Three reference stations situated just outside of the lease area were also sampled. The SPI/PV survey provides an interpretive assessment of discrete sampling stations to support interpretation of the remote sampling of the Geological and Geophysical (G&G) survey.

The OCW is located offshore along the Outer Continental Shelf off the coast of New Jersey. To ground-truth the sediment types and bedform dynamics in the OCW Phase 1 survey area, along the B.L. England and Oyster Creek export cable routes, and at reference stations north of the OCW Phase 1 survey area, the Fugro/INSPIRE project team designed a 157-station SPI/PV survey. The SPI/PV survey was conducted July 18-21, 2019 aboard the *R/V Fugro Enterprise*.

Interpretation of the SPI/PV data provided detail on the physical sediment characteristics. Sediments within the OCW Phase 1 survey area ranged from fine sand to pebbles, with sand most prominent in the southern portion of the survey area. Sands with gravel were most prominent in the northern portion, with some scattered gravel presence throughout the entire Phase 1 survey area. The physical sediment characteristics along the B.L. England export cable route were spatially homogeneous with sands at every station sampled. The Oyster Creek export cable route was more heterogeneous and exhibited the highest frequency of granules and small pebbles of all areas sampled. Ripples of varying amplitude and wavelength were the predominant bedform across all portions of the surveyed area except for the southern half of the OCW Phase 1 survey area. Ripples indicate frequent and persistent hydrodynamic forcing at the surface of the seafloor. Mean small-scale surface boundary roughness measured from SPI images was relatively small and interpreted to be predominantly influenced by physical forcing. Sensitive taxa were documented at one station (Station 341) along the Oyster Creek export cable route. Squid eggs were observed in one replicate PV image at Station 341.

The results and images from this survey will allow accurate ground-truthing of G&G survey results and establish a baseline of physical features within the OCW Phase 1 survey area, along the B.L. England and Oyster Creek export cable routes, and at the potential reference stations. The sampled reference stations have the potential to serve as a valuable resource for future, post-development comparison for most of the proposed construction and can serve as a representation of background and baseline conditions as long as no development occurs where the reference stations are located. The results will also allow Fugro and Ørsted U.S. to broadly communicate the results of the G&G survey using seafloor images of predevelopment conditions. Contributions from this survey will provide valuable information to address the Bureau of Ocean Energy Management (BOEM) guidelines and regulations, as well as stakeholder concerns.

1.0 INTRODUCTION

1.1 Project Background

Ørsted U.S. (Ørsted), and the United States Department of Interior's Bureau of Ocean Energy Management (BOEM) executed a commercial lease for the development of a wind energy installation in the Outer Continental Shelf (OCS) waters offshore New Jersey (Lease OCS-A 0498). Ørsted awarded Fugro USA Marine (Fugro) the Geological & Geophysical (G&G) investigations as part of the preparation of the Construction and Operations Plan (COP) for the Lease Area.

The Ocean Wind Offshore Wind Farm (OCW) will be located within Lease Area OCS-A-0498 (Figure 1-1). Sampling was conducted inside the OCW lease area (Phase 1 survey area) and along two proposed cable routes. Benthic communities in this area of the OCS are adapted to survive in this dynamic environment, which is driven by oceanic and tidal currents. The data available for the OCW area suggests that the surficial sediments are primarily comprised of mobile sands with some areas of coarser material (gravel or small cobble) (USGS usSEABED 2019). The topography in this area is characterized by massive sand sheets that manifest themselves as a part of a coast-wide series of sand ridges that are found on the OCS from New York to Florida (McBride and Moslow 1991; Smith 1996; Guida et al. 2017).

INSPIRE Environmental conducted a benthic assessment survey at Ørsted's OCW utilizing combined Sediment Profile and Plan View Imaging (SPI/PV) and sediment grab sampling. The survey was conducted at stations within the lease area, along the proposed cable routes, and at reference stations (Figures 1-1, 1-2, and 1-3). The results of the grab samples were delivered to Fugro under a separate cover to assist with their geotechnical reporting. Appendix A provides the sediment grab photographs taken in the field at the time of collection.

The Mid-Atlantic OCS is an ideal area for offshore wind exploration and development. A slowly sloping shelf in concert with relatively high average wind conditions and large urban population centers provide a prime location for offshore wind energy production. BOEM has produced regulations and guidelines for preparing a COP for the proposed development of all offshore wind projects in U.S. Federal waters. The SPI/PV survey was conducted to provide Fugro and OCW with data contributing to:

- Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan (COP) (BOEM 2016),
- Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585 (BOEM 2015),
- Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585, prepared by BOEM July 2015 and March 2017, and;

- Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585 (BOEM 2019).

1.2 Objectives

The purpose of the SPI/PV survey was to provide data about surficial sediments that can be used to ground truth interpreted geophysical data from the Fugro G&G survey at the Phase 1 OCW survey area and along the B.L England and Oyster Creek cable route corridors (Figure 1-1). Results from the SPI/PV survey are intended to contribute to Ørsted's ability to satisfy multiple BOEM COP guidelines. This SPI/PV study provides a secondary line of data for the assessment of the physical, geological, and biological conditions of the surficial sediments within the study area.

The specific objectives, derived in part from BOEM G&G guidelines (BOEM 2015), of this SPI/PV Benthic survey were to occupy and sample stations within the proposed development site and at a potential reference area to:

- Identify surficial seafloor conditions
    - Identification/confirmation of rock outcrops and boulders
    - Identification of bedforms
    - Identification of distinct horizons in subsurface sediments
    - Identify occurrence of notable features such as corals, gas seepage, clay, silt, sand, gravel, cobbles, rock, and hardground with very dense or consolidated sediments.
- Classification of sediment types
    - Grain size major mode on the phi scale, expressed in phi units of the Udden-Wentworth classification system and classified to the Coastal and Marine Ecological Classification Standard (CMECS) Substrate Subgroup (SPI)
    - Surface sediment composition classified to the CMECS Substrate Group level (PV)
- Identification of potentially sensitive seafloor habitats, such as corals, submerged aquatic vegetation beds, and cobble and boulder habitat (BOEM 2019). Cobble and boulder habitat can serve as nursery ground for juvenile lobster and as preferable benthic habitat for squid to deposit their eggs. Both lobster and squid are specific in their habitat requirements and are also economically important species in the Mid-Atlantic. For these reasons, federal and state agencies consider evidence of these taxa to indicate potentially sensitive habitats.

2.0 METHODS

2.1 Field Data Collection and Methods

SPI/PV imaging is a monitoring technique used to provide data on the physical characteristics of the seafloor and the status of the benthic biological community (Germano et al. 2011). SPI has been shown to be a powerful reconnaissance tool that can efficiently map gradients in sediment type, biological communities, or disturbances from physical forces, anthropogenic input, or organic enrichment (Germano et al. 2011). Results and interpretations from SPI/PV data are about dynamic processes that have been deduced from imaged structures; as such, they should be considered hypotheses available for further testing/confirmation.

The 157-station SPI/PV survey was conducted in the Phase 1 OCW survey area, along the B.L. England and Oyster Creek export cable routes, and at reference stations (Figures 1-1, 1-2, and 1-3) from July 18-21, 2019 aboard the vessel *R/V Fugro Enterprise*. SPI/PV station locations are provided in Appendix B. The methodology for data acquisition and analysis for these images was consistent with the sampling methods described in detail in the INSPIRE standard operating procedures (INSPIRE 2019a).

At each station, the vessel was positioned at the target coordinates and the camera was deployed within a defined station tolerance and replicate images were collected. Station positions were recorded by onboard Fugro surveyors by documenting the GPS coordinates of the vessel each time the camera frame was determined to be in contact with the seafloor. Seafloor contact was determined visually when the winch cable was observed to go slack.

Within the OCW Lease Area, a station tolerance radius of 25 meters was used. A minimum of four replicate image pairs (SPI and PV) were collected at each station (Appendix C) except at Station 061 where only three PV images were collected and at Station 206 where only three SPI images were collected. The three replicate images with the best quality were selected for analysis (Appendices D and E)

2.1.1 Sediment Profile Imaging

The SPI technique involves deploying an underwater camera system to photograph a cross-section of the sediment–water interface. High-resolution SPI images were acquired using a Nikon® D7200 digital single-lens reflex (DSLR) camera mounted inside an Ocean Imaging® Model 3731 pressure housing. The pressure housing sat atop a wedge-shaped steel prism with a plexiglass front faceplate and a back mirror, that was mounted at a 45° angle. The camera lens looked down at the mirror, which reflected the image from the faceplate. The prism had an internal strobe mounted inside at the back of the wedge to provide illumination for the image; this chamber was filled with distilled water, so the camera always had an optically clear path. The descent of the prism into the sediment was controlled by a hydraulic piston. As the prism penetrated the seafloor, a trigger activated a time-delayed circuit that fired the internal strobe to obtain a cross-sectional image of the upper 15–20 cm of the sediment column (Figure 2-1). The camera remained on the seafloor for approximately 20 seconds to ensure that successful images were obtained.

Test exposures of a Color Calibration Target were made on deck at the beginning of the survey to verify that all internal electronic systems were working to design specifications and to provide a color standard against which final images could be checked for proper white balance. Test images were also captured to confirm proper camera settings for site conditions. For this survey, the ISO-equivalent was set at 640, shutter speed was 1/250, and the f-stop was f11. Images were stored in compressed raw Nikon Electronic Format (NEF) files (approximately 30 MB each). Images were checked periodically throughout the survey to confirm that the initial camera settings were still resulting in the highest quality images possible. All camera settings and any setting changes were recorded in the field log (Appendix C). Details of the camera settings for each digital image also are available in the associated parameters file embedded in each electronic image file.

Whenever the camera was brought back on board (typically after every fifth station), the frame counter was checked to ensure that the requisite number of replicates had been obtained. In addition, a prism penetration depth indicator on the camera frame was checked to verify that the optical prism had penetrated the bottom to a sufficient depth. If images were missed or the penetration depth was insufficient, the camera frame stop collars were adjusted and/or weights were added or removed, and additional replicate images were taken. Frame counts, time of image acquisition, water depth, frame stop-collar position, and the number of weights used were recorded in the field log for each replicate image (Appendix C). Visual checks and hand tightening checks of all nuts and bolts on the SPI/PV camera frame were conducted periodically to make sure nothing vibrated loose during the survey.

Prior to field operations, the internal clock in the digital SPI system was synchronized with the vessel's navigation. Each image was assigned a unique time stamp in the digital file attributes by the camera's data logger and cross-checked with the time stamp in the navigational system's computer data file. Images were downloaded periodically to verify successful sample acquisition and/or to assess the type(s) of sediment and other relevant features present at a given station. Digital image files were renamed with the appropriate station names immediately after downloading as a further quality assurance step.

2.1.2 Plan View Imaging

An Ocean Imaging® Model DSC24000 plan view underwater camera system with two Ocean Imaging® Model 400-37 Deep Sea Scaling lasers was attached to the sediment profile camera frame and used to collect plan view images of the seafloor surface. Both SPI and PV images were collected during each "drop" of the system. The PV system consisted of a Nikon® D-7200 DSLR camera encased in a pressure housing, a 24 VDC autonomous power pack, a 500 W strobe, and a bounce trigger. A weight was attached to the bounce trigger with a stainless-steel cable so that the weight hung below the camera frame; the scaling lasers projected two red dots that were separated by a constant distance (26 cm) regardless of the field of view of the PV system. The field of view can be varied by increasing or decreasing the length of the trigger wire and, thereby, the camera height above the bottom when the picture is taken. As the SPI/PV camera system was lowered to the seafloor, the weight attached to the bounce trigger contacted the seafloor prior to the camera frame reaching the seafloor and triggered the PV camera (Figure 2-1).

During set-up and testing of the PV camera, the positions of lasers on the PV camera were checked and calibrated to ensure separation of 26 cm. Test images were also captured to confirm proper camera settings for site conditions. For this survey, the ISO-equivalent was set at 640, shutter speed was 1/15, and the f-stop was f18. Images were stored in compressed raw Nikon Electronic Format (NEF) files (approximately 30 MB each). Images were checked periodically throughout the survey to confirm that the initial camera settings were still resulting in the highest quality images possible. All camera settings and any setting changes were recorded in the field log (Appendix C). Details of the camera settings for each digital image also are available in the associated parameters file embedded in each electronic image file.

Prior to field operations, the internal clock in the digital PV system was synchronized with the vessel's navigation system and the SPI camera. Each image was assigned a unique time stamp in the digital file attributes by the camera's data logger and cross-checked with the time stamp in the navigational system's computer data file. In addition, the field crew kept redundant written sample logs (Appendix C). Throughout the survey, PV images were downloaded at the same time as SPI images and were evaluated for successful image acquisition and image clarity. Digital image files were renamed with the appropriate station names immediately after downloading as a further quality assurance step.

The ability of the PV system to collect usable images is dependent on the clarity of the water column. Water conditions during this survey allowed use of a 0.9 m trigger wire, resulting in a mean image width of 0.8 m and a mean field of view of 0.4 m^2.

2.1.3 Image Conversion and Calibration

Following completion of field operations, quality control checks were conducted of filenames, date/time stamps, and the field log. After these procedures, the NEF raw image files were color calibrated in Adobe Camera Raw® by synchronizing the raw color profiles to the Color Calibration Target that was photographed prior to field operations with the SPI camera. The raw SPI and PV images were then converted to high-resolution Photoshop Document (PSD) format files, using a lossless conversion file process and maintaining an Adobe RGB (1998) color profile. The PSD images were then calibrated and analyzed in Adobe Photoshop®. Length and area measurements were recorded as number of pixels and converted to scientific units using the calibration information.

2.1.4 SPI and PV Data Analysis

Computer-aided analysis of SPI/PV images provided a set of standard measurements to allow comparisons among different locations and surveys.

Measured parameters for SPI and PV images were recorded in Microsoft Excel© spreadsheets. These data were subsequently checked by INSPIRE's senior scientists as an independent quality assurance/quality control review before final image interpretation was performed. Spatial distributions of SPI/PV parameters were mapped using ESRI ArcGIS 10.5. Results of the SPI/PV survey are symbolized on these maps as either station means or at a replicate level as “pies”.

Pursuant to several BOEM guidelines (2019), the Coastal and Marine Ecological Classification Standard (CMECS) (Federal Geographic Data Committee [FGDC] 2012) was used to classify surficial sediments. “The Coastal and Marine Ecological Classification Standard (CMECS) is a catalog of terms that provides a means for classifying ecological units using a simple, standard format and common terminology. CMECS offers a way to organize and interpret data about the marine environment, and it provides a common platform for inter-relating data. It builds upon approaches from published national, regional, and local habitat classification procedures, and it offers an umbrella under which a national coastal and marine ecological classification can grow and evolve (FGDC 2012).” SPI/PV parameters collected as part of this survey were ‘mapped’ to corresponding BOEM guidelines (BOEM 2015, 2019) (Table 2-1.). This allows for a clear representation of how data collected as part of this survey contribute to the completion of the OCW COP and satisfaction of BOEM recommended guidelines.

2.2 Sediment Profile Image Analysis Parameters

The parameters discussed below were assessed and/or measured for each replicate SPI image. Descriptive comments were also made for each replicate image.

2.2.1 Sediment Type

Grain size major mode is defined as the grain size fraction that comprised the largest percentage of grain sizes observed within each image. The sediment grain-size major mode and range were visually estimated from the color images by overlaying a grain-size comparator that was at the same scale. This comparator was prepared by photographing a series of Udden-Wentworth size classes (equal to or less than coarse silt up to granule and larger sizes) with the SPI camera: silt–clay (>4 phi), very fine sand (4 to 3 phi), fine sand (3 to 2 phi), medium sand (2 to 1 phi), coarse sand (1 to 0 phi), very coarse sand (0 to -1 phi), and granule and larger (< 1 phi). The lower limit of optical resolution of the photographic system is about 62 microns, allowing recognition of grain sizes equal to, or greater than, coarse silt (>4 phi). The accuracy of this method has been documented by comparing SPI estimates with grain size statistics determined from laboratory sieve analyses (Germano et al. 2011). Udden-Wentworth grain size classes are also applicable to CMECS Substrate[1] Subgroup classifications (Table 2-2).

The comparison of the SPI images with Udden-Wentworth sediment standards photographed through the SPI optical system was also used to map near-surface stratigraphy such as sand-

[1] CMECS uses the term ‘substrate’ for both a geological substratum (a layer of sediment or rock) and for biological or anthropogenic substrates (solid surfaces on which plants or animals grow). For CMECS descriptions we adopt this convention, but for SPI descriptions of sediments we use the geological term, i.e., substratum.

over-mud and mud-over-sand, where observed. When mapped on a local scale, this stratigraphy can provide information on relative transport magnitude and frequency.

2.2.2 Prism Penetration Depth

The SPI prism penetration depth was measured from the bottom of the image to the sediment–water interface. The area of the entire cross-sectional sedimentary portion of the image was digitized; the number of pixels within this area was divided by the calibrated linear width of the image to determine the mean penetration depth. Linear maximum and minimum depths of penetration were also measured. All three measurements (maximum, minimum, and mean penetration depths) were recorded in the data file.

If the stop collar settings and the number of weights used in the camera frame are held constant throughout the survey, the camera functions as a static-load penetrometer. Comparative penetration values from sites of similar grain size give an indication of the relative water content of the sediment. Highly bioturbated sediments and rapidly accumulating sediments tend to have the highest water contents and greatest prism penetration depths.

The depth of penetration also reflects the bearing capacity and shear strength of the sediments. Over-consolidated or relic sediments and shell-bearing sands resist camera penetration. Highly bioturbated, sulfidic, or methanogenic muds are the least consolidated and deep penetration is typical. Seasonal changes in camera prism penetration have been observed at the same station in other studies and are related to the control of sediment geotechnical properties by bioturbation (Rhoads and Boyer 1982). The effect of water temperature on bioturbation rates appears to be important in controlling both biogenic surface relief and prism penetration depth (Rhoads and Germano 1982).

2.2.3 Small-Scale Surface Boundary Topography

Surface boundary roughness was determined by measuring the vertical distance between the highest and lowest points of the sediment–water interface. The camera must be level to record accurate boundary roughness measurements. The surface boundary roughness (sediment surface relief) measured over the width of sediment profile images typically ranges from 0 to 4 cm and may be related to either physical structures (ripples, rip-up structures) or biogenic features (burrow openings, fecal mounds, foraging depressions). Biogenic roughness typically changes seasonally and is related to the interaction of bottom turbulence and bioturbation.

The camera must be level to record accurate boundary roughness measurements. In sandy sediments, boundary roughness can be a measure of sand wave height. On silt–clay bottoms, boundary roughness values often reflect biogenic features such as fecal mounds or surface burrows. The size and scale of boundary roughness values can have dramatic effects on both sediment erodibility and localized oxygen penetration into subsurface sediments (Huettel et al. 1996).

2.3 Plan View Image Analysis Parameters

Plan view images record conditions at the sediment water interface in a downward-looking orientation. They provide a much larger field-of-view than SPI images along with valuable information about the landscape ecology and sediment topography in the area where the pinpoint “optical core” of the sediment profile was taken (Figure 2-2). Unusual surface sediment layers/textures or structures detected in any of the sediment profile images can be interpreted considering the larger context of surface sediment features; i.e., is a surface layer or topographic feature a regularly occurring feature and typical of the bottom in this general vicinity or an isolated anomaly. Information on sediment transport dynamics (e.g., bedform wavelength) are also available from plan view image analysis.

2.3.1 Field-of-View

For each replicate PV image selected for analysis, the field of view was calculated, and the following were recorded: CMECS sediment groups and subgroups; presence of boulders; presence and type of bedforms; presence of debris; presence of sensitive taxa, and descriptive comments.

2.3.2 Substrate Group/Sediment Type

Substrate[2] is defined in CMECS as the non-living materials that form an aquatic bottom or seafloor or that provide a surface (e.g., floating objects, buoys) for growth of attached biota. Substrate may be composed of any substance, natural or manmade. Describing the composition of the substrate is a fundamental part of any ecological classification scheme. Substrate provides context and setting for many aquatic processes and it provides living space for benthic and attached biota. The Substrate Component (SC) is a characterization of the composition and particle size of the surface layers of the substrate; this component is designed to be compatible with a range of sampling tools (FGDC 2012).

PV images were assigned one of eight Substrate Subgroups where gravel was present:

- Boulder - Geologic Substrate contains >80% Gravel, with a median Gravel size of 256 mm to <4,096 mm.
- Cobble - Geologic Substrate contains >80% Gravel, with a median Gravel size of 64 mm to <256 mm.
- Pebble - Geologic Substrate contains >80% Gravel, with a median Gravel size of 4 mm to <64 mm.

[2] CMECS uses the term ‘substrate’ for both a geological substratum (a layer of sediment or rock) and for biological or anthropogenic substrates (solid surfaces on which plants or animals grow). For CMECS descriptions we adopt this convention, but for SPI descriptions of sediments we use the geological term, i.e., substratum.

- Granule - Geologic Substrate contains >80% Gravel, with a median Gravel size of 2 mm to <4 mm.
- Sandy Gravel - Geologic Substrate is 30% to <80% Gravel, with Sand composing 90% or more of the remaining Sand-Mud mix.
- Gravelly Sand - Geologic Substrate is 5% to <30% Gravel, and the remaining Sand-Mud mix is 90% or more Sand.
- Slightly Gravelly Sand - Geologic Substrate is 0.01% to <5% Gravel, and the remaining Sand-Mud mix is 90% or more Sand.
- Where no gravel was present, one of three Substrate Groups were assigned:
- Sand - Geologic Substrate surface layer contains no trace of Gravel and is composed of >90% Sand (particles 0.0625 mm to <2 mm in diameter).
- Muddy Sand - Geologic Substrate surface layer contains no trace of Gravel and is composed of 50% to <90% Sand (particles 0.0625 mm to 2 mm in diameter); the remainder is composed of Mud (particles less than 0.0625 mm in diameter).
- Sandy Mud - Geologic Substrate surface layer contains no trace of Gravel and is composed of 10% to <50% Sand; the remainder is composed of Mud (particles less than 0.0625 mm in diameter).

2.3.3 Boulders

The occurrence of boulders on the Mid-Atlantic OCS is often an indicator of the presence of glacial moraine. The CMECS size definition of boulders was utilized for this survey; gravel larger than 256 mm. Sensitive taxa and attached fauna (e.g., hydroids, barnacles) are often associated with boulders. The presence/absence of boulders in each replicate was noted.

2.3.4 Bedforms

Seafloor bedforms are indicative of seafloor hydrodynamics and are physical features visible on the surface of the seafloor. These features can give an indication of the physical energy of the system (ripples) or of biotic activity (feeding pits). Sediment bedforms such as sand waves, sand bars, and ripples develop as a response of the seafloor to hydrodynamic conditions. For example, short wavelength sediment ripples indicate mobile sands and active bedload transport. In contrast, soft silt/clay sediments often lack surficial bedforms and indicate quiescent depositional environments. The view of the seafloor provided in the PV images was (<1 m^2), the scope of this view limits the ability to distinguish bedforms that exist over larger scales. Bedforms, where present, were noted in each replicate PV images and measured for wavelength from peak-to-peak or trough-to-trough.

2.3.5 Sensitive Taxa

While multibeam echosounder and side scan sonar data provide high quality remote imaging of the seafloor, they do not provide adequate resolution for the identification of sensitive taxa. The image resolution of the SPI/PV survey allows for the identification of sensitive taxa. Sensitive seafloor habitats include corals, submerged aquatic vegetation beds, and valuable cobble and boulder habitat (BOEM 2019). Cobble and boulder habitat can serve as nursery ground for juvenile lobster and as preferable benthic habitat for squid to deposit their eggs. Both lobster and squid are specific in their habitat requirements and are also economically important species in the Mid-Atlantic. For these reasons, federal and state agencies consider evidence of these taxa to indicate potentially sensitive habitats. Taxa considered sensitive for this survey included soft and hard corals, seagrasses, squid eggs, and American lobster. Presence/absence of each sensitive taxa was noted for each replicate PV image.

2.4 Data Quality Assurance and Quality Control

Measures were taken both during field data collection and during post-collection analysis for data quality assurance and control in alignment with the Field Work Plan for this project (INSPIRE 2019b).

Prior to survey mobilization, the camera electronics were “bench-tested” to ensure the cameras were focused and firing properly, the lasers were aligned properly, and the strobe was operational. These test shots also included taking pictures of a standard color card to ensure proper color balance of the digital images during collection and to verify the calibration of the image analysis system during processing. The positions of lasers on the PV camera were checked and calibrated to ensure separation of 26 cm. Spare camera parts, fully charged battery packs, and spare cables were carried in the field to ensure uninterrupted sample acquisition. At the beginning of the survey, the times on the digital SPI and PV cameras were synchronized with the navigation system clock. Each SPI and PV station replicate is identified by the time stamp recorded as part of the digital image file and the corresponding time and position recorded by the navigation system. Redundant written sample logs were kept by the field crew (Appendix C). Test shots were fired on deck prior to each station to verify all internal electronic systems were working according to specifications.

After each station, the frame counter on the SPI camera was checked to make sure the desired number of replicates had been taken. In addition, both the SPI and PV images were downloaded at regular intervals (typically every 3 to 5 stations) using external USB ports. These images then were viewed to confirm the settings on the digital cameras were optimal for the conditions in the survey area. These settings were adjusted if necessary and changes noted in the field log (Appendix C). In addition, if images were missed or penetration depth was insufficient, proper adjustments were made (e.g., weight removed from the frame) and additional replicates taken. Digital image files were renamed with the appropriate station names immediately after downloading as a further quality assurance step. Visual checks and hand tightening checks of all nuts and bolts on the SPI/PV camera frame were conducted periodically to make sure nothing vibrated loose during the survey.

A quality assurance review of all data and results presented in this report was performed in accordance with the Field Work Plan for this project (INSPIRE 2019b).

Table 2-1. SPI/PV Survey Parameters with Corresponding BOEM COP Requirements and Guidelines

Equipment	Parameter	BOEM COP/Guideline
SPI	Grain Size	Grain size analysis Classification of CMECS sediment type Identification of distinct horizons in subsurface sediment
	Penetration Depth	Classification of sediment type
	Boundary Roughness	Identification of rock outcrops and boulders Identification of bedforms
PV	Sediment Type	Identification of rock outcrops and boulders Classification of CMECS sediment type Identification of bedforms
	Bedform	Identification of bedforms
	Boulder Presence	Identification of rock outcrops and boulders Identification of bedforms
	Sensitive Taxa	Identification of potentially sensitive seafloor habitat

Table 2-2. CMECS Classification Levels Used in Analysis and Classifications for the July 2019 Ocean Wind Offshore Wind Farm Survey

CMECS Term	Scale of Classification	Classifications
Geoform Component		
Tectonic Setting	Site	Passive Continental Margin
Physiographic Setting	Site	Continental Shelf
Geoform Origin	Site	Geologic
Substrate Component		
Substrate Origin	Site	Geologic Substrate
Substrate Class	SPI/PV	Unconsolidated Mineral Substrate
+Substrate Subclass	SPI/PV	Fine Unconsolidated Substrate; Coarse Unconsolidated Substrate
+Substrate Group	PV	Sandy Mud; Muddy Sand; Sand; Slightly Gravelly; Gravelly Sand; Sandy Gravel; Boulder
+Substrate Subgroup	SPI	Silt-Clay; Very Fine Sand; Fine Sand; Medium Sand; Coarse Sand; Very Coarse Sand; Granule; Pebble; Cobble

+ Indicates variability within the surveyed area at this level of the hierarchy
Bold text indicates an overwhelming dominant classification across the surveyed area

3.0 RESULTS

A complete set of all the data measured and assessed from each analyzed SPI image are presented in Appendix D; data measured and assessed from each PV image are in Appendix E. Station summary data grouped by spatial area of interest (OCW Phase 1 Survey Area, B.L. England export cable route, Oyster Creek export cable route, and the reference area) are presented in Tables 3-1 through 3-4. Section 3.1 summarizes results from the entire surveyed area; Section 3.2 reports results from the OCW Phase 1 Survey Area, Section 3.3 reports results from the B.L. England export cable route; Section 3.4 reports results from the Oyster Creek export cable route; and Section 3.5 reports results from the reference area.

3.1 Types of Sediment and Bedforms Observed

Surface sediment types observed in both the SPI and PV images across the surveyed areas were diverse and spatially variable (Tables 3-1 through 3-4; Figures 3-1 and 3-2). Sediments ranged from fine sand to sand to granules and small pebbles (Table 3-5; Figure 3-3). Surficial sediments (up to 20 cm below the sediment–water interface) were assessed from SPI images and assigned phi size classes for the grain size major mode parameter (Appendix D). Many sediments imaged exhibited a surface layer of coarse sediment over a range of finer grain size classes. For interpretive purposes, these images have been aggregated into “over sand/finer sediment” groupings, such as “pebble over finer sediment”, “granule over sand”, “coarse sand over finer sediment”, and “very coarse sand over sand” (Table 3-5; Figure 3-4).

The SPI provided context on the composition of the upper 20 cm of the surface sediments, which were mixed in distribution (Figures 3-1, 3-2, and 3-3) with instances of small- and large-scale spatial heterogeneity driven by hydrodynamic forcing on the seabed. Small-scale (intra-station) heterogeneity was represented by two or three replicate SPI images for a station being classified into two or three different sediment types (Figures 3-5 and 3-6); e.g., Station 015 contained three sand types (fine sand, medium sand, and very coarse sand) (Figures 3-1, 3-5). Intra-station heterogeneity was predominantly observed at stations in the northern half of the OCW Phase 1 survey area and throughout the extent of the Oyster Creek export cable route (Figures 3-1, 3-2, 3-5, and 3-6). Spatial heterogeneity in surface sediments was also observed at a larger scale (inter-station). For example, Stations 023 and 024 had different sediment types despite their close spatial proximity (Figure 3-1). The B.L. England cable route exhibited low inter and intra-station sediment heterogeneity, with all SPI replicates exhibiting fine sand (Figures 3-1, 3-6).

The PV images provided a larger aerial field-of-view on the composition of surface sediments, which were mixed in distribution (Figures 3-7 and 3-8). The Dominant CMECS Substrate Group in the OCW Phase 1 survey area was sand or finer with stations containing gravel haphazardly distributed throughout the Phase 1 area; of those occurrences most occurred in the northern half of the Phase 1 survey area (Figure 3-7). The B.L. England export cable route exhibited a Dominant CMECS Substrate Group of sand or finer at all stations imaged, while the Oyster Creek export cable route exhibited a transition from sand with low gravel content to gravel with low sand content from south to north along the route (Figure 3-8). PV images were analyzed at a replicate level to determine the CMECS Sediment Sub Group (Figures 3-9 and 3-10). CMECS Sediment Sub Group categories (Tables 3-1b, 3-2b, and 3-3b) were based on the variable percent cover of gravel (granule to pebble) visible on the seafloor surface (Figures 3-11 and 3-12). The OCW Phase 1 survey area and the B.L. England export cable route exhibited an overall low intra-station variability, comprised mostly of sands in all replicates (Tables 3-1b and 3-2b; Figures 3-9 and 3-10). In the OCW Phase 1 survey area, intra-station heterogeneity for Sediment Sub Group was predominantly observed when gravel was present (Tables 3-1b and 3-2b; Figures 3-9 and 3-10). This observation was noted in both the SPI (Figure 3-13) and the PV (Figure 3-14). The Oyster Creek export cable route exhibited a transition from sand in the south to granule and pebble in the north with low intra-station variability at stations containing both sands and at stations where gravel was present (Table 3-3b; Figure 3-15).

The prism penetration measurement provides additional information about the bearing capacity and shear strength of sediments sampled. The camera frame stops and weights were held constant throughout the survey; therefore, all prism penetration values are directly comparable. Penetration depth range is not strictly controlled by grain size but is also influenced by compaction/porosity as well as infaunal bioturbation. Mean station penetration values across the surveyed areas ranged from 0.9 cm to 9.7 cm, with a mean of 4.7 cm (SD 0.9 cm; Tables 3-1a, 3-2a, 3-3a, and 3-4a). The majority of stations contained medium to high load-bearing strength reflected in the relatively shallow prism penetration depths observed (<6 cm) (Figures 3-16 and 3-17). Only five stations (Stations 019, 021, 045, 050, and 323) had low to medium bearing capacity reflected in prism penetration values between 6 and 10 cm (Figures 3-16, 3-17, and 3-18).

Ripples were the only bedforms observed on the sediment surface across the surveyed area (Tables 3-1b, 3-2b, and 3-3b; Figures 3-19 and 3-20). Well-formed ripples indicate regular hydrodynamic forcing on the seafloor and were observed in the northern portion of the OCW Phase 1 survey area and along both export cable routes (Figures 3-19 and 3-20). Ripples create small-scale topographic relief on the seafloor surface that subsequently influence sediment resuspension, deposition, and sorting. Larger grains, such as gravel and shell hash, were located within the trough of both symmetric and asymmetric sand ripples formed via bedload transport (Figures 3-21 and 3-22). Because the wavelength of a ripple bedform exists at varied spatial scales and sometimes extended out of the field-of-view, quantifying the wavelength was not always possible. To assess potential scour, the fine scale assessment of this survey should be compared to the landscape scale of multibeam and side-scan sonar surveys conducted by Fugro.

Small-scale surface boundary roughness measured in SPI images can indicate physical shaping activity related to bedforms and hydrodynamics as well as biological activities such as infaunal burrowing, crustacean activity, and fish foraging. Station mean boundary roughness across the surveyed area averaged 1.1 cm, with a range of 0.4 to 2.7 cm (SD 0.5 cm; Tables 3-1a, 3-2a, 3-3a, and 3-4a; Figures 3-23 and 3-24). Physical forcing was the primary influence shaping small-scale boundary roughness for the majority of the SPI images (Appendix D).

Examples of physical boundary roughness related to hydrodynamic forcing are presented in Figures 3-21 and 3-22.

Sensitive taxa were not observed in the SPI or PV at any station in the OCW Phase 1 survey area, along the B.L. England export cable route, or in the reference area (Tables 3-1a, 3-1b, 3-2a, 3-2b, 3-4a, and 3-4b; Figures 3-25 and 3-26). Sensitive taxa in the form of squid eggs were observed in one replicate PV image at Station 341 along the Oyster Creek export cable route (Tables 3-3a and 3-3b; Figures 3-26 and 3-27).

3.2 Ocean Wind Phase 1 Offshore Wind Farm Survey Area

Ninety-three SPI/PV stations were sampled within the OCW Phase 1 Survey Area (Table 3-1; Figure 1-2). Surficial sediment types varied slightly in the OCW Phase 1 survey with observed grain size classes ranging from fine sand to granules and pebbles on finer sediments (Table 3-1; Figures 3-1, 3-12A, and 3-13). The majority of sediments observed in the OCW Phase 1 survey area were mobile sands (Table 3-1; Figures 3-1, 3-7, and 3-9). Spatial heterogeneity in sediment type was low on small- and area-wide scales, with consistency between replicates at stations and minor variability between stations (Table 3-1; Figures 3-1 and 3-5). Stations with high intra-station sediment type heterogeneity were haphazardly dispersed throughout the Phase 1 survey area (Figure 3-5). No boulders were observed at stations in the OCW Phase 1 survey area (Table 3-1b).

Station mean prism penetration values within the OCW Phase 1 survey area ranged from 2.9 to 9.7 cm, with an average of 4.8 cm (SD 1.0 cm; Table 3-1a). The majority of stations contained medium to high load-bearing strength reflected in the relatively shallow prism penetration depths observed (<6 cm) (Figures 3-16, 3-18A, and 3-18B). Four stations (Stations 019, 021, 045, and 050) had low to medium bearing capacity reflected in prism penetration values between 6 and 10 cm (Table 3-1a; Figures 3-16 and 3-18C), with no discernible spatial trend to the occurrence of these stations.

Ripples were the predominant bedform observed within the OCW Phase 1 survey area (Table 3-1b; Figure 3-19). Ripples on low relief topography were primarily observed at some stations in the northern half of the area (Figures 3-19, 3-21B, and 3-22A); ripples were not observed at any stations located in the southern portion of the OCW Phase 1 area. Station mean small-scale surface boundary roughness ranged from 0.4 to 2.7 cm, with a mean of 1.0 cm (SD 0.4 cm; Table 3-1a; Figure 3-23). Physical forcing was the predominant driver of small-scale boundary roughness (Appendix E).

3.3 B.L. England Export Cable Route

Eleven SPI/PV stations were sampled along the B.L. England export cable route (Table 3-2; Figure 1-3). Surficial sediment types were homogeneous along the B.L. England route, with all replicates at all stations composed of mobile sand (Table 3-2; Figures 3-2, 3-8, and 3-10). Spatial heterogeneity in sediment type was low on small- and area-wide scales, with no variability between replicates at stations or between stations (Table 3-2; Figure 3-6). No boulders were observed at stations along the B.L. England export cable route (Table 3-2).

Station mean prism penetration values along the B.L. England export cable route ranged from 3.4 to 4.9 cm, with a mean of 4.0 cm (SD 0.4 cm; Table 3-2a; Figure 3-17). All stations contained medium to high load-bearing strength sediments reflected in the relatively shallow prism penetration depths observed (<6 cm) (Figure 3-17).

Ripples were observed along the B.L. England export cable route (Table 3-2b; Figure 3-20). Ripples on low relief topography were observed at five of the eleven stations sampled along the route (Table 3-2b; Figures 3-20, 3-21A, and 3-22B). Station mean small-scale surface boundary roughness ranged from 0.5 to 1.3 cm, with a mean of 0.9 cm (SD 0.2 cm; Table 3-2a; Figure 3-24). Physical forcing was the primary influence on small-scale boundary roughness for the majority of images analyzed (Appendix D).

3.4 Oyster Creek Export Cable Route

Fifty SPI/PV stations were sampled along the Oyster Creek export cable route (Table 3-3; Figure 1-3). Surficial sediment types varied along the Oyster Creek export cable route, ranging from fine sand to pebbles over finer sediment (Table 3-3; Figures 3-2, 3-3C, 3-4B, and 3-4C). Gravel were relatively frequent along the Oyster Creek export cable route with the highest prevalence of these sediment types observed in the northern portion of the route, furthest from the OCW Phase 1 survey area except for one station (Station 301) located within the OCW Phase 1 survey area (Table 3-3; Figures 3-8, 3-10, 3-11A, and 3-11B). Spatial heterogeneity in sediment type was high on small- and area-wide scales, with variability between replicates at stations as well as variability in sediment type between stations (Table 3-3; Figures 3-2, 3-6, 3-8, and 3-10). Intra-station heterogeneity was more apparent in SPI images, which provided the ability to more accurately and finely categorized sediment types (Figures 3-2 and 3-6). Inter-station heterogeneity was apparent in SPI and PV images, with the southern portion of the cable route exhibiting sand with low gravel content and the northern portion of the cable route exhibiting gravel with low sand content (Figures 3-2, 3-8, and 3-10). No boulders were observed at stations along the Oyster Creek export cable route.

Station mean prism penetration values along the Oyster Creek export cable route ranged from 3.6 to 6.1 cm, with a mean of 4.9 cm (SD 0.6 cm; Table 3-3a; Figure 3-17). Almost all of the stations contained medium to high load-bearing strength sediments reflected in the relatively shallow prism penetration depths observed (<6 cm) (Figure 3-17). Station 323 was the only station along the Oyster Creek export cable route with mean prism penetration value greater than 6.0 cm. At Station 323 mean prism penetration was 6.1 cm and the sediments at this station were categorized as having relatively medium bearing capacity (prism penetration values between 6 and 10 cm) (Table 3-3a; Figure 3-17).

Ripples were observed along the Oyster Creek export cable route (Table 3-3b; Figures 3-20 and 3-21C). Ripples on low relief topography were primarily observed at stations in the central portion of the export cable route, with a single instance of ripples at one of the northernmost stations sampled along the route (Figures 3-20 and 3-21C). Station mean small-scale surface boundary roughness ranged from 0.5 to 2.5 cm, with a mean of 1.3 cm (SD 0.5 cm; Table 3-3a;

Figure 3-24). Boundary roughness values were relatively low and were variable in space with no clear patterns along the Oyster Creek export cable route (Table 3-3a; Figure 3-24). Physical forcing was the primary shaping variable on small-scale boundary roughness (Appendix D).

Sensitive taxa were documented at one station (Station 341) along the Oyster Creek export cable route (Table 3-3b; Figure 3-26). Squid eggs were observed in one replicate PV image at Station 341 (Figure 3-27).

3.5 Reference Area Stations

Three SPI/PV stations just outside of the OCW Phase 1 survey area were sampled as reference stations (Table 3-4; Figure 1-1). Surficial sediments in the reference area were composed of mobile sands (Table 3-4; Figures 3-1, 3-7, 3-9, and 3-28) and exhibited low heterogeneity in both the SPI and PV (Figures 3-5 and 3-7). No boulders were observed at any of the reference stations (Table 3-4).

Station mean prism penetration values within the reference area ranged from 3.8 to 4.9 cm, with a mean of 4.4 cm (SD 0.5 cm; Table 3-4a; Figure 3-16). All of the stations contained medium to high load-bearing strength sediments reflected in the relatively shallow prism penetration depths observed (Table 3-4a; Figure 3-16).

No bedforms were observed at the reference stations (Table 3-4b; Figure 3-19). Station mean small-scale surface boundary roughness ranged from 0.6 to 2.0 cm, with a mean of 1.3 cm (SD 0.7 cm; Table 3-4a; Figure 3-23). Boundary roughness values were generally homogenous at the reference stations (Figure 3-23).

Table 3-1a. Summary of Sediment Profile Image Analysis Results at the Ocean Wind Offshore Wind Farm Survey Area

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
001	3	4.6	2.7	Fine sand	Fine sand	Fine sand	No	None
002	3	4.3	0.7	Fine sand	Fine sand	Fine sand	No	None
003	3	5.7	2.1	Fine sand	Fine sand	Fine sand	No	None
004	3	5.1	1.1	Fine sand	Fine sand	Medium sand	No	None
005	3	5.4	1.1	Fine sand	Fine sand	Fine sand	No	None
006	3	5.7	1.0	Fine sand	Fine sand	Fine sand	No	None
007	3	5.7	0.6	Coarse sand	Coarse sand	Coarse sand	No	None
008	3	3.5	0.7	Coarse sand	Coarse sand	Medium sand	No	None
009	3	5.9	1.5	Medium sand	Medium sand	Medium sand	No	None
010	3	5.5	0.8	Medium sand	Medium sand	Medium sand	No	None
011	3	4.5	0.9	Fine sand	Fine sand	Fine sand	No	None
012	3	4.5	1.3	Fine sand	Fine sand	Fine sand	No	None
013	3	5.1	1.2	Medium sand	Medium sand	Medium sand	No	None
014	3	5.8	1.2	Medium sand	Medium sand	Medium sand	No	None
015	3	4.6	1.1	Fine sand	Medium sand	Very coarse sand	No	None
016	3	6.0	1.4	Coarse sand over finer sediment	Coarse sand over finer sediment	Coarse sand over finer sediment	No	None
017	3	5.6	1.0	Coarse sand	Coarse sand	Coarse sand	No	None
018	3	5.4	0.7	Coarse sand	Coarse sand over finer sediment	Coarse sand over finer sediment	No	None
019	3	6.1	0.6	Medium sand	Medium sand	Medium sand	No	None
020	3	5.8	0.7	Coarse sand over finer sediment	Medium sand	Medium sand	No	None
021	3	9.7	0.8	Fine sand	Fine sand over silt/clay	Fine sand over silt/clay	No	None
022	3	5.0	1.7	Coarse sand	Coarse sand	Coarse sand	No	None
023	3	5.0	0.9	Pebble over finer sediment	Pebble over finer sediment	Pebble over finer sediment	No	None
024	3	5.1	0.9	Fine sand	Fine sand	Fine sand	No	None
025	3	4.5	1.2	Fine sand	Fine sand	Fine sand over very fine sand	No	None
026	3	4.9	0.9	Medium sand	Medium sand	Medium sand	No	None
027	3	5.5	1.3	Coarse sand	Coarse sand	Coarse sand	No	None

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
028	3	5.2	0.9	Coarse sand over finer sediment	Coarse sand over finer sediment	Medium sand	No	None
029	3	5.4	0.8	Medium sand	Medium sand	Medium sand	No	None
030	3	5.5	0.8	Medium sand	Medium sand	Medium sand	No	None
031	3	5.8	1.1	Medium sand	Medium sand	Medium sand	No	None
032	3	4.0	0.9	Fine sand	Fine sand	Fine sand	No	None
033	3	5.5	0.7	Fine sand	Fine sand	Fine sand over silt/clay	No	None
034	3	3.4	1.6	Fine sand	Fine sand	Fine sand	No	None
035	3	5.2	1.4	Fine sand	Fine sand	Medium sand	No	None
036	3	5.6	0.8	Medium sand	Medium sand	Medium sand	No	None
037	3	4.0	0.6	Fine sand	Fine sand	Fine sand	No	None
038	3	5.6	1.0	Medium sand	Medium sand	Medium sand	No	None
039	3	4.4	0.8	Medium sand	Medium sand	Medium sand	No	None
040	3	4.7	0.6	Fine sand	Fine sand	Fine sand	No	None
041	3	5.7	1.2	Medium sand	Medium sand	Medium sand	No	None
042	3	4.7	1.2	Fine sand	Fine sand	Fine sand	No	None
043	3	5.1	0.8	Fine sand	Fine sand	Fine sand	No	None
044	3	5.5	1.1	Medium sand	Medium sand	Medium sand	No	None
045	3	6.3	0.9	Coarse sand	Coarse sand	Coarse sand	No	None
046	3	3.8	0.4	Fine sand	Fine sand	Fine sand	No	None
047	3	3.7	0.5	Fine sand	Fine sand	Fine sand	No	None
048	3	4.7	0.5	Fine sand	Fine sand	Fine sand	No	None
049	3	4.6	0.8	Fine sand	Fine sand	Fine sand	No	None
050	3	6.1	0.9	Medium sand	Medium sand	Medium sand	No	None
051	3	5.2	1.3	Medium sand	Medium sand	Medium sand	No	None
052	3	5.4	0.5	Fine sand	Fine sand	Fine sand	No	None
053	3	5.3	0.6	Medium sand	Medium sand	Medium sand	No	None
054	3	3.7	0.8	Fine sand	Fine sand	Fine sand	No	None
055	3	5.1	1.5	Fine sand	Fine sand	Fine sand	No	None
056	3	5.8	1.1	Medium sand	Medium sand	Medium sand	No	None
057	3	4.2	0.6	Fine sand	Fine sand	Fine sand	No	None
058	3	3.2	0.9	Fine sand	Fine sand	Fine sand	No	None
059	3	4.7	0.8	Fine sand	Fine sand	Fine sand	No	None
060	3	2.9	1.3	Coarse sand	Pebble over finer sediment	Pebble over finer sediment	No	None
061	3	5.5	1.5	Fine sand	Fine sand	Fine sand	No	None
062	3	3.3	0.6	Fine sand	Fine sand	Fine sand	No	None
063	3	4.5	1.7	Fine sand	Fine sand	Fine sand	No	None
064	3	3.5	1.0	Fine sand	Fine sand	Fine sand	No	None

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
065	3	4.4	1.2	Coarse sand	Coarse sand	Medium sand	No	None
066	3	5.1	1.1	Fine sand	Fine sand	Fine sand	No	None
067	3	3.8	1.3	Fine sand	Fine sand	Fine sand	No	None
068	3	3.2	2.4	Fine sand	Fine sand	Fine sand	No	None
069	3	5.3	1.0	Fine sand	Medium sand	Medium sand	No	None
070	3	4.6	1.9	Fine sand	Fine sand	Fine sand	No	None
071	3	3.5	0.9	Fine sand	Fine sand	Fine sand	No	None
072	3	4.5	1.3	Fine sand	Fine sand	Fine sand	No	None
073	3	4.7	1.6	Fine sand	Fine sand	Fine sand	No	None
074	3	4.8	1.1	Fine sand	Fine sand	Fine sand	No	None
075	3	5.4	1.0	Medium sand	Medium sand	Medium sand	No	None
076	3	3.9	0.6	Coarse sand	Coarse sand	Coarse sand	No	None
077	3	3.8	0.6	Fine sand	Fine sand	Fine sand	No	None
078	3	3.8	0.6	Fine sand	Fine sand	Fine sand	No	None
079	3	4.0	1.5	Fine sand	Fine sand	Fine sand	No	None
080	3	3.4	0.9	Fine sand	Fine sand	Fine sand	No	None
081	3	5.4	1.1	Medium sand	Medium sand	Medium sand	No	None
082	3	3.7	1.1	Fine sand	Fine sand	Fine sand	No	None
083	3	5.1	1.4	Fine sand	Fine sand	Fine sand	No	None
084	3	3.4	1.0	Fine sand	Fine sand	Fine sand	No	None
085	3	3.3	0.9	Coarse sand	Very fine sand	Very fine sand	No	None
086	3	4.5	1.0	Fine sand	Fine sand	Fine sand	No	None
087	3	4.1	0.5	Fine sand	Fine sand	Fine sand	No	None
088	3	4.2	0.8	Fine sand	Fine sand	Fine sand	No	None
089	3	3.6	0.7	Fine sand	Fine sand	Fine sand	No	None
090	3	4.5	0.8	Fine sand	Fine sand	Fine sand	No	None
091	3	4.1	1.1	Very fine sand	Very fine sand	Very fine sand	No	None
092	3	4.1	1.8	Coarse sand	Very coarse sand over sand	Very coarse sand over sand	No	None
093	3	3.9	1.0	Fine sand	Fine sand	Fine sand	No	None
OCEAN WIND OFFSHORE WIND FARM SURVEY AREA STATION SUMMARY STATISTICS								
	n = 93							
	Max	**9.7**	**2.7**					
	Min	**2.9**	**0.4**					
	Mean	**4.8**	**1.0**					
	Standard Deviation	**1.0**	**0.4**					
OVERALL STATION SUMMARY STATISTICS								
	n = 157							
	Max	**9.7**	**2.7**					
	Min	**2.9**	**0.4**					

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
	Mean	**4.7**	**1.1**					
	Standard Deviation	**0.9**	**0.5**					

IND=Indeterminate
"-" Replicate image not analyzed
[1]Variable determined from combined SPI and PV analysis

Table 3-1b. Summary of Plan View Image Analysis Results at the Ocean Wind Offshore Wind Farm Survey Area

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
001	3	IND	IND	15.0	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
002	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
003	3	IND	IND	11.1	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
004	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
005	3	7.7	Pebble	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Slightly Gravelly Sand	No	No	None
006	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
007	3	6.6	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
008	3	3.4	Granule	-	None	Gravel Mixes	Sandy Gravel	Sandy Gravel	Slightly Gravelly Sand	No	No	None
009	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
010	3	5.0	Pebble	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
011	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
012	3	IND	IND	10.5	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
013	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
014	3	3.3	Granule	8.5	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Slightly Gravelly Sand	No	No	None
015	3	3.5	Granule	-	None	Gravel Mixes	Sand or Finer	Sandy Gravel	Sandy Gravel	No	No	None
016	3	2.6	Granule	7.8	Ripples	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
017	3	3.7	Granule	7.5	Ripples	Slightly Gravelly	Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
018	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
019	3	2.0	Granule	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Slightly Gravelly Sand	No	No	None
020	3	4.7	Pebble	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
021	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
022	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
023	3	5.3	Pebble	-	None	Gravel Mixes	Granule	Sandy Gravel	Sandy Gravel	No	No	None
024	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
025	3	10.1	Pebble	-	None	Sand or Finer	Gravelly Sand	Sand or Finer	Sand or Finer	No	No	None
026	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
027	3	2.0	Granule	10.9	Ripples	Slightly Gravelly	Sand or Finer	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
028	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
029	3	IND	IND	6.8	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
030	3	IND	IND	7.3	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
031	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
032	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
033	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
034	3	IND	IND	11.0	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
035	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
036	3	IND	IND	42.9	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
037	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
038	3	IND	IND	9.5	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
039	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
040	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
041	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
042	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
043	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
044	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
045	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
046	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
047	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
048	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
049	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
050	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
051	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
052	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
053	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
054	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
055	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
056	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
057	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
058	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
059	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
060	3	8.0	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
061	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
062	3	6.6	Pebble	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Slightly Gravelly Sand	No	No	None
063	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
064	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
065	3	8.6	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
066	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
067	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
068	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
069	3	14.3	Pebble	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
070	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
071	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
072	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
073	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
074	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
075	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
076	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
077	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
078	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
079	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
080	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
081	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
082	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
083	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
084	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
085	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
086	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
087	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
088	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
089	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
090	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
091	3	19.8	Pebble	-	None	Slightly Gravelly	Gravelly Sand	Pebble	Slightly Gravelly Sand	No	No	None
092	3	12.7	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
093	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
OCEAN WIND OFFSHORE WIND FARM SURVEY AREA STATION SUMMARY STATISTICS												
n = 93												
Max		**19.8**		**42.9**								
Min		**2.0**		**6.8**								
Mean		**6.8**		**12.4**								
Standard Deviation		**4.7**		**9.9**								
OVERALL STATION SUMMARY STATISTICS												
n = 157												
Max		**19.8**		**64.3**								
Min		**2.0**		**4.7**								
Mean		**5.9**		**29.2**								
Standard Deviation		**3.3**		**21.2**								

IND=Indeterminate
"-" Replicate image not analyzed
[1]Variable determined from combined SPI and PV analysis

Table 3-2a. Summary of Sediment Profile Image Analysis Results at the Proposed B.L. England Export Cable Route

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
201	3	4.9	1.1	Medium sand	Medium sand	Medium sand	No	None
202	3	4.4	1.3	Medium sand	Medium sand	Medium sand	No	None
203	3	3.7	0.6	Fine sand	Fine sand	Fine sand	No	None
204	3	3.9	0.7	Fine sand	Fine sand	Fine sand	No	None
205	3	3.9	0.8	Fine sand	Fine sand	Fine sand	No	None
206	3	3.4	0.7	Fine sand	Fine sand	Fine sand	No	None
207	3	3.5	1.0	Fine sand	Fine sand	Fine sand	No	None
208	3	3.9	0.5	Fine sand	Fine sand	Fine sand	No	None
209	3	3.9	1.0	Fine sand	Fine sand	Fine sand	No	None
210	3	4.3	0.9	Fine sand	Fine sand	Fine sand	No	None
211	3	4.3	1.0	Fine sand	Fine sand	Fine sand	No	None
B.L. ENGLAND EXPORT CABLE ROUTE STATION SUMMARY STATISTICS								
	n = 11							
	Max	**4.9**	**1.3**					
	Min	**3.4**	**0.5**					
	Mean	**4.0**	**0.9**					
	Standard Deviation	**0.4**	**0.2**					
OVERALL STATION SUMMARY STATISTICS								
	n = 157							
	Max	**9.7**	**2.7**					
	Min	**2.9**	**0.4**					
	Mean	**4.7**	**1.1**					
	Standard Deviation	**0.9**	**0.5**					

IND=Indeterminate
"-" Replicate image not analyzed
[1]Variable determined from combined SPI and PV analysis

Table 3-2b. Summary of Plan View Image Analysis Results at the Proposed B.L. England Export Cable Route

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
201	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
202	3	IND	IND	41.1	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
203	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
204	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
205	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
206	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
207	3	IND	IND	4.7	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
208	3	IND	IND	5.4	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
209	3	IND	IND	4.7	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
210	3	IND	IND	6.4	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
211	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
B.L. ENGLAND EXPORT CABLE ROUTE STATION SUMMARY STATISTICS												
n = 11												
Max		**N/A**		**41.1**								
Min		**N/A**		**4.7**								
Mean		**N/A**		**12.5**								
Standard Deviation		**N/A**		**16.0**								
OVERALL STATION SUMMARY STATISTICS												
n = 157												
Max		**19.8**		**64.3**								
Min		**2.0**		**4.7**								
Mean		**5.9**		**29.2**								
Standard Deviation		**3.3**		**21.2**								

IND=Indeterminate
"-" Replicate image not analyzed
[1]Variable determined from combined SPI and PV analysis

Table 3-3a. Summary of Sediment Profile Image Analysis Results at the Proposed Oyster Creek Export Cable Route

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
301	3	5.5	0.8	Medium sand	Medium sand	Medium sand	No	None
302	3	5.1	0.9	Coarse sand	Pebble over finer sediment	Pebble over finer sediment	No	None
303	3	5.4	0.7	Fine sand	Fine sand	Fine sand	No	None
304	3	4.8	0.5	Fine sand	Fine sand	Fine sand	No	None
305	3	4.3	0.5	Fine sand	Fine sand	Fine sand	No	None
306	3	4.8	0.7	Medium sand	Medium sand	Medium sand	No	None
307	3	5.6	1.1	Coarse sand	Medium sand	Medium sand	No	None
308	3	4.5	1.0	Fine sand	Fine sand	Silt/clay over sand	No	None
309	3	5.0	0.9	Medium sand	Medium sand	Medium sand	No	None
310	3	5.7	0.6	Coarse sand	Coarse sand over finer sediment	Coarse sand over finer sediment	No	None
311	3	4.9	0.6	Coarse sand over finer sediment	Coarse sand over finer sediment	Coarse sand over finer sediment	No	None
312	3	4.5	0.7	Medium sand	Medium sand	Medium sand	No	None
313	3	5.2	1.0	Coarse sand over finer sediment	Coarse sand over finer sediment	Coarse sand over finer sediment	No	None
314	3	6.0	1.6	Medium sand over finer sediment	Medium sand over finer sediment	Medium sand over finer sediment	No	None
315	3	5.3	0.7	Coarse sand over finer sediment	Medium sand	Medium sand	No	None
316	3	5.4	1.3	Coarse sand over finer sediment	Coarse sand over finer sediment	Medium sand	No	None
317	3	5.1	1.5	Coarse sand over finer sediment	Medium sand	Medium sand	No	None
318	3	4.6	1.8	Coarse sand	Coarse sand	Coarse sand	No	None
319	3	4.5	1.2	Coarse sand over finer sediment	Medium sand	Medium sand	No	None
320	3	5.3	1.9	Coarse sand	Coarse sand	Coarse sand	No	None

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
321	3	5.2	2.0	Coarse sand	Coarse sand over finer sediment	Medium sand	No	None
322	3	5.2	1.6	Coarse sand	Coarse sand	Medium sand	No	None
323	3	6.1	1.4	Very coarse sand	Very coarse sand	Very coarse sand	No	None
324	3	5.6	0.7	Very coarse sand over sand	Very coarse sand over sand	Very coarse sand over sand	No	None
325	3	5.5	1.9	Pebble over finer sediment	Very coarse sand over sand	Very coarse sand over sand	No	None
326	3	3.8	2.1	Pebble over finer sediment	Very coarse sand	Very coarse sand	No	None
327	3	4.7	1.6	Very coarse sand	Very coarse sand	Very coarse sand	No	None
328	3	5.4	1.9	Very coarse sand	Very coarse sand over sand	Very coarse sand over sand	No	None
329	3	5.3	1.0	Coarse sand	Coarse sand	Coarse sand over fine sediment	No	None
330	3	4.0	0.9	Granule	Granule	Granule	No	None
331	3	4.8	1.5	Coarse sand	Coarse sand	Coarse sand	No	None
332	3	5.1	1.7	Coarse sand over finer sediment	Coarse sand over finer sediment	Coarse sand over finer sediment	No	None
333	3	4.9	2.0	Coarse sand over finer sediment	Coarse sand over finer sediment	Coarse sand over finer sediment	No	None
334	3	5.3	1.4	Very coarse sand	Very coarse sand	Very coarse sand	No	None
335	3	4.9	2.1	Coarse sand	Coarse sand	Coarse sand	No	None
336	3	5.0	1.3	Coarse sand over finer sediment	Coarse sand over finer sediment	Coarse sand over finer sediment	No	None
337	3	4.6	2.2	Granule over sand	Granule over sand	Pebble over finer sediment	No	None
338	3	5.6	1.5	Medium sand	Medium sand	Medium sand	No	None
339	3	3.6	2.5	Very coarse sand	Very coarse sand	Very coarse sand	No	None
340	3	4.4	1.2	Coarse sand over finer sediment	Coarse sand over finer sediment	Medium sand	No	None

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
341	3	5.1	1.1	Very coarse sand over sand	Very coarse sand over sand	Very coarse sand over sand	Yes	Squid Eggs
342	3	3.8	1.9	Fine sand	Fine sand	Fine sand	No	None
343	3	4.0	1.7	Coarse sand over finer sediment	Medium sand	Medium sand	No	None
344	3	5.0	1.4	Granule over sand	Granule over sand	Granule over sand	No	None
345	3	4.5	1.0	Very coarse sand	Very coarse sand	Very coarse sand	No	None
346	3	3.9	1.5	Granule over sand	Granule over sand	Granule over sand	No	None
347	3	4.4	1.9	Granule over sand	Granule over sand	Very coarse sand over sand	No	None
348	3	4.3	1.2	Very coarse sand over sand	Very coarse sand over sand	Very coarse sand over sand	No	None
349	3	4.1	1.1	Pebble over finer sediment	Pebble over finer sediment	Pebble over finer sediment	No	None
350	3	3.9	1.4	Coarse sand	Coarse sand	Coarse sand	No	None
OYSTER CREEK EXPORT CABLE ROUTE STATION SUMMARY STATISTICS								
	n = 50							
	Max	**6.1**	**2.5**					
	Min	**3.6**	**0.5**					
	Mean	**4.9**	**1.3**					
	Standard Deviation	**0.6**	**0.5**					
OVERALL STATION SUMMARY STATISTICS								
	n = 157							
	Max	**9.7**	**2.7**					
	Min	**2.9**	**0.4**					
	Mean	**4.7**	**1.1**					
	Standard Deviation	**0.9**	**0.5**					

IND=Indeterminate
"-" Replicate image not analyzed
[1]Variable determined from combined SPI and PV analysis

Table 3-3b. Summary of Plan View Image Analysis Results at the Proposed Oyster Creek Export Cable Route

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
301	3	6.4	Pebble	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
302	3	16.3	Pebble	-	None	Gravel	Pebble	Pebble	Pebble	No	No	None
303	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
304	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
305	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
306	3	IND	IND	8.8	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
307	3	5.2	Pebble	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
308	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
309	3	IND	IND	28.0	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
310	3	3.3	Granule	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Slightly Gravelly Sand	No	No	None
311	3	3.8	Granule	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
312	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
313	3	3.9	Granule	-	None	Slightly Gravelly	Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
314	3	4.0	Granule	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
315	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
316	3	5.7	Pebble	44.9	Ripples	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
317	3	4.0	Granule	50.9	Ripples	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
318	3	4.6	Pebble	33.7	Ripples	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
319	3	6.0	Pebble	48.6	Ripples	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
320	3	5.1	Pebble	51.4	Ripples	Gravelly	Gravelly Sand	Gravelly Sand	Slightly Gravelly Sand	No	No	None
321	3	3.9	Granule	49.9	Ripples	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
322	3	IND	IND	35.7	Ripples	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
323	3	6.7	Pebble	52.5	Ripples	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
324	3	5.9	Pebble	60.1	Ripples	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
325	3	5.2	Pebble	64.3	Ripples	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
326	3	5.2	Pebble	62.7	Ripples	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
327	3	5.7	Pebble	62.8	Ripples	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
328	3	5.1	Pebble	45.9	Ripples	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
329	3	3.7	Granule	39.4	Ripples	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
330	3	2.6	Granule	-	None	Gravel	Granule	Granule	Granule	No	No	None
331	3	3.2	Granule	-	None	Slightly Gravelly	Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
332	3	3.8	Granule	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
333	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
334	3	2.5	Granule	-	None	Gravel	Granule	Granule	Granule	No	No	None
335	3	5.2	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
336	3	5.8	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
337	3	7.5	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Pebble	No	No	None
338	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
339	3	4.0	Pebble	-	None	Gravel	Granule	Granule	Granule	No	No	None
340	3	5.9	Pebble	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
341	3	6.4	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	Yes	Squid Eggs

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
342	3	6.4	Pebble	-	None	Slightly Gravelly	Slightly Gravelly Sand	Slightly Gravelly Sand	Slightly Gravelly Sand	No	No	None
343	3	8.0	Pebble	-	None	Gravel Mixes	Sandy Gravel	Sandy Gravel	Sandy Gravel	No	No	None
344	3	5.9	Pebble	-	None	Gravel	Pebble	Pebble	Sandy Gravel	No	No	None
345	3	6.5	Pebble	-	None	Gravel Mixes	Sandy Gravel	Sandy Gravel	Sandy Gravel	No	No	None
346	3	4.1	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Slightly Gravelly Sand	No	No	None
347	3	9.7	Pebble	40.9	Ripples	Gravel Mixes	Sandy Gravel	Sandy Gravel	Sandy Gravel	No	No	None
348	3	4.5	Pebble	-	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
349	3	6.6	Pebble	-	None	Gravel	Pebble	Pebble	Pebble	No	No	None
350	3	IND	IND	IND	None	Gravelly	Gravelly Sand	Gravelly Sand	Gravelly Sand	No	No	None
OYSTER CREEK EXPORT CABLE ROUTE STATION SUMMARY STATISTICS												
n = 50												
Max		**16.3**		**64.3**								
Min		**2.5**		**8.8**								
Mean		**5.5**		**45.9**								
Standard Deviation		**2.3**		**14.2**								
OVERALL STATION SUMMARY STATISTICS												
n = 157												
Max		**19.8**		**64.3**								
Min		**2.0**		**4.7**								
Mean		**5.9**		**29.2**								
Standard Deviation		**3.3**		**21.2**								

IND=Indeterminate
"-" Replicate image not analyzed
[1]Variable determined from combined SPI and PV analysis

Table 3-4a. Summary of Sediment Profile Image Analysis Results at the Reference Stations

Station ID	SPI Replicate (n)	Mean Prism Penetration Depth (cm)	Mean Boundary Roughness (cm)	SPI Sediment Type			Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
401	3	4.4	0.6	Fine sand	Fine sand	Fine sand	No	None
402	3	3.8	2.0	Fine sand	Fine sand	Fine sand	No	None
403	3	4.9	1.3	Medium sand	Medium sand	Medium sand	No	None
REFERENCE STATION SUMMARY STATISTICS								
	n = 3							
	Max	**4.9**	**2.0**					
	Min	**3.8**	**0.6**					
	Mean	**4.4**	**1.3**					
	Standard Deviation	**0.5**	**0.7**					
OVERALL STATION SUMMARY STATISTICS								
	n = 157							
	Max	**9.7**	**2.7**					
	Min	**2.9**	**0.4**					
	Mean	**4.7**	**1.1**					
	Standard Deviation	**0.9**	**0.5**					

IND=Indeterminate
"-" Replicate image not analyzed
[1]Variable determined from combined SPI and PV analysis

Table 3-4b. Summary of Plan View Image Analysis Results at the Reference Stations

Station ID	PV Replicate (n)	Gravel Mode (mm)	CMECS Gravel Type	Bedform Size Measurement (cm)	Bedforms	Dominant CMECS Substrate Group	CMECS Substrate Subgroup (by replicate)			Boulder Presence	Sensitive Taxa Present[1]	Sensitive Taxa Type[1]
401	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
402	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
403	3	IND	IND	-	None	Sand or Finer	Sand or Finer	Sand or Finer	Sand or Finer	No	No	None
REFERENCE STATION SUMMARY STATISTICS												
n = 3												
Max		**N/A**		**N/A**								
Min		**N/A**		**N/A**								
Mean		**N/A**		**N/A**								
Standard Deviation		**N/A**		**N/A**								
OVERALL STATION SUMMARY STATISTICS												
n = 157												
Max		**19.8**		**64.3**								
Min		**2.0**		**4.7**								
Mean		**5.9**		**29.2**								
Standard Deviation		**3.3**		**21.2**								

IND=Indeterminate
"-" Replicate image not analyzed
[1]Variable determined from combined SPI and PV analysis

Table 3-5. SPI Sediment Type to Grain Size (phi)

SPI Sediment Type	Grain Size Major Mode (phi)
Pebble	-3 to -4
	-2 to -3
Pebble over finer sediment	-3 to -4 / 1 to 0
	-2 to -3 / 0 to -1
	-2 to -3 / 1 to 0
Granule	-1 to -2
Granule over sand	-1 to -2 / 1 to 0
	-1 to -2 / 2 to 1
Very coarse sand	0 to -1
Very coarse sand over sand	0 to -1 / 1 to 0
Coarse sand	1 to 0
Coarse sand over finer sediment	1 to 0 / 2 to 1
Medium sand over finer sediment	2 to 1 / 3 to 2
Medium sand	2 to 1
Fine sand	3 to 2
Fine sand over very fine sand	3 to 2 / 4 to 3
Fine sand over silt/clay	3 to 2 / >4
Very fine sand	4 to 3
Silt/clay over sand	>4 / 3 to 2
Silt/clay	>4
Indeterminate	IND

4.0 SUMMARY

The purpose of the SPI/PV survey was to provide data about surficial sediments that can be used to ground-truth interpreted geological data from the Fugro G&G survey at the OCW Phase 1 survey area and along the B.L. England and Oyster Creek export cable routes. Results from the SPI/PV survey support spatial planning decisions, reduce uncertainty associated with baseline conditions, and inform future approaches. These results are intended to contribute to Ørsted U.S.'s ability to satisfy multiple BOEM COP guidelines. This SPI/PV study provides a secondary line of data for the assessment of the physical and geological conditions of the surficial sediments within the surveyed area. At this time, no offshore wind farm in federal waters has progressed through all stages of permitting, therefore, it is important to carefully consider all BOEM regulations and guideline recommendations when preparing a COP. By collecting data in consideration of these regulations and guidelines, federal regulators have the best available information for review of the COP. SPI and PV images provide important data pertaining to several of these regulations and guidelines (Table 4-1). The SPI and PV images were useful in mapping the physical and geological properties of the surface sediments and helped to document and characterize processes structuring surface sediments within the OCW Phase 1 survey area, along the B.L. England and Oyster Creek export cable routes, and at the reference stations.

Surficial sediments were largely homogeneous within the OCW Phase 1 survey area and along the B.L. England export cable route at intra- and inter- station scales. The OCW Phase 1 survey area seafloor was characterized predominantly by sands with relatively few gravelly sands. While not prevalent, gravel was primarily documented in the northern half of the OCW Phase 1 survey area near the termination of the Oyster Creek proposed export cable route. The seafloor along the B.L. England route was homogenous across all replicates and composed exclusively of sandy sediments. The seafloor along the Oyster Creek route was relatively homogenous at the intra-station scale but exhibited heterogeneity at the inter-station level. The southern portion of the Oyster Creek export cable route nearest to the northern portion of the OCW Phase 1 survey area was composed of sand with low gravel content. The sediments along the Oyster Creek export cable route became more gravelly moving north along the cable route, with granules and pebbles most prevalent after the split in the route at Station 330. The surficial sediments at the reference stations were homogeneous and composed of sands.

The vast majority of stations were characterized by medium to high load-bearing strength reflected in the relatively shallow prism penetration depths (<6 cm) observed within the OCW Phase 1 survey area and along both proposed export cable routes. Sediment load-bearing capacity, indicated by prism penetration depth, is related to grain size and prism penetration values correlated well with sediment composition across the surveyed area. Stations with a higher prevalence of gravel had the highest bearing capacities. It should be noted that penetration depth range is not strictly controlled by grain size and can also be influenced by compaction/porosity, as well as infaunal bioturbation.

Ripples indicate frequent and persistent hydrodynamic forcing at the surface of the seafloor. Ripples of varying amplitude and wavelength were the predominant bedform across all portions of the surveyed area except for the southern half of the OCW Phase 1 survey area. Often larger particles were oriented in the trough of the sand ripples. Smaller ripples and an absence of rippling were observed at some stations haphazardly dispersed along the B.L. England and Oyster Creek cable routes and in the northern portion of the OCW Phase 1 survey area. Mean small-scale surface boundary roughness measured from SPI images was relatively small and interpreted to be predominantly influenced by physical forcing as higher values coincided spatially with the observations of ripples at the sediment surface. In addition, thin surface layers of coarse sediment over fine sediment (e.g., pebbles over finer sediment, very coarse sand over fine sand) were scattered throughout the surveyed area and indicated coarse sediments that were subject to frequent hydrodynamic activity over finer base sediments. The size of any larger bedforms present in the area exceeded the field-of-view of the SPI and PV images and would need to be measured in multibeam and side-scan sonar data.

Sensitive taxa were documented at one station (Station 341) along the Oyster Creek export cable route, where an egg mop of longfin squid (*Doryteuthis pealeii*) eggs was observed in one replicate PV image. These egg mops are prominent in the summer and early fall (Guida et al. 2017) which corresponds with the timeframe this survey was conducted. The later life stage of the squid is mobile and considered resistant to disturbance, but the immobile, attached egg mops of the early life stage are sensitive to local disturbance (Guida et al. 2017). Unfortunately, little is known about the habitat conditions or the geographic distribution of egg-deposition by this species (Guida et al. 2017). Because of the low prevalence of egg mops documented in this survey, any disturbance from construction should be minimal and localized.

The results and images from this survey will allow accurate ground-truthing of G&G survey results and establish a baseline of both large- and small-scale physical features within the OCW Phase 1 survey area, along the B.L. England and Oyster Creek export cable routes, and the potential reference area. The sampled reference stations have the potential to serve as a valuable resource for future, post-development comparison for most of the proposed construction and can serve as a representation of background and baseline conditions, as long as no development occurs in the area. The results will also allow Fugro and Ørsted U.S. to broadly communicate the results of the G&G survey using seafloor images of predevelopment conditions. Contributions from this survey will provide valuable information to address the Bureau of Ocean Energy Management (BOEM) guidelines and regulations, as well as stakeholder concerns.

Table 4-1. BOEM Guidelines, SPI Survey Approaches, and Results

Guideline	SPI/PV Survey Approach and/or Parameter(s)	Results
Identify areas to serve as baseline reference	Sampled three stations in one representative reference area	Reference areas identified and baseline assessment at reference areas conducted
Characterize and delineate hard bottom gradients and rock outcroppings	Mapped presence of boulders, Sediment type assessment.	Habitat Types
		Spatial assessment of features completed
Characterize surficial sediments	Sediment Types mapped	Comprehensive assessment of surficial sediments completed as part of SPI/PV survey, including presence of boulders.

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Sediment Profile and Plan View Imaging Physical Ground-Truth Survey in Support of the Ocean Wind Offshore Wind Farm Site Assessment

DATA REPORT

Survey Conducted 18-21 July 2019

FIGURES

Prepared for:

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and

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Submitted by:

INSPIRE Environmental
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Newport, RI 02840

January 2020

LIST OF FIGURES

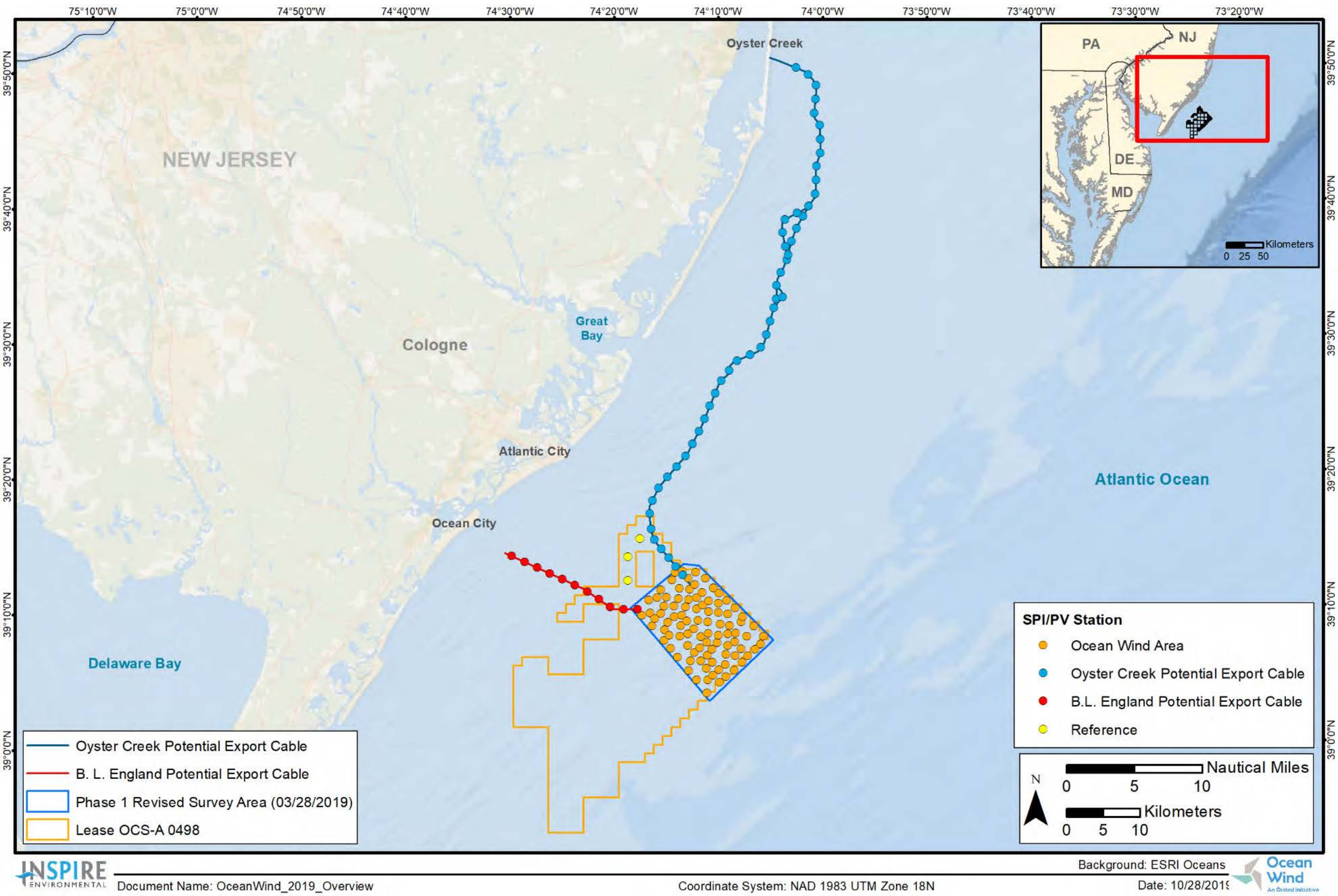


Figure 1-1. Location of the Ocean Wind Offshore Wind Farm (OCW) survey area and proposed export cable routes

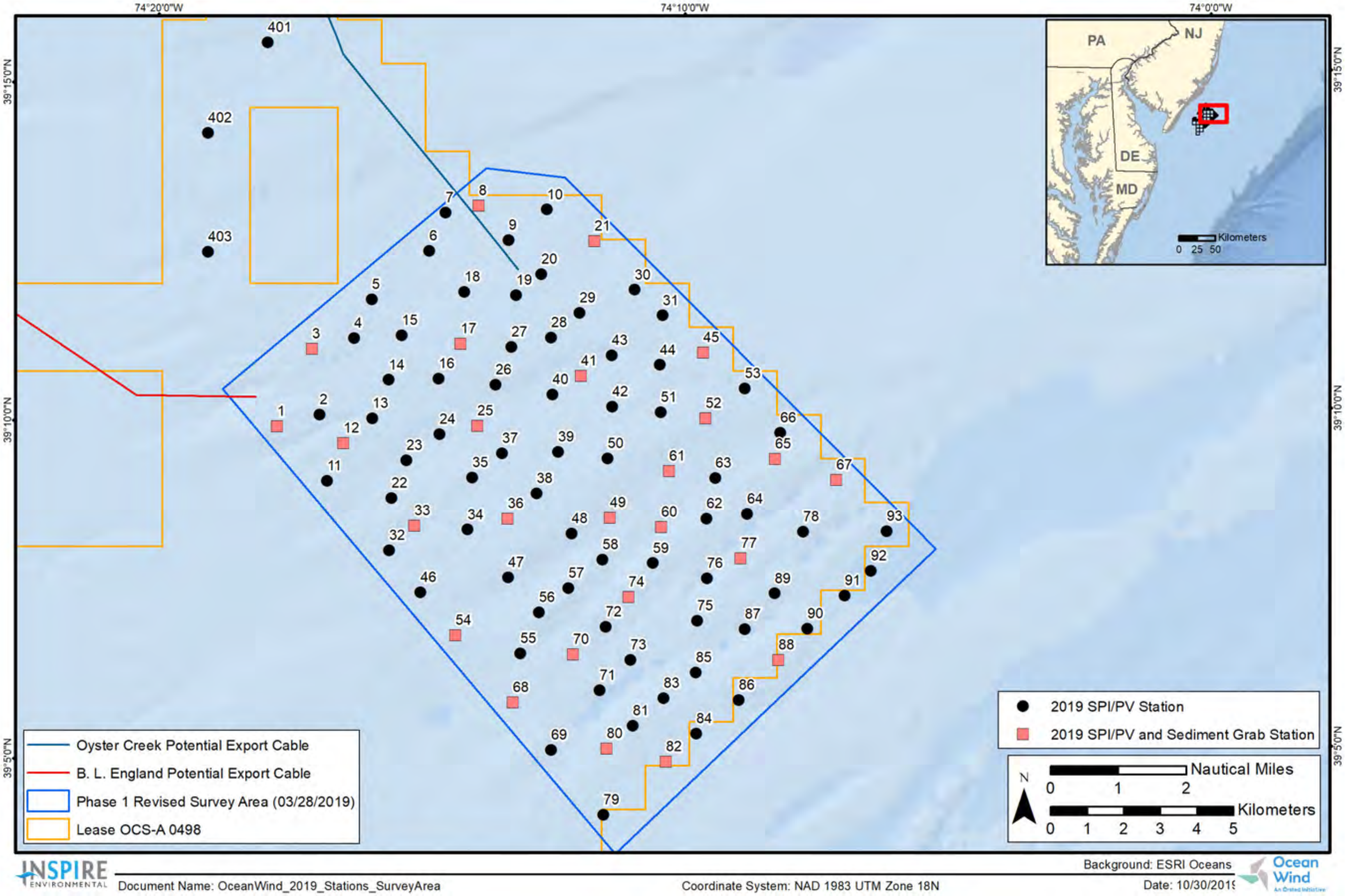


Figure 1-2. ***Station locations sampled with SPI/PV at the OCW survey area and at the three reference stations (Stations 401, 402, 403)***

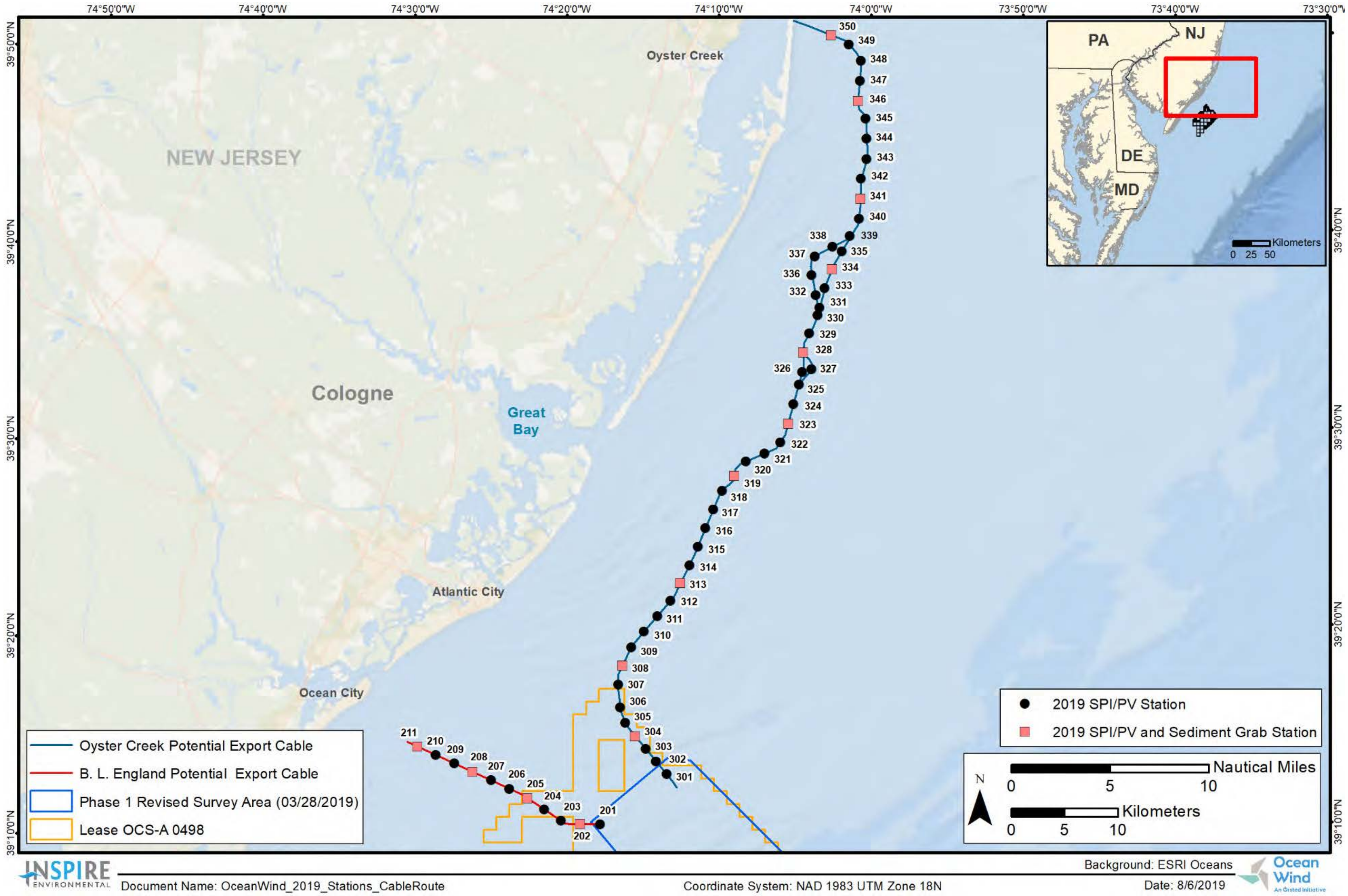


Figure 1-3. Station locations sampled with SPI/PV along the export cable routes

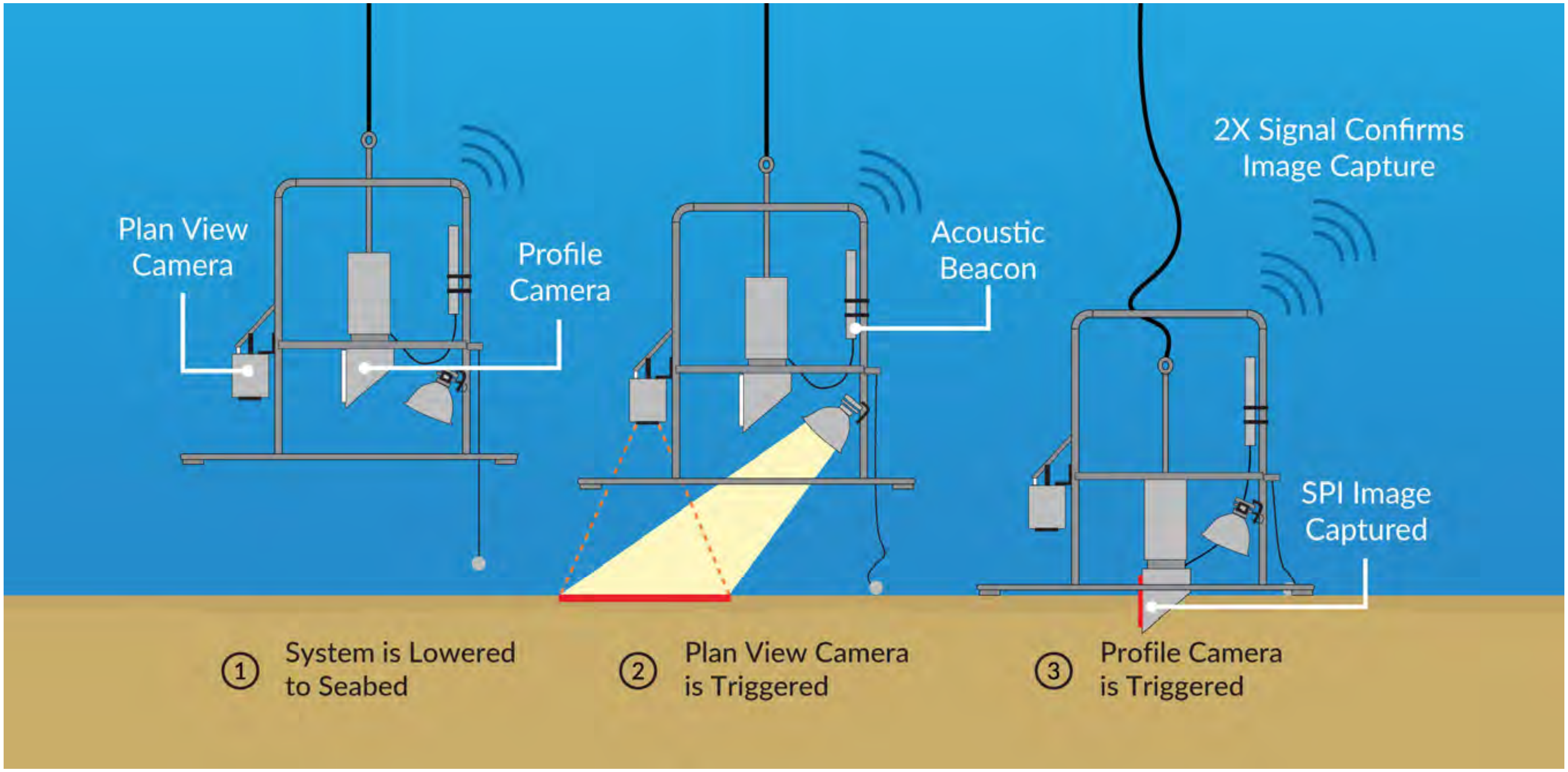


Figure 2-1. Operation of the sediment profile and plan view camera imaging system

Figure 2-2. ***This representative plan view image shows the sampling relationship between plan view and sediment profile images. Note: plan view images differ between surveys and stations and the area covered by each plan view image may vary slightly between images and stations.***

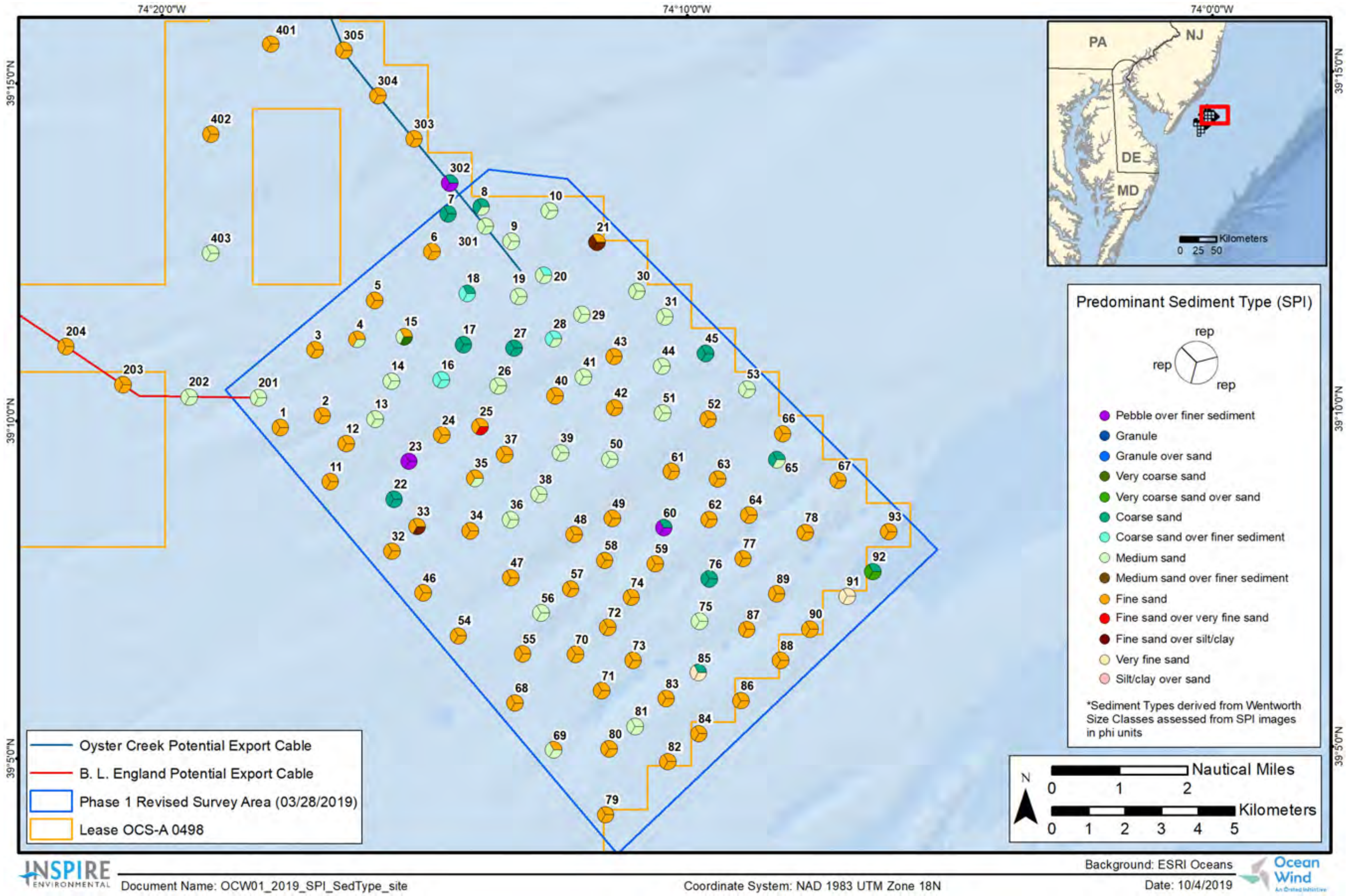


Figure 3-1. Sediment types aggregated from grain size major mode (phi units) derived from SPI images at the OCW site

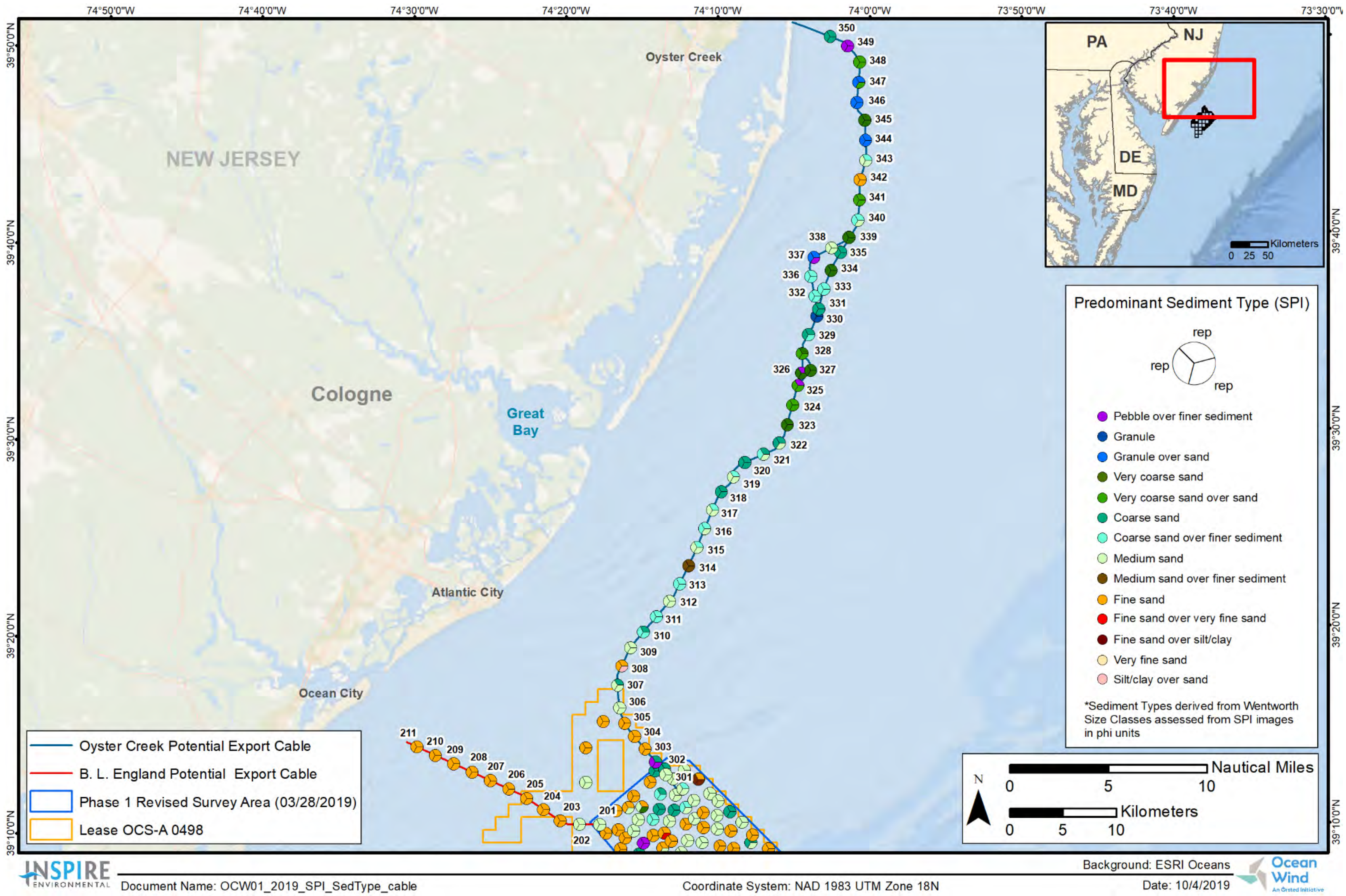
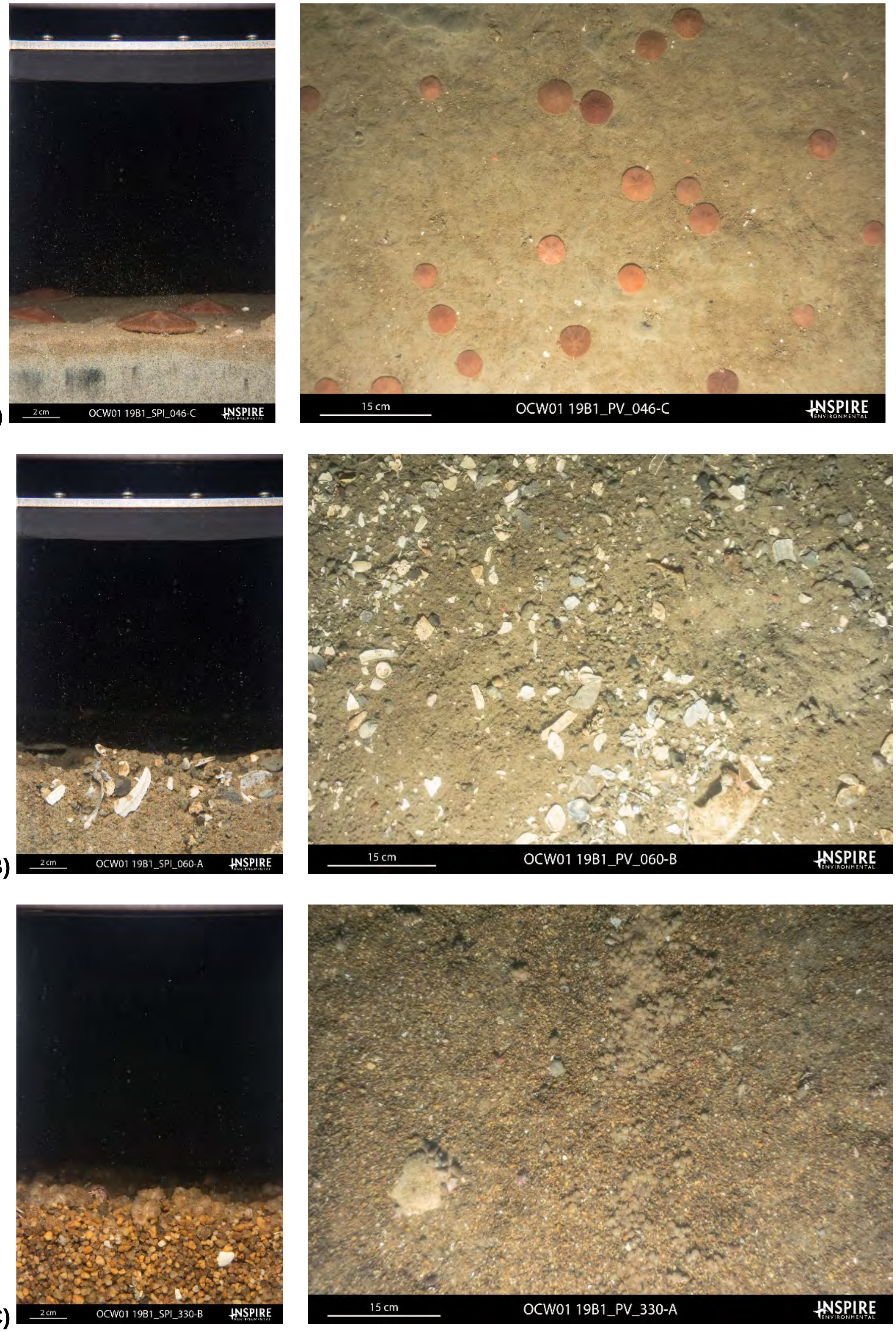


Figure 3-2. Sediment types aggregated from grain size major mode (phi units) derived from SPI images along the export cable routes



A)

(B)

(C)

Figure 3-3. ***Representative SPI and PV images depicting the range of sediment types across the surveyed area: (A) sand (B) sandy gravel; (C) small gravel (granule and pebble); (D) gravel (pebble and small cobble)***

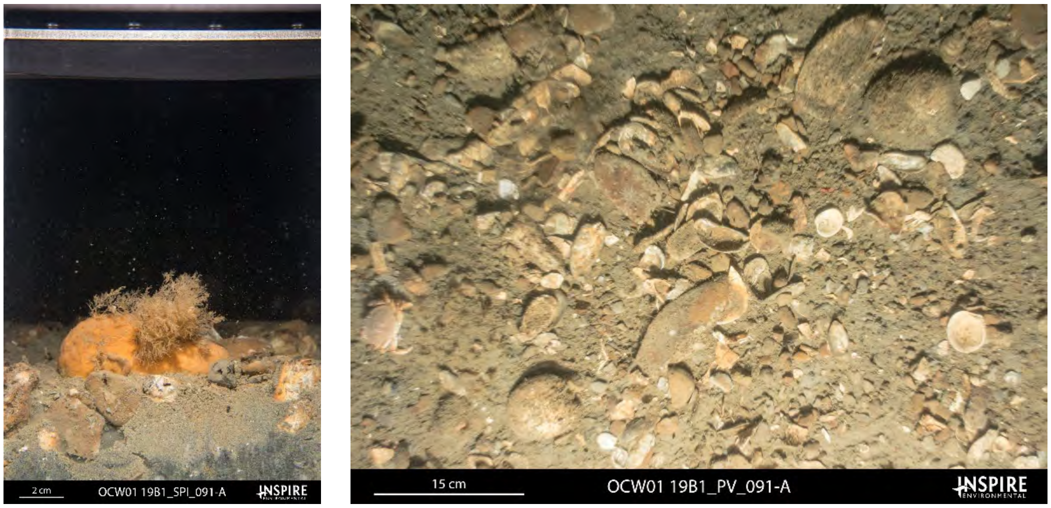
(D) 

Figure 3-3. continued ***Representative SPI and PV images depicting the range of sediment types across the surveyed area: (A) sand (B) sandy gravel; (C) small gravel (granule and pebble); (D) gravel (pebble and small cobble)***

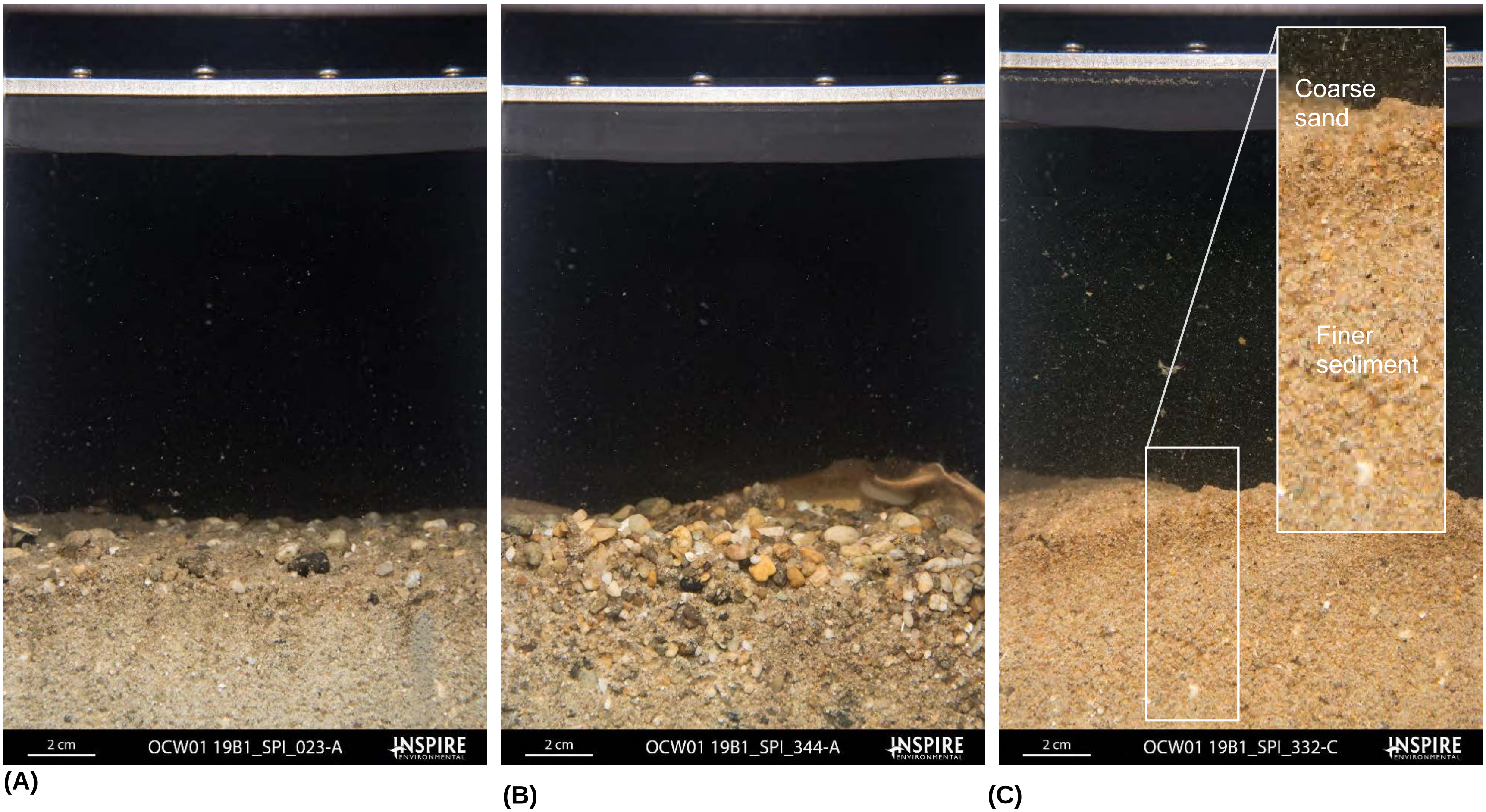


Figure 3-4. Representative SPI images showing layering of coarse material over sand: (A) pebble over finer sediment, (B) granule over sand, (C) coarse sand over finer sediment

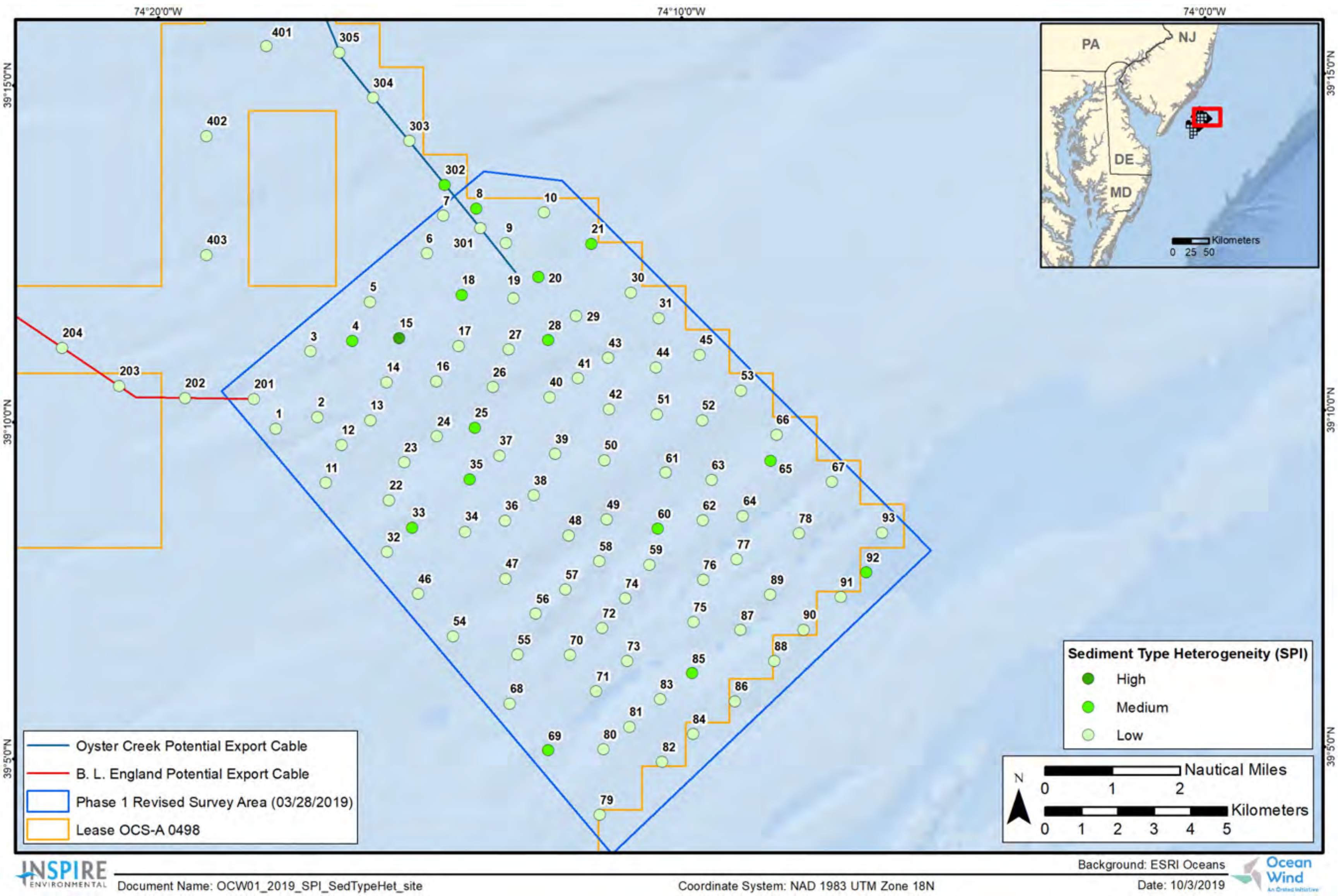


Figure 3-5. Intra-station sediment type heterogeneity determined from SPI images at the OCW site

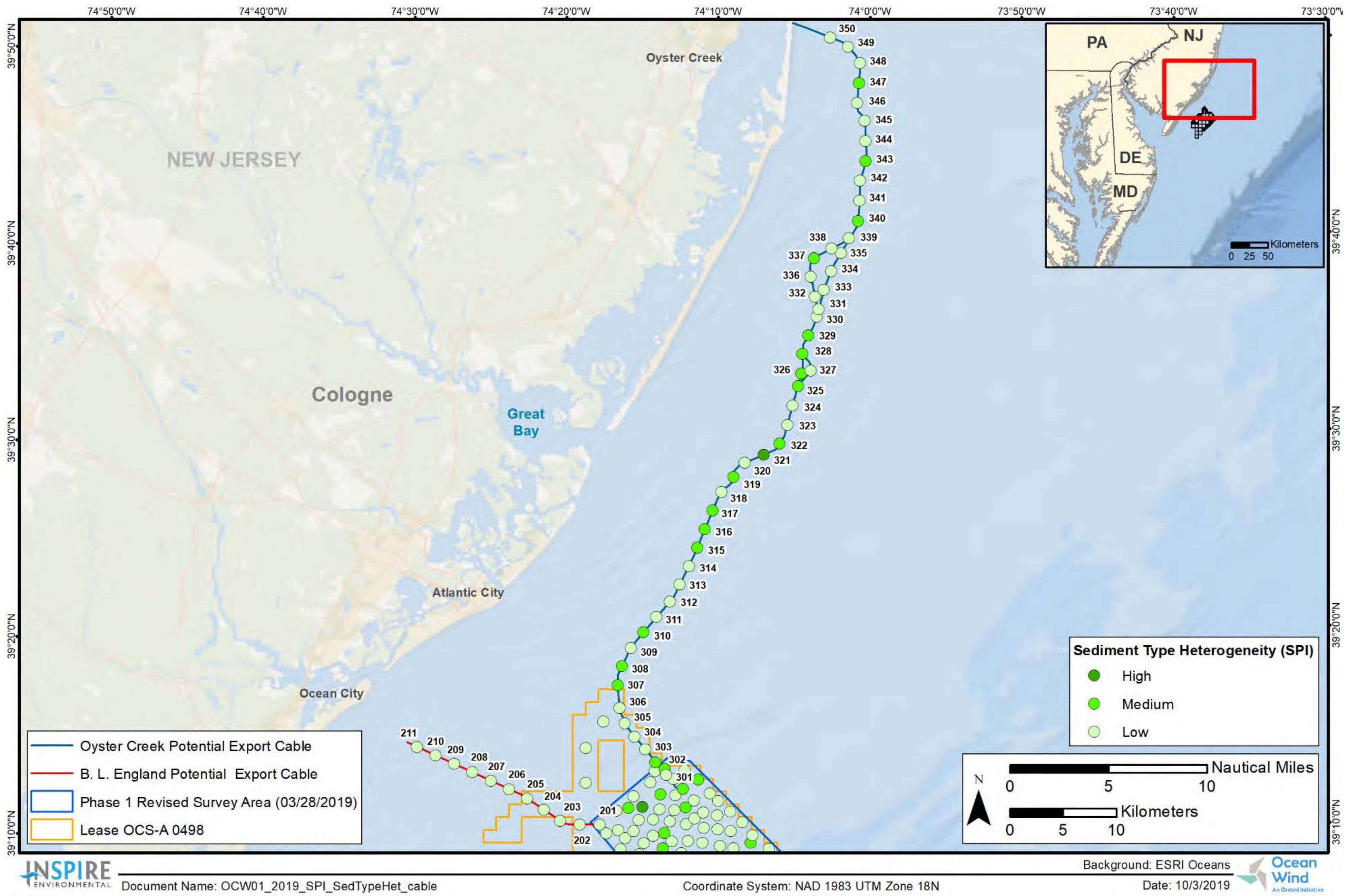


Figure 3-6. Intra-station sediment type heterogeneity determined from SPI images along the export cable routes

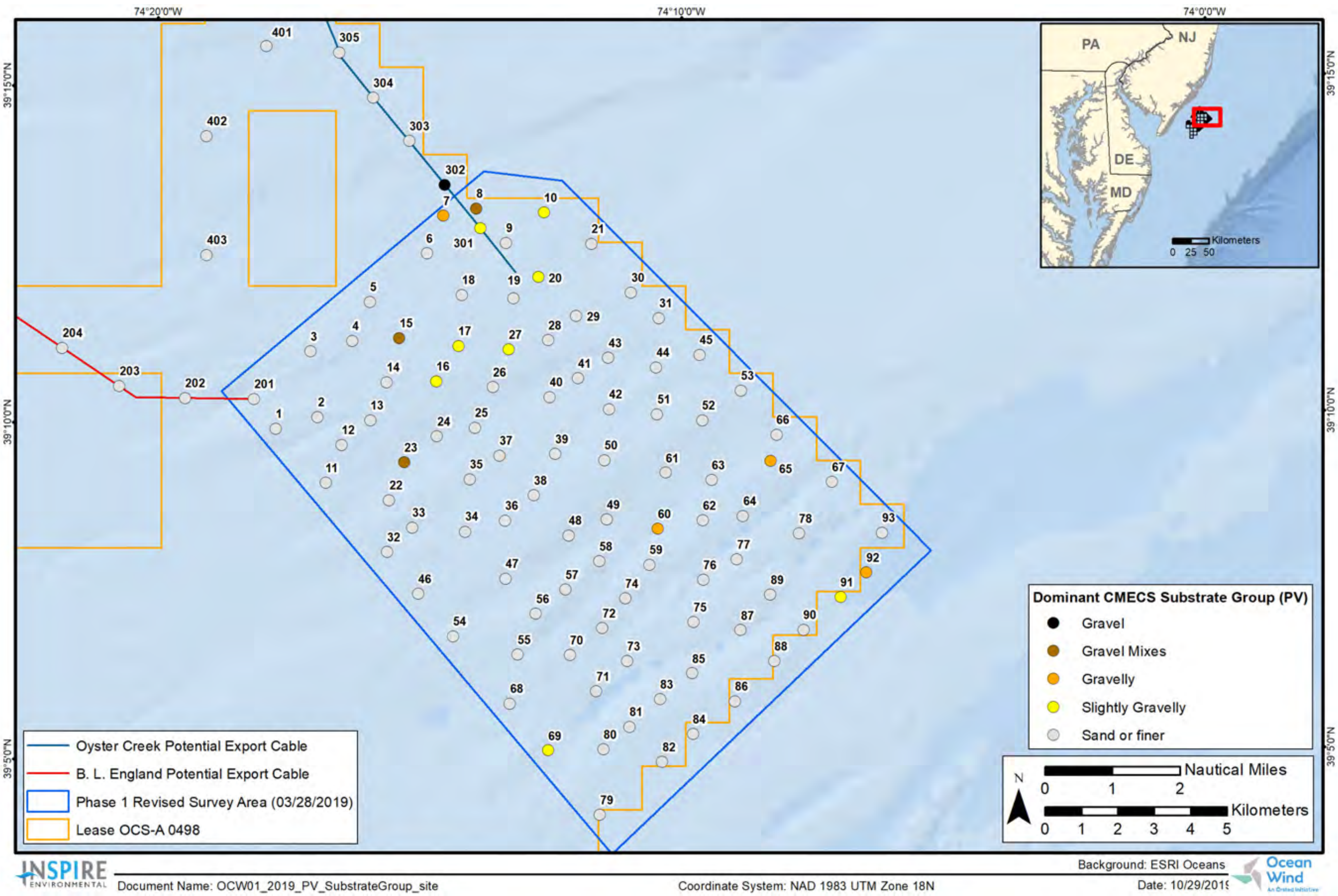


Figure 3-7. Dominant CMECS Substrate group determined from PV images at the OCW site

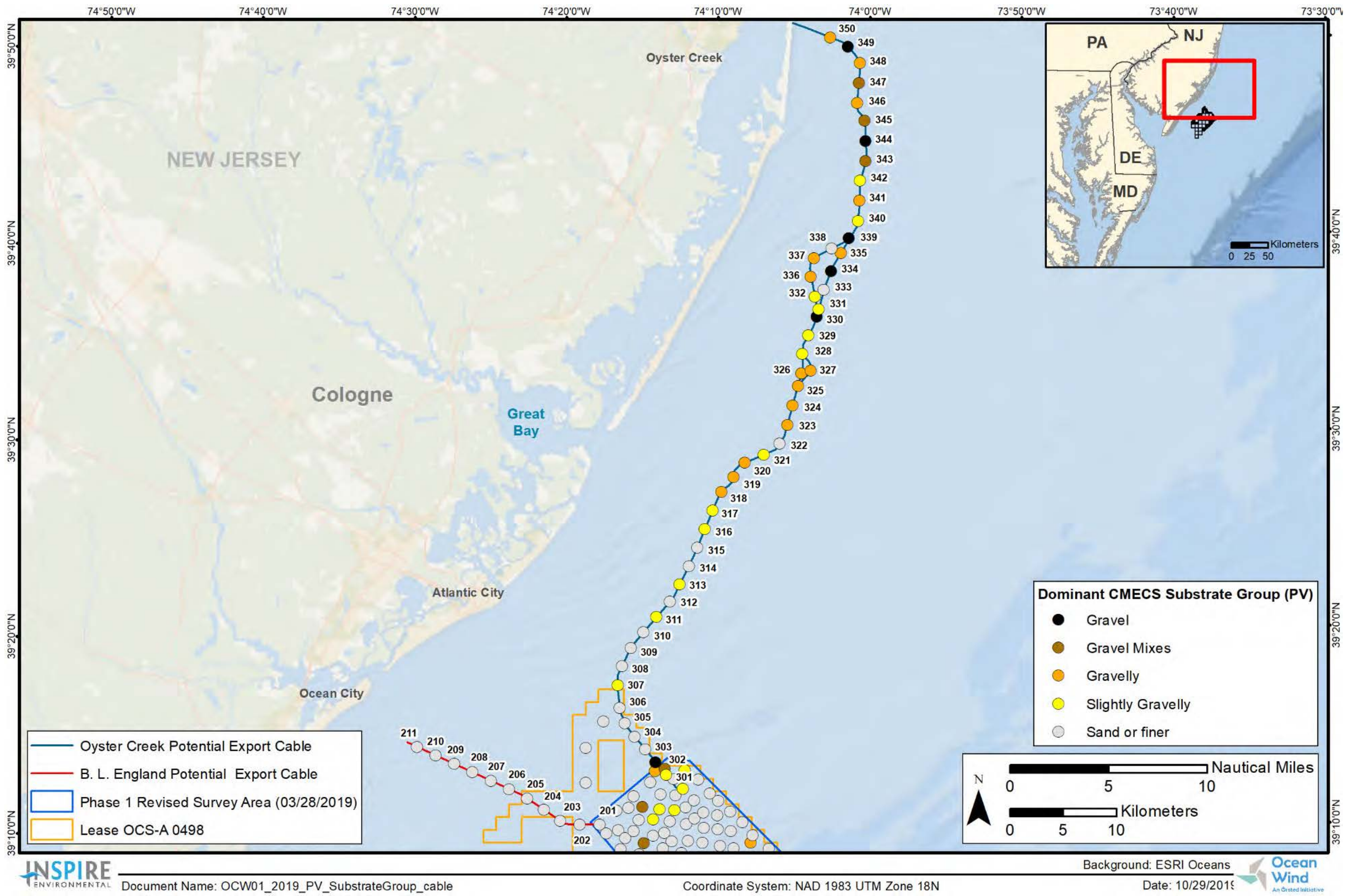


Figure 3-8. Dominant CMECS Substrate group determined from PV images along the export cable routes

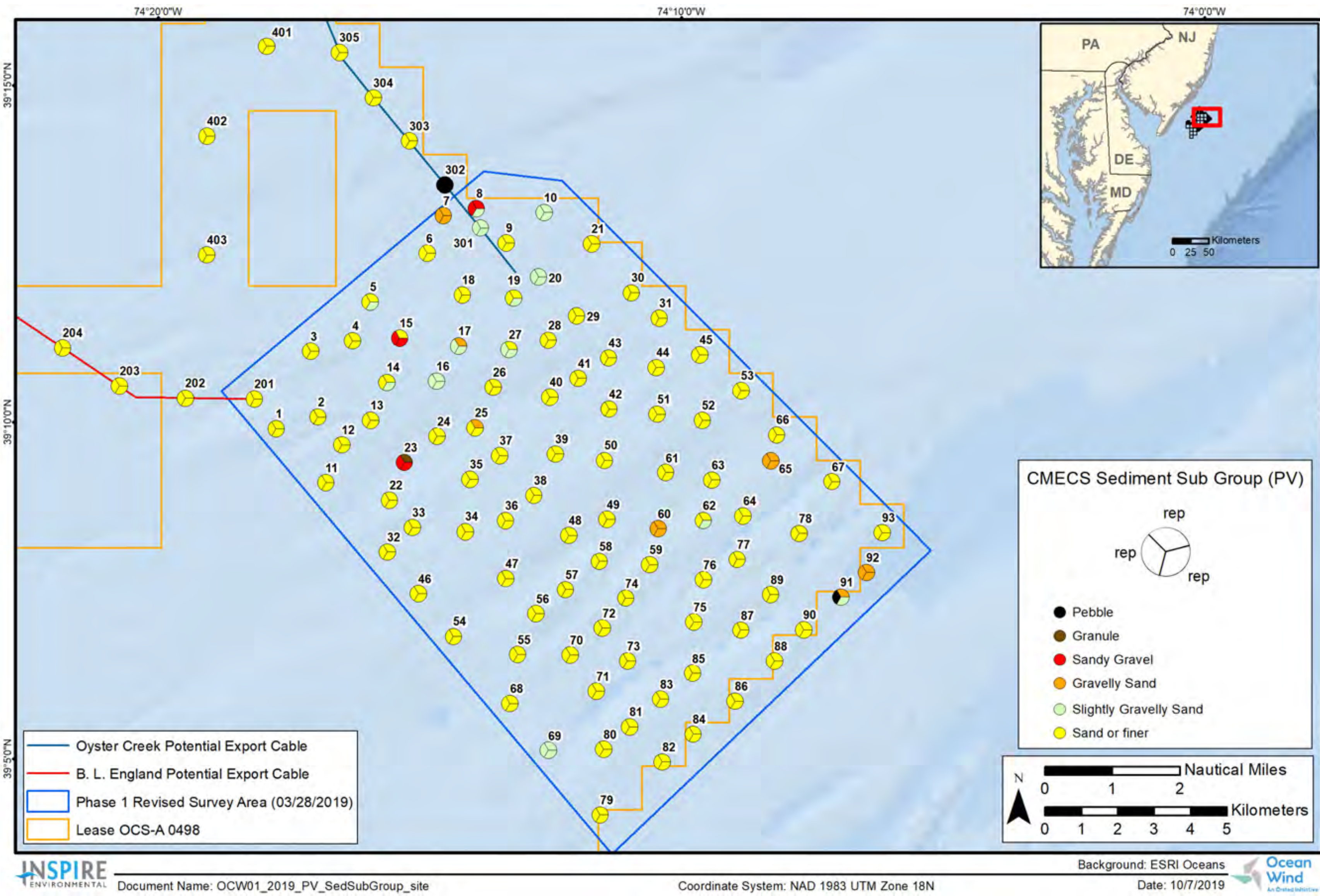


Figure 3-9. CMECS Sediment Sub Group determined from PV images at the OCW site

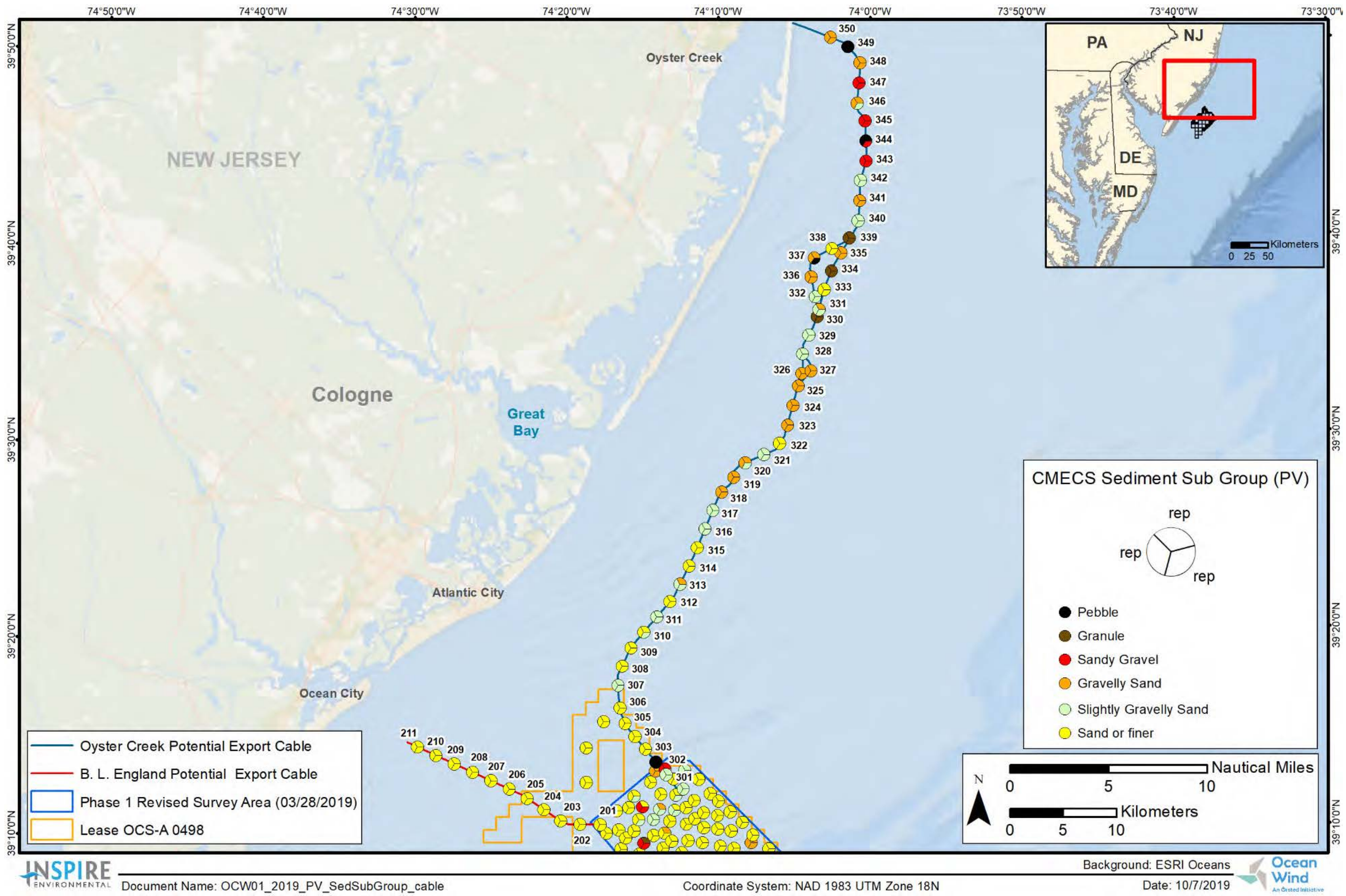


Figure 3-10. CMECS Sediment Sub Group determined from PV images along the export cable routes

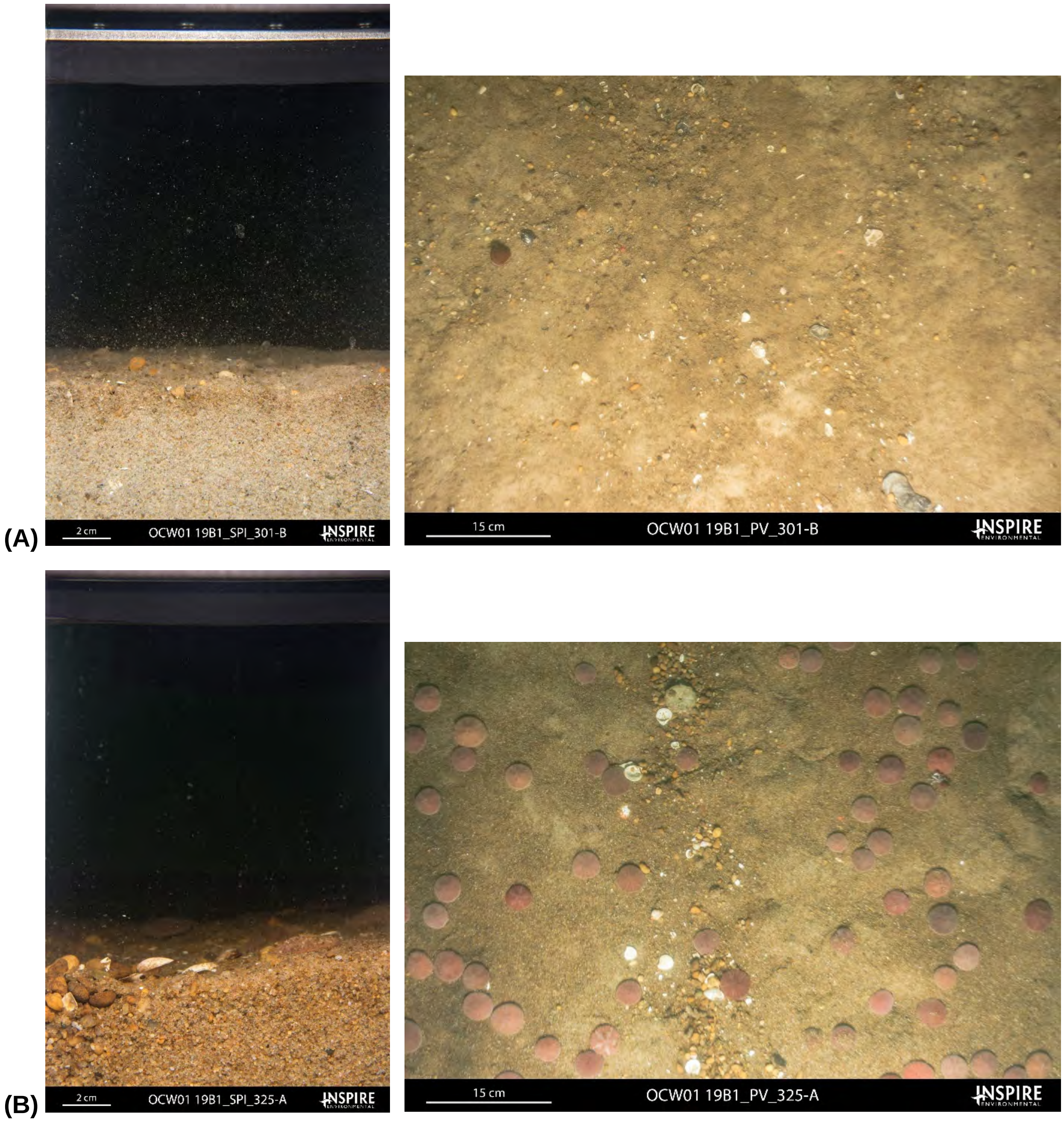


Figure 3-11. Representative SPI and PV images showing the range from slightly gravelly sand to gravelly sand: (A) slightly gravelly sand (0-5% gravel cover) with gravel consisting of granules and small pebbles; (B) gravelly sand (5-30% gravel cover) with the gravel consisting of high sphericity, well-rounded granules and pebbles with intermixed shell hash. In the PV image, the gravel is gathered in a shallow trough with sand dollars populating the more elevated sandy portions of the image.

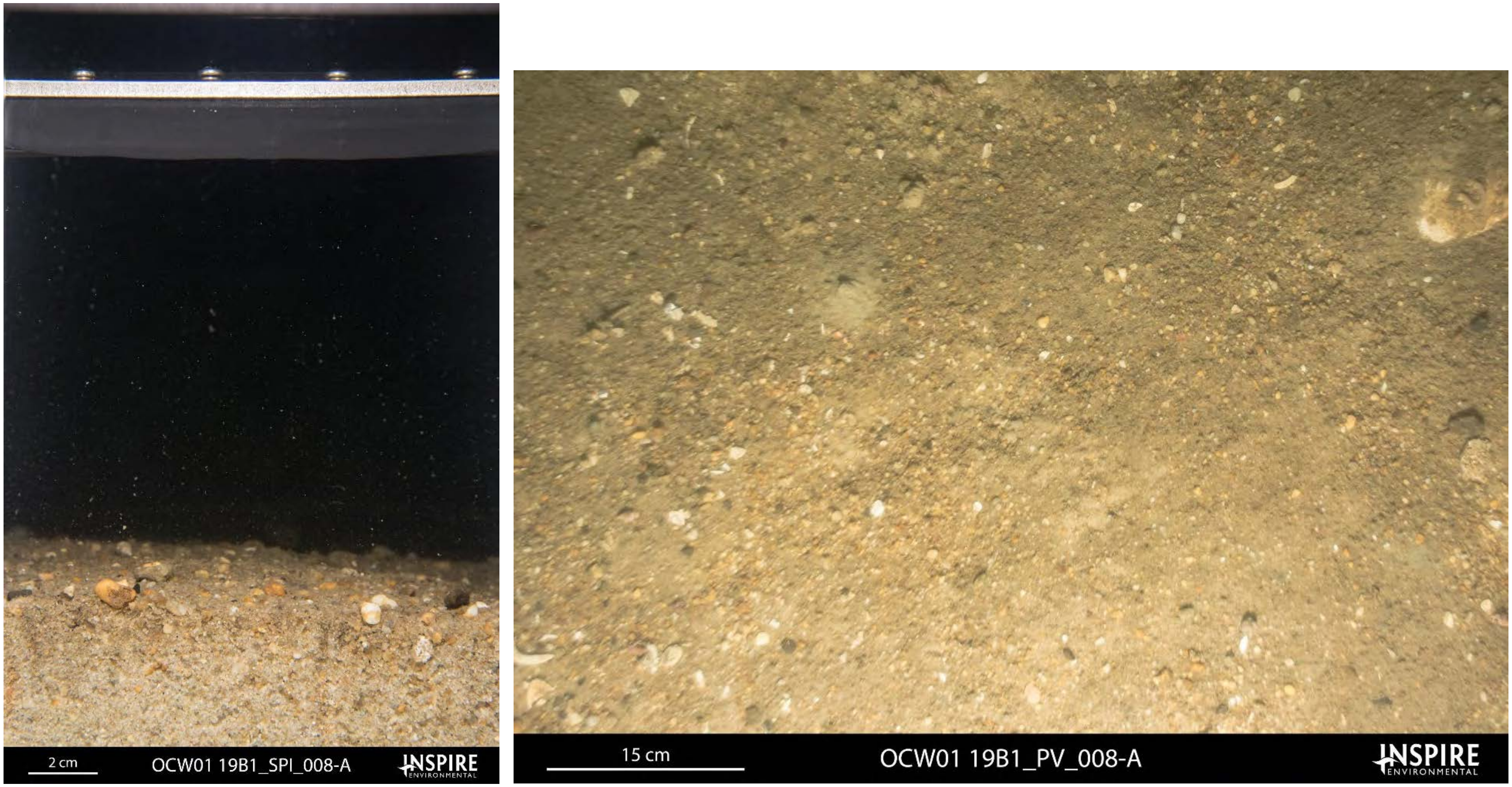


Figure 3-12. ***Representative SPI and PV images showing (A) sandy gravel (30-80% gravel cover) with gravel consisting of granules and small pebbles***

(A) (B) (C)

Figure 3-13. Representative SPI images showing intra-station variability of Station 060 in OCW Phase 1 survey area with gravel present

(A)

(B)

(C)

Figure 3-14. Representative PV images showing intra-station variability of Station 091 in OCW Phase 1 survey area with gravel present

(A)

(B)

(C)

Figure 3-15. Representative PV images showing intra-station homogeneity of Station 339 along the Oyster Creek export cable route with gravel present

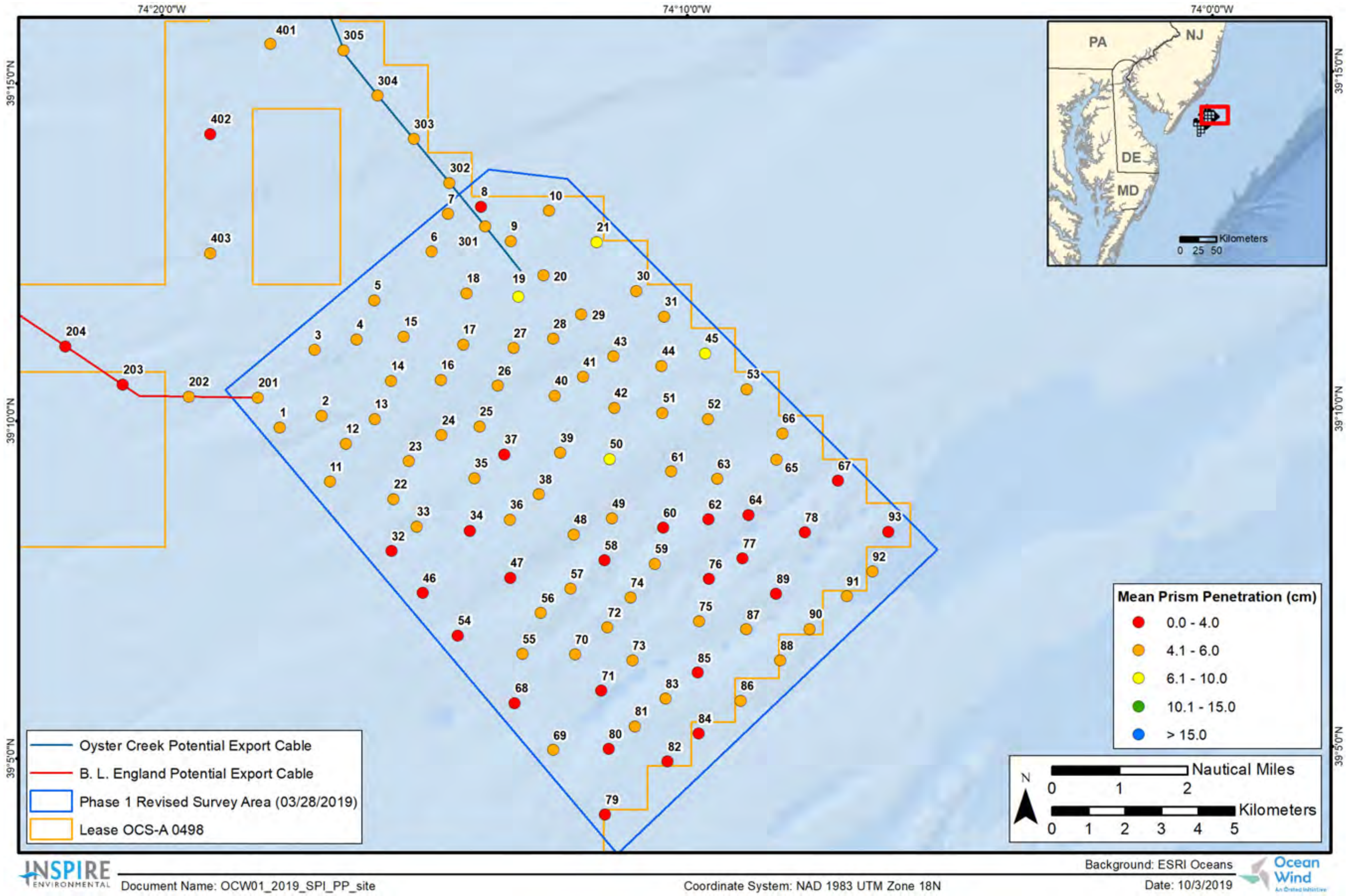


Figure 3-16. Mean station camera prism penetration depths (cm) at the OCW site

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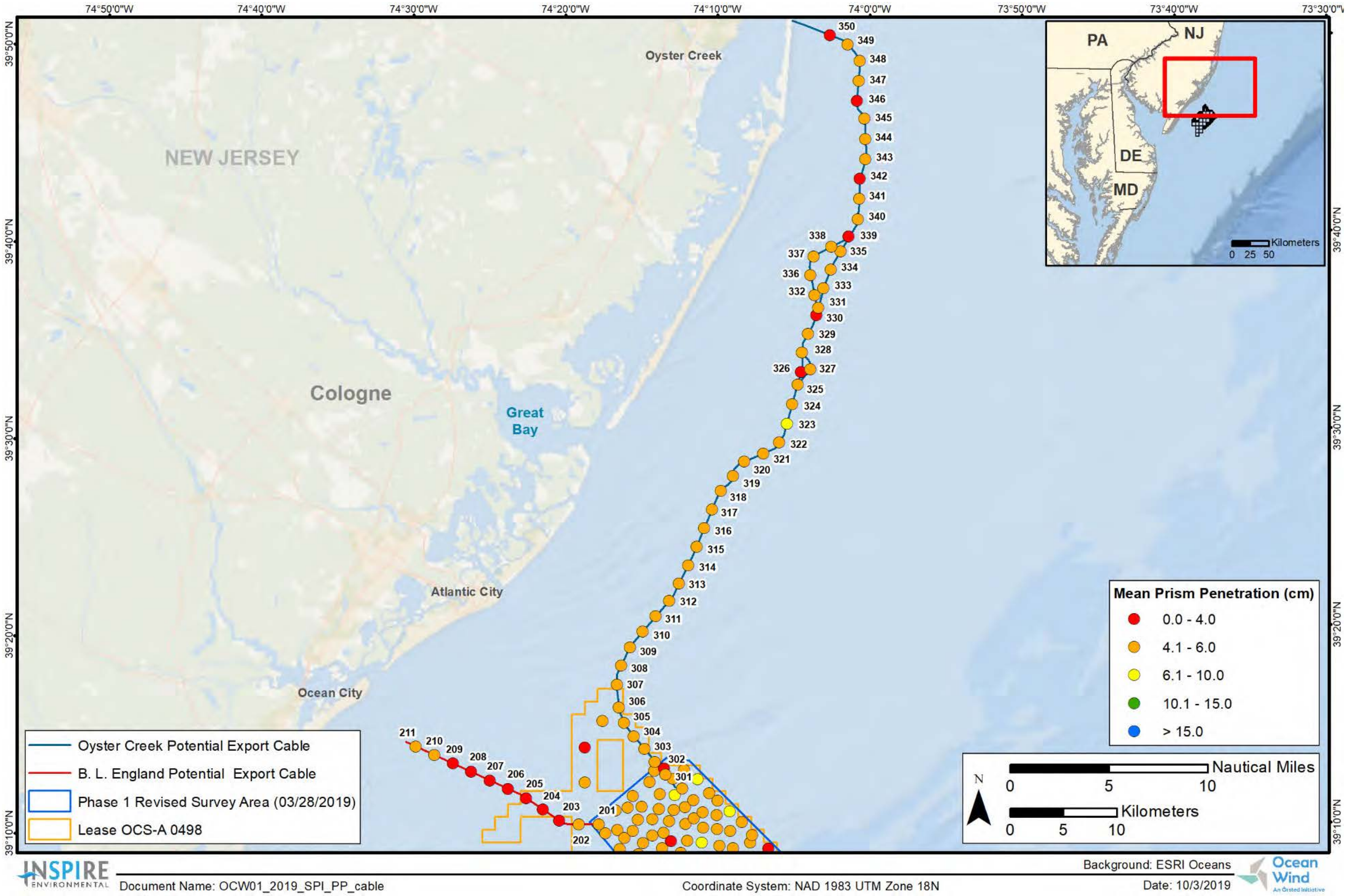


Figure 3-17. Mean station camera prism penetration depths (cm) along the export cable routes

(A) Mean prism penetration = 3.2 cm **(B)** Mean prism penetration = 5.9 cm **(C)** Mean prism penetration = 9.1 cm

Figure 3-18. Representative SPI images showing sediments with (A) low, (B) medium, and (C) high prism penetration values, corresponding to high, medium, and low bearing strength, respectively

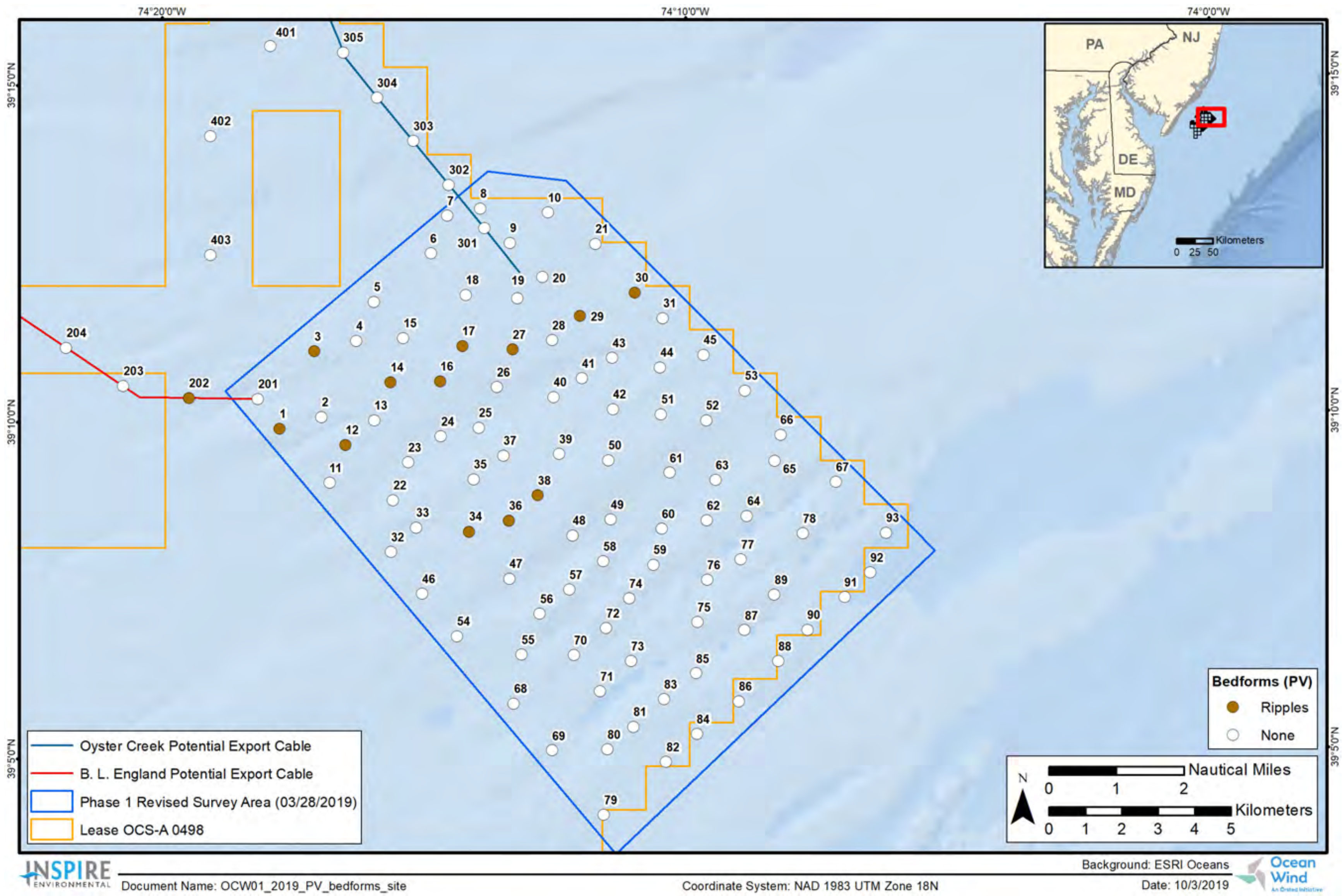


Figure 3-19. Bedforms observed in PV images at the OCW site

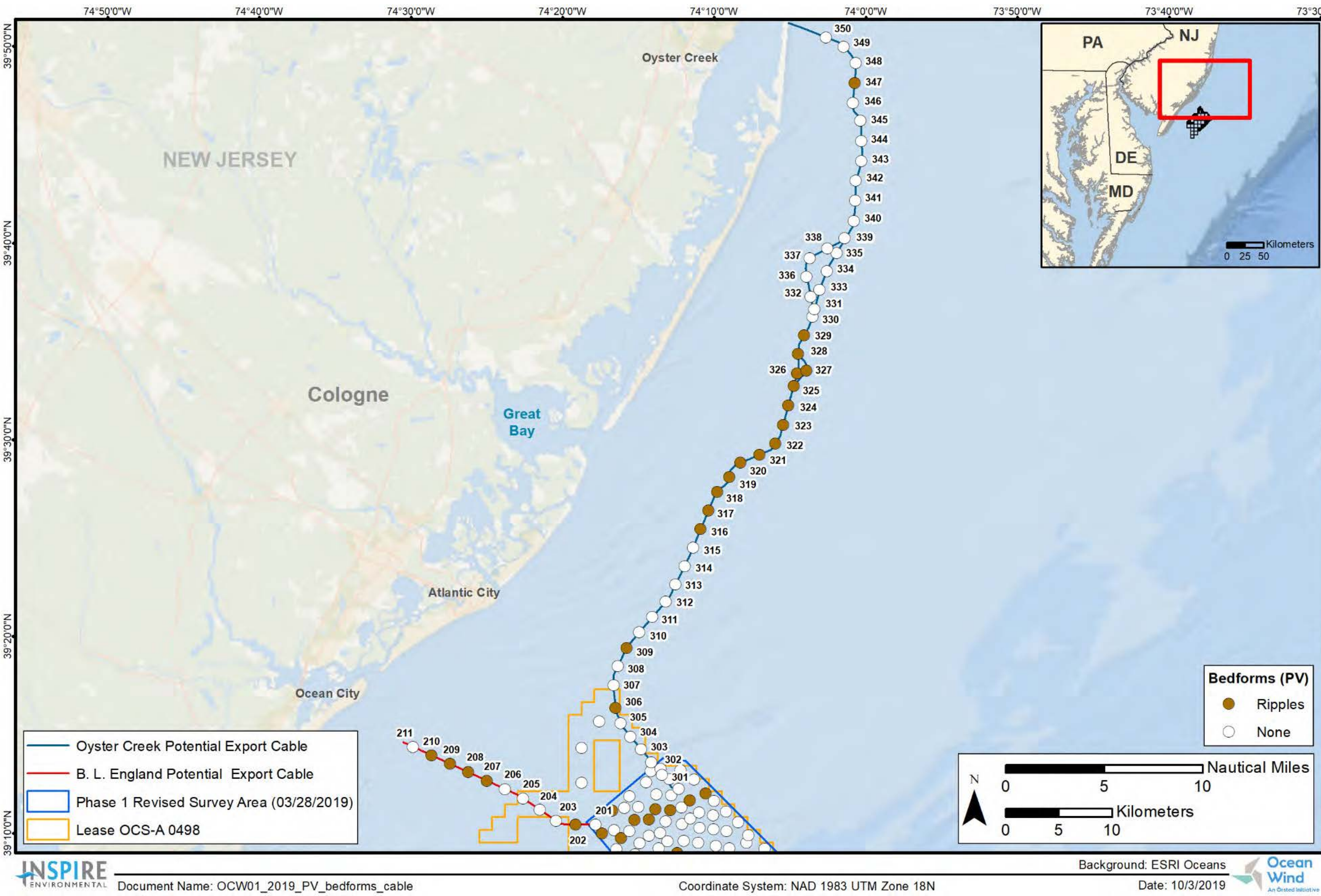
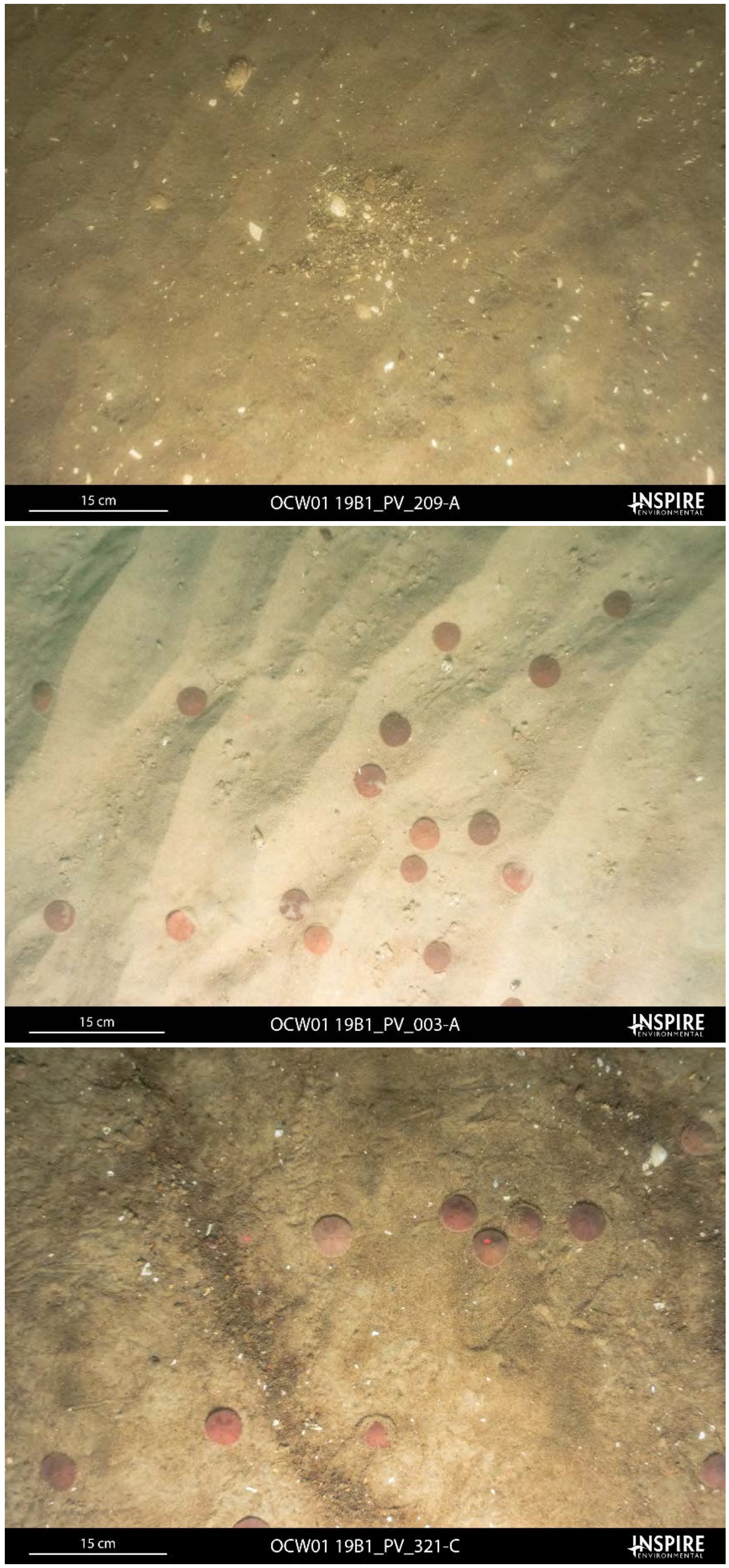


Figure 3-20. Bedforms observed in PV images along the export cable routes

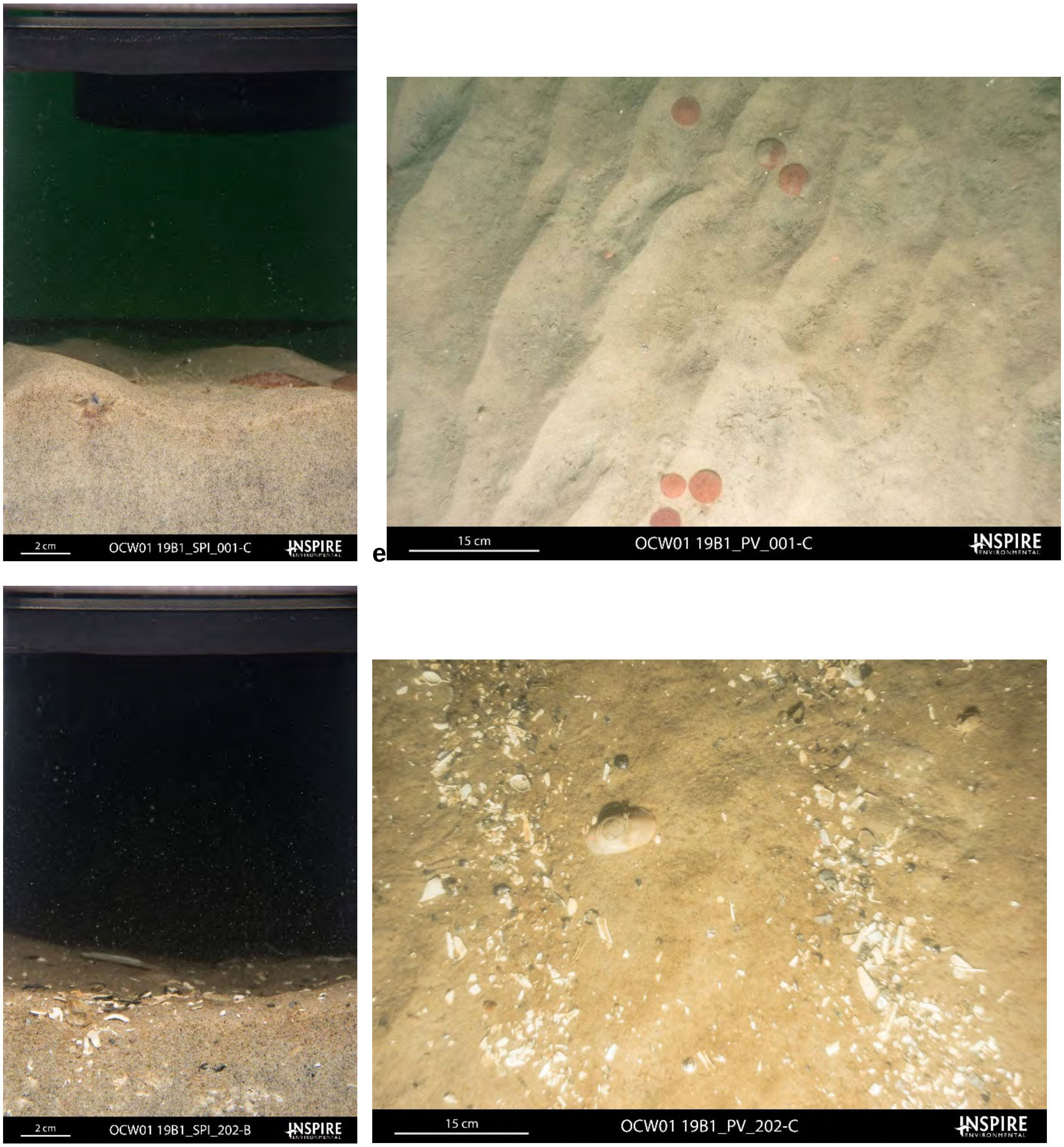


(A)

(B)

(C)

Figure 3-21. ***Representative PV images showing ripples of varying sizes***



(A) e

(B)

Figure 3-22. Representative SPI and PV images showing ripples. (A) Sand with evident rippling and evidence of sediment resuspension and transport. The large boundary roughness in the SPI image is due to the bedform amplitude. (B) Sand and shell hash with evident rippling. The shell hash is found in the ripple trough. The ripple crest is composed of sand.

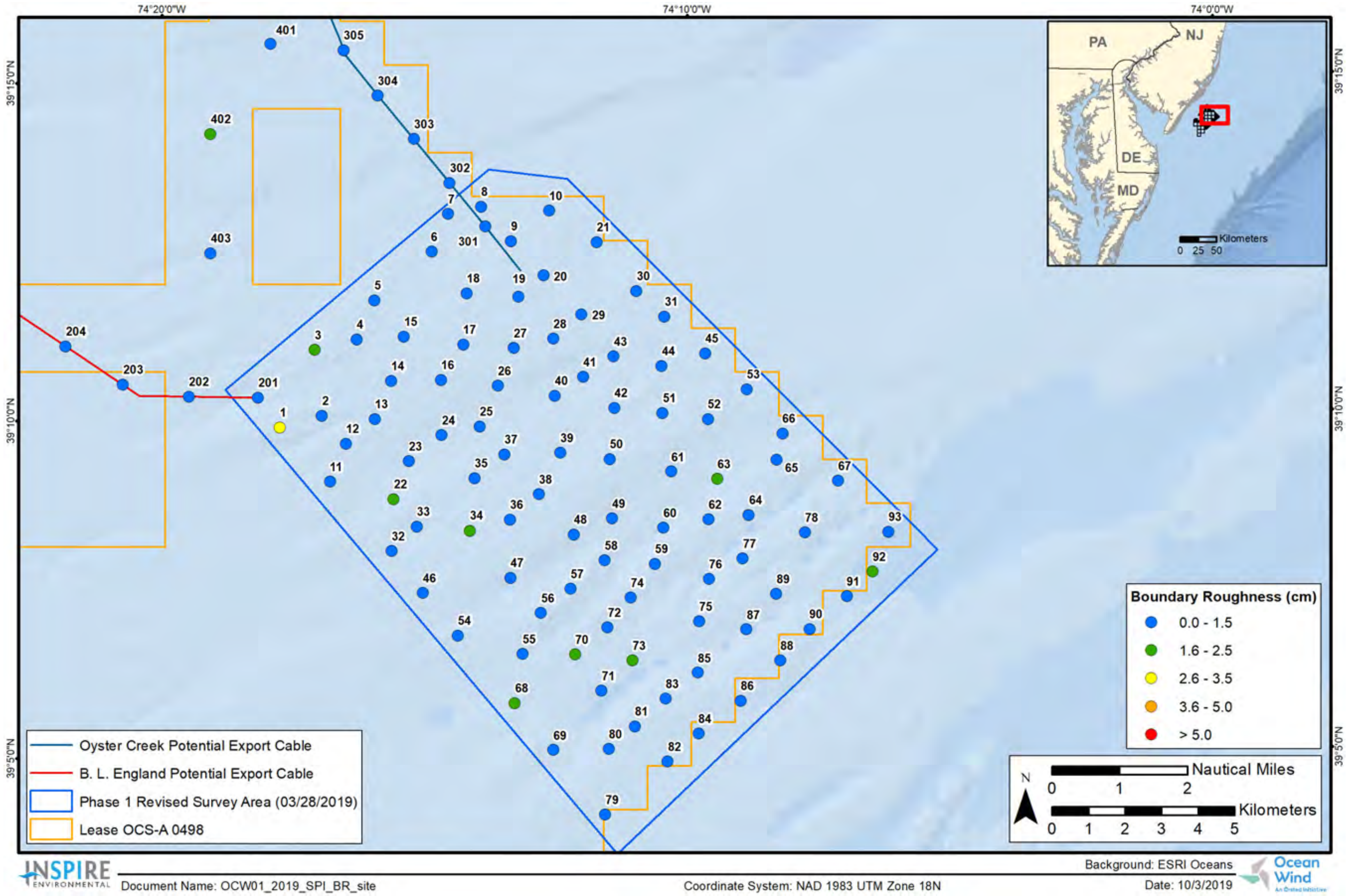


Figure 3-23. Mean station small-scale boundary roughness values (cm) at the OCW site

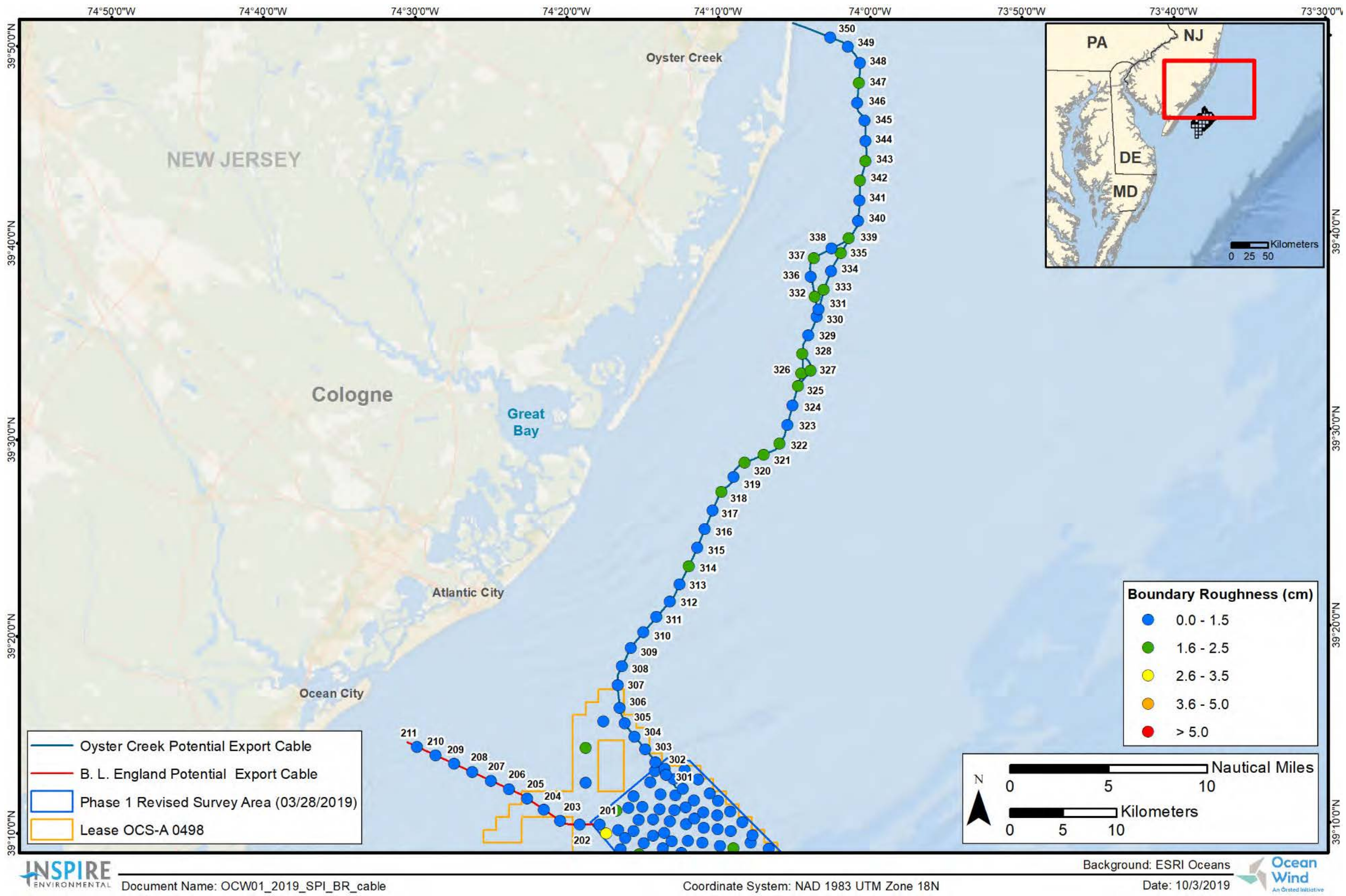


Figure 3-24. Mean station small-scale boundary roughness values (cm) along the export cable routes

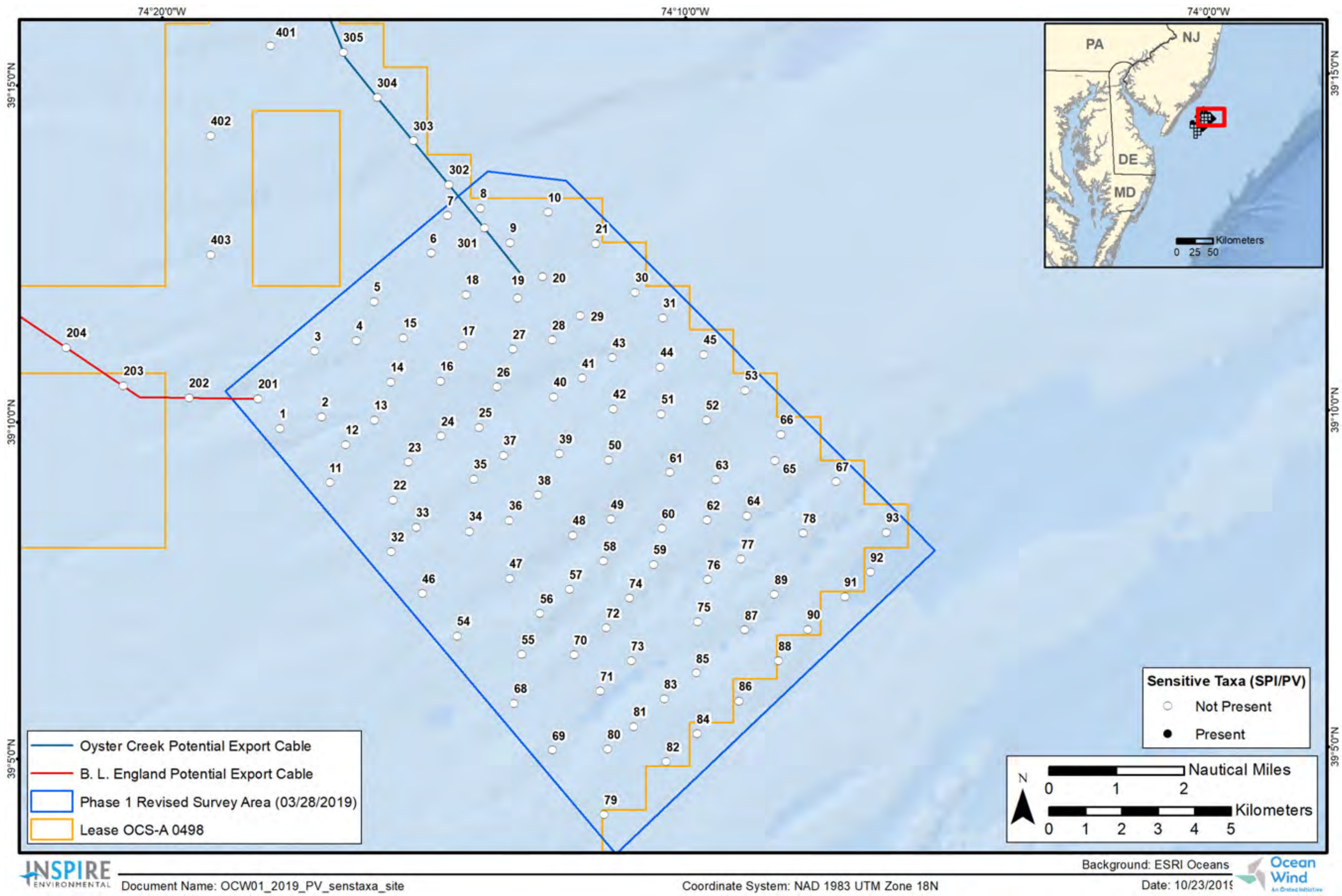


Figure 3-25. Sensitive taxa observed in SPI/PV images at the OCW site

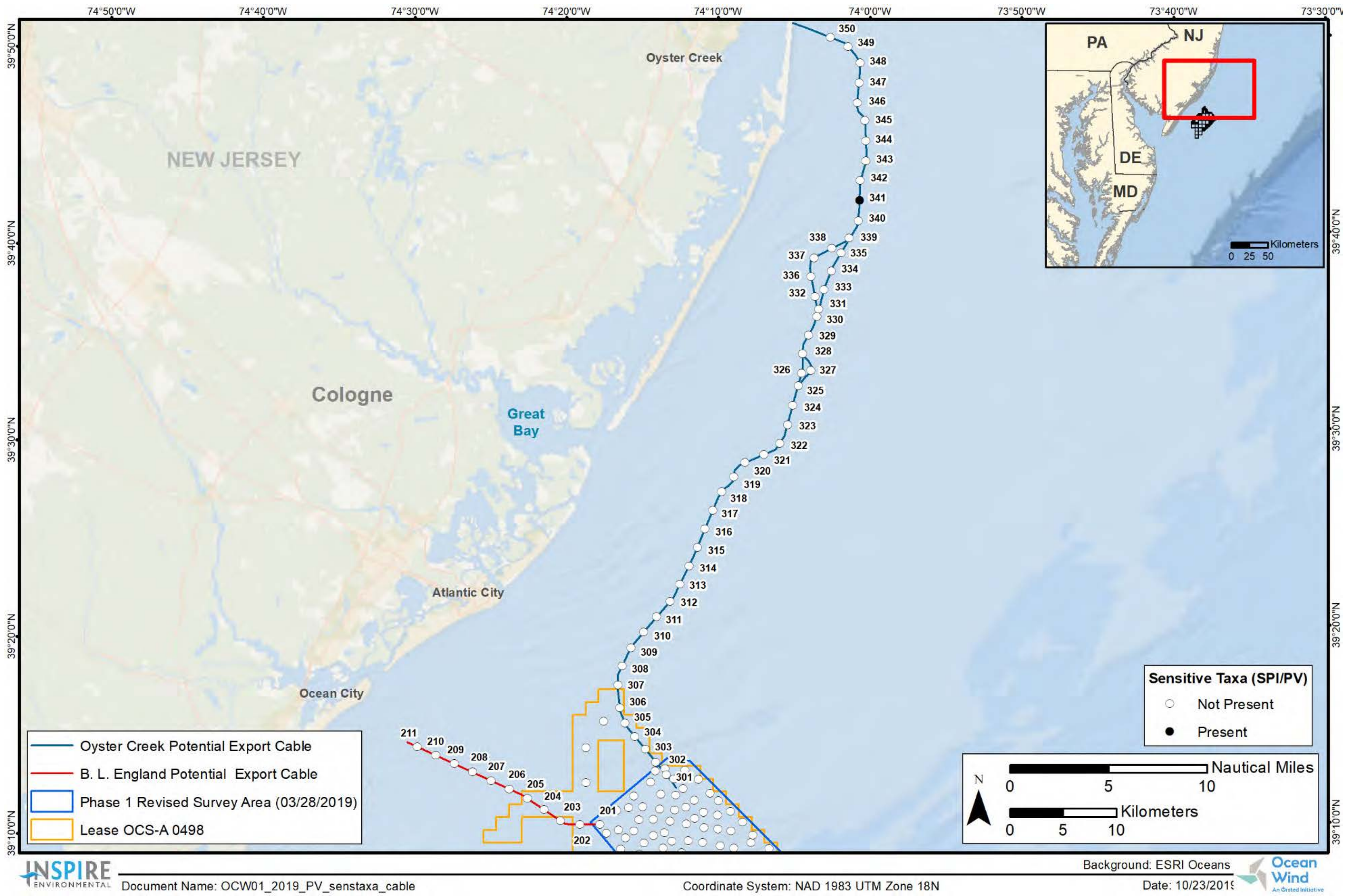


Figure 3-26. Sensitive taxa observed in SPI/PV images along the export cable routes

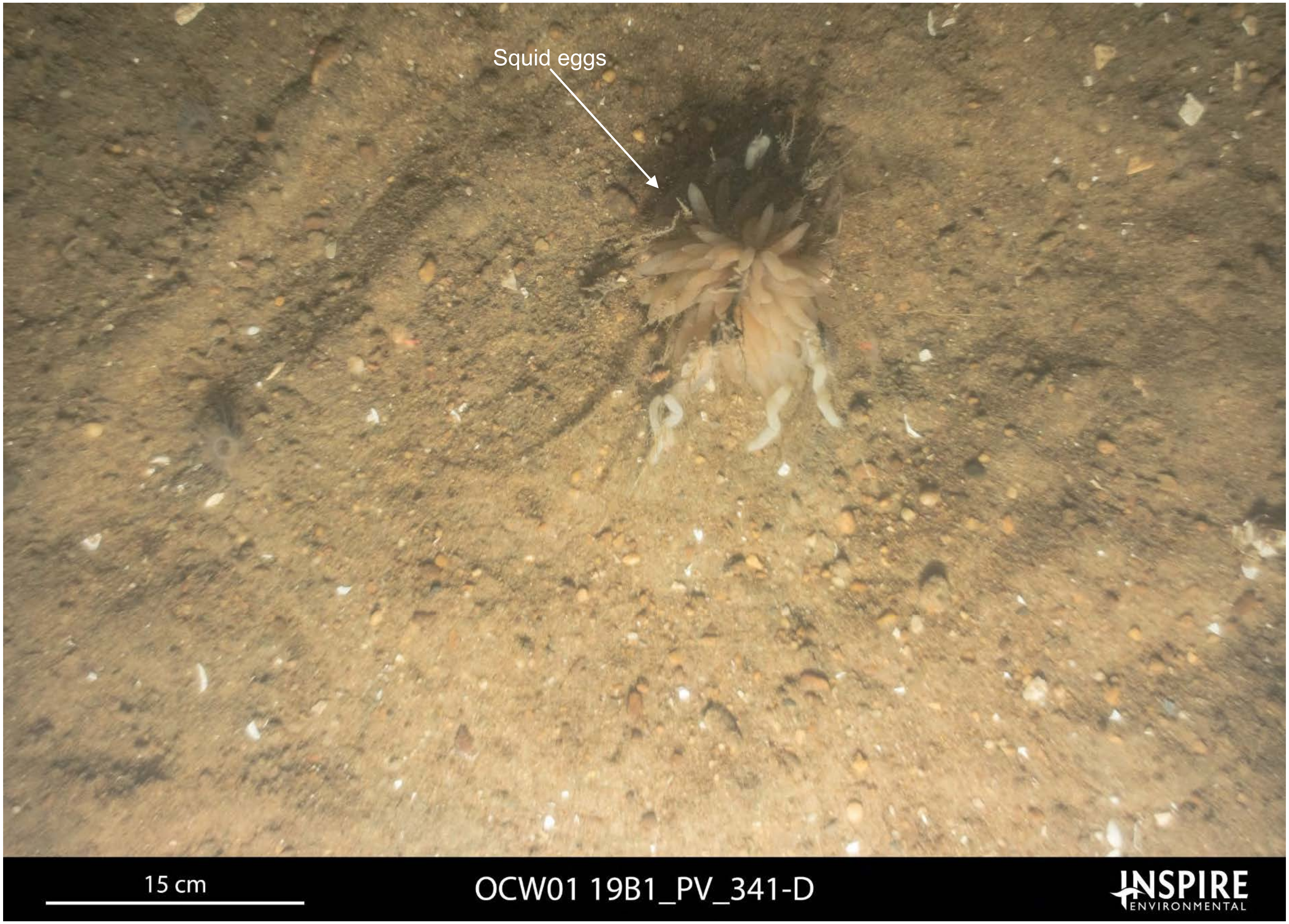


Figure 3-27. Plan view image at Station 341 on the Oyster Creek export cable route depicting squid eggs on the seafloor

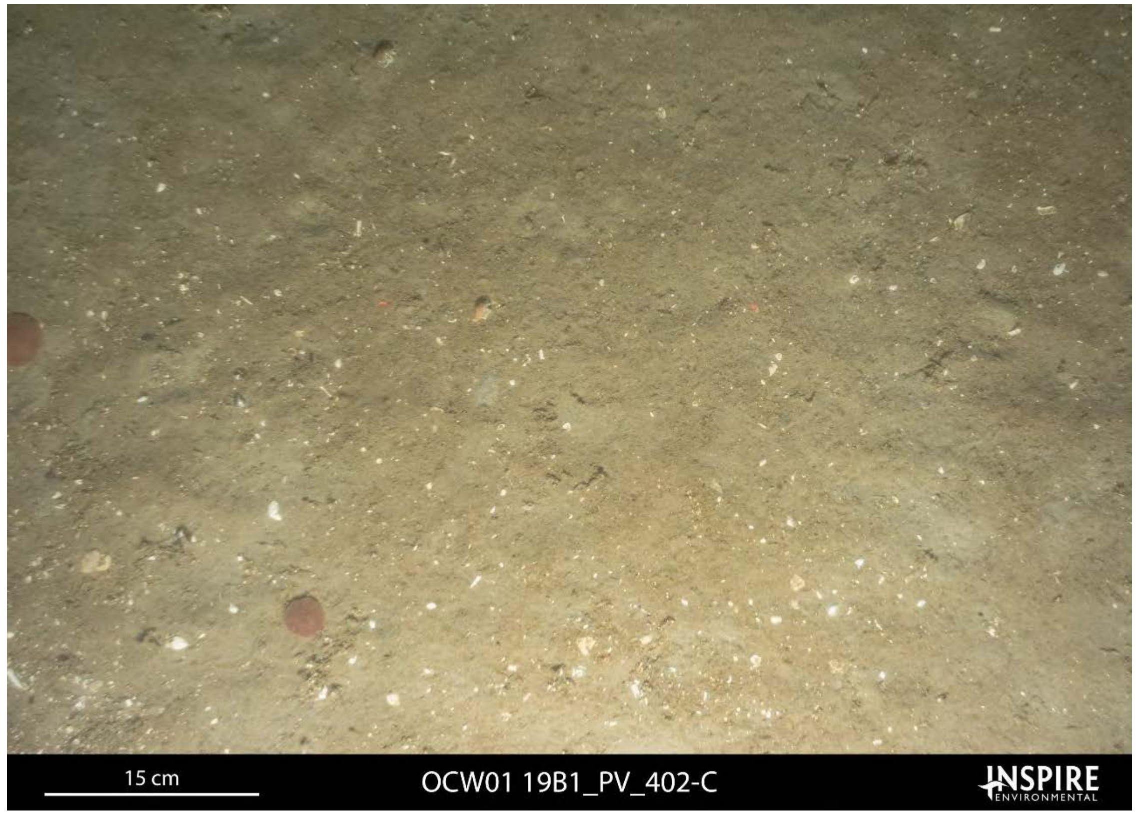


Figure 3-28. Representative SPI and PV images depicting the sediment type at the reference stations

Sediment Profile and Plan View Imaging Physical Ground-Truth Survey in Support of the Ocean Wind Offshore Wind Farm Site Assessment

DATA REPORT

Survey Conducted 18-21 July 2019

APPENDICES

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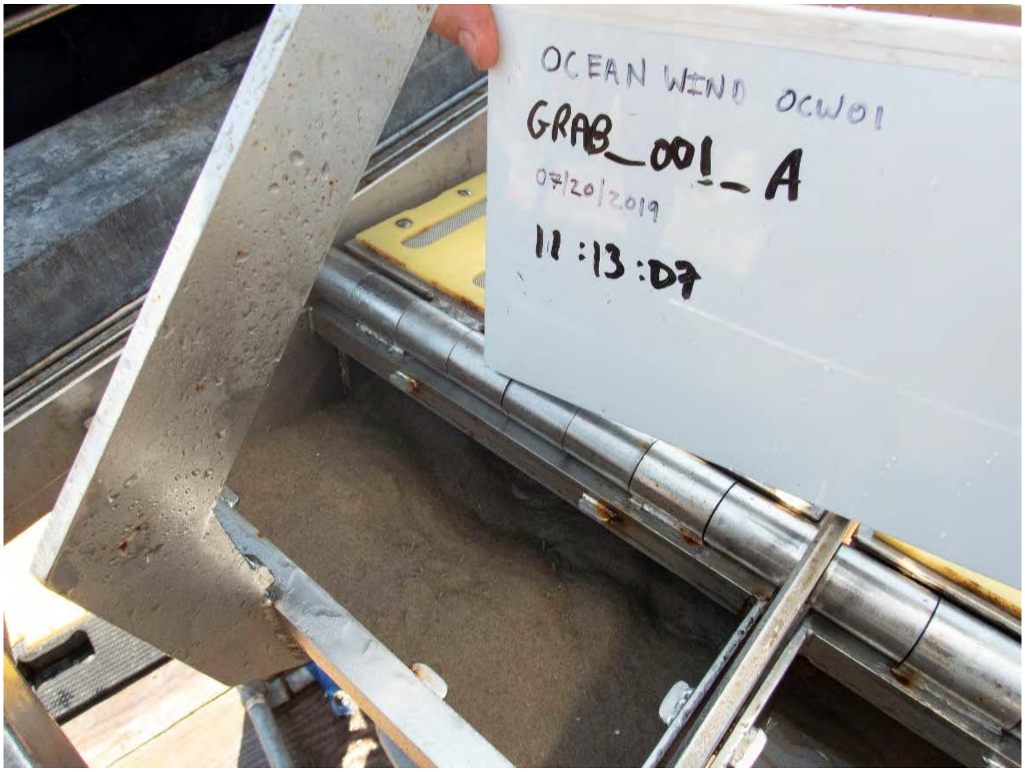
January 2020

APPENDIX A

Sediment Grab Photographs

Sediment Grab Station Information

StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83
001	A	7/20/2019	11:13	560757	4335298	39°09'53.19"N	74°17'48.20"W
003	A	7/20/2019	12:40	561695	4337416	39°11'01.68"N	74°17'08.43"W
008	A	7/20/2019	14:56	566269	4341325	39°13'07.26"N	74°13'56.39"W
012	A	7/20/2019	10:13	562547	4334848	39°09'38.16"N	74°16'33.75"W
017	A	7/20/2019	8:25	565743	4337551	39°11'04.97"N	74°14'19.65"W
021	A	7/20/2019	6:37	569405	4340371	39°12'35.42"N	74°11'46.00"W
025	A	7/20/2019	4:06	566213	4335316	39°09'52.36"N	74°14'00.84"W
033	A	7/19/2019	20:24	564482	4332557	39°08'23.32"N	74°15'13.93"W
036	A	7/19/2019	21:20	567044	4332778	39°08'29.79"N	74°13'27.11"W
041	A	7/20/2019	1:04	569042	4336667	39°10'35.37"N	74°12'02.48"W
045	A	7/19/2019	23:17	572397	4337313	39°10'55.36"N	74°09'42.40"W
049	A	7/19/2019	13:42	569838	4332781	39°08'29.12"N	74°11'30.75"W
049	B	7/19/2019	13:45	569843	4332788	39°08'29.34"N	74°11'30.52"W
052	A	7/19/2019	16:21	572455	4335512	39°09'56.93"N	74°09'40.69"W
054	A	7/19/2019	19:10	565625	4329583	39°06'46.54"N	74°14'27.37"W
060	A	7/19/2019	7:20	571250	4332529	39°08'20.51"N	74°10'32.02"W
061	A	7/19/2019	14:12	571450	4334063	39°09'10.20"N	74°10'23.10"W
065	A	7/19/2019	5:17	574342	4334393	39°09'20.05"N	74°08'22.49"W
067	A	7/19/2019	4:52	576015	4333814	39°09'00.75"N	74°07'13.03"W
068	A	7/19/2019	11:00	567181	4327744	39°05'46.46"N	74°13'23.21"W
070	A	7/19/2019	10:28	568817	4329048	39°06'28.31"N	74°12'14.66"W
074	A	7/19/2019	8:44	570367	4330648	39°07'19.75"N	74°11'09.53"W
077	A	7/19/2019	3:37	573412	4331691	39°07'52.68"N	74°09'02.30"W
080	A	7/18/2019	22:48	569729	4326494	39°05'05.19"N	74°11'37.62"W
080	B	7/18/2019	23:01	569757	4326472	39°05'04.47"N	74°11'36.45"W
082	A	7/18/2019	20:29	571349	4326122	39°04'52.67"N	74°10'30.33"W
088	A	7/18/2019	16:25	574436	4328890	39°06'21.52"N	74°08'20.77"W
088	B	7/18/2019	16:57	574445	4328898	39°06'21.78"N	74°08'20.38"W
202	A	7/20/2019	18:09	558253	4336116	39°10'20.36"N	74°19'32.26"W
205	A	7/20/2019	19:43	553300	4338563	39°11'40.86"N	74°22'57.97"W
208	A	7/20/2019	21:06	548174	4341029	39°13'01.94"N	74°26'31.04"W
211	A	7/20/2019	22:34	542979	4343385	39°14'19.35"N	74°30'07.12"W
304	A	7/21/2019	2:01	563417	4344376	39°14'46.98"N	74°15'54.30"W
308	A	7/21/2019	4:03	562237	4351010	39°18'22.47"N	74°16'41.31"W
313	A	7/21/2019	6:16	567670	4358718	39°22'31.01"N	74°12'51.66"W
319	A	7/21/2019	9:09	572718	4368772	39°27'55.66"N	74°09'16.78"W
323	A	7/21/2019	10:44	577761	4373686	39°30'33.45"N	74°05'43.67"W
323	B	7/21/2019	10:50	577763	4373687	39°30'33.46"N	74°05'43.61"W
328	A	7/21/2019	13:35	579173	4380377	39°34'10.00"N	74°04'41.69"W
334	A	7/21/2019	16:07	581887	4388171	39°38'21.87"N	74°02'44.51"W
341	A	7/21/2019	18:30	584561	4394791	39°41'55.63"N	74°00'49.28"W
346	A	7/21/2019	20:22	584340	4403959	39°46'53.05"N	74°00'54.33"W
350	A	7/21/2019	22:09	581816	4410126	39°50'13.92"N	74°02'37.63"W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07/20/2019
12:40:21


OCEAN WIND OCW01
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07/20/2019
14:56:55


OCEAN
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07/20/2019
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OCEAN WIND OCW01
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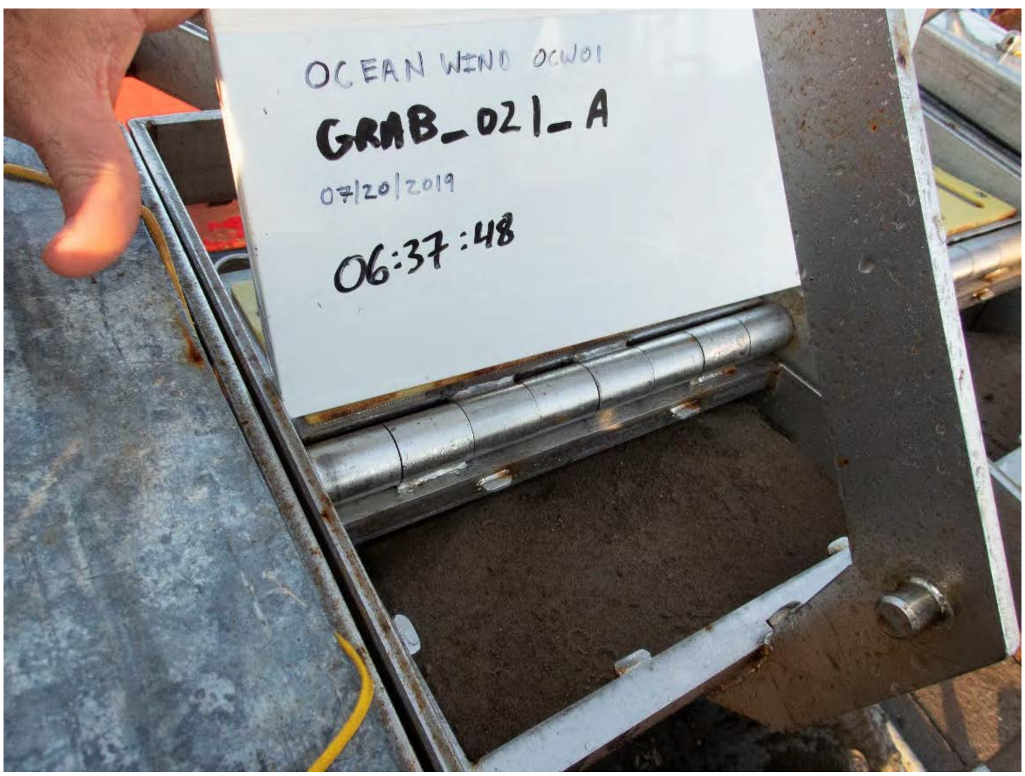
08:25:10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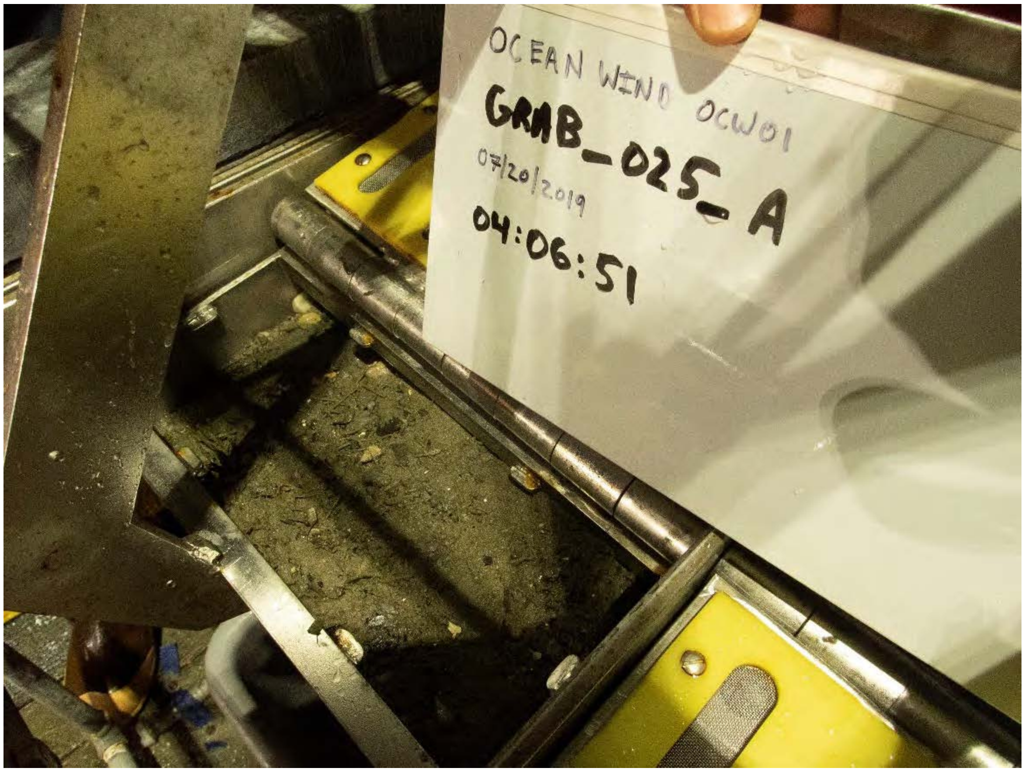
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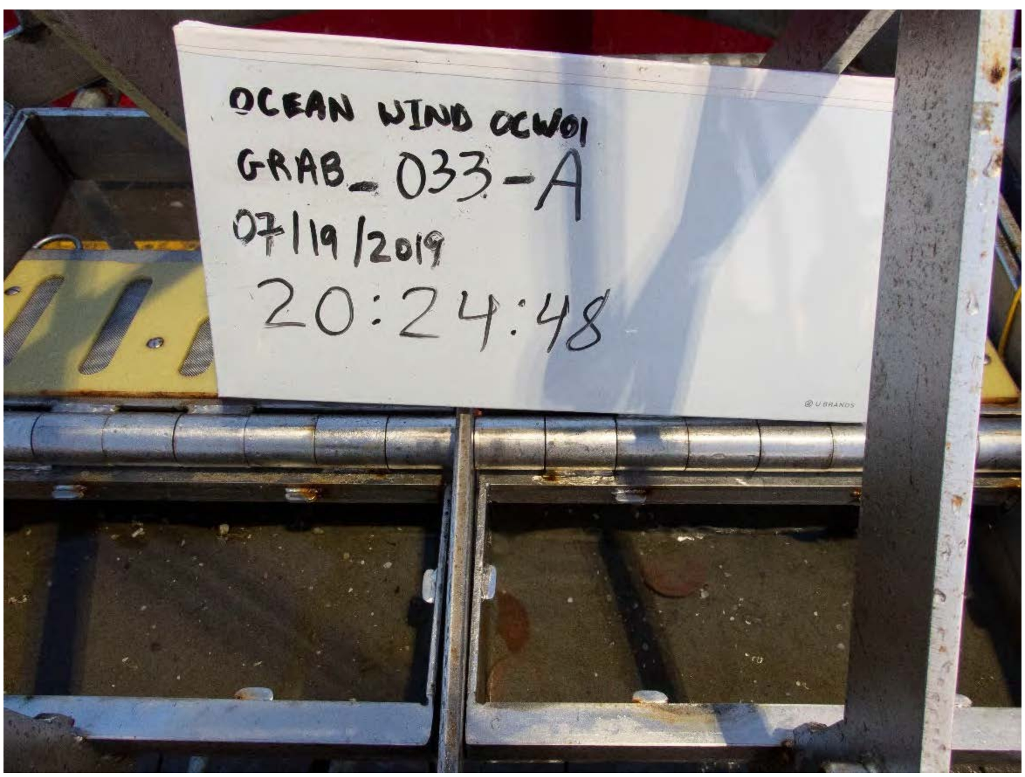
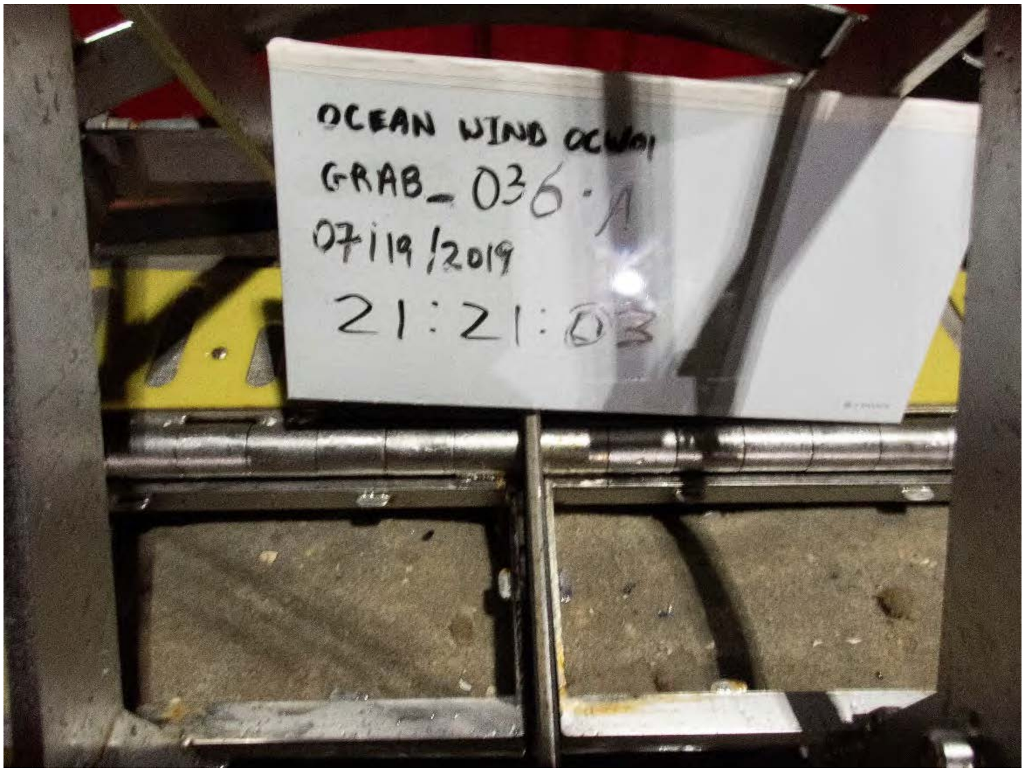
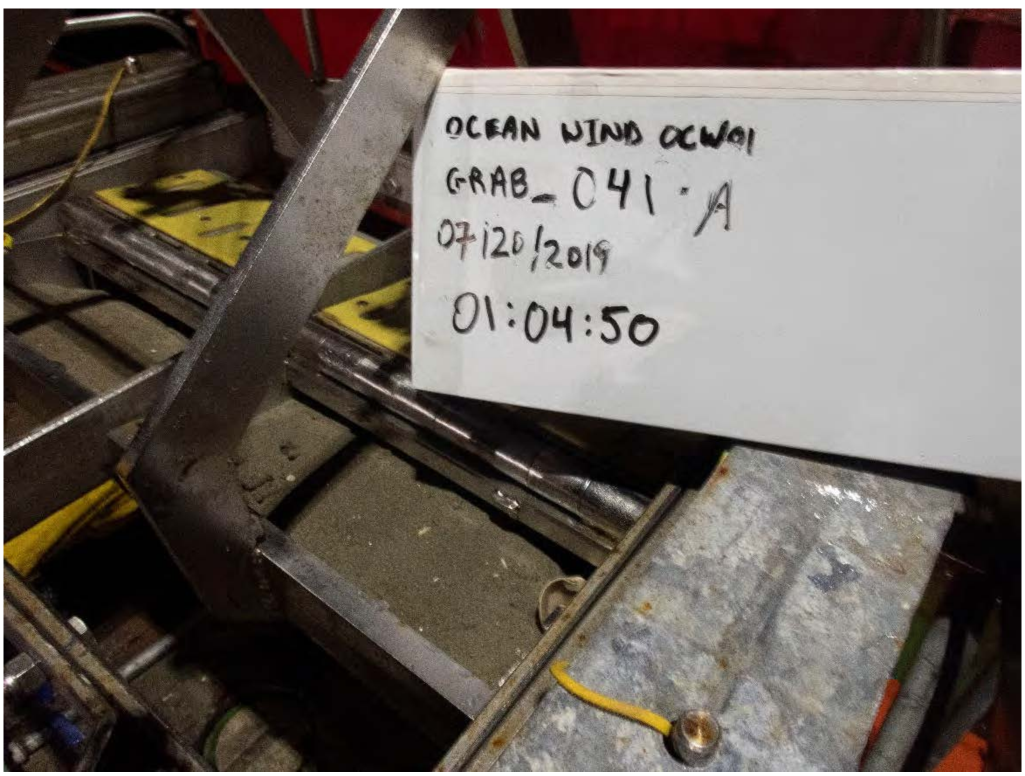
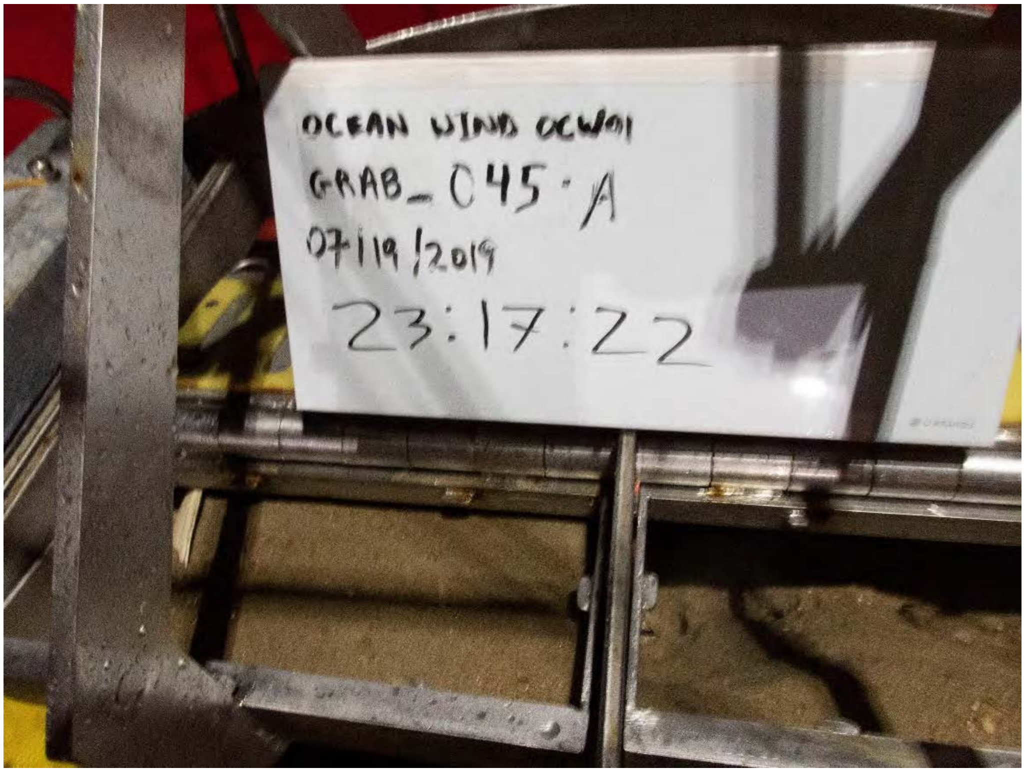
07/20/2019
04:06:51


OCEAN WIND OCW01
GRAB_033-A
07/19/2019
20:24:48

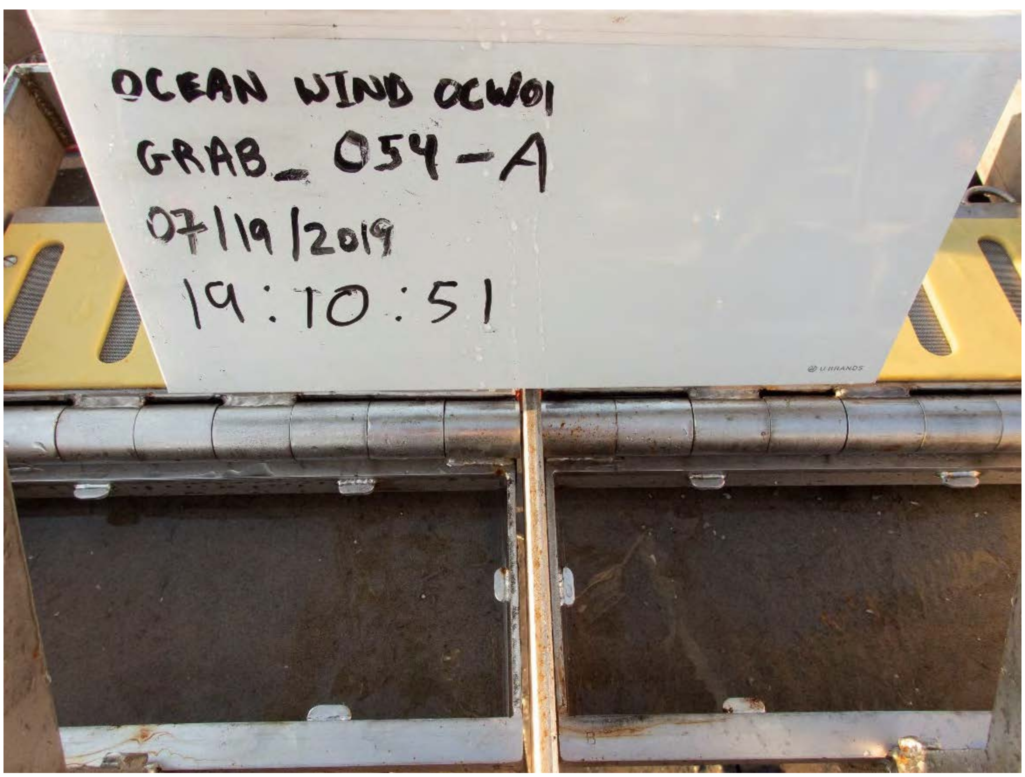

OCEAN WIND OCW01
GRAB_036-A
07/19/2019
21:21:03


OCEAN WIND OCW01
GRAB_041-A
07/20/2019
01:04:50

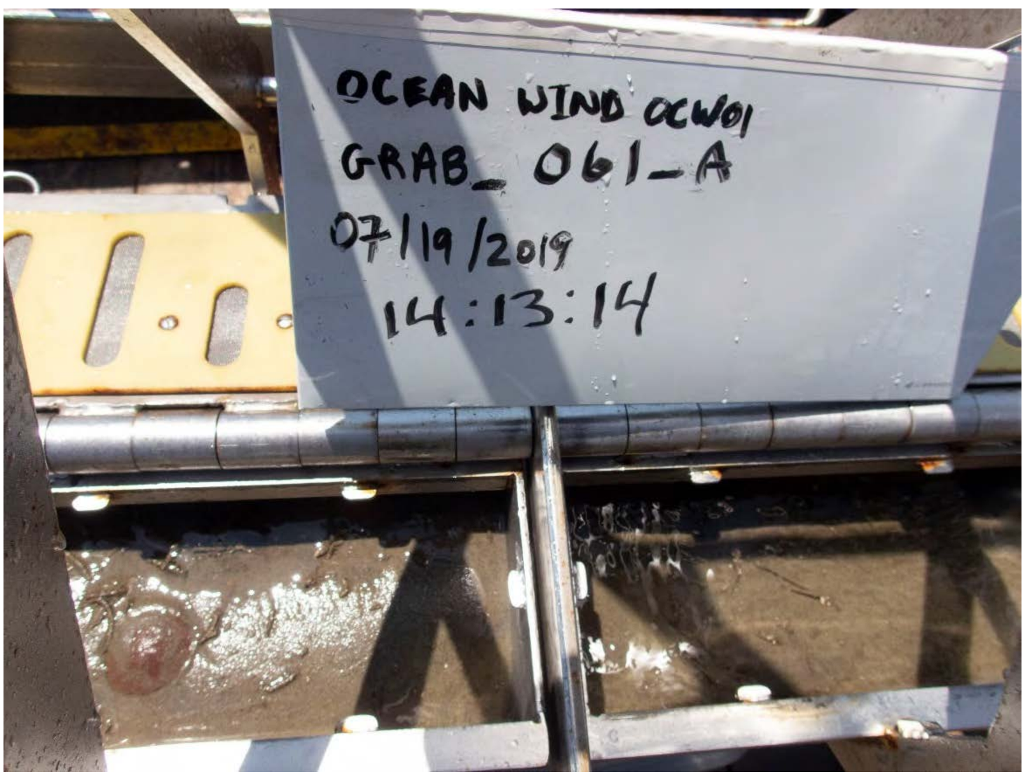

OCEAN WIND OCW01
GRAB_045 A
07/19/2019
23:17:22


OCEAN WIND OCW01
GRAB_049_B
07/19/2019
13:45:22

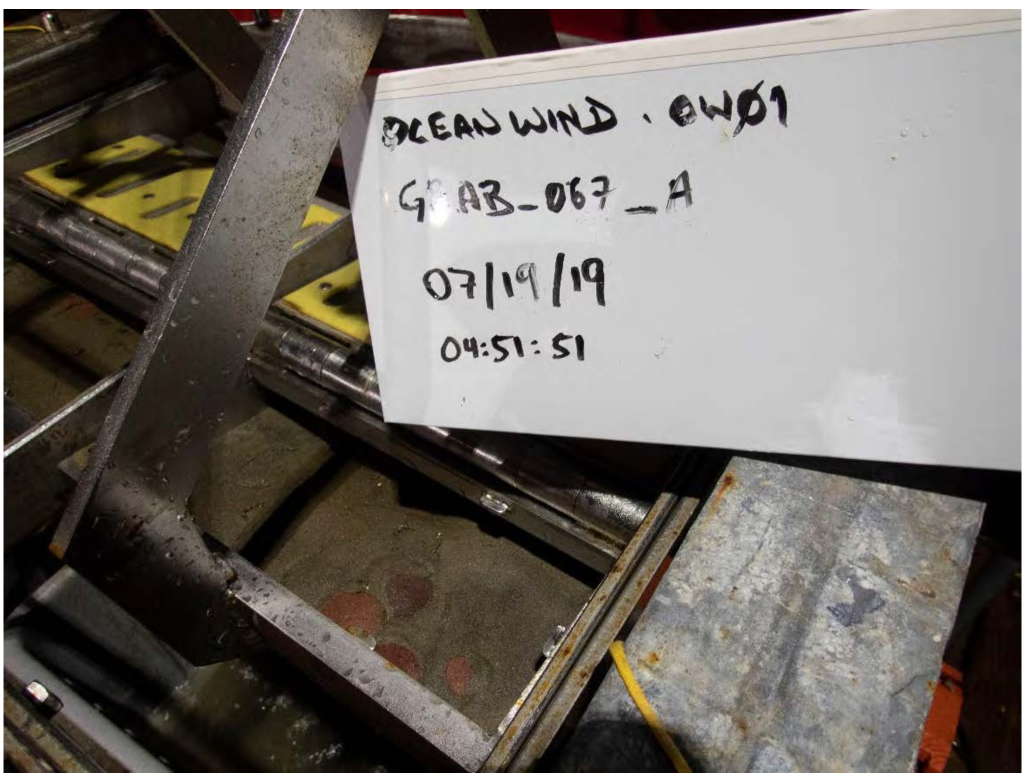

OCEAN WIND OCW01
GRAB_ 052-A
07/19/2019
16:21:58

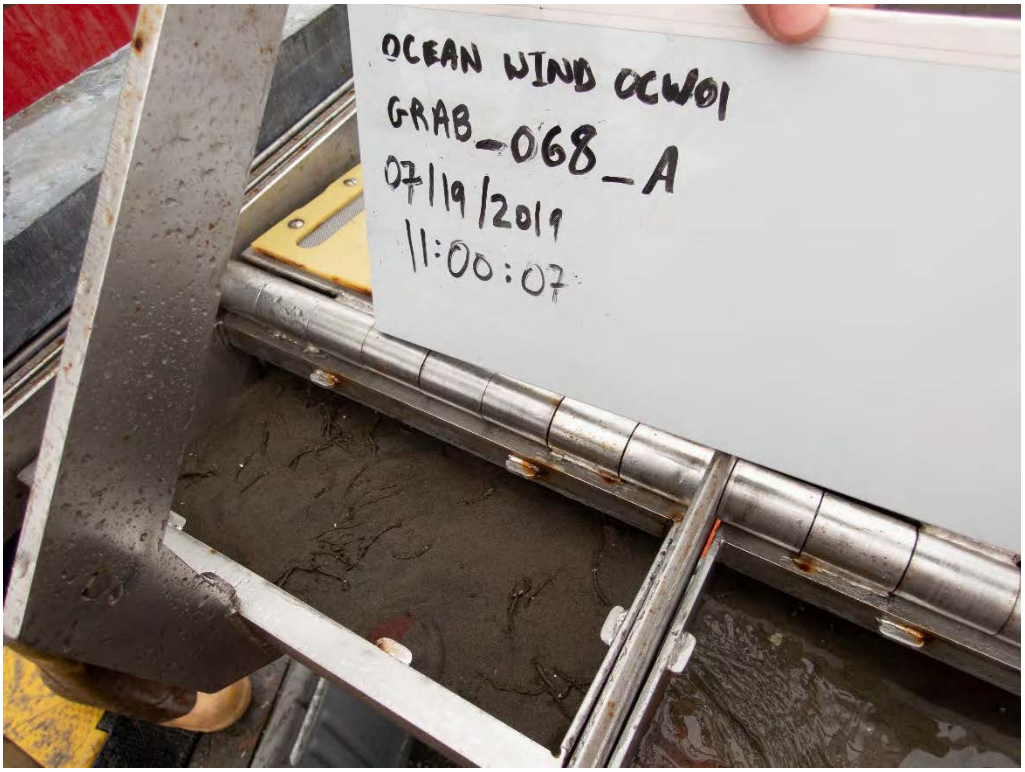

OCEAN WIND OCW01
GRAB_ 054-A
07/19/2019
19:10:51


OCEAN WIND OCW01
GRAB_060_A
07/19/2019
07:20:50

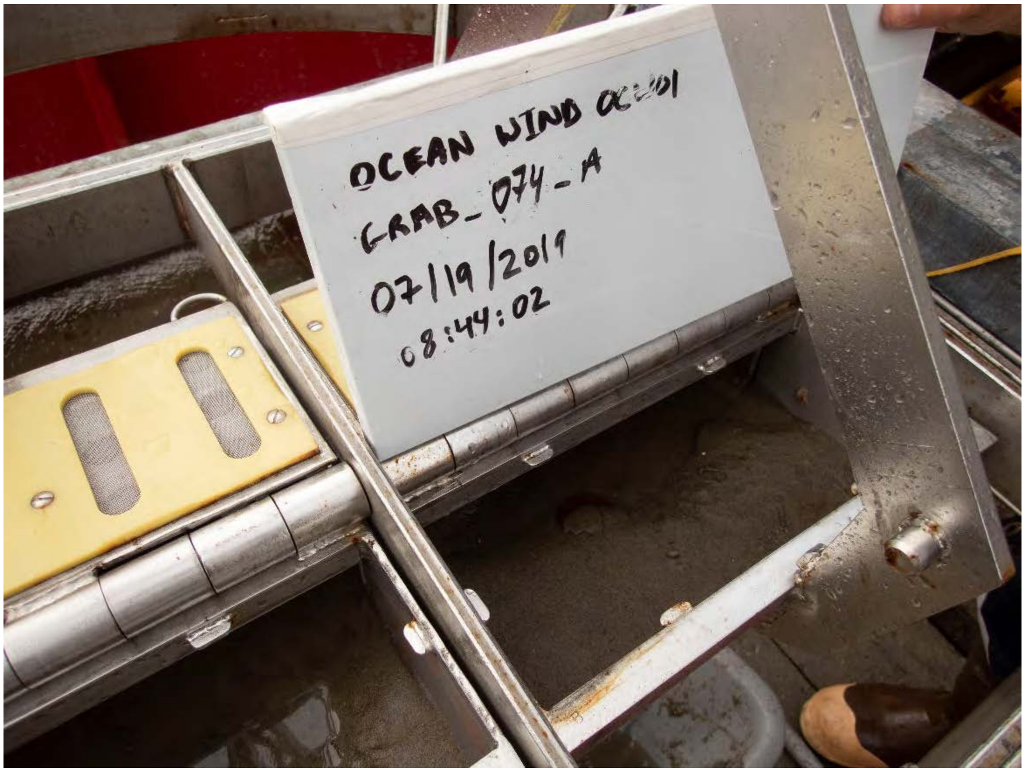

OCEAN WIND OCW01
GRAB_061_A
07/19/2019
14:13:14

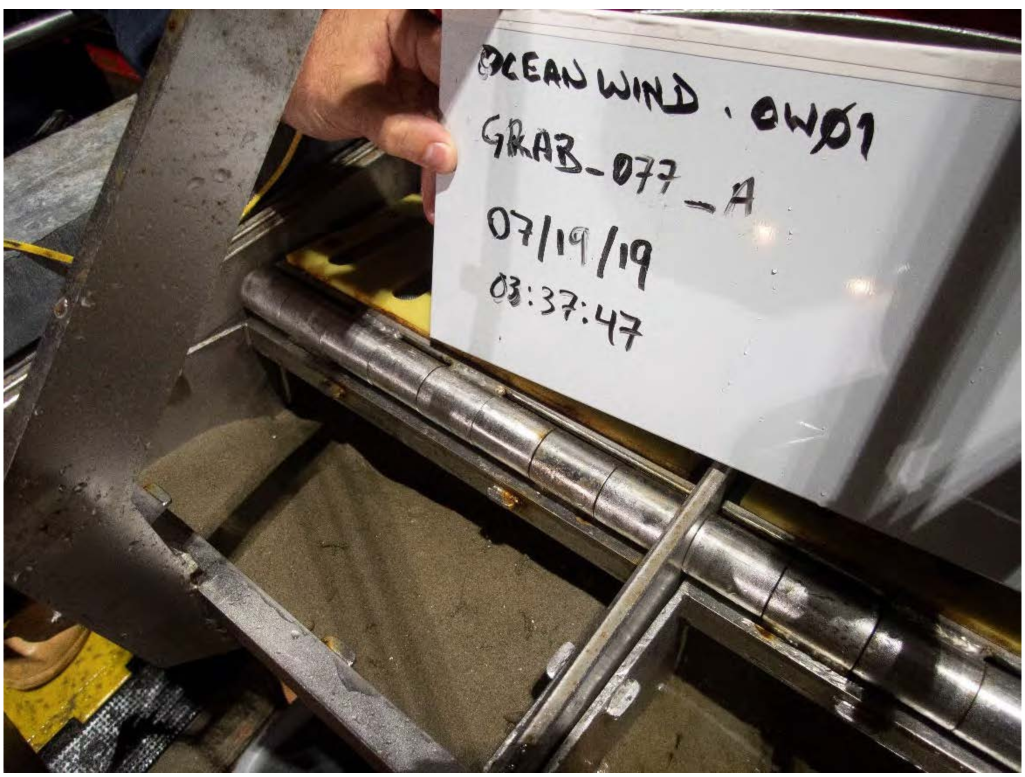

OCEAN WIND OWC01
GRAB_065_A
07/19/2019


OCEAN WIND . OWØ1
07/19/19
04:51:51


OCEAN WIND OCW01
GRAB_068_A
07/19/2019
11:00:07

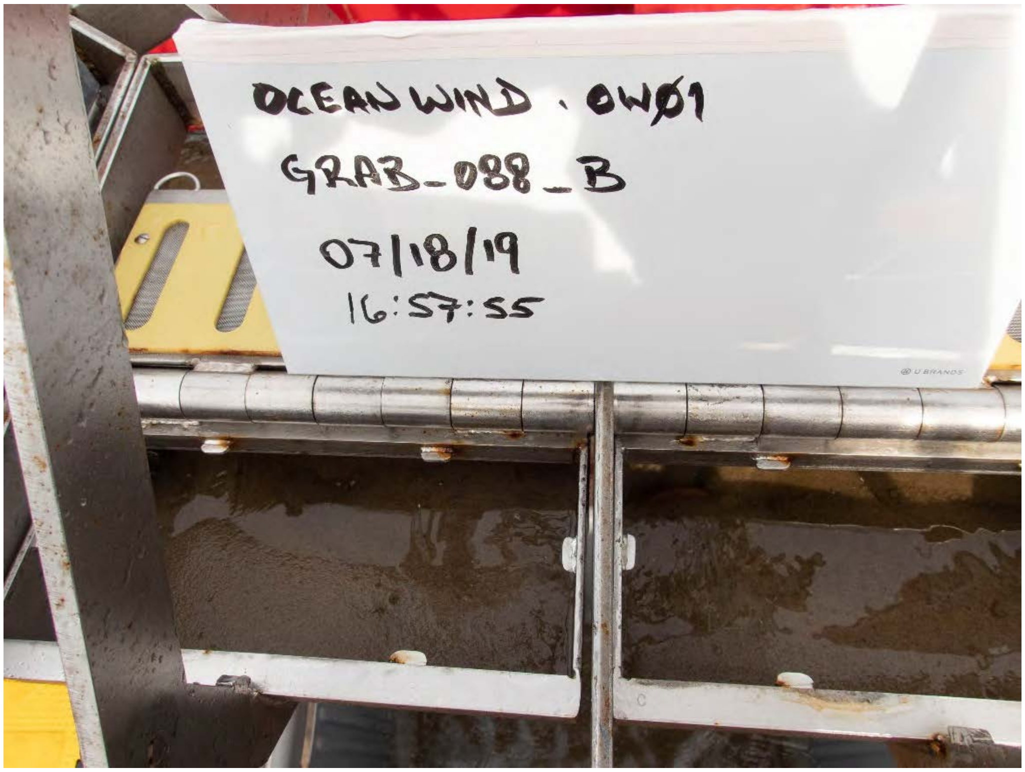

OCEAN WIND OCW01
GRAB_070_A
07/19/2019
10:28:40


OCEAN WIND OC-01
GRAB_074_A
07/19/2019
08:44:02

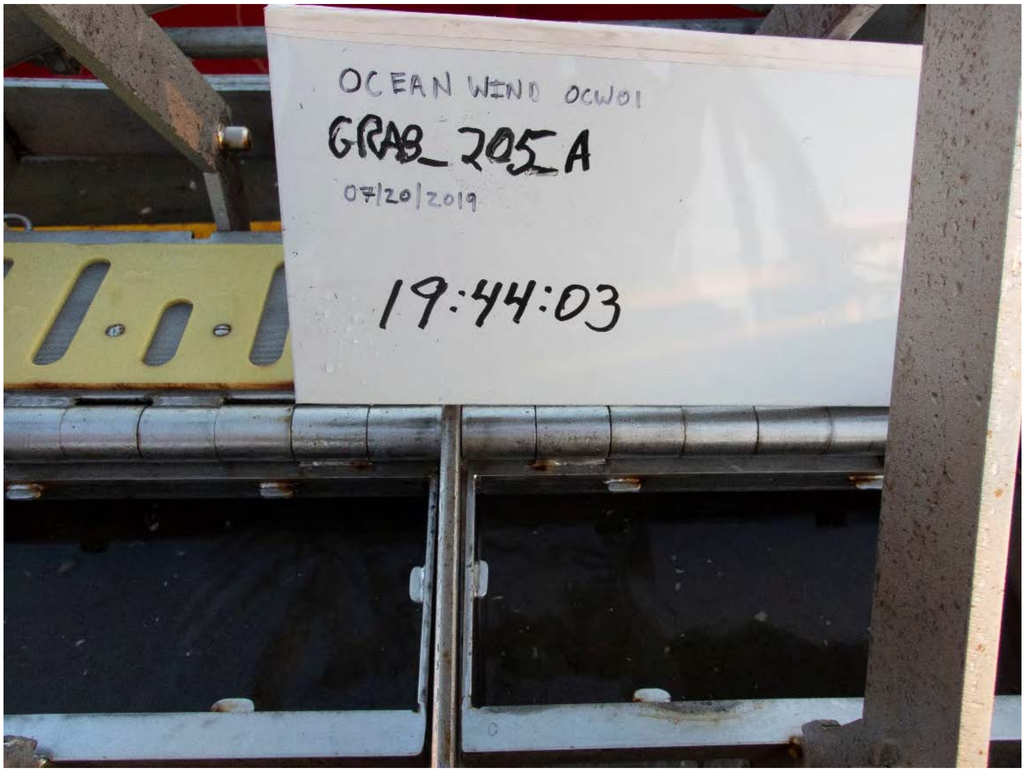

OCEAN WIND . OW01
GRAB_077_A
07/19/19
08:37:47


OCEAN WIND . OWØ1
GRAB_080_B
07/18/19
23:01:53


OCEAN WIND . OWØ1
GRAB_082_A
07/18/19
20:29:21

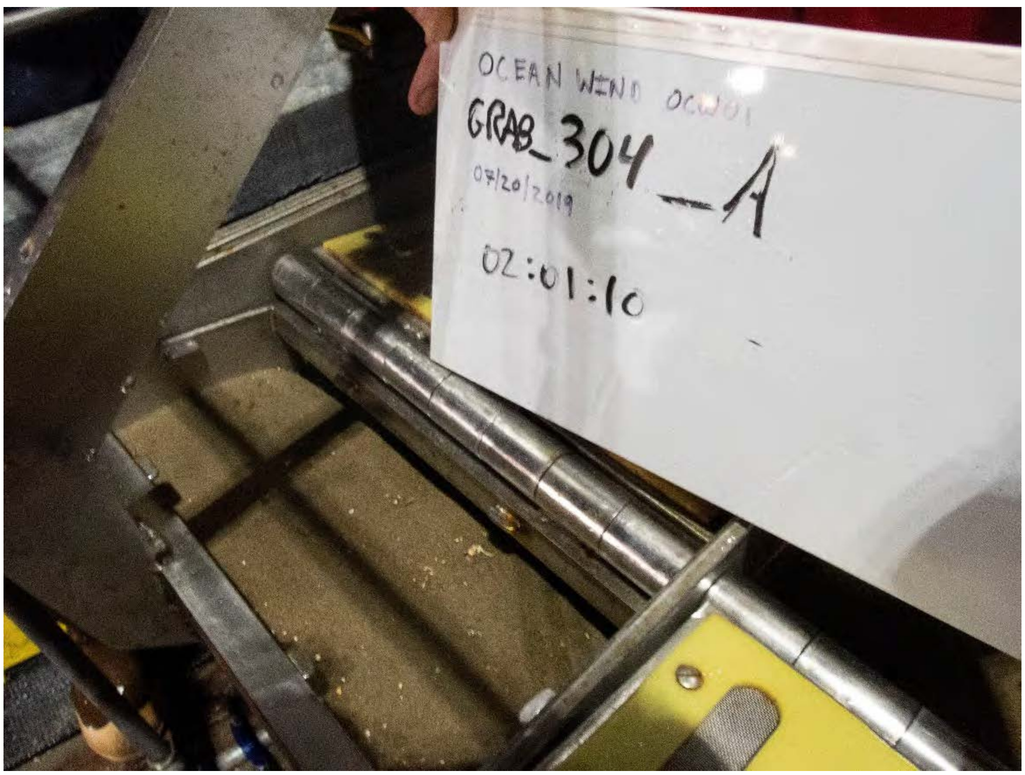

OCEAN WIND . OWØ1
GRAB_088_B
07/18/19
16:57:55

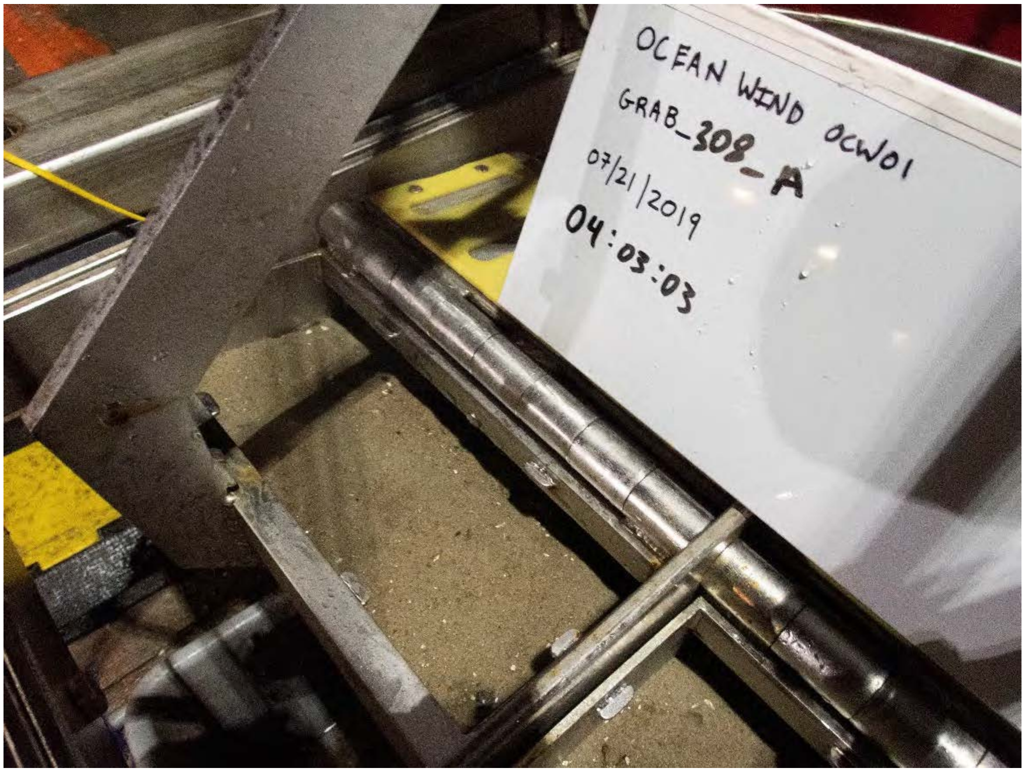

GRAB_202_A
07/20/2019
18:09:21


OCEAN WIND OCW01
GRAB_205_A
07/20/2019
19:44:03


OCEAN WIND OCW01
GRAB_208_A
07/20/2019
21:06:22


OCEAN WIND OCW01
GRAB_211_A
07/20/2019
22:34:38

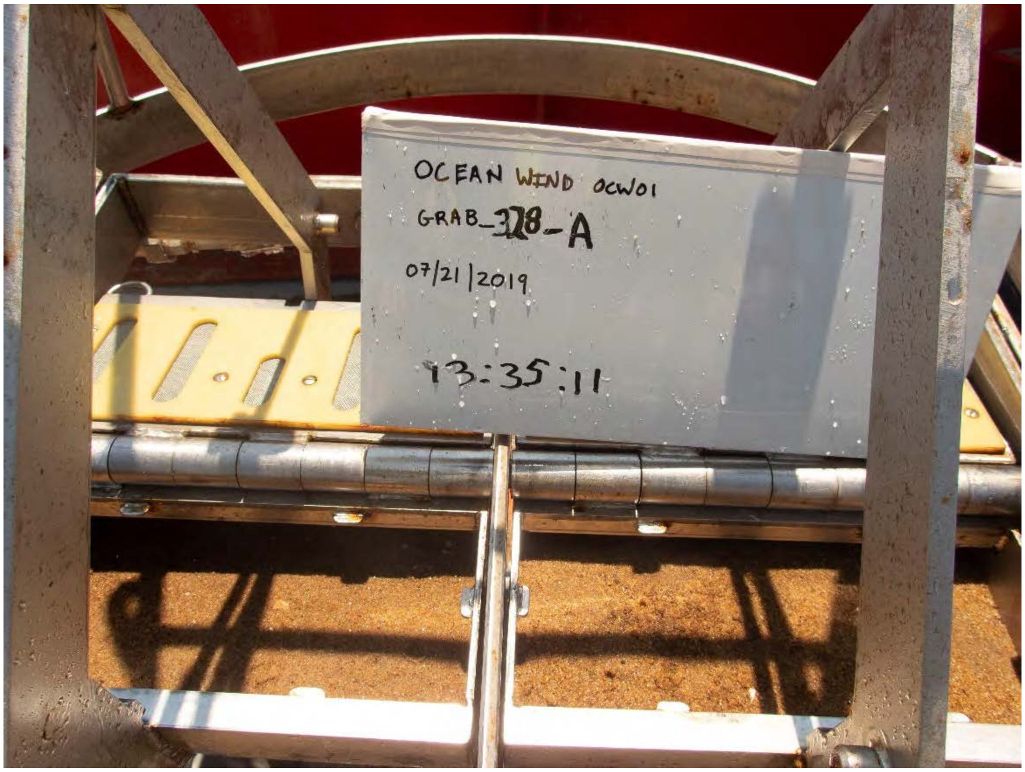

OCEAN WIND OCW01
GRAB_304_A
07/20/2019
02:01:10


OCEAN WIND OCW01
GRAB_308_A
07/21/2019
04:03:03

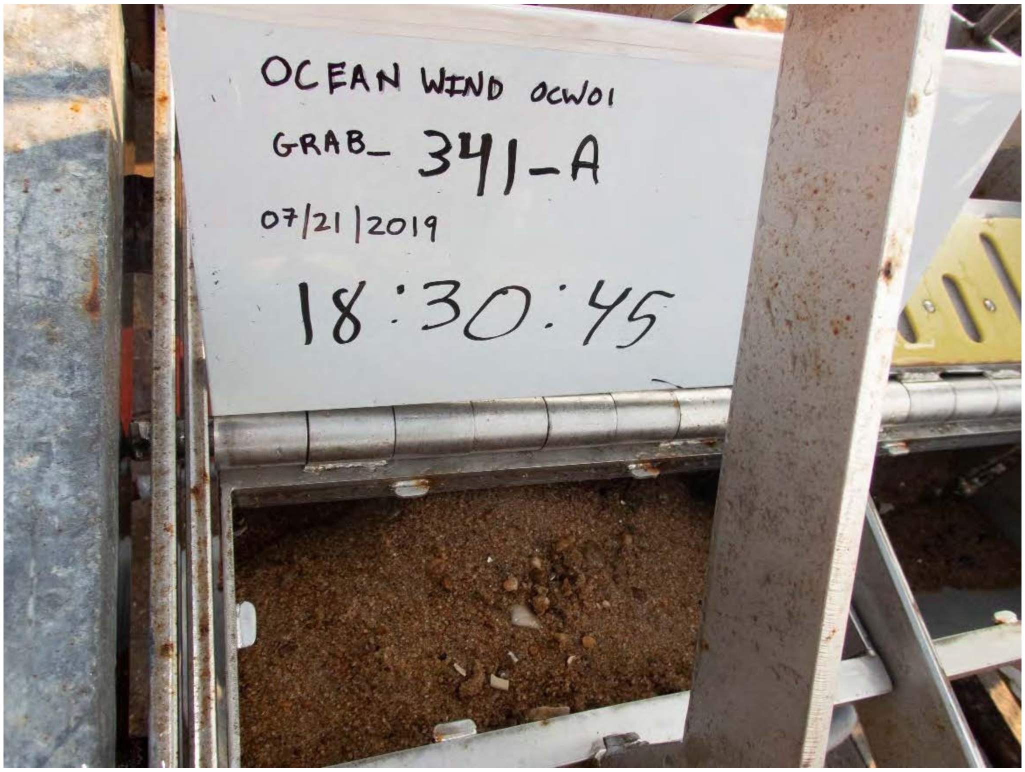

OCEAN WIND OCW01
GRAB_313_A
07/21/2019
06:16:50

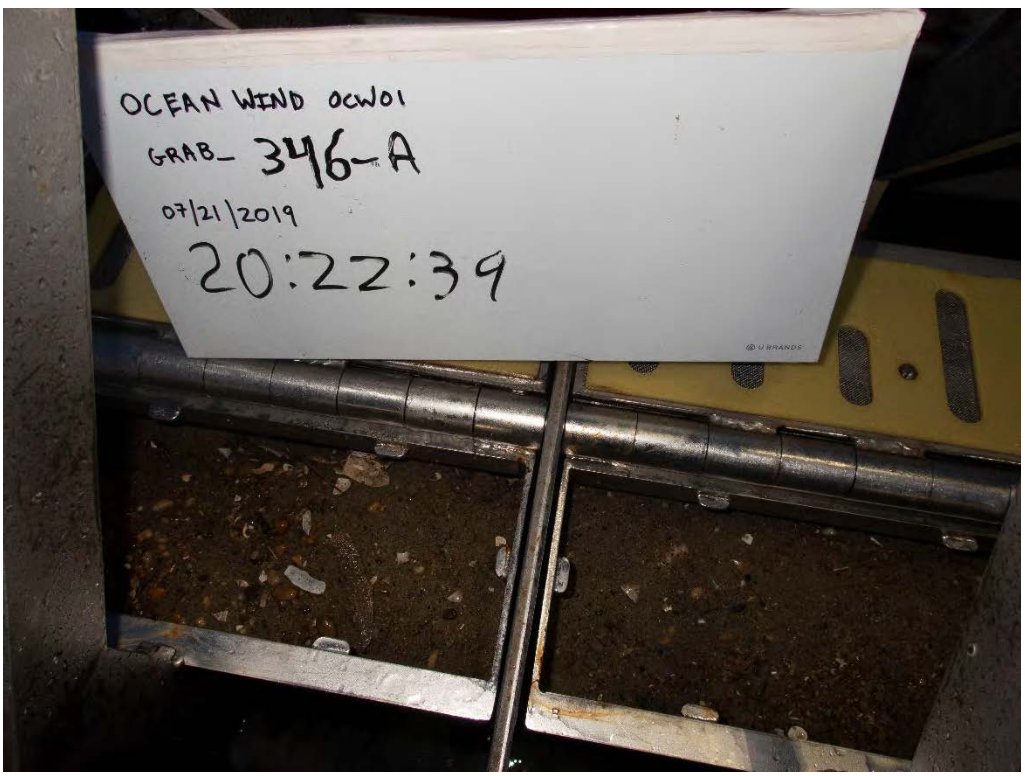

OCEAN WIND OCW01
GRAB_319_A
07/21/2019
09:09:39

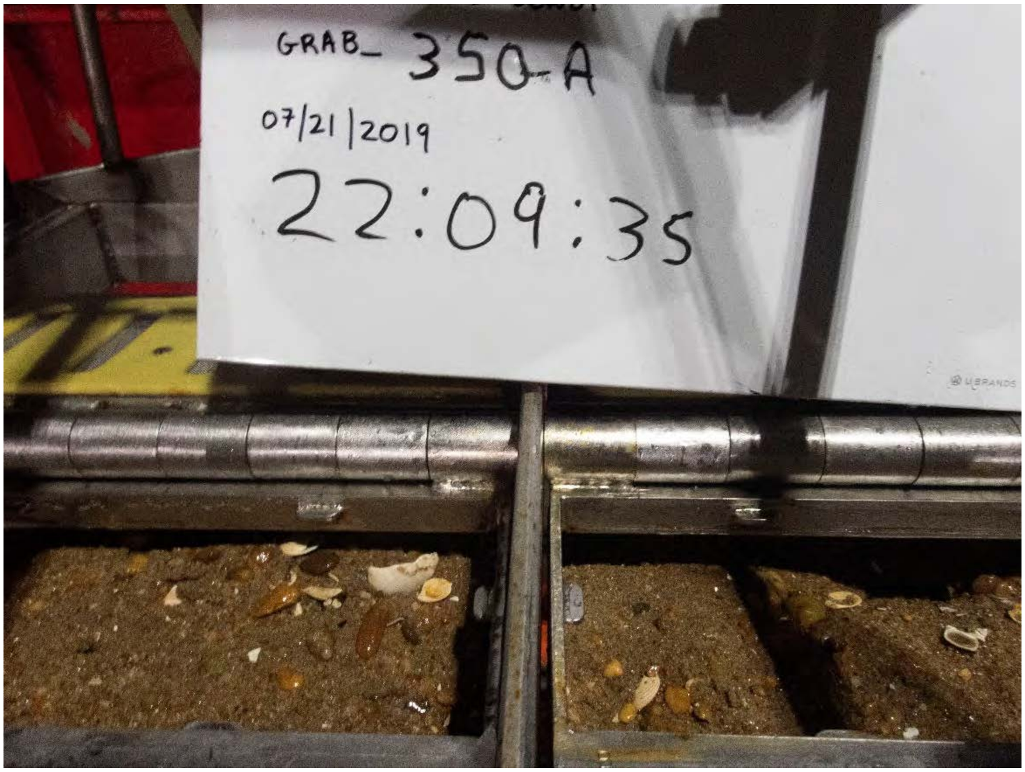

OCEAN WIND OCW01
GRAB_323_B
07/21/2019
10:50:17


OCEAN WIND OCW01
GRAB_328-A
07/21/2019
13:35:11


OCEAN WIND OCW01
GRAB_ 334_A
07/21/2019
16:07:08


OCEAN WIND OCW01
GRAB_ 341-A
07/21/2019
18:30:45


OCEAN WIND OCW01
GRAB_ 346-A
07/21/2019
20:22:39


GRAB_ 350-A
07/21/2019
22:09:35

APPENDIX B

SPI/PV Station Locations

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	001	A	7/20/2019	11:03	560741	4335278	39°09’52.57”N	74°17’48.87”W	
Phase 1 Survey Area (OCW)	001	B	7/20/2019	11:05	560737	4335286	39°09’52.81”N	74°17’49.03”W	
Phase 1 Survey Area (OCW)	001	C	7/20/2019	11:06	560735	4335292	39°09’53.02”N	74°17’49.10”W	
Phase 1 Survey Area (OCW)	001	D	7/20/2019	11:07	560736	4335302	39°09’53.35”N	74°17’49.05”W	
Phase 1 Survey Area (OCW)	002	A	7/20/2019	11:37	561890	4335600	39°10’02.70”N	74°17’00.89”W	
Phase 1 Survey Area (OCW)	002	B	7/20/2019	11:38	561896	4335604	39°10’02.85”N	74°17’00.62”W	
Phase 1 Survey Area (OCW)	002	C	7/20/2019	11:39	561901	4335612	39°10’03.09”N	74°17’00.43”W	
Phase 1 Survey Area (OCW)	002	D	7/20/2019	11:41	561905	4335616	39°10’03.23”N	74°17’00.26”W	
Phase 1 Survey Area (OCW)	003	A	7/20/2019	12:20	561691	4337405	39°11’01.31”N	74°17’08.59”W	
Phase 1 Survey Area (OCW)	003	B	7/20/2019	12:22	561696	4337410	39°11’01.46”N	74°17’08.38”W	
Phase 1 Survey Area (OCW)	003	C	7/20/2019	12:23	561700	4337412	39°11’01.54”N	74°17’08.20”W	
Phase 1 Survey Area (OCW)	003	D	7/20/2019	12:24	561702	4337417	39°11’01.69”N	74°17’08.12”W	
Phase 1 Survey Area (OCW)	004	A	7/20/2019	13:03	562839	4337694	39°11’10.38”N	74°16’20.65”W	
Phase 1 Survey Area (OCW)	004	B	7/20/2019	13:04	562838	4337698	39°11’10.50”N	74°16’20.69”W	
Phase 1 Survey Area (OCW)	004	C	7/20/2019	13:05	562838	4337706	39°11’10.77”N	74°16’20.66”W	
Phase 1 Survey Area (OCW)	004	D	7/20/2019	13:06	562839	4337709	39°11’10.87”N	74°16’20.65”W	
Phase 1 Survey Area (OCW)	005	A	7/20/2019	13:21	563330	4338762	39°11’44.91”N	74°15’59.83”W	
Phase 1 Survey Area (OCW)	005	B	7/20/2019	13:22	563325	4338768	39°11’45.10”N	74°16’00.02”W	
Phase 1 Survey Area (OCW)	005	C	7/20/2019	13:23	563326	4338770	39°11’45.16”N	74°15’59.97”W	
Phase 1 Survey Area (OCW)	005	D	7/20/2019	13:25	563323	4338767	39°11’45.08”N	74°16’00.12”W	
Phase 1 Survey Area (OCW)	006	A	7/20/2019	14:01	564897	4340098	39°12’27.81”N	74°14’54.03”W	
Phase 1 Survey Area (OCW)	006	B	7/20/2019	14:02	564902	4340094	39°12’27.70”N	74°14’53.81”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	006	C	7/20/2019	14:03	564906	4340089	39°12’27.53”N	74°14’53.65”W	
Phase 1 Survey Area (OCW)	006	D	7/20/2019	14:04	564904	4340091	39°12’27.59”N	74°14’53.74”W	
Phase 1 Survey Area (OCW)	007	A	7/20/2019	14:20	565338	4341131	39°13’01.20”N	74°14’35.29”W	
Phase 1 Survey Area (OCW)	007	B	7/20/2019	14:21	565337	4341130	39°13’01.19”N	74°14’35.32”W	
Phase 1 Survey Area (OCW)	007	C	7/20/2019	14:22	565338	4341136	39°13’01.38”N	74°14’35.29”W	
Phase 1 Survey Area (OCW)	007	D	7/20/2019	14:23	565340	4341143	39°13’01.59”N	74°14’35.20”W	
Phase 1 Survey Area (OCW)	008	A	7/20/2019	14:37	566244	4341328	39°13’07.34”N	74°13’57.45”W	
Phase 1 Survey Area (OCW)	008	B	7/20/2019	14:38	566244	4341321	39°13’07.14”N	74°13’57.44”W	
Phase 1 Survey Area (OCW)	008	C	7/20/2019	14:39	566241	4341333	39°13’07.51”N	74°13’57.56”W	
Phase 1 Survey Area (OCW)	008	D	7/20/2019	14:41	566246	4341340	39°13’07.74”N	74°13’57.36”W	
Phase 1 Survey Area (OCW)	009	A	7/20/2019	15:44	567066	4340384	39°12’36.50”N	74°13’23.50”W	
Phase 1 Survey Area (OCW)	009	B	7/20/2019	15:45	567064	4340383	39°12’36.46”N	74°13’23.58”W	
Phase 1 Survey Area (OCW)	009	C	7/20/2019	15:46	567068	4340387	39°12’36.61”N	74°13’23.42”W	
Phase 1 Survey Area (OCW)	009	D	7/20/2019	15:47	567068	4340391	39°12’36.73”N	74°13’23.41”W	
Phase 1 Survey Area (OCW)	010	A	7/20/2019	15:24	568115	4341218	39°13’03.26”N	74°12’39.45”W	
Phase 1 Survey Area (OCW)	010	B	7/20/2019	15:25	568116	4341214	39°13’03.14”N	74°12’39.40”W	
Phase 1 Survey Area (OCW)	010	C	7/20/2019	15:26	568113	4341218	39°13’03.26”N	74°12’39.52”W	
Phase 1 Survey Area (OCW)	010	D	7/20/2019	15:27	568117	4341218	39°13’03.25”N	74°12’39.39”W	
Phase 1 Survey Area (OCW)	011	A	7/20/2019	10:42	562109	4333796	39°09’04.15”N	74°16’52.34”W	
Phase 1 Survey Area (OCW)	011	B	7/20/2019	10:43	562106	4333794	39°09’04.09”N	74°16’52.48”W	
Phase 1 Survey Area (OCW)	011	C	7/20/2019	10:45	562105	4333798	39°09’04.19”N	74°16’52.51”W	
Phase 1 Survey Area (OCW)	011	D	7/20/2019	10:46	562103	4333801	39°09’04.31”N	74°16’52.59”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	012	A	7/20/2019	10:03	562548	4334834	39°09’37.70”N	74°16’33.73”W	
Phase 1 Survey Area (OCW)	012	B	7/20/2019	10:04	562548	4334832	39°09’37.61”N	74°16’33.73”W	
Phase 1 Survey Area (OCW)	012	C	7/20/2019	10:06	562546	4334834	39°09’37.71”N	74°16’33.81”W	
Phase 1 Survey Area (OCW)	012	D	7/20/2019	10:07	562546	4334839	39°09’37.87”N	74°16’33.81”W	
Phase 1 Survey Area (OCW)	013	A	7/20/2019	9:28	563340	4335510	39°09’59.42”N	74°16’00.49”W	
Phase 1 Survey Area (OCW)	013	B	7/20/2019	9:29	563342	4335511	39°09’59.44”N	74°16’00.39”W	
Phase 1 Survey Area (OCW)	013	C	7/20/2019	9:30	563348	4335512	39°09’59.49”N	74°16’00.18”W	
Phase 1 Survey Area (OCW)	013	D	7/20/2019	9:32	563341	4335517	39°09’59.65”N	74°16’00.45”W	
Phase 1 Survey Area (OCW)	014	A	7/20/2019	9:08	563785	4336549	39°10’33.00”N	74°15’41.59”W	
Phase 1 Survey Area (OCW)	014	B	7/20/2019	9:09	563784	4336561	39°10’33.38”N	74°15’41.66”W	
Phase 1 Survey Area (OCW)	014	C	7/20/2019	9:10	563778	4336561	39°10’33.38”N	74°15’41.90”W	
Phase 1 Survey Area (OCW)	014	D	7/20/2019	9:12	563780	4336569	39°10’33.65”N	74°15’41.80”W	
Phase 1 Survey Area (OCW)	015	A	7/20/2019	16:48	564137	4337768	39°11’12.45”N	74°15’26.52”W	
Phase 1 Survey Area (OCW)	015	B	7/20/2019	16:49	564145	4337772	39°11’12.59”N	74°15’26.17”W	
Phase 1 Survey Area (OCW)	015	C	7/20/2019	16:51	564154	4337776	39°11’12.71”N	74°15’25.80”W	
Phase 1 Survey Area (OCW)	015	D	7/20/2019	16:52	564156	4337785	39°11’13.00”N	74°15’25.72”W	
Phase 1 Survey Area (OCW)	016	A	7/20/2019	8:47	565150	4336583	39°10’33.74”N	74°14’44.71”W	
Phase 1 Survey Area (OCW)	016	B	7/20/2019	8:48	565155	4336586	39°10’33.85”N	74°14’44.50”W	
Phase 1 Survey Area (OCW)	016	C	7/20/2019	8:50	565154	4336591	39°10’34.00”N	74°14’44.52”W	
Phase 1 Survey Area (OCW)	016	D	7/20/2019	8:51	565157	4336596	39°10’34.16”N	74°14’44.40”W	
Phase 1 Survey Area (OCW)	017	A	7/20/2019	8:15	565758	4337545	39°11’04.77”N	74°14’19.04”W	
Phase 1 Survey Area (OCW)	017	B	7/20/2019	8:16	565759	4337553	39°11’05.05”N	74°14’18.98”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	017	C	7/20/2019	8:18	565753	4337556	39°11’05.14”N	74°14’19.25”W	
Phase 1 Survey Area (OCW)	017	D	7/20/2019	8:19	565750	4337557	39°11’05.18”N	74°14’19.34”W	
Phase 1 Survey Area (OCW)	018	A	7/20/2019	16:25	565860	4338951	39°11’50.34”N	74°14’14.29”W	
Phase 1 Survey Area (OCW)	018	B	7/20/2019	16:27	565855	4338958	39°11’50.59”N	74°14’14.49”W	
Phase 1 Survey Area (OCW)	018	C	7/20/2019	16:28	565854	4338962	39°11’50.73”N	74°14’14.54”W	
Phase 1 Survey Area (OCW)	018	D	7/20/2019	16:29	565856	4338972	39°11’51.05”N	74°14’14.46”W	
Phase 1 Survey Area (OCW)	019	A	7/20/2019	7:51	567268	4338868	39°11’47.26”N	74°13’15.61”W	
Phase 1 Survey Area (OCW)	019	B	7/20/2019	7:52	567271	4338874	39°11’47.47”N	74°13’15.50”W	
Phase 1 Survey Area (OCW)	019	C	7/20/2019	7:53	567275	4338876	39°11’47.52”N	74°13’15.33”W	
Phase 1 Survey Area (OCW)	019	D	7/20/2019	7:55	567274	4338882	39°11’47.73”N	74°13’15.38”W	
Phase 1 Survey Area (OCW)	020	A	7/20/2019	7:10	567949	4339444	39°12’05.79”N	74°12’47.02”W	
Phase 1 Survey Area (OCW)	020	B	7/20/2019	7:11	567955	4339452	39°12’06.03”N	74°12’46.78”W	
Phase 1 Survey Area (OCW)	020	C	7/20/2019	7:12	567959	4339457	39°12’06.19”N	74°12’46.61”W	
Phase 1 Survey Area (OCW)	020	D	7/20/2019	7:13	567949	4339465	39°12’06.45”N	74°12’47.01”W	
Phase 1 Survey Area (OCW)	021	A	7/20/2019	6:27	569414	4340356	39°12’34.94”N	74°11’45.60”W	
Phase 1 Survey Area (OCW)	021	B	7/20/2019	6:29	569418	4340360	39°12’35.06”N	74°11’45.46”W	
Phase 1 Survey Area (OCW)	021	C	7/20/2019	6:30	569421	4340361	39°12’35.09”N	74°11’45.30”W	
Phase 1 Survey Area (OCW)	021	D	7/20/2019	6:31	569422	4340365	39°12’35.21”N	74°11’45.27”W	
Phase 1 Survey Area (OCW)	022	A	7/20/2019	2:44	563854	4333315	39°08’48.08”N	74°15’39.82”W	
Phase 1 Survey Area (OCW)	022	B	7/20/2019	2:46	563858	4333320	39°08’48.24”N	74°15’39.66”W	
Phase 1 Survey Area (OCW)	022	C	7/20/2019	2:48	563860	4333325	39°08’48.39”N	74°15’39.58”W	
Phase 1 Survey Area (OCW)	022	D	7/20/2019	2:50	563861	4333335	39°08’48.72”N	74°15’39.51”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	023	A	7/20/2019	3:19	564266	4334354	39°09’21.68”N	74°15’22.30”W	
Phase 1 Survey Area (OCW)	023	B	7/20/2019	3:20	564266	4334359	39°09’21.85”N	74°15’22.29”W	
Phase 1 Survey Area (OCW)	023	C	7/20/2019	3:22	564267	4334362	39°09’21.95”N	74°15’22.27”W	
Phase 1 Survey Area (OCW)	023	D	7/20/2019	3:23	564276	4334364	39°09’21.99”N	74°15’21.87”W	
Phase 1 Survey Area (OCW)	024	A	7/20/2019	3:38	565166	4335071	39°09’44.69”N	74°14’44.58”W	
Phase 1 Survey Area (OCW)	024	B	7/20/2019	3:39	565168	4335072	39°09’44.73”N	74°14’44.49”W	
Phase 1 Survey Area (OCW)	024	C	7/20/2019	3:41	565168	4335075	39°09’44.81”N	74°14’44.46”W	
Phase 1 Survey Area (OCW)	024	D	7/20/2019	3:42	565182	4335085	39°09’45.13”N	74°14’43.89”W	
Phase 1 Survey Area (OCW)	025	A	7/20/2019	3:56	566213	4335303	39°09’51.92”N	74°14’00.84”W	
Phase 1 Survey Area (OCW)	025	B	7/20/2019	3:57	566212	4335306	39°09’52.03”N	74°14’00.90”W	
Phase 1 Survey Area (OCW)	025	C	7/20/2019	3:58	566216	4335311	39°09’52.21”N	74°14’00.73”W	
Phase 1 Survey Area (OCW)	025	D	7/20/2019	3:59	566222	4335315	39°09’52.31”N	74°14’00.45”W	
Phase 1 Survey Area (OCW)	026	A	7/20/2019	4:37	566709	4336412	39°10’27.78”N	74°13’39.78”W	
Phase 1 Survey Area (OCW)	026	B	7/20/2019	4:38	566710	4336419	39°10’28.00”N	74°13’39.76”W	
Phase 1 Survey Area (OCW)	026	C	7/20/2019	4:40	566713	4336422	39°10’28.10”N	74°13’39.63”W	
Phase 1 Survey Area (OCW)	026	D	7/20/2019	4:42	566711	4336434	39°10’28.49”N	74°13’39.72”W	
Phase 1 Survey Area (OCW)	027	A	7/20/2019	4:54	567143	4337455	39°11’01.48”N	74°13’21.32”W	
Phase 1 Survey Area (OCW)	027	B	7/20/2019	4:55	567143	4337458	39°11’01.57”N	74°13’21.33”W	
Phase 1 Survey Area (OCW)	027	C	7/20/2019	4:56	567147	4337466	39°11’01.84”N	74°13’21.18”W	
Phase 1 Survey Area (OCW)	027	D	7/20/2019	4:57	567145	4337470	39°11’01.96”N	74°13’21.25”W	
Phase 1 Survey Area (OCW)	028	A	7/20/2019	5:33	568221	4337710	39°11’09.44”N	74°12’36.30”W	
Phase 1 Survey Area (OCW)	028	B	7/20/2019	5:34	568226	4337713	39°11’09.56”N	74°12’36.12”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	028	C	7/20/2019	5:36	568227	4337718	39°11’09.70”N	74°12’36.06”W	
Phase 1 Survey Area (OCW)	028	D	7/20/2019	5:37	568234	4337730	39°11’10.08”N	74°12’35.78”W	
Phase 1 Survey Area (OCW)	029	A	7/20/2019	5:48	568999	4338379	39°11’30.92”N	74°12’03.65”W	
Phase 1 Survey Area (OCW)	029	B	7/20/2019	5:49	568999	4338386	39°11’31.16”N	74°12’03.65”W	
Phase 1 Survey Area (OCW)	029	C	7/20/2019	5:50	569003	4338391	39°11’31.32”N	74°12’03.47”W	
Phase 1 Survey Area (OCW)	029	D	7/20/2019	5:51	569002	4338396	39°11’31.47”N	74°12’03.51”W	
Phase 1 Survey Area (OCW)	030	A	7/20/2019	6:10	570504	4339011	39°11’50.98”N	74°11’00.66”W	
Phase 1 Survey Area (OCW)	030	B	7/20/2019	6:11	570506	4339018	39°11’51.22”N	74°11’00.60”W	
Phase 1 Survey Area (OCW)	030	C	7/20/2019	6:13	570508	4339027	39°11’51.51”N	74°11’00.50”W	
Phase 1 Survey Area (OCW)	030	D	7/20/2019	6:14	570515	4339035	39°11’51.77”N	74°11’00.18”W	
Phase 1 Survey Area (OCW)	031	A	7/19/2019	23:47	571270	4338317	39°11’28.26”N	74°10’28.98”W	
Phase 1 Survey Area (OCW)	031	B	7/19/2019	23:48	571274	4338314	39°11’28.16”N	74°10’28.84”W	
Phase 1 Survey Area (OCW)	031	C	7/19/2019	23:49	571274	4338322	39°11’28.42”N	74°10’28.85”W	
Phase 1 Survey Area (OCW)	031	D	7/19/2019	23:51	571277	4338331	39°11’28.69”N	74°10’28.72”W	
Phase 1 Survey Area (OCW)	032	A	7/19/2019	19:51	563801	4331889	39°08’01.84”N	74°15’42.52”W	
Phase 1 Survey Area (OCW)	032	B	7/19/2019	19:52	563800	4331897	39°08’02.08”N	74°15’42.56”W	
Phase 1 Survey Area (OCW)	032	C	7/19/2019	19:54	563795	4331898	39°08’02.13”N	74°15’42.77”W	
Phase 1 Survey Area (OCW)	032	D	7/19/2019	19:55	563795	4331900	39°08’02.19”N	74°15’42.76”W	
Phase 1 Survey Area (OCW)	033	A	7/19/2019	20:11	564485	4332563	39°08’23.52”N	74°15’13.77”W	
Phase 1 Survey Area (OCW)	033	B	7/19/2019	20:12	564489	4332572	39°08’23.80”N	74°15’13.63”W	
Phase 1 Survey Area (OCW)	033	C	7/19/2019	20:13	564490	4332582	39°08’24.12”N	74°15’13.57”W	
Phase 1 Survey Area (OCW)	033	D	7/19/2019	20:15	564482	4332581	39°08’24.12”N	74°15’13.92”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	034	A	7/19/2019	20:52	565945	4332447	39°08’19.36”N	74°14’13.04”W	
Phase 1 Survey Area (OCW)	034	B	7/19/2019	20:54	565940	4332458	39°08’19.73”N	74°14’13.21”W	
Phase 1 Survey Area (OCW)	034	C	7/19/2019	20:55	565939	4332471	39°08’20.14”N	74°14’13.26”W	
Phase 1 Survey Area (OCW)	034	D	7/19/2019	20:56	565941	4332478	39°08’20.36”N	74°14’13.18”W	
Phase 1 Survey Area (OCW)	035	A	7/20/2019	2:20	566064	4333882	39°09’05.87”N	74°14’07.54”W	
Phase 1 Survey Area (OCW)	035	B	7/20/2019	2:22	566068	4333886	39°09’06.00”N	74°14’07.38”W	
Phase 1 Survey Area (OCW)	035	C	7/20/2019	2:24	566073	4333896	39°09’06.32”N	74°14’07.18”W	
Phase 1 Survey Area (OCW)	035	D	7/20/2019	2:25	566074	4333901	39°09’06.51”N	74°14’07.15”W	
Phase 1 Survey Area (OCW)	036	A	7/19/2019	21:11	567046	4332752	39°08’28.94”N	74°13’27.06”W	
Phase 1 Survey Area (OCW)	036	B	7/19/2019	21:12	567042	4332757	39°08’29.10”N	74°13’27.20”W	
Phase 1 Survey Area (OCW)	036	C	7/19/2019	21:13	567038	4332759	39°08’29.20”N	74°13’27.39”W	
Phase 1 Survey Area (OCW)	036	D	7/19/2019	21:14	567043	4332773	39°08’29.63”N	74°13’27.19”W	
Phase 1 Survey Area (OCW)	037	A	7/20/2019	2:00	566884	4334539	39°09’26.96”N	74°13’33.18”W	
Phase 1 Survey Area (OCW)	037	B	7/20/2019	2:02	566886	4334544	39°09’27.11”N	74°13’33.10”W	
Phase 1 Survey Area (OCW)	037	C	7/20/2019	2:03	566892	4334552	39°09’27.37”N	74°13’32.84”W	
Phase 1 Survey Area (OCW)	037	D	7/20/2019	2:05	566894	4334556	39°09’27.51”N	74°13’32.76”W	
Phase 1 Survey Area (OCW)	038	A	7/19/2019	21:44	567827	4333446	39°08’51.25”N	74°12’54.26”W	
Phase 1 Survey Area (OCW)	038	B	7/19/2019	21:46	567832	4333449	39°08’51.33”N	74°12’54.07”W	
Phase 1 Survey Area (OCW)	038	C	7/19/2019	21:47	567831	4333456	39°08’51.58”N	74°12’54.09”W	
Phase 1 Survey Area (OCW)	038	D	7/19/2019	21:48	567838	4333463	39°08’51.79”N	74°12’53.81”W	
Phase 1 Survey Area (OCW)	039	A	7/19/2019	22:01	568418	4334576	39°09’27.73”N	74°12’29.25”W	
Phase 1 Survey Area (OCW)	039	B	7/19/2019	22:02	568419	4334582	39°09’27.92”N	74°12’29.21”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	039	C	7/19/2019	22:03	568425	4334588	39°09'28.11"N	74°12'28.96"W	
Phase 1 Survey Area (OCW)	039	D	7/19/2019	22:04	568430	4334596	39°09'28.37"N	74°12'28.76"W	
Phase 1 Survey Area (OCW)	040	A	7/20/2019	1:35	568262	4336146	39°10'18.70"N	74°12'35.18"W	
Phase 1 Survey Area (OCW)	040	B	7/20/2019	1:37	568269	4336155	39°10'18.99"N	74°12'34.86"W	
Phase 1 Survey Area (OCW)	040	C	7/20/2019	1:38	568271	4336160	39°10'19.15"N	74°12'34.81"W	
Phase 1 Survey Area (OCW)	040	D	7/20/2019	1:39	568280	4336164	39°10'19.27"N	74°12'34.41"W	
Phase 1 Survey Area (OCW)	041	A	7/20/2019	0:53	569042	4336662	39°10'35.21"N	74°12'02.46"W	
Phase 1 Survey Area (OCW)	041	B	7/20/2019	0:55	569048	4336673	39°10'35.56"N	74°12'02.23"W	
Phase 1 Survey Area (OCW)	041	C	7/20/2019	0:56	569042	4336677	39°10'35.70"N	74°12'02.47"W	
Phase 1 Survey Area (OCW)	041	D	7/20/2019	0:58	569050	4336671	39°10'35.51"N	74°12'02.13"W	
Phase 1 Survey Area (OCW)	042	A	7/19/2019	22:24	569895	4335818	39°10'07.61"N	74°11'27.23"W	
Phase 1 Survey Area (OCW)	042	B	7/19/2019	22:25	569898	4335821	39°10'07.71"N	74°11'27.10"W	
Phase 1 Survey Area (OCW)	042	C	7/19/2019	22:26	569899	4335827	39°10'07.91"N	74°11'27.08"W	
Phase 1 Survey Area (OCW)	042	D	7/19/2019	22:28	569896	4335835	39°10'08.17"N	74°11'27.20"W	
Phase 1 Survey Area (OCW)	043	A	7/20/2019	0:11	569878	4337224	39°10'53.22"N	74°11'27.45"W	
Phase 1 Survey Area (OCW)	043	B	7/20/2019	0:12	569880	4337231	39°10'53.43"N	74°11'27.33"W	
Phase 1 Survey Area (OCW)	043	C	7/20/2019	0:13	569881	4337229	39°10'53.37"N	74°11'27.30"W	
Phase 1 Survey Area (OCW)	043	D	7/20/2019	0:14	569880	4337238	39°10'53.68"N	74°11'27.33"W	
Phase 1 Survey Area (OCW)	044	A	7/19/2019	22:43	571186	4336957	39°10'44.17"N	74°10'33.01"W	
Phase 1 Survey Area (OCW)	044	B	7/19/2019	22:44	571197	4336969	39°10'44.56"N	74°10'32.55"W	
Phase 1 Survey Area (OCW)	044	C	7/19/2019	22:46	571203	4336976	39°10'44.76"N	74°10'32.29"W	
Phase 1 Survey Area (OCW)	044	D	7/19/2019	22:47	571209	4336973	39°10'44.68"N	74°10'32.05"W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	045	A	7/19/2019	23:02	572385	4337306	39°10’55.12”N	74°09’42.91”W	
Phase 1 Survey Area (OCW)	045	B	7/19/2019	23:03	572391	4337316	39°10’55.46”N	74°09’42.67”W	
Phase 1 Survey Area (OCW)	045	C	7/19/2019	23:04	572393	4337323	39°10’55.67”N	74°09’42.59”W	
Phase 1 Survey Area (OCW)	045	D	7/19/2019	23:08	572395	4337299	39°10’54.89”N	74°09’42.52”W	
Phase 1 Survey Area (OCW)	046	A	7/19/2019	19:34	564651	4330733	39°07’24.11”N	74°15’07.53”W	
Phase 1 Survey Area (OCW)	046	B	7/19/2019	19:35	564653	4330747	39°07’24.55”N	74°15’07.42”W	
Phase 1 Survey Area (OCW)	046	C	7/19/2019	19:37	564655	4330751	39°07’24.70”N	74°15’07.34”W	
Phase 1 Survey Area (OCW)	046	D	7/19/2019	19:38	564652	4330745	39°07’24.51”N	74°15’07.46”W	
Phase 1 Survey Area (OCW)	047	A	7/19/2019	18:30	567052	4331152	39°07’37.05”N	74°13’27.37”W	
Phase 1 Survey Area (OCW)	047	B	7/19/2019	18:31	567053	4331160	39°07’37.30”N	74°13’27.33”W	
Phase 1 Survey Area (OCW)	047	C	7/19/2019	18:33	567052	4331165	39°07’37.47”N	74°13’27.37”W	
Phase 1 Survey Area (OCW)	047	D	7/19/2019	18:34	567050	4331166	39°07’37.50”N	74°13’27.45”W	
Phase 1 Survey Area (OCW)	048	A	7/19/2019	18:04	568791	4332348	39°08’15.37”N	74°12’14.51”W	
Phase 1 Survey Area (OCW)	048	B	7/19/2019	18:05	568790	4332351	39°08’15.45”N	74°12’14.56”W	
Phase 1 Survey Area (OCW)	048	C	7/19/2019	18:06	568792	4332355	39°08’15.57”N	74°12’14.47”W	
Phase 1 Survey Area (OCW)	048	D	7/19/2019	18:08	568788	4332354	39°08’15.55”N	74°12’14.65”W	
Phase 1 Survey Area (OCW)	049	A	7/19/2019	13:26	569835	4332786	39°08’29.26”N	74°11’30.88”W	
Phase 1 Survey Area (OCW)	049	B	7/19/2019	13:27	569839	4332788	39°08’29.34”N	74°11’30.72”W	
Phase 1 Survey Area (OCW)	049	C	7/19/2019	13:28	569841	4332790	39°08’29.41”N	74°11’30.61”W	
Phase 1 Survey Area (OCW)	049	D	7/19/2019	13:29	569841	4332793	39°08’29.50”N	74°11’30.61”W	
Phase 1 Survey Area (OCW)	050	A	7/19/2019	17:31	569767	4334405	39°09’21.81”N	74°11’33.09”W	
Phase 1 Survey Area (OCW)	050	B	7/19/2019	17:32	569764	4334412	39°09’22.02”N	74°11’33.21”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	050	C	7/19/2019	17:33	569767	4334416	39°09’22.17”N	74°11’33.09”W	
Phase 1 Survey Area (OCW)	050	D	7/19/2019	17:34	569767	4334424	39°09’22.42”N	74°11’33.09”W	
Phase 1 Survey Area (OCW)	051	A	7/19/2019	16:59	571215	4335677	39°10’02.64”N	74°10’32.30”W	
Phase 1 Survey Area (OCW)	051	B	7/19/2019	17:00	571222	4335675	39°10’02.58”N	74°10’32.02”W	
Phase 1 Survey Area (OCW)	051	C	7/19/2019	17:01	571223	4335676	39°10’02.62”N	74°10’31.95”W	
Phase 1 Survey Area (OCW)	051	D	7/19/2019	17:02	571222	4335677	39°10’02.64”N	74°10’32.01”W	
Phase 1 Survey Area (OCW)	052	A	7/19/2019	16:11	572459	4335503	39°09’56.62”N	74°09’40.54”W	
Phase 1 Survey Area (OCW)	052	B	7/19/2019	16:13	572456	4335510	39°09’56.84”N	74°09’40.65”W	
Phase 1 Survey Area (OCW)	052	C	7/19/2019	16:14	572456	4335512	39°09’56.93”N	74°09’40.65”W	
Phase 1 Survey Area (OCW)	052	D	7/19/2019	16:15	572456	4335518	39°09’57.10”N	74°09’40.65”W	
Phase 1 Survey Area (OCW)	053	A	7/19/2019	15:44	573522	4336322	39°10’22.87”N	74°08’55.90”W	
Phase 1 Survey Area (OCW)	053	B	7/19/2019	15:46	573523	4336329	39°10’23.11”N	74°08’55.87”W	
Phase 1 Survey Area (OCW)	053	C	7/19/2019	15:48	573536	4336326	39°10’23.00”N	74°08’55.34”W	
Phase 1 Survey Area (OCW)	053	D	7/19/2019	15:49	573533	4336332	39°10’23.20”N	74°08’55.46”W	
Phase 1 Survey Area (OCW)	054	A	7/19/2019	18:56	565615	4329567	39°06’46.02”N	74°14’27.77”W	
Phase 1 Survey Area (OCW)	054	B	7/19/2019	18:57	565612	4329580	39°06’46.46”N	74°14’27.90”W	
Phase 1 Survey Area (OCW)	054	C	7/19/2019	18:58	565609	4329585	39°06’46.63”N	74°14’27.99”W	
Phase 1 Survey Area (OCW)	054	D	7/19/2019	18:59	565606	4329584	39°06’46.58”N	74°14’28.15”W	
Phase 1 Survey Area (OCW)	055	A	7/19/2019	11:39	567379	4329076	39°06’29.63”N	74°13’14.49”W	
Phase 1 Survey Area (OCW)	055	B	7/19/2019	11:40	567382	4329076	39°06’29.63”N	74°13’14.38”W	
Phase 1 Survey Area (OCW)	055	C	7/19/2019	11:42	567379	4329073	39°06’29.52”N	74°13’14.52”W	
Phase 1 Survey Area (OCW)	055	D	7/19/2019	11:43	567377	4329078	39°06’29.70”N	74°13’14.60”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	056	A	7/19/2019	12:24	567885	4330196	39°07’05.81”N	74°12’53.04”W	
Phase 1 Survey Area (OCW)	056	B	7/19/2019	12:25	567889	4330196	39°07’05.80”N	74°12’52.85”W	
Phase 1 Survey Area (OCW)	056	C	7/19/2019	12:26	567892	4330199	39°07’05.89”N	74°12’52.75”W	
Phase 1 Survey Area (OCW)	056	D	7/19/2019	12:30	567891	4330195	39°07’05.79”N	74°12’52.79”W	
Phase 1 Survey Area (OCW)	057	A	7/19/2019	12:48	568694	4330856	39°07’26.99”N	74°12’19.11”W	
Phase 1 Survey Area (OCW)	057	B	7/19/2019	12:50	568694	4330857	39°07’27.04”N	74°12’19.09”W	
Phase 1 Survey Area (OCW)	057	C	7/19/2019	12:51	568697	4330857	39°07’27.01”N	74°12’18.97”W	
Phase 1 Survey Area (OCW)	057	D	7/19/2019	12:52	568701	4330859	39°07’27.10”N	74°12’18.81”W	
Phase 1 Survey Area (OCW)	058	A	7/19/2019	13:08	569626	4331634	39°07’51.97”N	74°11’40.01”W	
Phase 1 Survey Area (OCW)	058	B	7/19/2019	13:09	569628	4331639	39°07’52.12”N	74°11’39.93”W	
Phase 1 Survey Area (OCW)	058	C	7/19/2019	13:10	569629	4331646	39°07’52.34”N	74°11’39.86”W	
Phase 1 Survey Area (OCW)	058	D	7/19/2019	13:11	569628	4331649	39°07’52.45”N	74°11’39.92”W	
Phase 1 Survey Area (OCW)	059	A	7/19/2019	8:00	571008	4331542	39°07’48.56”N	74°10’42.50”W	
Phase 1 Survey Area (OCW)	059	B	7/19/2019	8:02	571009	4331544	39°07’48.64”N	74°10’42.42”W	
Phase 1 Survey Area (OCW)	059	C	7/19/2019	8:04	571013	4331544	39°07’48.63”N	74°10’42.26”W	
Phase 1 Survey Area (OCW)	059	D	7/19/2019	8:05	571014	4331548	39°07’48.76”N	74°10’42.22”W	
Phase 1 Survey Area (OCW)	060	A	7/19/2019	7:07	571243	4332534	39°08’20.68”N	74°10’32.31”W	
Phase 1 Survey Area (OCW)	060	B	7/19/2019	7:09	571243	4332538	39°08’20.82”N	74°10’32.33”W	
Phase 1 Survey Area (OCW)	060	C	7/19/2019	7:10	571230	4332533	39°08’20.66”N	74°10’32.85”W	
Phase 1 Survey Area (OCW)	060	D	7/19/2019	7:12	571229	4332541	39°08’20.91”N	74°10’32.89”W	
Phase 1 Survey Area (OCW)	061	A	7/19/2019	14:34	571452	4334074	39°09’10.56”N	74°10’23.01”W	
Phase 1 Survey Area (OCW)	061	B	7/19/2019	14:35	571451	4334067	39°09’10.34”N	74°10’23.08”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	061	C	7/19/2019	14:36	571455	4334062	39°09'10.18"N	74°10'22.91"W	
Phase 1 Survey Area (OCW)	061	D	7/19/2019	14:38	571453	4334070	39°09'10.45"N	74°10'23.00"W	
Phase 1 Survey Area (OCW)	062	A	7/19/2019	6:46	572481	4332758	39°08'27.57"N	74°09'40.68"W	
Phase 1 Survey Area (OCW)	062	B	7/19/2019	6:48	572475	4332760	39°08'27.63"N	74°09'40.92"W	
Phase 1 Survey Area (OCW)	062	C	7/19/2019	6:50	572474	4332768	39°08'27.91"N	74°09'40.94"W	
Phase 1 Survey Area (OCW)	062	D	7/19/2019	6:52	572470	4332773	39°08'28.07"N	74°09'41.13"W	
Phase 1 Survey Area (OCW)	063	A	7/19/2019	14:53	572721	4333868	39°09'03.50"N	74°09'30.23"W	
Phase 1 Survey Area (OCW)	063	B	7/19/2019	14:54	572722	4333862	39°09'03.33"N	74°09'30.21"W	
Phase 1 Survey Area (OCW)	063	C	7/19/2019	14:55	572719	4333868	39°09'03.53"N	74°09'30.31"W	
Phase 1 Survey Area (OCW)	063	D	7/19/2019	14:56	572719	4333876	39°09'03.78"N	74°09'30.32"W	
Phase 1 Survey Area (OCW)	064	A	7/19/2019	6:24	573573	4332878	39°08'31.15"N	74°08'55.15"W	
Phase 1 Survey Area (OCW)	064	B	7/19/2019	6:26	573578	4332889	39°08'31.50"N	74°08'54.94"W	
Phase 1 Survey Area (OCW)	064	C	7/19/2019	6:28	573587	4332891	39°08'31.57"N	74°08'54.56"W	
Phase 1 Survey Area (OCW)	064	D	7/19/2019	6:29	573591	4332893	39°08'31.61"N	74°08'54.36"W	
Phase 1 Survey Area (OCW)	065	A	7/19/2019	5:40	574342	4334393	39°09'20.05"N	74°08'22.49"W	
Phase 1 Survey Area (OCW)	065	B	7/19/2019	5:42	574350	4334392	39°09'20.03"N	74°08'22.17"W	
Phase 1 Survey Area (OCW)	065	C	7/19/2019	5:43	574349	4334395	39°09'20.12"N	74°08'22.21"W	
Phase 1 Survey Area (OCW)	065	D	7/19/2019	5:45	574345	4334396	39°09'20.14"N	74°08'22.37"W	
Phase 1 Survey Area (OCW)	066	A	7/19/2019	15:21	574501	4335106	39°09'43.12"N	74°08'15.61"W	
Phase 1 Survey Area (OCW)	066	B	7/19/2019	15:22	574501	4335114	39°09'43.39"N	74°08'15.58"W	
Phase 1 Survey Area (OCW)	066	C	7/19/2019	15:23	574496	4335121	39°09'43.61"N	74°08'15.81"W	
Phase 1 Survey Area (OCW)	066	D	7/19/2019	15:25	574494	4335124	39°09'43.70"N	74°08'15.89"W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	067	A	7/19/2019	4:36	576020	4333827	39°09’01.17”N	74°07’12.81”W	
Phase 1 Survey Area (OCW)	067	B	7/19/2019	4:37	576019	4333817	39°09’00.86”N	74°07’12.88”W	
Phase 1 Survey Area (OCW)	067	C	7/19/2019	4:39	576021	4333823	39°09’01.05”N	74°07’12.80”W	
Phase 1 Survey Area (OCW)	067	D	7/19/2019	4:40	576020	4333827	39°09’01.18”N	74°07’12.85”W	
Phase 1 Survey Area (OCW)	068	A	7/19/2019	11:12	567171	4327728	39°05’45.97”N	74°13’23.63”W	
Phase 1 Survey Area (OCW)	068	B	7/19/2019	11:14	567176	4327731	39°05’46.06”N	74°13’23.43”W	
Phase 1 Survey Area (OCW)	068	C	7/19/2019	11:15	567178	4327730	39°05’46.03”N	74°13’23.33”W	
Phase 1 Survey Area (OCW)	068	D	7/19/2019	11:17	567175	4327738	39°05’46.26”N	74°13’23.47”W	
Phase 1 Survey Area (OCW)	069	A	7/19/2019	1:04	568226	4326448	39°05’04.13”N	74°12’40.19”W	
Phase 1 Survey Area (OCW)	069	B	7/19/2019	1:06	568233	4326446	39°05’04.07”N	74°12’39.89”W	
Phase 1 Survey Area (OCW)	069	C	7/19/2019	1:13	568221	4326431	39°05’03.59”N	74°12’40.39”W	
Phase 1 Survey Area (OCW)	069	D	7/19/2019	1:15	568233	4326424	39°05’03.35”N	74°12’39.88”W	
Phase 1 Survey Area (OCW)	070	A	7/19/2019	10:08	568827	4329059	39°06’28.66”N	74°12’14.20”W	
Phase 1 Survey Area (OCW)	070	B	7/19/2019	10:09	568828	4329064	39°06’28.82”N	74°12’14.16”W	
Phase 1 Survey Area (OCW)	070	C	7/19/2019	10:14	568834	4329045	39°06’28.20”N	74°12’13.93”W	
Phase 1 Survey Area (OCW)	070	D	7/19/2019	10:15	568836	4329048	39°06’28.32”N	74°12’13.85”W	
Phase 1 Survey Area (OCW)	071	A	7/19/2019	1:34	569545	4328070	39°05’56.39”N	74°11’44.69”W	
Phase 1 Survey Area (OCW)	071	B	7/19/2019	1:35	569555	4328065	39°05’56.21”N	74°11’44.26”W	
Phase 1 Survey Area (OCW)	071	C	7/19/2019	1:37	569548	4328064	39°05’56.20”N	74°11’44.55”W	
Phase 1 Survey Area (OCW)	071	D	7/19/2019	1:40	569552	4328079	39°05’56.67”N	74°11’44.39”W	
Phase 1 Survey Area (OCW)	072	A	7/19/2019	9:28	569708	4329808	39°06’52.70”N	74°11’37.27”W	
Phase 1 Survey Area (OCW)	072	B	7/19/2019	9:35	569704	4329800	39°06’52.45”N	74°11’37.43”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	072	C	7/19/2019						No fix taken; Took 'E' picture
Phase 1 Survey Area (OCW)	072	D	7/19/2019	9:40	569730	4329801	39°06’52.48”N	74°11’36.36”W	
Phase 1 Survey Area (OCW)	072	E	7/19/2019	9:42	569730	4329799	39°06’52.39”N	74°11’36.34”W	
Phase 1 Survey Area (OCW)	073	A	7/19/2019	1:56	570400	4328900	39°06’23.06”N	74°11’08.78”W	
Phase 1 Survey Area (OCW)	073	B	7/19/2019	1:58	570401	4328896	39°06’22.91”N	74°11’08.74”W	
Phase 1 Survey Area (OCW)	073	C	7/19/2019	2:00	570400	4328898	39°06’23.00”N	74°11’08.80”W	
Phase 1 Survey Area (OCW)	073	D	7/19/2019	2:01	570408	4328903	39°06’23.14”N	74°11’08.44”W	
Phase 1 Survey Area (OCW)	074	A	7/19/2019	8:28	570349	4330624	39°07’18.98”N	74°11’10.29”W	
Phase 1 Survey Area (OCW)	074	B	7/19/2019	8:29	570346	4330623	39°07’18.96”N	74°11’10.37”W	
Phase 1 Survey Area (OCW)	074	C	7/19/2019	8:31	570345	4330618	39°07’18.80”N	74°11’10.43”W	
Phase 1 Survey Area (OCW)	074	D	7/19/2019						No fix taken; 3 pictures is acceptable
Phase 1 Survey Area (OCW)	075	A	7/19/2019	2:22	572224	4329970	39°06’57.22”N	74°09’52.43”W	
Phase 1 Survey Area (OCW)	075	B	7/19/2019	2:23	572222	4329969	39°06’57.20”N	74°09’52.52”W	
Phase 1 Survey Area (OCW)	075	C	7/19/2019	2:25	572226	4329971	39°06’57.25”N	74°09’52.34”W	
Phase 1 Survey Area (OCW)	075	D	7/19/2019	2:27	572232	4329969	39°06’57.17”N	74°09’52.13”W	
Phase 1 Survey Area (OCW)	076	A	7/19/2019	3:04	572488	4331133	39°07’34.88”N	74°09’41.02”W	
Phase 1 Survey Area (OCW)	076	B	7/19/2019	3:06	572488	4331130	39°07’34.76”N	74°09’41.02”W	
Phase 1 Survey Area (OCW)	076	C	7/19/2019	3:08	572493	4331134	39°07’34.91”N	74°09’40.80”W	
Phase 1 Survey Area (OCW)	076	D	7/19/2019	3:09	572496	4331134	39°07’34.88”N	74°09’40.66”W	
Phase 1 Survey Area (OCW)	077	A	7/19/2019	3:24	573414	4331685	39°07’52.50”N	74°09’02.22”W	
Phase 1 Survey Area (OCW)	077	B	7/19/2019	3:26	573414	4331684	39°07’52.46”N	74°09’02.24”W	
Phase 1 Survey Area (OCW)	077	C	7/19/2019	3:28	573414	4331686	39°07’52.52”N	74°09’02.21”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	077	D	7/19/2019	3:29	573415	4331680	39°07’52.32”N	74°09’02.19”W	
Phase 1 Survey Area (OCW)	078	A	7/19/2019	4:12	575119	4332402	39°08’15.24”N	74°07’50.94”W	
Phase 1 Survey Area (OCW)	078	B	7/19/2019	4:14	575125	4332401	39°08’15.19”N	74°07’50.69”W	
Phase 1 Survey Area (OCW)	078	C	7/19/2019	4:15	575121	4332407	39°08’15.38”N	74°07’50.86”W	
Phase 1 Survey Area (OCW)	078	D	7/19/2019	4:17	575122	4332407	39°08’15.41”N	74°07’50.82”W	
Phase 1 Survey Area (OCW)	079	A	7/18/2019	23:41	569656	4324656	39°04’05.60”N	74°11’41.33”W	
Phase 1 Survey Area (OCW)	079	B	7/18/2019	23:43	569658	4324662	39°04’05.79”N	74°11’41.23”W	
Phase 1 Survey Area (OCW)	079	C	7/18/2019	23:44	569659	4324663	39°04’05.83”N	74°11’41.18”W	
Phase 1 Survey Area (OCW)	079	D	7/18/2019	23:45	569659	4324659	39°04’05.72”N	74°11’41.22”W	
Phase 1 Survey Area (OCW)	079	E	7/19/2019	0:32	569648	4324667	39°04’05.98”N	74°11’41.67”W	
Phase 1 Survey Area (OCW)	079	F	7/19/2019	0:34	569655	4324671	39°04’06.09”N	74°11’41.34”W	
Phase 1 Survey Area (OCW)	079	G	7/19/2019	0:36	569655	4324670	39°04’06.05”N	74°11’41.37”W	
Phase 1 Survey Area (OCW)	079	H	7/19/2019	0:38	569659	4324663	39°04’05.82”N	74°11’41.20”W	
Phase 1 Survey Area (OCW)	080	A	7/18/2019	21:20	569743	4326472	39°05’04.48”N	74°11’37.02”W	
Phase 1 Survey Area (OCW)	080	B	7/18/2019	21:21	569755	4326476	39°05’04.61”N	74°11’36.54”W	
Phase 1 Survey Area (OCW)	080	C	7/18/2019	21:22	569752	4326484	39°05’04.86”N	74°11’36.64”W	
Phase 1 Survey Area (OCW)	080	D	7/18/2019	21:30	569741	4326459	39°05’04.07”N	74°11’37.13”W	
Phase 1 Survey Area (OCW)	081	A	7/18/2019	21:02	570461	4327084	39°05’24.14”N	74°11’06.95”W	
Phase 1 Survey Area (OCW)	081	B	7/18/2019	21:03	570460	4327089	39°05’24.29”N	74°11’06.95”W	
Phase 1 Survey Area (OCW)	081	C	7/18/2019	21:04	570465	4327094	39°05’24.46”N	74°11’06.75”W	
Phase 1 Survey Area (OCW)	081	D	7/18/2019	21:05	570464	4327109	39°05’24.93”N	74°11’06.78”W	
Phase 1 Survey Area (OCW)	082	A	7/18/2019	20:12	571354	4326122	39°04’52.66”N	74°10’30.11”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	082	B	7/18/2019	20:13	571369	4326120	39°04’52.59”N	74°10’29.49”W	
Phase 1 Survey Area (OCW)	082	C	7/18/2019	20:15	571370	4326115	39°04’52.44”N	74°10’29.47”W	
Phase 1 Survey Area (OCW)	082	D	7/18/2019	20:16	571371	4326126	39°04’52.78”N	74°10’29.41”W	
Phase 1 Survey Area (OCW)	083	A	7/18/2019	19:51	571306	4327850	39°05’48.73”N	74°10’31.48”W	
Phase 1 Survey Area (OCW)	083	B	7/18/2019	19:53	571302	4327846	39°05’48.59”N	74°10’31.64”W	
Phase 1 Survey Area (OCW)	083	C	7/18/2019	19:54	571301	4327844	39°05’48.53”N	74°10’31.66”W	
Phase 1 Survey Area (OCW)	083	D	7/18/2019	19:55	571307	4327848	39°05’48.65”N	74°10’31.43”W	
Phase 1 Survey Area (OCW)	084	A	7/18/2019	19:18	572204	4326888	39°05’17.26”N	74°09’54.45”W	
Phase 1 Survey Area (OCW)	084	B	7/18/2019	19:19	572198	4326886	39°05’17.18”N	74°09’54.72”W	
Phase 1 Survey Area (OCW)	084	C	7/18/2019	19:21	572196	4326882	39°05’17.06”N	74°09’54.78”W	
Phase 1 Survey Area (OCW)	084	D	7/18/2019	19:22	572195	4326889	39°05’17.29”N	74°09’54.85”W	
Phase 1 Survey Area (OCW)	085	A	7/18/2019	18:43	572176	4328559	39°06’11.48”N	74°09’54.99”W	
Phase 1 Survey Area (OCW)	085	B	7/18/2019	18:44	572189	4328568	39°06’11.75”N	74°09’54.43”W	
Phase 1 Survey Area (OCW)	085	C	7/18/2019	18:52	572184	4328533	39°06’10.64”N	74°09’54.66”W	
Phase 1 Survey Area (OCW)	085	D	7/18/2019	18:53	572174	4328535	39°06’10.69”N	74°09’55.06”W	
Phase 1 Survey Area (OCW)	086	A	7/18/2019	18:19	573357	4327790	39°05’46.17”N	74°09’06.10”W	
Phase 1 Survey Area (OCW)	086	B	7/18/2019	18:20	573356	4327791	39°05’46.19”N	74°09’06.15”W	
Phase 1 Survey Area (OCW)	086	C	7/18/2019	18:21	573357	4327798	39°05’46.42”N	74°09’06.10”W	
Phase 1 Survey Area (OCW)	086	D	7/18/2019	18:23	573358	4327800	39°05’46.50”N	74°09’06.06”W	
Phase 1 Survey Area (OCW)	087	A	7/18/2019	17:29	573515	4329747	39°06’49.61”N	74°08’58.77”W	
Phase 1 Survey Area (OCW)	087	B	7/18/2019	17:40	573519	4329735	39°06’49.20”N	74°08’58.60”W	
Phase 1 Survey Area (OCW)	087	C	7/18/2019	17:41	573520	4329744	39°06’49.50”N	74°08’58.57”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	087	D	7/18/2019	17:52	573535	4329727	39°06’48.94”N	74°08’57.94”W	
Phase 1 Survey Area (OCW)	088	A	7/18/2019	16:09	574441	4328896	39°06’21.73”N	74°08’20.56”W	
Phase 1 Survey Area (OCW)	088	B	7/18/2019	16:10	574442	4328892	39°06’21.57”N	74°08’20.52”W	
Phase 1 Survey Area (OCW)	088	C	7/18/2019	16:11	574445	4328895	39°06’21.67”N	74°08’20.40”W	
Phase 1 Survey Area (OCW)	088	D	7/18/2019	16:13	574433	4328902	39°06’21.92”N	74°08’20.88”W	
Phase 1 Survey Area (OCW)	089	A	7/18/2019	15:25	574333	4330723	39°07’21.00”N	74°08’24.33”W	
Phase 1 Survey Area (OCW)	089	B	7/18/2019	15:27	574339	4330716	39°07’20.77”N	74°08’24.10”W	
Phase 1 Survey Area (OCW)	089	C	7/18/2019	15:28	574345	4330713	39°07’20.69”N	74°08’23.84”W	
Phase 1 Survey Area (OCW)	089	D	7/18/2019	15:29	574346	4330713	39°07’20.67”N	74°08’23.79”W	
Phase 1 Survey Area (OCW)	090	A	7/18/2019	14:49	575242	4329753	39°06’49.27”N	74°07’46.88”W	
Phase 1 Survey Area (OCW)	090	B	7/18/2019	14:50	575233	4329756	39°06’49.37”N	74°07’47.25”W	
Phase 1 Survey Area (OCW)	090	C	7/18/2019	14:51	575229	4329757	39°06’49.41”N	74°07’47.42”W	
Phase 1 Survey Area (OCW)	090	D	7/18/2019	14:52	575226	4329759	39°06’49.47”N	74°07’47.52”W	
Phase 1 Survey Area (OCW)	091	A	7/18/2019	14:13	576264	4330653	39°07’18.13”N	74°07’03.93”W	
Phase 1 Survey Area (OCW)	091	B	7/18/2019	14:14	576255	4330661	39°07’18.40”N	74°07’04.32”W	
Phase 1 Survey Area (OCW)	091	C	7/18/2019	14:15	576252	4330660	39°07’18.37”N	74°07’04.44”W	
Phase 1 Survey Area (OCW)	091	D	7/18/2019	14:17	576250	4330662	39°07’18.42”N	74°07’04.51”W	
Phase 1 Survey Area (OCW)	092	A	7/18/2019	13:53	576971	4331329	39°07’39.83”N	74°06’34.22”W	
Phase 1 Survey Area (OCW)	092	B	7/18/2019	13:54	576968	4331333	39°07’39.98”N	74°06’34.35”W	
Phase 1 Survey Area (OCW)	092	C	7/18/2019	13:55	576968	4331334	39°07’40.00”N	74°06’34.37”W	
Phase 1 Survey Area (OCW)	092	D	7/18/2019	13:56	576962	4331338	39°07’40.13”N	74°06’34.59”W	
Phase 1 Survey Area (OCW)	093	A	7/18/2019	13:09	577405	4332423	39°08’15.19”N	74°06’15.69”W	No Depth Sensor

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	093	B	7/18/2019	13:10	577408	4332421	39°08’15.13”N	74°06’15.57”W	
Phase 1 Survey Area (OCW)	093	C	7/18/2019	13:11	577407	4332421	39°08’15.13”N	74°06’15.61”W	
Phase 1 Survey Area (OCW)	093	D	7/18/2019	13:13	577402	4332428	39°08’15.34”N	74°06’15.81”W	
B.L. England Export Cable	201	A	7/20/2019	17:31	560142	4336094	39°10’19.17”N	74°18’13.57”W	
B.L. England Export Cable	201	B	7/20/2019	17:32	560143	4336100	39°10’19.38”N	74°18’13.51”W	
B.L. England Export Cable	201	C	7/20/2019	17:33	560147	4336108	39°10’19.63”N	74°18’13.34”W	
B.L. England Export Cable	201	D	7/20/2019	17:34	560149	4336112	39°10’19.75”N	74°18’13.26”W	
B.L. England Export Cable	202	A	7/20/2019	17:56	558249	4336113	39°10’20.27”N	74°19’32.46”W	
B.L. England Export Cable	202	B	7/20/2019	17:58	558246	4336119	39°10’20.44”N	74°19’32.59”W	
B.L. England Export Cable	202	C	7/20/2019	17:59	558245	4336131	39°10’20.86”N	74°19’32.62”W	
B.L. England Export Cable	202	D	7/20/2019	18:00	558246	4336139	39°10’21.10”N	74°19’32.56”W	
B.L. England Export Cable	203	A	7/20/2019	18:39	556439	4336452	39°10’31.70”N	74°20’47.76”W	
B.L. England Export Cable	203	B	7/20/2019	18:41	556444	4336456	39°10’31.80”N	74°20’47.58”W	
B.L. England Export Cable	203	C	7/20/2019	18:42	556445	4336461	39°10’31.96”N	74°20’47.53”W	
B.L. England Export Cable	203	D	7/20/2019	18:43	556444	4336460	39°10’31.96”N	74°20’47.56”W	
B.L. England Export Cable	204	A	7/20/2019	19:01	554872	4337496	39°11’05.91”N	74°21’52.78”W	
B.L. England Export Cable	204	B	7/20/2019	19:02	554875	4337505	39°11’06.20”N	74°21’52.65”W	
B.L. England Export Cable	204	C	7/20/2019	19:03	554876	4337516	39°11’06.57”N	74°21’52.60”W	
B.L. England Export Cable	204	D	7/20/2019	19:05	554876	4337519	39°11’06.65”N	74°21’52.59”W	
B.L. England Export Cable	205	A	7/20/2019	19:24	553297	4338555	39°11’40.61”N	74°22’58.11”W	
B.L. England Export Cable	205	B	7/20/2019	19:25	553302	4338559	39°11’40.74”N	74°22’57.89”W	
B.L. England Export Cable	205	C	7/20/2019	19:27	553309	4338570	39°11’41.10”N	74°22’57.60”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
B.L. England Export Cable	205	D	7/20/2019	19:28	553309	4338579	39°11’41.40”N	74°22’57.59”W	
B.L. England Export Cable	206	A	7/20/2019	20:06	551619	4339431	39°12’09.39”N	74°24’07.81”W	
B.L. England Export Cable	206	B	7/20/2019	20:08	551619	4339441	39°12’09.72”N	74°24’07.83”W	
B.L. England Export Cable	206	C	7/20/2019	20:09	551624	4339440	39°12’09.70”N	74°24’07.62”W	
B.L. England Export Cable	206	D	7/20/2019	20:10	551625	4339449	39°12’09.99”N	74°24’07.58”W	
B.L. England Export Cable	207	A	7/20/2019	20:34	549885	4340229	39°12’35.65”N	74°25’19.92”W	
B.L. England Export Cable	207	B	7/20/2019	20:35	549890	4340229	39°12’35.66”N	74°25’19.70”W	
B.L. England Export Cable	207	C	7/20/2019	20:36	549891	4340235	39°12’35.84”N	74°25’19.65”W	
B.L. England Export Cable	207	D	7/20/2019	20:37	549887	4340239	39°12’35.96”N	74°25’19.84”W	
B.L. England Export Cable	208	A	7/20/2019	20:56	548158	4341032	39°13’02.05”N	74°26’31.71”W	
B.L. England Export Cable	208	B	7/20/2019	20:57	548157	4341033	39°13’02.07”N	74°26’31.76”W	
B.L. England Export Cable	208	C	7/20/2019	20:58	548159	4341032	39°13’02.03”N	74°26’31.67”W	
B.L. England Export Cable	208	D	7/20/2019	20:59	548162	4341036	39°13’02.16”N	74°26’31.55”W	
B.L. England Export Cable	209	A	7/20/2019	21:28	546445	4341806	39°13’27.50”N	74°27’42.95”W	
B.L. England Export Cable	209	B	7/20/2019	21:29	546449	4341809	39°13’27.58”N	74°27’42.78”W	
B.L. England Export Cable	209	C	7/20/2019	21:30	546453	4341819	39°13’27.91”N	74°27’42.60”W	
B.L. England Export Cable	209	D	7/20/2019	21:32	546451	4341828	39°13’28.18”N	74°27’42.71”W	
B.L. England Export Cable	210	A	7/20/2019	21:52	544712	4342608	39°13’53.82”N	74°28’55.02”W	
B.L. England Export Cable	210	B	7/20/2019	21:53	544713	4342604	39°13’53.70”N	74°28’55.01”W	
B.L. England Export Cable	210	C	7/20/2019	21:54	544718	4342605	39°13’53.72”N	74°28’54.79”W	
B.L. England Export Cable	210	D	7/20/2019	21:55	544725	4342610	39°13’53.90”N	74°28’54.50”W	
B.L. England Export Cable	211	A	7/20/2019	22:15	542981	4343395	39°14’19.68”N	74°30’07.07”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
B.L. England Export Cable	211	B	7/20/2019	22:16	542983	4343399	39°14’19.82”N	74°30’06.98”W	
B.L. England Export Cable	211	C	7/20/2019	22:17	542991	4343404	39°14’19.95”N	74°30’06.63”W	
B.L. England Export Cable	211	D	7/20/2019	22:18	542993	4343405	39°14’20.01”N	74°30’06.54”W	
Oyster Creek Export Cable	301	A	7/20/2019	16:02	566358	4340794	39°12’50.01”N	74°13’52.88”W	
Oyster Creek Export Cable	301	B	7/20/2019	16:03	566364	4340798	39°12’50.13”N	74°13’52.63”W	
Oyster Creek Export Cable	301	C	7/20/2019	16:04	566370	4340804	39°12’50.33”N	74°13’52.36”W	
Oyster Creek Export Cable	301	D	7/20/2019	16:05	566367	4340807	39°12’50.41”N	74°13’52.49”W	
Oyster Creek Export Cable	302	A	7/21/2019	0:49	565381	4341973	39°13’28.51”N	74°14’33.21”W	
Oyster Creek Export Cable	302	B	7/21/2019	0:50	565387	4341980	39°13’28.75”N	74°14’32.97”W	
Oyster Creek Export Cable	302	C	7/21/2019	0:52	565391	4341994	39°13’29.19”N	74°14’32.77”W	
Oyster Creek Export Cable	302	D	7/21/2019	0:53	565392	4342003	39°13’29.48”N	74°14’32.73”W	
Oyster Creek Export Cable	303	A	7/21/2019	1:14	564408	4343188	39°14’08.17”N	74°15’13.34”W	
Oyster Creek Export Cable	303	B	7/21/2019	1:15	564408	4343184	39°14’08.07”N	74°15’13.36”W	
Oyster Creek Export Cable	303	C	7/21/2019	1:16	564410	4343191	39°14’08.29”N	74°15’13.28”W	
Oyster Creek Export Cable	303	D	7/21/2019	1:17	564412	4343196	39°14’08.45”N	74°15’13.17”W	
Oyster Creek Export Cable	304	A	7/21/2019	1:35	563417	4344370	39°14’46.79”N	74°15’54.27”W	
Oyster Creek Export Cable	304	B	7/21/2019	1:38	563416	4344378	39°14’47.06”N	74°15’54.33”W	
Oyster Creek Export Cable	304	C	7/21/2019	1:40	563420	4344378	39°14’47.04”N	74°15’54.15”W	
Oyster Creek Export Cable	304	D	7/21/2019	1:41	563425	4344373	39°14’46.88”N	74°15’53.96”W	
Oyster Creek Export Cable	305	A	7/21/2019	2:26	562485	4345615	39°15’27.41”N	74°16’32.77”W	
Oyster Creek Export Cable	305	B	7/21/2019	2:27	562486	4345614	39°15’27.37”N	74°16’32.70”W	
Oyster Creek Export Cable	305	C	7/21/2019	2:28	562493	4345617	39°15’27.46”N	74°16’32.41”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	305	D	7/21/2019	2:30	562496	4345622	39°15’27.64”N	74°16’32.30”W	
Oyster Creek Export Cable	306	A	7/21/2019	3:12	562018	4347070	39°16’14.74”N	74°16’51.74”W	
Oyster Creek Export Cable	306	B	7/21/2019	3:13	562021	4347071	39°16’14.75”N	74°16’51.63”W	
Oyster Creek Export Cable	306	C	7/21/2019	3:14	562026	4347070	39°16’14.72”N	74°16’51.44”W	
Oyster Creek Export Cable	306	D	7/21/2019	3:15	562030	4347070	39°16’14.73”N	74°16’51.24”W	
Oyster Creek Export Cable	307	A	7/21/2019	3:33	561839	4349194	39°17’23.67”N	74°16’58.53”W	
Oyster Creek Export Cable	307	B	7/21/2019	3:34	561839	4349201	39°17’23.89”N	74°16’58.51”W	
Oyster Creek Export Cable	307	C	7/21/2019	3:35	561841	4349205	39°17’24.03”N	74°16’58.45”W	
Oyster Creek Export Cable	307	D	7/21/2019	3:37	561846	4349211	39°17’24.23”N	74°16’58.22”W	
Oyster Creek Export Cable	308	A	7/21/2019	3:53	562229	4350996	39°18’22.02”N	74°16’41.64”W	
Oyster Creek Export Cable	308	B	7/21/2019	3:55	562238	4351007	39°18’22.39”N	74°16’41.26”W	
Oyster Creek Export Cable	308	C	7/21/2019	3:56	562239	4351014	39°18’22.60”N	74°16’41.22”W	
Oyster Creek Export Cable	308	D	7/21/2019	3:57	562239	4351022	39°18’22.85”N	74°16’41.21”W	
Oyster Creek Export Cable	309	A	7/21/2019	4:44	563054	4352710	39°19’17.39”N	74°16’06.62”W	
Oyster Creek Export Cable	309	B	7/21/2019	4:46	563060	4352714	39°19’17.52”N	74°16’06.35”W	
Oyster Creek Export Cable	309	C	7/21/2019	4:47	563064	4352722	39°19’17.79”N	74°16’06.22”W	
Oyster Creek Export Cable	309	D	7/21/2019	4:48	563063	4352729	39°19’18.03”N	74°16’06.26”W	
Oyster Creek Export Cable	310	A	7/21/2019	5:04	564248	4354191	39°20’05.12”N	74°15’16.24”W	
Oyster Creek Export Cable	310	B	7/21/2019	5:05	564254	4354185	39°20’04.94”N	74°15’16.00”W	
Oyster Creek Export Cable	310	C	7/21/2019	5:06	564260	4354182	39°20’04.83”N	74°15’15.74”W	
Oyster Creek Export Cable	310	D	7/21/2019	5:07	564268	4354180	39°20’04.77”N	74°15’15.42”W	
Oyster Creek Export Cable	311	A	7/21/2019	5:28	565476	4355629	39°20’51.45”N	74°14’24.47”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	311	B	7/21/2019	5:30	565486	4355629	39°20’51.42”N	74°14’24.05”W	
Oyster Creek Export Cable	311	C	7/21/2019	5:31	565490	4355628	39°20’51.42”N	74°14’23.89”W	
Oyster Creek Export Cable	311	D	7/21/2019	5:33	565495	4355640	39°20’51.78”N	74°14’23.67”W	
Oyster Creek Export Cable	312	A	7/21/2019	5:48	566717	4357076	39°21’38.04”N	74°13’32.08”W	
Oyster Creek Export Cable	312	B	7/21/2019	5:49	566718	4357081	39°21’38.18”N	74°13’32.07”W	
Oyster Creek Export Cable	312	C	7/21/2019	5:51	566724	4357083	39°21’38.25”N	74°13’31.80”W	
Oyster Creek Export Cable	312	D	7/21/2019	5:53	566736	4357085	39°21’38.32”N	74°13’31.30”W	
Oyster Creek Export Cable	313	A	7/21/2019	6:07	567657	4358708	39°22’30.70”N	74°12’52.21”W	
Oyster Creek Export Cable	313	B	7/21/2019	6:08	567660	4358711	39°22’30.78”N	74°12’52.08”W	
Oyster Creek Export Cable	313	C	7/21/2019	6:10	567665	4358714	39°22’30.91”N	74°12’51.87”W	
Oyster Creek Export Cable	313	D	7/21/2019	6:11	567669	4358722	39°22’31.17”N	74°12’51.70”W	
Oyster Creek Export Cable	314	A	7/21/2019	6:54	568519	4360406	39°23’25.53”N	74°12’15.59”W	
Oyster Creek Export Cable	314	B	7/21/2019	6:55	568518	4360410	39°23’25.67”N	74°12’15.61”W	
Oyster Creek Export Cable	314	C	7/21/2019	6:56	568517	4360412	39°23’25.73”N	74°12’15.64”W	
Oyster Creek Export Cable	314	D	7/21/2019	6:57	568521	4360416	39°23’25.85”N	74°12’15.47”W	
Oyster Creek Export Cable	315	A	7/21/2019	7:12	569286	4362143	39°24’21.66”N	74°11’42.87”W	
Oyster Creek Export Cable	315	B	7/21/2019	7:13	569295	4362136	39°24’21.43”N	74°11’42.47”W	
Oyster Creek Export Cable	315	C	7/21/2019	7:15	569303	4362137	39°24’21.45”N	74°11’42.16”W	
Oyster Creek Export Cable	315	D	7/21/2019	7:17	569307	4362145	39°24’21.72”N	74°11’41.99”W	
Oyster Creek Export Cable	316	A	7/21/2019	7:31	570006	4363897	39°25’18.34”N	74°11’12.11”W	
Oyster Creek Export Cable	316	B	7/21/2019	7:32	570009	4363900	39°25’18.45”N	74°11’11.97”W	
Oyster Creek Export Cable	316	C	7/21/2019	7:34	570014	4363907	39°25’18.67”N	74°11’11.77”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	316	D	7/21/2019	7:35	570014	4363912	39°25’18.81”N	74°11’11.76”W	
Oyster Creek Export Cable	317	A	7/21/2019	7:53	570749	4365651	39°26’15.03”N	74°10’40.35”W	
Oyster Creek Export Cable	317	B	7/21/2019	7:55	570752	4365653	39°26’15.09”N	74°10’40.23”W	
Oyster Creek Export Cable	317	C	7/21/2019	7:56	570753	4365658	39°26’15.23”N	74°10’40.18”W	
Oyster Creek Export Cable	317	D	7/21/2019	7:57	570754	4365658	39°26’15.22”N	74°10’40.14”W	
Oyster Creek Export Cable	318	A	7/21/2019	8:18	571569	4367364	39°27’10.32”N	74°10’05.38”W	
Oyster Creek Export Cable	318	B	7/21/2019	8:19	571570	4367367	39°27’10.41”N	74°10’05.35”W	
Oyster Creek Export Cable	318	C	7/21/2019	8:20	571571	4367368	39°27’10.45”N	74°10’05.33”W	
Oyster Creek Export Cable	318	D	7/21/2019	8:21	571575	4367366	39°27’10.39”N	74°10’05.14”W	
Oyster Creek Export Cable	319	A	7/21/2019	9:00	572707	4368767	39°27’55.49”N	74°09’17.25”W	
Oyster Creek Export Cable	319	B	7/21/2019	9:01	572706	4368772	39°27’55.67”N	74°09’17.29”W	
Oyster Creek Export Cable	319	C	7/21/2019	9:02	572709	4368776	39°27’55.77”N	74°09’17.15”W	
Oyster Creek Export Cable	319	D	7/21/2019	9:03	572709	4368778	39°27’55.84”N	74°09’17.13”W	
Oyster Creek Export Cable	320	A	7/21/2019	9:31	573782	4370115	39°28’38.88”N	74°08’31.72”W	
Oyster Creek Export Cable	320	B	7/21/2019	9:32	573783	4370119	39°28’39.02”N	74°08’31.65”W	
Oyster Creek Export Cable	320	C	7/21/2019	9:34	573789	4370128	39°28’39.29”N	74°08’31.40”W	
Oyster Creek Export Cable	320	D	7/21/2019	9:35	573794	4370136	39°28’39.57”N	74°08’31.21”W	
Oyster Creek Export Cable	321	A	7/21/2019	9:52	575536	4370893	39°29’03.56”N	74°07’17.99”W	
Oyster Creek Export Cable	321	B	7/21/2019	9:53	575535	4370892	39°29’03.53”N	74°07’18.04”W	
Oyster Creek Export Cable	321	C	7/21/2019	9:54	575532	4370897	39°29’03.70”N	74°07’18.15”W	
Oyster Creek Export Cable	321	D	7/21/2019	9:56	575533	4370896	39°29’03.66”N	74°07’18.12”W	
Oyster Creek Export Cable	322	A	7/21/2019	10:15	577016	4371939	39°29’37.02”N	74°06’15.61”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	322	B	7/21/2019	10:16	577015	4371943	39°29’37.15”N	74°06’15.64”W	
Oyster Creek Export Cable	322	C	7/21/2019	10:17	577018	4371946	39°29’37.25”N	74°06’15.54”W	
Oyster Creek Export Cable	322	D	7/21/2019	10:18	577016	4371950	39°29’37.39”N	74°06’15.61”W	
Oyster Creek Export Cable	323	A	7/21/2019	10:35	577781	4373655	39°30’32.45”N	74°05’42.85”W	
Oyster Creek Export Cable	323	B	7/21/2019	10:37	577779	4373665	39°30’32.74”N	74°05’42.93”W	
Oyster Creek Export Cable	323	C	7/21/2019	10:38	577778	4373668	39°30’32.92”N	74°05’42.96”W	
Oyster Creek Export Cable	323	D	7/21/2019	10:39	577777	4373670	39°30’32.93”N	74°05’43.02”W	
Oyster Creek Export Cable	324	A	7/21/2019	11:38	578276	4375504	39°31’32.25”N	74°05’21.34”W	
Oyster Creek Export Cable	324	B	7/21/2019	11:40	578275	4375510	39°31’32.45”N	74°05’21.40”W	
Oyster Creek Export Cable	324	C	7/21/2019	11:41	578273	4375517	39°31’32.66”N	74°05’21.49”W	
Oyster Creek Export Cable	324	D	7/21/2019	11:42	578269	4375518	39°31’32.70”N	74°05’21.65”W	
Oyster Creek Export Cable	325	A	7/21/2019	12:18	578786	4377339	39°32’31.60”N	74°04’59.20”W	
Oyster Creek Export Cable	325	B	7/21/2019	12:20	578785	4377344	39°32’31.75”N	74°04’59.26”W	
Oyster Creek Export Cable	325	C	7/21/2019	12:21	578785	4377343	39°32’31.73”N	74°04’59.25”W	
Oyster Creek Export Cable	325	D	7/21/2019	12:22	578787	4377342	39°32’31.67”N	74°04’59.15”W	
Oyster Creek Export Cable	326	A	7/21/2019	12:36	579093	4378518	39°33’09.74”N	74°04’45.85”W	
Oyster Creek Export Cable	326	B	7/21/2019	12:37	579096	4378522	39°33’09.87”N	74°04’45.72”W	
Oyster Creek Export Cable	326	C	7/21/2019	12:38	579095	4378525	39°33’09.94”N	74°04’45.75”W	
Oyster Creek Export Cable	326	D	7/21/2019	12:39	579093	4378532	39°33’10.16”N	74°04’45.82”W	
Oyster Creek Export Cable	327	A	7/21/2019	12:53	579959	4378765	39°33’17.43”N	74°04’09.44”W	
Oyster Creek Export Cable	327	B	7/21/2019	12:54	579961	4378771	39°33’17.65”N	74°04’09.35”W	
Oyster Creek Export Cable	327	C	7/21/2019	12:55	579960	4378777	39°33’17.83”N	74°04’09.41”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	327	D	7/21/2019	12:56	579970	4378777	39°33’17.82”N	74°04’09.00”W	
Oyster Creek Export Cable	328	A	7/21/2019	13:15	579176	4380356	39°34’09.31”N	74°04’41.59”W	
Oyster Creek Export Cable	328	B	7/21/2019	13:16	579177	4380361	39°34’09.47”N	74°04’41.53”W	
Oyster Creek Export Cable	328	C	7/21/2019	13:17	579178	4380362	39°34’09.51”N	74°04’41.50”W	
Oyster Creek Export Cable	328	D	7/21/2019	13:18	579178	4380364	39°34’09.55”N	74°04’41.48”W	
Oyster Creek Export Cable	329	A	7/21/2019	13:53	579756	4382126	39°35’06.52”N	74°04’16.50”W	
Oyster Creek Export Cable	329	B	7/21/2019	13:54	579758	4382132	39°35’06.71”N	74°04’16.43”W	
Oyster Creek Export Cable	329	C	7/21/2019	13:55	579759	4382136	39°35’06.83”N	74°04’16.38”W	
Oyster Creek Export Cable	329	D	7/21/2019	13:57	579762	4382144	39°35’07.11”N	74°04’16.26”W	
Oyster Creek Export Cable	330	A	7/21/2019	14:14	580546	4383847	39°36’02.08”N	74°03’42.64”W	
Oyster Creek Export Cable	330	B	7/21/2019	14:16	580547	4383853	39°36’02.29”N	74°03’42.61”W	
Oyster Creek Export Cable	330	C	7/21/2019	14:17	580552	4383859	39°36’02.47”N	74°03’42.37”W	
Oyster Creek Export Cable	330	D	7/21/2019	14:18	580552	4383864	39°36’02.62”N	74°03’42.39”W	
Oyster Creek Export Cable	331	A	7/21/2019	14:30	580720	4384543	39°36’24.60”N	74°03’35.06”W	
Oyster Creek Export Cable	331	B	7/21/2019	14:31	580716	4384549	39°36’24.78”N	74°03’35.20”W	
Oyster Creek Export Cable	331	C	7/21/2019	14:32	580720	4384557	39°36’25.05”N	74°03’35.04”W	
Oyster Creek Export Cable	331	D	7/21/2019	14:34	580728	4384563	39°36’25.23”N	74°03’34.69”W	
Oyster Creek Export Cable	332	A	7/21/2019	14:49	580351	4385728	39°37’03.14”N	74°03’49.98”W	
Oyster Creek Export Cable	332	B	7/21/2019	14:51	580358	4385735	39°37’03.36”N	74°03’49.71”W	
Oyster Creek Export Cable	332	C	7/21/2019	14:52	580361	4385742	39°37’03.59”N	74°03’49.57”W	
Oyster Creek Export Cable	332	D	7/21/2019	14:53	580370	4385755	39°37’04.00”N	74°03’49.20”W	
Oyster Creek Export Cable	333	A	7/21/2019	15:10	581199	4386393	39°37’24.42”N	74°03’14.16”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	333	B	7/21/2019	15:11	581195	4386395	39°37’24.49”N	74°03’14.30”W	
Oyster Creek Export Cable	333	C	7/21/2019	15:12	581203	4386396	39°37’24.52”N	74°03’13.98”W	
Oyster Creek Export Cable	333	D	7/21/2019	15:13	581205	4386401	39°37’24.69”N	74°03’13.90”W	
Oyster Creek Export Cable	334	A	7/21/2019	15:59	581893	4388153	39°38’21.26”N	74°02’44.24”W	
Oyster Creek Export Cable	334	B	7/21/2019	16:00	581895	4388160	39°38’21.51”N	74°02’44.15”W	
Oyster Creek Export Cable	334	C	7/21/2019	16:01	581895	4388166	39°38’21.68”N	74°02’44.15”W	
Oyster Creek Export Cable	334	D	7/21/2019	16:02	581893	4388170	39°38’21.82”N	74°02’44.24”W	
Oyster Creek Export Cable	335	A	7/21/2019	17:15	582793	4389847	39°39’15.91”N	74°02’05.72”W	
Oyster Creek Export Cable	335	B	7/21/2019	17:16	582798	4389848	39°39’15.92”N	74°02’05.51”W	
Oyster Creek Export Cable	335	C	7/21/2019	17:17	582795	4389848	39°39’15.94”N	74°02’05.64”W	
Oyster Creek Export Cable	335	D	7/21/2019	17:18	582798	4389848	39°39’15.94”N	74°02’05.53”W	
Oyster Creek Export Cable	336	A	7/21/2019	15:35	579982	4387593	39°38’03.75”N	74°04’04.65”W	
Oyster Creek Export Cable	336	B	7/21/2019	15:37	579978	4387596	39°38’03.86”N	74°04’04.83”W	
Oyster Creek Export Cable	336	C	7/21/2019	15:38	579974	4387600	39°38’03.98”N	74°04’04.99”W	
Oyster Creek Export Cable	336	D	7/21/2019	15:39	579971	4387605	39°38’04.16”N	74°04’05.12”W	
Oyster Creek Export Cable	337	A	7/21/2019	16:30	580267	4389369	39°39’01.28”N	74°03’51.93”W	
Oyster Creek Export Cable	337	B	7/21/2019	16:31	580272	4389377	39°39’01.53”N	74°03’51.72”W	
Oyster Creek Export Cable	337	C	7/21/2019	16:32	580273	4389374	39°39’01.43”N	74°03’51.66”W	
Oyster Creek Export Cable	337	D	7/21/2019	16:34	580270	4389376	39°39’01.50”N	74°03’51.78”W	
Oyster Creek Export Cable	338	A	7/21/2019	16:57	581937	4390268	39°39’29.85”N	74°02’41.48”W	
Oyster Creek Export Cable	338	B	7/21/2019	16:58	581934	4390270	39°39’29.93”N	74°02’41.57”W	
Oyster Creek Export Cable	338	C	7/21/2019	16:59	581942	4390271	39°39’29.94”N	74°02’41.25”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	338	D	7/21/2019	17:01	581943	4390280	39°39'30.23"N	74°02'41.19"W	
Oyster Creek Export Cable	339	A	7/21/2019	17:38	583556	4391249	39°40'01.10"N	74°01'33.08"W	
Oyster Creek Export Cable	339	B	7/21/2019	17:39	583557	4391255	39°40'01.31"N	74°01'33.04"W	
Oyster Creek Export Cable	339	C	7/21/2019	17:41	583559	4391261	39°40'01.48"N	74°01'32.97"W	
Oyster Creek Export Cable	339	D	7/21/2019	17:42	583557	4391264	39°40'01.60"N	74°01'33.02"W	
Oyster Creek Export Cable	340	A	7/21/2019	18:01	584403	4392865	39°40'53.23"N	74°00'56.80"W	
Oyster Creek Export Cable	340	B	7/21/2019	18:02	584409	4392878	39°40'53.64"N	74°00'56.54"W	
Oyster Creek Export Cable	340	C	7/21/2019	18:03	584414	4392883	39°40'53.79"N	74°00'56.34"W	
Oyster Creek Export Cable	340	D	7/21/2019	18:05	584416	4392894	39°40'54.15"N	74°00'56.24"W	
Oyster Creek Export Cable	341	A	7/21/2019	18:21	584551	4394766	39°41'54.82"N	74°00'49.70"W	
Oyster Creek Export Cable	341	B	7/21/2019	18:22	584551	4394773	39°41'55.03"N	74°00'49.71"W	
Oyster Creek Export Cable	341	C	7/21/2019	18:24	584553	4394777	39°41'55.18"N	74°00'49.60"W	
Oyster Creek Export Cable	341	D	7/21/2019	18:25	584559	4394783	39°41'55.37"N	74°00'49.37"W	
Oyster Creek Export Cable	342	A	7/21/2019	18:49	584612	4396664	39°42'56.35"N	74°00'46.27"W	
Oyster Creek Export Cable	342	B	7/21/2019	18:50	584611	4396668	39°42'56.48"N	74°00'46.29"W	
Oyster Creek Export Cable	342	C	7/21/2019	18:51	584616	4396673	39°42'56.63"N	74°00'46.10"W	
Oyster Creek Export Cable	342	D	7/21/2019	18:52	584621	4396681	39°42'56.91"N	74°00'45.88"W	
Oyster Creek Export Cable	343	A	7/21/2019	19:08	585134	4398492	39°43'55.46"N	74°00'23.50"W	
Oyster Creek Export Cable	343	B	7/21/2019	19:09	585137	4398500	39°43'55.71"N	74°00'23.36"W	
Oyster Creek Export Cable	343	C	7/21/2019	19:11	585137	4398505	39°43'55.86"N	74°00'23.37"W	
Oyster Creek Export Cable	343	D	7/21/2019	19:12	585141	4398505	39°43'55.88"N	74°00'23.18"W	
Oyster Creek Export Cable	344	A	7/21/2019	19:28	585121	4400383	39°44'56.79"N	74°00'23.18"W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	344	B	7/21/2019	19:29	585124	4400388	39°44’56.93”N	74°00’23.04”W	
Oyster Creek Export Cable	344	C	7/21/2019	19:31	585124	4400393	39°44’57.11”N	74°00’23.01”W	
Oyster Creek Export Cable	344	D	7/21/2019	19:32	585125	4400394	39°44’57.13”N	74°00’23.00”W	
Oyster Creek Export Cable	345	A	7/21/2019	19:52	585043	4402274	39°45’58.13”N	74°00’25.54”W	
Oyster Creek Export Cable	345	B	7/21/2019	19:53	585043	4402281	39°45’58.37”N	74°00’25.54”W	
Oyster Creek Export Cable	345	C	7/21/2019	19:54	585049	4402285	39°45’58.50”N	74°00’25.30”W	
Oyster Creek Export Cable	345	D	7/21/2019	19:56	585049	4402292	39°45’58.72”N	74°00’25.30”W	
Oyster Creek Export Cable	346	A	7/21/2019	20:13	584324	4403938	39°46’52.35”N	74°00’54.99”W	
Oyster Creek Export Cable	346	B	7/21/2019	20:14	584332	4403943	39°46’52.53”N	74°00’54.68”W	
Oyster Creek Export Cable	346	C	7/21/2019	20:15	584331	4403946	39°46’52.61”N	74°00’54.69”W	
Oyster Creek Export Cable	346	D	7/21/2019	20:16	584334	4403952	39°46’52.80”N	74°00’54.56”W	
Oyster Creek Export Cable	347	A	7/21/2019	20:43	584499	4405831	39°47’53.68”N	74°00’46.79”W	
Oyster Creek Export Cable	347	B	7/21/2019	20:44	584500	4405835	39°47’53.83”N	74°00’46.72”W	
Oyster Creek Export Cable	347	C	7/21/2019	20:45	584506	4405838	39°47’53.92”N	74°00’46.47”W	
Oyster Creek Export Cable	347	D	7/21/2019	20:46	584509	4405842	39°47’54.05”N	74°00’46.34”W	
Oyster Creek Export Cable	348	A	7/21/2019	21:02	584583	4407720	39°48’54.94”N	74°00’42.38”W	
Oyster Creek Export Cable	348	B	7/21/2019	21:03	584586	4407722	39°48’54.98”N	74°00’42.25”W	
Oyster Creek Export Cable	348	C	7/21/2019	21:04	584586	4407728	39°48’55.17”N	74°00’42.23”W	
Oyster Creek Export Cable	348	D	7/21/2019	21:05	584595	4407732	39°48’55.31”N	74°00’41.83”W	
Oyster Creek Export Cable	349	A	7/21/2019	21:22	583443	4409229	39°49’44.27”N	74°01’29.60”W	
Oyster Creek Export Cable	349	B	7/21/2019	21:23	583452	4409232	39°49’44.38”N	74°01’29.22”W	
Oyster Creek Export Cable	349	C	7/21/2019	21:24	583459	4409240	39°49’44.63”N	74°01’28.93”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	349	D	7/21/2019	21:25	583458	4409239	39°49’44.59”N	74°01’28.97”W	
Oyster Creek Export Cable	350	A	7/21/2019	21:43	581806	4410124	39°50’13.86”N	74°02’38.08”W	
Oyster Creek Export Cable	350	B	7/21/2019	21:44	581810	4410123	39°50’13.84”N	74°02’37.91”W	
Oyster Creek Export Cable	350	C	7/21/2019	21:45	581817	4410118	39°50’13.67”N	74°02’37.60”W	
Oyster Creek Export Cable	350	D	7/21/2019	21:47	581818	4410111	39°50’13.45”N	74°02’37.55”W	
Reference	401	A	7/21/2019	2:48	560479	4345786	39°15’33.47”N	74°17’56.40”W	
Reference	401	B	7/21/2019	2:49	560483	4345781	39°15’33.32”N	74°17’56.24”W	
Reference	401	C	7/21/2019	2:52	560480	4345797	39°15’33.83”N	74°17’56.35”W	
Reference	401	D	7/21/2019	2:53	560478	4345802	39°15’34.00”N	74°17’56.42”W	
Reference	402	A	7/21/2019	0:12	558841	4343313	39°14’13.66”N	74°19’05.52”W	
Reference	402	B	7/21/2019	0:13	558845	4343316	39°14’13.76”N	74°19’05.34”W	
Reference	402	C	7/21/2019	0:14	558845	4343327	39°14’14.10”N	74°19’05.34”W	
Reference	402	D	7/21/2019	0:15	558851	4343329	39°14’14.17”N	74°19’05.11”W	
Reference	403	A	7/20/2019	23:46	558837	4340054	39°12’27.94”N	74°19’06.72”W	
Reference	403	B	7/20/2019	23:47	558842	4340063	39°12’28.24”N	74°19’06.50”W	
Reference	403	C	7/20/2019	23:48	558850	4340066	39°12’28.33”N	74°19’06.17”W	
Reference	403	D	7/20/2019	23:50	558853	4340072	39°12’28.53”N	74°19’06.06”W	

APPENDIX C

SPI/PV Field Log

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
093	SPI_PV	A	7/18/2019	13:09:40	419	17	5	
093	SPI_PV	B	7/18/2019	13:10:55	420	17	5	
093	SPI_PV	C	7/18/2019	13:12:04	421	17	5	
093	SPI_PV	D	7/18/2019	13:13:17	422	17	5	FC 425
092	SPI_PV	A	7/18/2019	13:53:16	426	17	5	
092	SPI_PV	B	7/18/2019	13:54:32	427	17	5	
092	SPI_PV	C	7/18/2019	13:55:47	428	17	5	
092	SPI_PV	D	7/18/2019	13:56:55	429	17	5	FC 432
091	SPI_PV	A	7/18/2019	14:13:45	433	17	5	
091	SPI_PV	B	7/18/2019	14:14:56	434	17	5	
091	SPI_PV	C	7/18/2019	14:16:13	435	17	5	
091	SPI_PV	D	7/18/2019	14:17:27	436	17	5	FC 438
090	SPI_PV	A	7/18/2019	14:49:45	439	17	5	
090	SPI_PV	B	7/18/2019	14:50:55	440	17	5	
090	SPI_PV	C	7/18/2019	14:52:03	441	17	5	
090	SPI_PV	D	7/18/2019	14:53:14	442	17	5	FC 444
089	SPI_PV	A	7/18/2019	15:26:12	445	17	5	
089	SPI_PV	B	7/18/2019	15:27:27	446	17	5	
089	SPI_PV	C	7/18/2019	15:28:35	447	17	5	
089	SPI_PV	D	7/18/2019	15:29:41	448	17	5	FC 449; Download
088	SPI_PV	A	7/18/2019	16:09:43	450	17	5	
088	SPI_PV	B	7/18/2019	16:10:53	451	17	5	
088	SPI_PV	C	7/18/2019	16:12:03	452	17	5	
088	SPI_PV	D	7/18/2019	16:13:54	453	17	5	FC 456
087	SPI_PV	A	7/18/2019	17:29:21	457	17	5	
087	SPI_PV	B	7/18/2019	17:40:16	458	17	5	
087	SPI_PV	C	7/18/2019	17:41:30	459	17	5	
087	SPI_PV	D	7/18/2019	17:52:16	460	17	5	FC 463
086	SPI_PV	A	7/18/2019	18:19:40	464	17	5	
086	SPI_PV	B	7/18/2019	18:20:52	465	17	5	
086	SPI_PV	C	7/18/2019	18:22:01	466	17	5	
086	SPI_PV	D	7/18/2019	18:23:12	467	17	5	FC 469

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
085	SPI_PV	A	7/18/2019	18:43:49	470	17	5	
085	SPI_PV	B	7/18/2019	18:45:00	471	17	5	
085	SPI_PV	C	7/18/2019	18:52:37	472	17	5	
085	SPI_PV	D	7/18/2019	18:53:43	473	17	5	FC 476
084	SPI_PV	A	7/18/2019	19:18:55	477	17	5	
084	SPI_PV	B	7/18/2019	19:19:55	478	17	5	
084	SPI_PV	C	7/18/2019	19:21:13	479	17	5	
084	SPI_PV	D	7/18/2019	19:22:34	480	17	5	FC 481; Download
083	SPI_PV	A	7/18/2019	19:52:04	482	17	5	
083	SPI_PV	B	7/18/2019	19:53:13	483	17	5	
083	SPI_PV	C	7/18/2019	19:54:22	484	17	5	
083	SPI_PV	D	7/18/2019	19:55:35	485	17	5	FC 487
082	SPI_PV	A	7/18/2019	20:12:50	488	17	5	
082	SPI_PV	B	7/18/2019	20:14:05	489	17	5	
082	SPI_PV	C	7/18/2019	20:15:18	490	17	5	
082	SPI_PV	D	7/18/2019	20:16:25	491	17	5	FC 492
081	SPI_PV	A	7/18/2019	21:02:23	493	17	5	
081	SPI_PV	B	7/18/2019	21:03:35	494	17	5	
081	SPI_PV	C	7/18/2019	21:04:44	495	17	5	
081	SPI_PV	D	7/18/2019	21:05:51	496	17	5	FC 497
080	SPI_PV	A	7/18/2019	21:20:20	498	17	5	
080	SPI_PV	B	7/18/2019	21:21:33	499	17	5	
080	SPI_PV	C	7/18/2019	21:22:46	500	17	5	
080	SPI_PV	D	7/18/2019	21:30:35	501	17	5	FC 502; (21:45) Down for weather
079	SPI_PV	A	7/18/2019	23:42:03	503	17	5	
079	SPI_PV	B	7/18/2019	23:43:27	504	17	5	
079	SPI_PV	C	7/18/2019	23:44:48	505	17	5	No PV
079	SPI_PV	D	7/18/2019	23:45:56	506	17	5	No PV rep D; redo. FC 508; Download. Shift change. Lost trigger
079	SPI_PV	E	7/19/2019	0:32:50	509	17	5	
079	SPI_PV	F	7/19/2019	0:34:38	510	17	5	
079	SPI_PV	G	7/19/2019	0:36:27	511	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
079	SPI_PV	H	7/19/2019	0:38:12	512	17	5	FC 512
069	SPI_PV	A	7/19/2019	1:04:15	513	17	5	
069	SPI_PV	B	7/19/2019	1:06:24	514	17	5	
069	SPI_PV	C	7/19/2019	1:13:29	515	17	5	
069	SPI_PV	D	7/19/2019	1:14:54	516	17	5	FC 516
071	SPI_PV	A	7/19/2019	1:34:21	517	17	5	
071	SPI_PV	B	7/19/2019	1:35:53	518	17	5	
071	SPI_PV	C	7/19/2019	1:37:50	519	17	5	
071	SPI_PV	D	7/19/2019	1:39:56	520	17	5	FC 522
073	SPI_PV	A	7/19/2019	1:56:44	523	17	5	
073	SPI_PV	B	7/19/2019	1:58:20	524	17	5	
073	SPI_PV	C	7/19/2019	2:00:11	525	17	5	
073	SPI_PV	D	7/19/2019	2:01:43	526	17	5	FC 526
075	SPI_PV	A	7/19/2019	2:22:08	527	17	5	
075	SPI_PV	B	7/19/2019	2:23:48	528	17	5	
075	SPI_PV	C	7/19/2019	2:25:36	529	17	5	
075	SPI_PV	D	7/19/2019	2:27:31	530	17	5	FC 530; Download.
076	SPI_PV	A	7/19/2019	3:04:35	531	17	5	
076	SPI_PV	B	7/19/2019	3:06:16	532	17	5	
076	SPI_PV	C	7/19/2019	3:08:00	533	17	5	
076	SPI_PV	D	7/19/2019	3:09:23	534	17	5	FC 535
077	SPI_PV	A	7/19/2019	3:24:37	536	17	5	
077	SPI_PV	B	7/19/2019	3:26:06	537	17	5	
077	SPI_PV	C	7/19/2019	3:28:02	538	17	5	
077	SPI_PV	D	7/19/2019	3:29:40	539	17	5	FC 541
078	SPI_PV	A	7/19/2019	4:12:12	542	17	5	
078	SPI_PV	B	7/19/2019	4:14:14	543	17	5	
078	SPI_PV	C	7/19/2019	4:15:44	544	17	5	
078	SPI_PV	D	7/19/2019	4:17:03	545	17	5	FC 546
067	SPI_PV	A	7/19/2019	4:36:05	547	17	5	
067	SPI_PV	B	7/19/2019	4:37:44	548	17	5	
067	SPI_PV	C	7/19/2019	4:39:26	549	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
067	SPI_PV	D	7/19/2019	4:40:52	550	17	5	FC 553
065	SPI_PV	A	7/19/2019	5:40:18	554	17	5	
065	SPI_PV	B	7/19/2019	5:42:13	555	17	5	
065	SPI_PV	C	7/19/2019	5:43:42	556	17	5	
065	SPI_PV	D	7/19/2019	5:45:18	557	17	5	FC 558; Download
064	SPI_PV	A	7/19/2019	6:24:50	559	17	5	
064	SPI_PV	B	7/19/2019	6:26:56	560	17	5	
064	SPI_PV	C	7/19/2019	6:28:31	561	17	5	
064	SPI_PV	D	7/19/2019	6:29:52	562	17	5	FC 564
062	SPI_PV	A	7/19/2019	6:46:46	565	17	5	
062	SPI_PV	B	7/19/2019	6:48:24	566	17	5	
062	SPI_PV	C	7/19/2019	6:50:22	567	17	5	
062	SPI_PV	D	7/19/2019	6:52:03	568	17	5	FC 569 (deck shot)
060	SPI_PV	A	7/19/2019	7:07:17	570	17	5	
060	SPI_PV	B	7/19/2019	7:08:55	571	17	5	
060	SPI_PV	C	7/19/2019	7:10:30	572	17	5	
060	SPI_PV	D	7/19/2019	7:12:05	573	17	5	FC 574
059	SPI_PV	A	7/19/2019	8:00:00	575	17	5	
059	SPI_PV	B	7/19/2019	8:02:25	576	17	5	
059	SPI_PV	C	7/19/2019	8:03:58	577	17	5	
059	SPI_PV	D	7/19/2019	8:05:32	578	17	5	FC580
074	SPI_PV	A	7/19/2019	8:28:20	579	17	5	
074	SPI_PV	B	7/19/2019	8:29:42	580	17	5	
074	SPI_PV	C	7/19/2019	8:31:40	581	17	5	
074	SPI_PV	D	7/19/2019	8:37:37		17	5	FC 586; Download. No nav fix for
072	SPI_PV	A	7/19/2019	9:28:15	587	17	5	
072	SPI_PV	B	7/19/2019	9:35:06	588	17	5	
072	SPI_PV	C	7/19/2019	9:37:28		17	5	No nav fix for rep C
072	SPI_PV	D	7/19/2019	9:40:21	590	17	5	
072	SPI_PV	E	7/19/2019	9:41:42	591	17	5	FC 597
070	SPI_PV	A	7/19/2019	10:08:28	598	17	5	
070	SPI_PV	B	7/19/2019	10:09:45	599	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
070	SPI_PV	C	7/19/2019	10:14:07	600	17	5	
070	SPI_PV	D	7/19/2019	10:15:33	601	17	5	FC 604
068	SPI_PV	A	7/19/2019	11:12:50	605	17	5	
068	SPI_PV	B	7/19/2019	11:14:02	606	17	5	
068	SPI_PV	C	7/19/2019	11:15:28	607	17	5	
068	SPI_PV	D	7/19/2019	11:17:02	608	17	5	FC 609
055	SPI_PV	A	7/19/2019	11:39:25	610	17	5	
055	SPI_PV	B	7/19/2019	11:40:46	611	17	5	
055	SPI_PV	C	7/19/2019	11:42:16	612	17	5	
055	SPI_PV	D	7/19/2019	11:43:35	613	17	5	FC 614. Strobe Bottle change. Shift
056	SPI_PV	A	7/19/2019	12:24:37	615	17	5	
056	SPI_PV	B	7/19/2019	12:25:41	616	17	5	
056	SPI_PV	C	7/19/2019	12:26:54	617	17	5	
056	SPI_PV	D	7/19/2019	12:31:59	618	17	5	FC 620; Download.
057	SPI_PV	A	7/19/2019	12:49:03	621	17	5	
057	SPI_PV	B	7/19/2019	12:50:18	622	17	5	
057	SPI_PV	C	7/19/2019	12:51:34	623	17	5	
057	SPI_PV	D	7/19/2019	12:52:52	624	17	5	FC 624
058	SPI_PV	A	7/19/2019	13:08:16	625	17	5	
058	SPI_PV	B	7/19/2019	13:09:34	626	17	5	
058	SPI_PV	C	7/19/2019	13:10:53	627	17	5	
058	SPI_PV	D	7/19/2019	13:12:03	628	17	5	FC 628
049	SPI_PV	A	7/19/2019	13:26:26	629	17	5	
049	SPI_PV	B	7/19/2019	13:27:47	630	17	5	
049	SPI_PV	C	7/19/2019	13:28:57	631	17	5	
049	SPI_PV	D	7/19/2019	13:30:11	632	17	5	FC 632
061	SPI_PV	A	7/19/2019	14:34:38	633	17	5	
061	SPI_PV	B	7/19/2019	14:35:48	634	17	5	
061	SPI_PV	C	7/19/2019	14:36:54	635	17	5	
061	SPI_PV	D	7/19/2019	14:38:13	636	17	5	FC 638. No PV rep D
063	SPI_PV	A	7/19/2019	14:53:33	639	17	5	
063	SPI_PV	B	7/19/2019	14:54:43	640	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
063	SPI_PV	C	7/19/2019	14:55:54	641	17	5	
063	SPI_PV	D	7/19/2019	14:57:10	642	17	5	FC 642; Download
066	SPI_PV	A	7/19/2019	15:21:25	643	17	5	
066	SPI_PV	B	7/19/2019	15:22:40	644	17	5	
066	SPI_PV	C	7/19/2019	15:23:56	645	17	5	
066	SPI_PV	D	7/19/2019	15:25:11	646	17	5	FC 648
053	SPI_PV	A	7/19/2019	15:45:02	649	17	5	
053	SPI_PV	B	7/19/2019	15:46:15	650	17	5	
053	SPI_PV	C	7/19/2019	15:48:58	651	17	5	
053	SPI_PV	D	7/19/2019	15:50:10	652	17	5	FC 653
052	SPI_PV	A	7/19/2019	16:12:02	654	17	5	
052	SPI_PV	B	7/19/2019	16:13:18	655	17	5	
052	SPI_PV	C	7/19/2019	16:14:37	656	17	5	
052	SPI_PV	D	7/19/2019	16:15:49	657	17	5	FC 658
051	SPI_PV	A	7/19/2019	16:59:17	659	17	5	
051	SPI_PV	B	7/19/2019	17:00:37	660	17	5	
051	SPI_PV	C	7/19/2019	17:01:50	661	17	5	
051	SPI_PV	D	7/19/2019	17:03:10	662	17	5	FC 663
050	SPI_PV	A	7/19/2019	17:31:20	664	17	5	
050	SPI_PV	B	7/19/2019	17:32:35	665	17	5	
050	SPI_PV	C	7/19/2019	17:33:47	666	17	5	
050	SPI_PV	D	7/19/2019	17:35:02	667	17	5	FC 667; Download
048	SPI_PV	A	7/19/2019	18:04:39	668	17	5	
048	SPI_PV	B	7/19/2019	18:05:51	669	17	5	
048	SPI_PV	C	7/19/2019	18:07:01	670	17	5	
048	SPI_PV	D	7/19/2019	18:08:26	671	17	5	FC 671
047	SPI_PV	A	7/19/2019	18:30:41	672	17	5	
047	SPI_PV	B	7/19/2019	18:31:52	673	17	5	
047	SPI_PV	C	7/19/2019	18:33:13	674	17	5	
047	SPI_PV	D	7/19/2019	18:34:44	675	17	5	FC 675
054	SPI_PV	A	7/19/2019	18:56:25	676	17	5	
054	SPI_PV	B	7/19/2019	18:57:39	677	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
054	SPI_PV	C	7/19/2019	18:58:53	678	17	5	
054	SPI_PV	D	7/19/2019	19:00:06	679	17	5	FC 680
046	SPI_PV	A	7/19/2019	19:34:50	681	17	5	
046	SPI_PV	B	7/19/2019	19:36:03	682	17	5	
046	SPI_PV	C	7/19/2019	19:37:13	683	17	5	
046	SPI_PV	D	7/19/2019	19:38:29	684	17	5	FC 685
032	SPI_PV	A	7/19/2019	19:51:57	686	17	5	
032	SPI_PV	B	7/19/2019	19:53:10	687	17	5	
032	SPI_PV	C	7/19/2019	19:54:24	688	17	5	
032	SPI_PV	D	7/19/2019	19:55:45	689	17	5	FC 690; Download
033	SPI_PV	A	7/19/2019	20:11:36	691	17	5	
033	SPI_PV	B	7/19/2019	20:12:52	692	17	5	
033	SPI_PV	C	7/19/2019	20:14:05	693	17	5	
033	SPI_PV	D	7/19/2019	20:15:24	694	17	5	FC 694
034	SPI_PV	A	7/19/2019	20:53:13	695	17	5	
034	SPI_PV	B	7/19/2019	20:54:30	696	17	5	
034	SPI_PV	C	7/19/2019	20:55:45	697	17	5	
034	SPI_PV	D	7/19/2019	20:57:01	698	17	5	FC 699
036	SPI_PV	A	7/19/2019	21:11:22	700	17	5	
036	SPI_PV	B	7/19/2019	21:12:35	701	17	5	
036	SPI_PV	C	7/19/2019	21:13:48	702	17	5	
036	SPI_PV	D	7/19/2019	21:15:02	703	17	5	FC 703
038	SPI_PV	A	7/19/2019	21:44:57	704	17	5	
038	SPI_PV	B	7/19/2019	21:46:10	705	17	5	
038	SPI_PV	C	7/19/2019	21:47:25	706	17	5	
038	SPI_PV	D	7/19/2019	21:48:36	707	17	5	FC 707
039	SPI_PV	A	7/19/2019	22:01:20	708	17	5	
039	SPI_PV	B	7/19/2019	22:02:35	709	17	5	
039	SPI_PV	C	7/19/2019	22:03:47	710	17	5	
039	SPI_PV	D	7/19/2019	22:05:00	711	17	5	FC 712; Download
042	SPI_PV	A	7/19/2019	22:24:45	713	17	5	
042	SPI_PV	B	7/19/2019	22:25:51	714	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
042	SPI_PV	C	7/19/2019	22:27:03	715	17	5	
042	SPI_PV	D	7/19/2019	22:28:21	716	17	5	FC 718
044	SPI_PV	A	7/19/2019	22:43:53	719	17	5	
044	SPI_PV	B	7/19/2019	22:45:10	720	17	5	
044	SPI_PV	C	7/19/2019	22:46:20	721	17	5	
044	SPI_PV	D	7/19/2019	22:47:31	722	17	5	FC 724
045	SPI_PV	A	7/19/2019	23:02:12	725	17	5	
045	SPI_PV	B	7/19/2019	23:03:24	726	17	5	
045	SPI_PV	C	7/19/2019	23:04:40	727	17	5	
045	SPI_PV	D	7/19/2019	23:08:48	728	17	5	FC 728
031	SPI_PV	A	7/19/2019	23:47:44	729	17	5	
031	SPI_PV	B	7/19/2019	23:48:58	730	17	5	
031	SPI_PV	C	7/19/2019	23:50:10	731	17	5	
031	SPI_PV	D	7/19/2019	23:51:25	732	17	5	FC 733
043	SPI_PV	A	7/20/2019	0:10:52	734	17	5	
043	SPI_PV	B	7/20/2019	0:12:02	735	17	5	
043	SPI_PV	C	7/20/2019	0:13:10	736	17	5	
043	SPI_PV	D	7/20/2019	0:14:22	737	17	5	FC 738
041	SPI_PV	A	7/20/2019	0:53:15	739	17	5	
041	SPI_PV	B	7/20/2019	0:55:04	740	17	5	
041	SPI_PV	C	7/20/2019	0:56:26	741	17	5	
041	SPI_PV	D	7/20/2019	0:58:08	742	17	5	FC 743
040	SPI_PV	A	7/20/2019	1:35:18	744	17	5	
040	SPI_PV	B	7/20/2019	1:37:02	745	17	5	
040	SPI_PV	C	7/20/2019	1:38:16	746	17	5	
040	SPI_PV	D	7/20/2019	1:39:52	747	17	5	FC 748
037	SPI_PV	A	7/20/2019	2:00:21	749	17	5	
037	SPI_PV	B	7/20/2019	2:02:16	750	17	5	
037	SPI_PV	C	7/20/2019	2:03:45	751	17	5	
037	SPI_PV	D	7/20/2019	2:05:32	752	17	5	FC 753
035	SPI_PV	A	7/20/2019	2:20:18	754	17	5	
035	SPI_PV	B	7/20/2019	2:21:56	755	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
035	SPI_PV	C	7/20/2019	2:23:58	756	17	5	
035	SPI_PV	D	7/20/2019	2:25:31	757	17	5	FC 758
022	SPI_PV	A	7/20/2019	2:44:58	759	17	5	
022	SPI_PV	B	7/20/2019	2:46:46	760	17	5	
022	SPI_PV	C	7/20/2019	2:48:48	761	17	5	
022	SPI_PV	D	7/20/2019	2:50:42	762	17	5	FC 763; Download
023	SPI_PV	A	7/20/2019	3:19:34	764	17	5	
023	SPI_PV	B	7/20/2019	3:20:51	765	17	5	
023	SPI_PV	C	7/20/2019	3:22:22	766	17	5	
023	SPI_PV	D	7/20/2019	3:23:30	767	17	5	FC 769
024	SPI_PV	A	7/20/2019	3:38:20	770	17	5	
024	SPI_PV	B	7/20/2019	3:39:47		17	5	
024	SPI_PV	C	7/20/2019	3:41:04	772	17	5	
024	SPI_PV	D	7/20/2019	3:42:35	773	17	5	FC 774
025	SPI_PV	A	7/20/2019	3:56:00	775	17	5	
025	SPI_PV	B	7/20/2019	3:57:08	776	17	5	
025	SPI_PV	C	7/20/2019	3:58:18		17	5	
025	SPI_PV	D	7/20/2019	3:59:36	778	17	5	FC 779
026	SPI_PV	A	7/20/2019	4:36:56	780	17	5	
026	SPI_PV	B	7/20/2019	4:38:25	781	17	5	
026	SPI_PV	C	7/20/2019	4:40:00	782	17	5	
026	SPI_PV	D	7/20/2019	4:42:03	783	17	5	FC 784
027	SPI_PV	A	7/20/2019	4:54:04	785	17	5	
027	SPI_PV	B	7/20/2019	4:55:15	786	17	5	
027	SPI_PV	C	7/20/2019	4:56:35	787	17	5	
027	SPI_PV	D	7/20/2019	4:57:50	788	17	5	FC 788; Download
028	SPI_PV	A	7/20/2019	5:33:44	789	17	5	
028	SPI_PV	B	7/20/2019	5:34:52	790	17	5	
028	SPI_PV	C	7/20/2019	5:36:06	791	17	5	
028	SPI_PV	D	7/20/2019	5:37:36	792	17	5	FC 792
029	SPI_PV	A	7/20/2019	5:48:14	793	17	5	
029	SPI_PV	B	7/20/2019	5:49:25	794	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
029	SPI_PV	C	7/20/2019	5:50:32	795	17	5	
029	SPI_PV	D	7/20/2019	5:51:42	796	17	5	FC 796
030	SPI_PV	A	7/20/2019	6:10:40	797	17	5	
030	SPI_PV	B	7/20/2019	6:11:47	798	17	5	
030	SPI_PV	C	7/20/2019	6:13:05	799	17	5	
030	SPI_PV	D	7/20/2019	6:14:17	800	17	5	FC 801
021	SPI_PV	A	7/20/2019	6:27:50	802	17	5	
021	SPI_PV	B	7/20/2019	6:29:18	803	17	5	
021	SPI_PV	C	7/20/2019	6:30:33	804	17	5	
021	SPI_PV	D	7/20/2019	6:31:45	805	17	5	FC 806
020	SPI_PV	A	7/20/2019	7:10:02	807	17	5	
020	SPI_PV	B	7/20/2019	7:11:11	808	17	5	
020	SPI_PV	C	7/20/2019	7:12:28	809	17	5	
020	SPI_PV	D	7/20/2019	7:13:44	810	17	5	FC 810; Download. SPI Images have
019	SPI_PV	A	7/20/2019	7:51:05	811	17	5	
019	SPI_PV	B	7/20/2019	7:52:18	812	17	5	
019	SPI_PV	C	7/20/2019	7:53:37	813	17	5	
019	SPI_PV	D	7/20/2019	7:54:57	814	17	5	FC 814
017	SPI_PV	A	7/20/2019	8:15:25	815	17	5	
017	SPI_PV	B	7/20/2019	8:16:44	816	17	5	
017	SPI_PV	C	7/20/2019	8:18:00	817	17	5	
017	SPI_PV	D	7/20/2019	8:19:31	818	17	5	FC 818
016	SPI_PV	A	7/20/2019	8:47:25	819	17	5	
016	SPI_PV	B	7/20/2019	8:48:41	820	17	5	
016	SPI_PV	C	7/20/2019	8:49:56	821	17	5	
016	SPI_PV	D	7/20/2019	8:51:12	822	17	5	FC 822
014	SPI_PV	A	7/20/2019	9:08:06	823	17	5	
014	SPI_PV	B	7/20/2019	9:09:45	824	17	5	
014	SPI_PV	C	7/20/2019	9:10:54	825	17	5	
014	SPI_PV	D	7/20/2019	9:11:57	826	17	5	FC 826
013	SPI_PV	A	7/20/2019	9:28:07	827	17	5	
013	SPI_PV	B	7/20/2019	9:29:18	828	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
013	SPI_PV	C	7/20/2019	9:30:52	829	17	5	
013	SPI_PV	D	7/20/2019	9:32:00	830	17	5	FC 830
012	SPI_PV	A	7/20/2019	10:03:36	831	17	5	
012	SPI_PV	B	7/20/2019	10:04:47	832	17	5	
012	SPI_PV	C	7/20/2019	10:06:00	833	17	5	
012	SPI_PV	D	7/20/2019	10:07:30	834	17	5	FC 834
011	SPI_PV	A	7/20/2019	10:42:41	835	17	5	
011	SPI_PV	B	7/20/2019	10:43:53	836	17	5	
011	SPI_PV	C	7/20/2019	10:45:24	837	17	5	
011	SPI_PV	D	7/20/2019	10:46:35	838	17	5	FC 838
001	SPI_PV	A	7/20/2019	11:03:35	839	17	5	
001	SPI_PV	B	7/20/2019	11:04:57	840	17	5	
001	SPI_PV	C	7/20/2019	11:06:26	841	17	5	
001	SPI_PV	D	7/20/2019	11:07:54	842	17	5	FC 842
002	SPI_PV	A	7/20/2019	11:37:08	843	17	5	
002	SPI_PV	B	7/20/2019	11:38:29	844	17	5	
002	SPI_PV	C	7/20/2019	11:39:54	845	17	5	
002	SPI_PV	D	7/20/2019	11:41:26	846	17	5	FC 848. Shift change. Strobe Bottle
003	SPI_PV	A	7/20/2019	12:21:01	849	17	5	
003	SPI_PV	B	7/20/2019	12:22:15	850	17	5	
003	SPI_PV	C	7/20/2019	12:23:35	851	17	5	
003	SPI_PV	D	7/20/2019	12:24:53	852	17	5	FC 853; Download
004	SPI_PV	A	7/20/2019	13:03:21	854	17	5	
004	SPI_PV	B	7/20/2019	13:04:35	855	17	5	
004	SPI_PV	C	7/20/2019	13:05:49	856	17	5	
004	SPI_PV	D	7/20/2019	13:07:02	857	17	5	FC 858
005	SPI_PV	A	7/20/2019	13:21:50	859	17	5	
005	SPI_PV	B	7/20/2019	13:23:03	860	17	5	
005	SPI_PV	C	7/20/2019	13:24:13	861	17	5	
005	SPI_PV	D	7/20/2019	13:25:31	862	17	5	FC 863
006	SPI_PV	A	7/20/2019	14:01:33	864	17	5	
006	SPI_PV	B	7/20/2019	14:02:42	865	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
006	SPI_PV	C	7/20/2019	14:03:50	866	17	5	
006	SPI_PV	D	7/20/2019	14:05:03	867	17	5	FC 867
007	SPI_PV	A	7/20/2019	14:20:37	868	17	5	
007	SPI_PV	B	7/20/2019	14:21:49	869	17	5	
007	SPI_PV	C	7/20/2019	14:22:59	870	17	5	
007	SPI_PV	D	7/20/2019	14:24:11	871	17	5	FC 873
008	SPI_PV	A	7/20/2019	14:37:30	874	17	5	
008	SPI_PV	B	7/20/2019	14:38:50	875	17	5	
008	SPI_PV	C	7/20/2019	14:39:59	876	17	5	
008	SPI_PV	D	7/20/2019	14:41:14	877	17	5	FC 878: Download
010	SPI_PV	A	7/20/2019	15:24:15	879	17	5	
010	SPI_PV	B	7/20/2019	15:25:32	880	17	5	
010	SPI_PV	C	7/20/2019	15:26:46	881	17	5	
010	SPI_PV	D	7/20/2019	15:27:55	882	17	5	FC 883
009	SPI_PV	A	7/20/2019	15:44:23	884	17	5	
009	SPI_PV	B	7/20/2019	15:45:35	885	17	5	
009	SPI_PV	C	7/20/2019	15:46:42	886	17	5	
009	SPI_PV	D	7/20/2019	15:47:56	887	17	5	FC 890
301	SPI_PV	A	7/20/2019	16:02:32	891	17	5	
301	SPI_PV	B	7/20/2019	16:03:45	892	17	5	
301	SPI_PV	C	7/20/2019	16:04:55	893	17	5	
301	SPI_PV	D	7/20/2019	16:06:09	894	17	5	FC 896
018	SPI_PV	A	7/20/2019	16:26:04	897	17	5	
018	SPI_PV	B	7/20/2019	16:27:12	898	17	5	
018	SPI_PV	C	7/20/2019	16:28:21	899	17	5	
018	SPI_PV	D	7/20/2019	16:29:34	900	17	5	FC 901
015	SPI_PV	A	7/20/2019	16:48:57	902	17	5	
015	SPI_PV	B	7/20/2019	16:50:08	903	17	5	
015	SPI_PV	C	7/20/2019	16:51:20	904	17	5	
015	SPI_PV	D	7/20/2019	16:52:29	905	17	5	FC 905; Download; Backup
201	SPI_PV	A	7/20/2019	17:31:20	906	17	5	
201	SPI_PV	B	7/20/2019	17:32:37	907	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
201	SPI_PV	C	7/20/2019	17:33:53	908	17	5	
201	SPI_PV	D	7/20/2019	17:35:05	909	17	5	FC 910
202	SPI_PV	A	7/20/2019	17:56:51	911	17	5	
202	SPI_PV	B	7/20/2019	17:58:00	912	17	5	
202	SPI_PV	C	7/20/2019	17:59:03	913	17	5	
202	SPI_PV	D	7/20/2019	18:00:13	914	17	5	FC 916
203	SPI_PV	A	7/20/2019	18:40:04	917	17	5	
203	SPI_PV	B	7/20/2019	18:41:17	918	17	5	
203	SPI_PV	C	7/20/2019	18:42:35	919	17	5	
203	SPI_PV	D	7/20/2019	18:43:47	920	17	5	FC 920
204	SPI_PV	A	7/20/2019	19:01:41	921	17	5	
204	SPI_PV	B	7/20/2019	19:02:49	922	17	5	
204	SPI_PV	C	7/20/2019	19:03:57	923	17	5	
204	SPI_PV	D	7/20/2019	19:05:12	924	17	5	FC 925
205	SPI_PV	A	7/20/2019	19:25:00	926	17	5	
205	SPI_PV	B	7/20/2019	19:26:10	927	17	5	
205	SPI_PV	C	7/20/2019	19:27:17	928	17	5	
205	SPI_PV	D	7/20/2019	19:28:31	929	17	5	FC 930; Download
206	SPI_PV	A	7/20/2019	20:07:06	931	17	5	
206	SPI_PV	B	7/20/2019	20:08:18	932	17	5	
206	SPI_PV	C	7/20/2019	20:09:32	933	17	5	
206	SPI_PV	D	7/20/2019	20:10:43	934	17	5	FC 934
207	SPI_PV	A	7/20/2019	20:34:14	935	17	5	
207	SPI_PV	B	7/20/2019	20:35:25	936	17	5	
207	SPI_PV	C	7/20/2019	20:36:39	937	17	5	
207	SPI_PV	D	7/20/2019	20:37:56	938	17	5	FC 938
208	SPI_PV	A	7/20/2019	20:56:40	939	17	5	
208	SPI_PV	B	7/20/2019	20:57:55	940	17	5	
208	SPI_PV	C	7/20/2019	20:59:03	941	17	5	
208	SPI_PV	D	7/20/2019	21:00:11	942	17	5	FC 943
209	SPI_PV	A	7/20/2019	21:28:32	944	17	5	
209	SPI_PV	B	7/20/2019	21:29:45	945	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
209	SPI_PV	C	7/20/2019	21:31:00	946	17	5	
209	SPI_PV	D	7/20/2019	21:32:17	947	17	5	FC 947
210	SPI_PV	A	7/20/2019	21:52:32	948	17	5	
210	SPI_PV	B	7/20/2019	21:53:45	949	17	5	
210	SPI_PV	C	7/20/2019	21:54:55	950	17	5	
210	SPI_PV	D	7/20/2019	21:56:05	951	17	5	FC 954
211	SPI_PV	A	7/20/2019	22:15:21	955	17	5	
211	SPI_PV	B	7/20/2019	22:16:35	956	17	5	
211	SPI_PV	C	7/20/2019	22:17:53	957	17	5	
211	SPI_PV	D	7/20/2019	22:19:09	958	17	5	FC 958; Download.
403	SPI_PV	A	7/20/2019	23:46:20	959	17	5	
403	SPI_PV	B	7/20/2019	23:47:29	960	17	5	
403	SPI_PV	C	7/20/2019	23:48:47	961	17	5	
403	SPI_PV	D	7/20/2019	23:50:15	962	17	5	FC 964. Shift change.
402	SPI_PV	A	7/21/2019	0:12:30	965	17	5	
402	SPI_PV	B	7/21/2019	0:13:40	966	17	5	
402	SPI_PV	C	7/21/2019	0:14:50	967	17	5	
402	SPI_PV	D	7/21/2019	0:15:47	968	17	5	FC 968
302	SPI_PV	A	7/21/2019	0:49:24	969	17	5	
302	SPI_PV	B	7/21/2019	0:50:32	970	17	5	
302	SPI_PV	C	7/21/2019	0:51:56	971	17	5	
302	SPI_PV	D	7/21/2019	0:53:08	972	17	5	FC 972 - Hard Bottom?
303	SPI_PV	A	7/21/2019	1:14:00	973	17	5	
303	SPI_PV	B	7/21/2019	1:15:26	974	17	5	
303	SPI_PV	C	7/21/2019	1:16:33	975	17	5	
303	SPI_PV	D	7/21/2019	1:17:44	976	17	5	FC 977
304	SPI_PV	A	7/21/2019	1:34:54	978	17	5	
304	SPI_PV	B	7/21/2019	1:38:54	979	17	5	
304	SPI_PV	C	7/21/2019	1:40:00	980	17	5	
304	SPI_PV	D	7/21/2019	1:41:03	981	17	5	FC 982 - Download, PV Images have
305	SPI_PV	A	7/21/2019	2:26:44	983	17	5	
305	SPI_PV	B	7/21/2019	2:27:46	984	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
305	SPI_PV	C	7/21/2019	2:28:44	985	17	5	
305	SPI_PV	D	7/21/2019	2:30:00	986	17	5	FC 987
401	SPI_PV	A	7/21/2019	2:48:12	988	17	5	
401	SPI_PV	B	7/21/2019	2:49:17	989	17	5	
401	SPI_PV	C	7/21/2019	2:52:10	990	17	5	
401	SPI_PV	D	7/21/2019	2:53:26	991	17	5	FC 992
306	SPI_PV	A	7/21/2019	3:12:32	993	17	5	
306	SPI_PV	B	7/21/2019	3:13:36	994	17	5	
306	SPI_PV	C	7/21/2019	3:14:38	995	17	5	
306	SPI_PV	D	7/21/2019	3:15:50	996	17	5	FC 996
307	SPI_PV	A	7/21/2019	3:33:30	997	17	5	
307	SPI_PV	B	7/21/2019	3:34:42	998	17	5	
307	SPI_PV	C	7/21/2019	3:35:54	999	17	5	
307	SPI_PV	D	7/21/2019	3:37:15	000	17	5	FC 000
308	SPI_PV	A	7/21/2019	3:53:30	001	17	5	
308	SPI_PV	B	7/21/2019	3:55:24	002	17	5	
308	SPI_PV	C	7/21/2019	3:56:29	003	17	5	
308	SPI_PV	D	7/21/2019	3:57:45	004	17	5	FC 004 - Download
309	SPI_PV	A	7/21/2019	4:44:54	005	17	5	
309	SPI_PV	B	7/21/2019	4:46:00	006	17	5	
309	SPI_PV	C	7/21/2019	4:47:18	007	17	5	
309	SPI_PV	D	7/21/2019	4:48:28	008	17	5	FC 009
310	SPI_PV	A	7/21/2019	5:04:18	010	17	5	
310	SPI_PV	B	7/21/2019	5:05:20	011	17	5	
310	SPI_PV	C	7/21/2019	5:06:34	012	17	5	
310	SPI_PV	D	7/21/2019	5:07:50	013	17	5	FC 013
311	SPI_PV	A	7/21/2019	5:28:50	014	17	5	
311	SPI_PV	B	7/21/2019	5:30:09	015	17	5	
311	SPI_PV	C	7/21/2019	5:31:33	016	17	5	
311	SPI_PV	D	7/21/2019	5:33:08	017	17	5	FC 018
312	SPI_PV	A	7/21/2019	5:48:48	019	17	5	
312	SPI_PV	B	7/21/2019	5:49:56	020	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
312	SPI_PV	C	7/21/2019	5:51:18	021	17	5	
312	SPI_PV	D	7/21/2019	5:52:44	022	17	5	FC 022
313	SPI_PV	A	7/21/2019	6:07:38	023	17	5	
313	SPI_PV	B	7/21/2019	6:08:52	024	17	5	
313	SPI_PV	C	7/21/2019	6:10:02	025	17	5	
313	SPI_PV	D	7/21/2019	6:11:31	026	17	5	FC 026. Download
314	SPI_PV	A	7/21/2019	6:53:57	027	17	5	
314	SPI_PV	B	7/21/2019	6:55:07	028	17	5	
314	SPI_PV	C	7/21/2019	6:56:26	029	17	5	
314	SPI_PV	D	7/21/2019	6:57:44	030	17	5	FC 031
315	SPI_PV	A	7/21/2019	7:12:30	032	17	5	
315	SPI_PV	B	7/21/2019	7:13:55	033	17	5	
315	SPI_PV	C	7/21/2019	7:15:26	034	17	5	
315	SPI_PV	D	7/21/2019	7:16:59	035	17	5	FC 035
316	SPI_PV	A	7/21/2019	7:31:46	036	17	5	
316	SPI_PV	B	7/21/2019	7:32:52	037	17	5	
316	SPI_PV	C	7/21/2019	7:34:05	038	17	5	
316	SPI_PV	D	7/21/2019	7:35:10	039	17	5	FC 039
317	SPI_PV	A	7/21/2019	7:53:40	040	17	5	
317	SPI_PV	B	7/21/2019	7:54:56	041	17	5	
317	SPI_PV	C	7/21/2019	7:56:25	042	17	5	
317	SPI_PV	D	7/21/2019	7:57:52	043	17	5	FC 043
318	SPI_PV	A	7/21/2019	8:18:18	044	17	5	
318	SPI_PV	B	7/21/2019	8:19:26	045	17	5	
318	SPI_PV	C	7/21/2019	8:20:38	046	17	5	
318	SPI_PV	D	7/21/2019	8:21:49	047	17	5	FC 048; Download.
319	SPI_PV	A	7/21/2019	9:00:22	049	17	5	
319	SPI_PV	B	7/21/2019	9:01:30	050	17	5	
319	SPI_PV	C	7/21/2019	9:02:36	051	17	5	
319	SPI_PV	D	7/21/2019	9:03:54	052	17	5	FC 053
320	SPI_PV	A	7/21/2019	9:31:28	054	17	5	
320	SPI_PV	B	7/21/2019	9:32:43	055	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
320	SPI_PV	C	7/21/2019	9:34:03	056	17	5	
320	SPI_PV	D	7/21/2019	9:35:25	057	17	5	FC 057
321	SPI_PV	A	7/21/2019	9:52:18	058	17	5	
321	SPI_PV	B	7/21/2019	9:53:30	059	17	5	
321	SPI_PV	C	7/21/2019	9:54:46	060	17	5	
321	SPI_PV	D	7/21/2019	9:56:00	061	17	5	FC 061
322	SPI_PV	A	7/21/2019	10:15:15	062	17	5	
322	SPI_PV	B	7/21/2019	10:16:31	063	17	5	
322	SPI_PV	C	7/21/2019	10:17:42	064	17	5	
322	SPI_PV	D	7/21/2019	10:18:42	065	17	5	FC 066
323	SPI_PV	A	7/21/2019	10:36:00	067	17	5	
323	SPI_PV	B	7/21/2019	10:37:08	068	17	5	
323	SPI_PV	C	7/21/2019	10:38:14	069	17	5	
323	SPI_PV	D	7/21/2019	10:39:21	070	17	5	FC 070; Download
324	SPI_PV	A	7/21/2019	11:38:40	071	17	5	
324	SPI_PV	B	7/21/2019	11:40:04	072	17	5	
324	SPI_PV	C	7/21/2019	11:41:17	073	17	5	
324	SPI_PV	D	7/21/2019	11:42:44	074	17	5	FC 074; Strobe battery change; Shift
325	SPI_PV	A	7/21/2019	12:19:03	075	17	5	
325	SPI_PV	B	7/21/2019	12:20:11	076	17	5	
325	SPI_PV	C	7/21/2019	12:21:19	077	17	5	
325	SPI_PV	D	7/21/2019	12:22:29	078	17	5	FC 079
326	SPI_PV	A	7/21/2019	12:36:31	080	17	5	
326	SPI_PV	B	7/21/2019	12:37:43	081	17	5	
326	SPI_PV	C	7/21/2019	12:38:53	082	17	5	
326	SPI_PV	D	7/21/2019	12:40:05	083	17	5	FC 084
327	SPI_PV	A	7/21/2019	12:53:13	085	17	5	
327	SPI_PV	B	7/21/2019	12:54:24	086	17	5	
327	SPI_PV	C	7/21/2019	12:55:42	087	17	5	
327	SPI_PV	D	7/21/2019	12:56:51	088	17	5	FC 090
328	SPI_PV	A	7/21/2019	13:15:29	091	17	5	
328	SPI_PV	B	7/21/2019	13:16:38	092	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
328	SPI_PV	C	7/21/2019	13:17:46	093	17	5	
328	SPI_PV	D	7/21/2019	13:18:57	094	17	5	FC 094; Download
329	SPI_PV	A	7/21/2019	13:53:34	095	17	5	
329	SPI_PV	B	7/21/2019	13:54:42	096	17	5	
329	SPI_PV	C	7/21/2019	13:55:57	097	17	5	
329	SPI_PV	D	7/21/2019	13:57:10	098	17	5	FC 098
330	SPI_PV	A	7/21/2019	14:15:00	099	17	5	
330	SPI_PV	B	7/21/2019	14:16:12	100	17	5	
330	SPI_PV	C	7/21/2019	14:17:19	101	17	5	
330	SPI_PV	D	7/21/2019	14:18:31	102	17	5	FC 102
331	SPI_PV	A	7/21/2019	14:30:42	103	17	5	
331	SPI_PV	B	7/21/2019	14:31:52	104	17	5	
331	SPI_PV	C	7/21/2019	14:33:04	105	17	5	
331	SPI_PV	D	7/21/2019	14:34:21	106	17	5	FC 106
332	SPI_PV	A	7/21/2019	14:50:08	107	17	5	
332	SPI_PV	B	7/21/2019	14:51:33	108	17	5	
332	SPI_PV	C	7/21/2019	14:52:50	109	17	5	
332	SPI_PV	D	7/21/2019	14:54:01	110	17	5	FC 110
333	SPI_PV	A	7/21/2019	15:10:25	111	17	5	
333	SPI_PV	B	7/21/2019	15:11:36	112	17	5	
333	SPI_PV	C	7/21/2019	15:12:48	113	17	5	
333	SPI_PV	D	7/21/2019	15:13:59	114	17	5	FC 114; Download
336	SPI_PV	A	7/21/2019	15:36:05	115	17	5	
336	SPI_PV	B	7/21/2019	15:37:13	116	17	5	
336	SPI_PV	C	7/21/2019	15:38:19	117	17	5	
336	SPI_PV	D	7/21/2019	15:39:33	118	17	5	FC 118
334	SPI_PV	A	7/21/2019	15:59:07	119	17	5	
334	SPI_PV	B	7/21/2019	16:00:18	120	17	5	
334	SPI_PV	C	7/21/2019	16:01:27	121	17	5	
334	SPI_PV	D	7/21/2019	16:02:34	122	17	5	FC 122
337	SPI_PV	A	7/21/2019	16:30:37	123	17	5	
337	SPI_PV	B	7/21/2019	16:31:42	124	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
337	SPI_PV	C	7/21/2019	16:32:55	125	17	5	
337	SPI_PV	D	7/21/2019	16:34:04	126	17	5	FC 127
338	SPI_PV	A	7/21/2019	16:57:31	128	17	5	
338	SPI_PV	B	7/21/2019	16:58:42	129	17	5	
338	SPI_PV	C	7/21/2019	16:59:53	130	17	5	
338	SPI_PV	D	7/21/2019	17:01:08	131	17	5	FC 131
335	SPI_PV	A	7/21/2019	17:15:40	132	17	5	
335	SPI_PV	B	7/21/2019	17:16:48	133	17	5	
335	SPI_PV	C	7/21/2019	17:17:57	134	17	5	
335	SPI_PV	D	7/21/2019	17:19:03	135	17	5	FC 136; Download
339	SPI_PV	A	7/21/2019	17:38:53	137	17	5	
339	SPI_PV	B	7/21/2019	17:40:02	138	17	5	
339	SPI_PV	C	7/21/2019	17:41:12	139	17	5	
339	SPI_PV	D	7/21/2019	17:42:25	140	17	5	FC 140
340	SPI_PV	A	7/21/2019	18:01:35	141	17	5	
340	SPI_PV	B	7/21/2019	18:02:47	142	17	5	
340	SPI_PV	C	7/21/2019	18:03:57	143	17	5	
340	SPI_PV	D	7/21/2019	18:05:14	144	17	5	FC 145
341	SPI_PV	A	7/21/2019	18:21:48	146	17	5	
341	SPI_PV	B	7/21/2019	18:22:58	147	17	5	
341	SPI_PV	C	7/21/2019	18:24:09	148	17	5	
341	SPI_PV	D	7/21/2019	18:25:38	149	17	5	FC 149
342	SPI_PV	A	7/21/2019	18:49:14	150	17	5	
342	SPI_PV	B	7/21/2019	18:50:25	151	17	5	
342	SPI_PV	C	7/21/2019	18:51:31	152	17	5	
342	SPI_PV	D	7/21/2019	18:52:48	153	17	5	FC 153
343	SPI_PV	A	7/21/2019	19:08:46	154	17	5	
343	SPI_PV	B	7/21/2019	19:10:03	155	17	5	
343	SPI_PV	C	7/21/2019	19:11:12	156	17	5	
343	SPI_PV	D	7/21/2019	19:12:22	157	17	5	FC 157
344	SPI_PV	A	7/21/2019	19:28:45	158	17	5	
344	SPI_PV	B	7/21/2019	19:29:56	159	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
344	SPI_PV	C	7/21/2019	19:31:07	160	17	5	
344	SPI_PV	D	7/21/2019	19:32:16	161	17	5	FC 161; Download
345	SPI_PV	A	7/21/2019	19:52:42	162	17	5	
345	SPI_PV	B	7/21/2019	19:53:55	163	17	5	
345	SPI_PV	C	7/21/2019	19:55:02	164	17	5	
345	SPI_PV	D	7/21/2019	19:56:09	165	17	5	FC 165
346	SPI_PV	A	7/21/2019	20:13:26	166	17	5	
346	SPI_PV	B	7/21/2019	20:14:35	167	17	5	
346	SPI_PV	C	7/21/2019	20:15:45	168	17	5	
346	SPI_PV	D	7/21/2019	20:16:56	169	17	5	FC 169
347	SPI_PV	A	7/21/2019	20:43:32	170	17	5	
347	SPI_PV	B	7/21/2019	20:44:40	171	17	5	
347	SPI_PV	C	7/21/2019	20:45:50	172	17	5	
347	SPI_PV	D	7/21/2019	20:46:58	173	17	5	FC 173
348	SPI_PV	A	7/21/2019	21:02:38	174	17	5	
348	SPI_PV	B	7/21/2019	21:03:45	175	17	5	
348	SPI_PV	C	7/21/2019	21:04:57	176	17	5	
348	SPI_PV	D	7/21/2019	21:06:07	177	17	5	FC 178
349	SPI_PV	A	7/21/2019	21:22:19	179	17	5	
349	SPI_PV	B	7/21/2019	21:23:31	180	17	5	
349	SPI_PV	C	7/21/2019	21:24:41	181	17	5	
349	SPI_PV	D	7/21/2019	21:25:53	182	17	5	FC 183
350	SPI_PV	A	7/21/2019	21:43:30	184	17	5	
350	SPI_PV	B	7/21/2019	21:44:43	185	17	5	
350	SPI_PV	C	7/21/2019	21:46:00	186	17	5	
350	SPI_PV	D	7/21/2019	21:47:14	187	17	5	FC 188; Download

APPENDIX D

Sediment Profile Image Analysis Results

Notes:

Grain Size: “/” indicates layer of one phi size range over another

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Phase 1 Survey Area (OCW)	001	A	7/20/2019	11:03:45	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	001	B	7/20/2019	11:05:12	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	001	C	7/20/2019	11:06:40	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	002	A	7/20/2019	11:37:23	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	002	B	7/20/2019	11:38:42	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	002	C	7/20/2019	11:40:10	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	003	A	7/20/2019	12:21:02	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	003	B	7/20/2019	12:22:16	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	003	C	7/20/2019	12:23:36	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	004	A	7/20/2019	13:03:22	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	004	B	7/20/2019	13:04:37	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	004	C	7/20/2019	13:05:51	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	005	A	7/20/2019	13:21:50	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	005	B	7/20/2019	13:23:04	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	005	C	7/20/2019	13:24:13	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	006	A	7/20/2019	14:01:34	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	006	B	7/20/2019	14:02:43	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	006	C	7/20/2019	14:03:52	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	007	A	7/20/2019	14:20:36	17	5	14.47	1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	007	B	7/20/2019	14:21:50	17	5	14.47	1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	007	C	7/20/2019	14:23:01	17	5	14.47	1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	008	A	7/20/2019	14:37:31	17	5	14.47	1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	008	B	7/20/2019	14:38:51	17	5	14.47	2 to 1	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	008	C	7/20/2019	14:40:01	17	5	14.47	1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	009	A	7/20/2019	15:44:23	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	009	B	7/20/2019	15:45:36	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	009	C	7/20/2019	15:46:43	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	010	A	7/20/2019	15:24:17	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	010	B	7/20/2019	15:25:33	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	010	C	7/20/2019	15:26:47	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	011	A	7/20/2019	10:42:55	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	011	B	7/20/2019	10:44:07	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	011	C	7/20/2019	10:45:39	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	012	A	7/20/2019	10:03:49	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	012	B	7/20/2019	10:05:01	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	012	C	7/20/2019	10:06:14	17	5	14.47	3 to 2	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	013	A	7/20/2019	9:28:16	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	013	B	7/20/2019	9:29:33	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	013	C	7/20/2019	9:31:06	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	014	A	7/20/2019	9:08:22	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	014	B	7/20/2019	9:09:59	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	014	C	7/20/2019	9:11:07	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	015	A	7/20/2019	16:48:57	17	5	14.47	0 to -1	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	015	B	7/20/2019	16:50:10	17	5	14.47	3 to 2	>4	-1	>4 to -1

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Phase 1 Survey Area (OCW)	015	C	7/20/2019	16:51:22	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	016	A	7/20/2019	8:47:36	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	016	B	7/20/2019	8:48:54	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	016	C	7/20/2019	8:50:11	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	017	A	7/20/2019	8:15:36	17	5	14.47	1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	017	B	7/20/2019	8:16:58	17	5	14.47	1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	017	C	7/20/2019	8:18:15	17	5	14.47	1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	018	A	7/20/2019	16:26:05	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	018	B	7/20/2019	16:27:13	17	5	14.47	1 to 0	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	018	C	7/20/2019	16:28:23	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	019	A	7/20/2019	7:51:20	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	019	B	7/20/2019	7:52:30	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	019	C	7/20/2019	7:53:50	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	020	B	7/20/2019	7:11:26	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	020	C	7/20/2019	7:12:43	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	020	D	7/20/2019	7:13:59	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	021	A	7/20/2019	6:28:04	17	5	14.47	3 to 2/>4	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	021	B	7/20/2019	6:29:33	17	5	14.47	3 to 2	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	021	C	7/20/2019	6:30:48	17	5	14.47	3 to 2/>4	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	022	A	7/20/2019	2:45:05	17	5	14.47	1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	022	C	7/20/2019	2:49:01	17	5	14.47	1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	022	D	7/20/2019	2:50:56	17	5	14.47	1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	023	A	7/20/2019	3:19:47	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4
Phase 1 Survey Area (OCW)	023	B	7/20/2019	3:21:02	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4
Phase 1 Survey Area (OCW)	023	C	7/20/2019	3:22:36	17	5	14.47	-2 to -3/1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	024	A	7/20/2019	3:38:33	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	024	B	7/20/2019	3:40:01	17	5	14.47	3 to 2	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	024	C	7/20/2019	3:41:18	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	025	A	7/20/2019	3:56:11	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	025	B	7/20/2019	3:57:22	17	5	14.47	3 to 2/4 to 3	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	025	D	7/20/2019	3:59:51	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	026	B	7/20/2019	4:38:40	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	026	C	7/20/2019	4:40:14	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	026	D	7/20/2019	4:42:18	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	027	A	7/20/2019	4:54:19	17	5	14.47	1 to 0	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	027	B	7/20/2019	4:55:26	17	5	14.47	1 to 0	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	027	C	7/20/2019	4:56:50	17	5	14.47	1 to 0	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	028	A	7/20/2019	5:33:55	17	5	14.47	1 to 0/2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	028	B	7/20/2019	5:35:06	17	5	14.47	1 to 0/2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	028	C	7/20/2019	5:36:18	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	029	A	7/20/2019	5:48:26	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	029	B	7/20/2019	5:49:39	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	029	C	7/20/2019	5:50:43	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	030	A	7/20/2019	6:10:55	17	5	14.47	2 to 1	>4	0	>4 to 0

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Phase 1 Survey Area (OCW)	030	B	7/20/2019	6:12:00	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	030	C	7/20/2019	6:13:18	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	031	A	7/19/2019	23:47:43	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	031	B	7/19/2019	23:48:56	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	031	C	7/19/2019	23:50:09	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	032	A	7/19/2019	19:51:56	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	032	B	7/19/2019	19:53:10	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	032	C	7/19/2019	19:54:23	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	033	A	7/19/2019	20:11:35	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	033	B	7/19/2019	20:12:51	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	033	C	7/19/2019	20:14:05	17	5	14.47	3 to 2/>4	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	034	A	7/19/2019	20:53:10	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	034	B	7/19/2019	20:54:29	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	034	C	7/19/2019	20:55:44	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	035	B	7/20/2019	2:22:10	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	035	C	7/20/2019	2:24:12	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	035	D	7/20/2019	2:25:44	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	036	A	7/19/2019	21:11:20	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	036	B	7/19/2019	21:12:34	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	036	C	7/19/2019	21:13:47	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	037	A	7/20/2019	2:00:36	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	037	B	7/20/2019	2:02:27	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	037	C	7/20/2019	2:03:59	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	038	A	7/19/2019	21:44:56	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	038	B	7/19/2019	21:46:10	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	038	C	7/19/2019	21:47:24	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	039	B	7/19/2019	22:02:34	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	039	C	7/19/2019	22:03:46	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	039	D	7/19/2019	22:04:59	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	040	A	7/20/2019	1:35:30	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	040	B	7/20/2019	1:37:16	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	040	C	7/20/2019	1:38:30	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	041	A	7/20/2019	0:53:23	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	041	B	7/20/2019	0:55:15	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	041	C	7/20/2019	0:56:39	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	042	A	7/19/2019	22:24:41	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	042	B	7/19/2019	22:25:50	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	042	C	7/19/2019	22:27:02	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	043	A	7/20/2019	0:11:07	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	043	B	7/20/2019	0:12:16	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	043	D	7/20/2019	0:14:36	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	044	A	7/19/2019	22:43:51	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	044	B	7/19/2019	22:45:09	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	044	C	7/19/2019	22:46:19	17	5	14.47	2 to 1	>4	0	>4 to 0

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Phase 1 Survey Area (OCW)	045	A	7/19/2019	23:02:11	17	5	14.47	1 to 0	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	045	B	7/19/2019	23:03:23	17	5	14.47	1 to 0	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	045	C	7/19/2019	23:04:40	17	5	14.47	1 to 0	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	046	B	7/19/2019	19:36:02	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	046	C	7/19/2019	19:37:13	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	046	D	7/19/2019	19:38:28	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	047	B	7/19/2019	18:31:50	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	047	C	7/19/2019	18:33:12	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	047	D	7/19/2019	18:34:43	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	048	A	7/19/2019	18:04:37	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	048	B	7/19/2019	18:05:50	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	048	C	7/19/2019	18:07:00	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	049	A	7/19/2019	13:26:26	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	049	B	7/19/2019	13:27:47	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	049	C	7/19/2019	13:28:57	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	050	A	7/19/2019	17:31:19	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	050	B	7/19/2019	17:32:33	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	050	C	7/19/2019	17:33:46	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	051	A	7/19/2019	16:59:15	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	051	B	7/19/2019	17:00:35	17	5	14.47	2 to 1	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	051	C	7/19/2019	17:01:50	17	5	14.47	2 to 1	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	052	A	7/19/2019	16:12:01	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	052	B	7/19/2019	16:13:17	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	052	C	7/19/2019	16:14:37	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	053	A	7/19/2019	15:45:00	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	053	B	7/19/2019	15:46:14	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	053	C	7/19/2019	15:48:56	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	054	A	7/19/2019	18:56:24	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	054	B	7/19/2019	18:57:38	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	054	C	7/19/2019	18:58:52	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	055	A	7/19/2019	11:39:38	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	055	B	7/19/2019	11:41:01	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	055	C	7/19/2019	11:42:30	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	056	A	7/19/2019	12:24:36	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	056	B	7/19/2019	12:25:40	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	056	C	7/19/2019	12:26:53	17	5	14.47	2 to 1	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	057	B	7/19/2019	12:50:17	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	057	C	7/19/2019	12:51:33	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	057	D	7/19/2019	12:52:51	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	058	A	7/19/2019	13:08:15	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	058	B	7/19/2019	13:09:33	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	058	C	7/19/2019	13:10:53	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	059	A	7/19/2019	8:01:03	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	059	B	7/19/2019	8:02:39	17	5	14.47	3 to 2	>4	1	>4 to 1

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Phase 1 Survey Area (OCW)	059	C	7/19/2019	8:04:13	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	060	A	7/19/2019	7:07:31	17	5	14.47	-3 to -4/1 to 0	>4	-4	>4 to -4
Phase 1 Survey Area (OCW)	060	B	7/19/2019	7:09:10	17	5	14.47	-3 to -4/1 to 0	>4	-5	>4 to -5
Phase 1 Survey Area (OCW)	060	C	7/19/2019	7:10:45	17	5	14.47	1 to 0	>4	-4	>4 to -4
Phase 1 Survey Area (OCW)	061	A	7/19/2019	14:34:37	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	061	B	7/19/2019	14:35:47	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	061	C	7/19/2019	14:36:53	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	062	A	7/19/2019	6:46:58	17	5	14.47	3 to 2	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	062	B	7/19/2019	6:48:38	17	5	14.47	3 to 2	>4	-4	>4 to -4
Phase 1 Survey Area (OCW)	062	C	7/19/2019	6:50:37	17	5	14.47	3 to 2	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	063	A	7/19/2019	14:53:31	17	5	14.47	3 to 2	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	063	B	7/19/2019	14:54:43	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	063	C	7/19/2019	14:55:53	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	064	A	7/19/2019	6:25:06	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	064	B	7/19/2019	6:27:10	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	064	C	7/19/2019	6:28:45	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	065	A	7/19/2019	5:40:28	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	065	C	7/19/2019	5:43:57	17	5	14.47	1 to 0	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	065	D	7/19/2019	5:45:33	17	5	14.47	1 to 0	>4	-4	>4 to -4
Phase 1 Survey Area (OCW)	066	A	7/19/2019	15:21:24	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	066	B	7/19/2019	15:22:39	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	066	C	7/19/2019	15:23:56	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	067	A	7/19/2019	4:36:20	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	067	B	7/19/2019	4:37:59	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	067	C	7/19/2019	4:39:41	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	068	A	7/19/2019	11:13:03	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	068	B	7/19/2019	11:14:15	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	068	C	7/19/2019	11:15:42	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	069	A	7/19/2019	1:04:28	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	069	B	7/19/2019	1:06:38	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	069	C	7/19/2019	1:13:43	17	5	14.47	3 to 2	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	070	A	7/19/2019	10:08:41	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	070	B	7/19/2019	10:09:58	17	5	14.47	3 to 2	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	070	C	7/19/2019	10:14:21	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	071	A	7/19/2019	1:34:36	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	071	B	7/19/2019	1:36:04	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	071	C	7/19/2019	1:38:05	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	072	B	7/19/2019	9:35:20	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	072	D	7/19/2019	9:40:35	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	072	E	7/19/2019	9:41:56	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	073	A	7/19/2019	1:56:57	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	073	B	7/19/2019	1:58:34	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	073	C	7/19/2019	2:00:24	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	074	A	7/19/2019	8:28:33	17	5	14.47	3 to 2	>4	0	>4 to 0

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Phase 1 Survey Area (OCW)	074	B	7/19/2019	8:29:55	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	074	C	7/19/2019	8:31:55	17	5	14.47	3 to 2	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	075	B	7/19/2019	2:24:03	17	5	14.47	2 to 1	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	075	C	7/19/2019	2:25:51	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	075	D	7/19/2019	2:27:46	17	5	14.47	2 to 1	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	076	A	7/19/2019	3:04:48	17	5	14.47	1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	076	B	7/19/2019	3:06:30	17	5	14.47	1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	076	C	7/19/2019	3:08:14	17	5	14.47	1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	077	A	7/19/2019	3:24:52	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	077	B	7/19/2019	3:26:21	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	077	C	7/19/2019	3:28:17	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	078	A	7/19/2019	4:12:25	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	078	B	7/19/2019	4:14:28	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	078	C	7/19/2019	4:15:56	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	079	E	7/19/2019	0:33:06	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	079	F	7/19/2019	0:34:53	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	079	G	7/19/2019	0:36:42	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	080	A	7/18/2019	21:20:19	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	080	B	7/18/2019	21:21:33	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	080	C	7/18/2019	21:22:45	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	081	A	7/18/2019	21:02:22	17	5	14.47	2 to 1	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	081	B	7/18/2019	21:03:33	17	5	14.47	2 to 1	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	081	C	7/18/2019	21:04:44	17	5	14.47	2 to 1	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	082	A	7/18/2019	20:12:49	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	082	B	7/18/2019	20:14:05	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	082	C	7/18/2019	20:15:17	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	083	A	7/18/2019	19:52:04	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	083	B	7/18/2019	19:53:14	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	083	C	7/18/2019	19:54:21	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	084	A	7/18/2019	19:18:55	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	084	B	7/18/2019	19:19:54	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	084	C	7/18/2019	19:21:13	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	085	B	7/18/2019	18:44:55	17	5	14.47	4 to 3	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	085	C	7/18/2019	18:52:37	17	5	14.47	4 to 3	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	085	D	7/18/2019	18:53:42	17	5	14.47	1 to 0	>4	-1	>4 to -1
Phase 1 Survey Area (OCW)	086	A	7/18/2019	18:19:40	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	086	B	7/18/2019	18:20:52	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	086	C	7/18/2019	18:22:01	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	087	A	7/18/2019	17:29:20	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	087	B	7/18/2019	17:40:16	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	087	C	7/18/2019	17:41:29	17	5	14.47	3 to 2	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	088	A	7/18/2019	16:09:44	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	088	B	7/18/2019	16:10:53	17	5	14.47	3 to 2	>4	0	>4 to 0
Phase 1 Survey Area (OCW)	088	C	7/18/2019	16:12:02	17	5	14.47	3 to 2	>4	2	>4 to 2

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Phase 1 Survey Area (OCW)	089	A	7/18/2019	15:26:11	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	089	B	7/18/2019	15:27:28	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	089	C	7/18/2019	15:28:34	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	090	A	7/18/2019	14:49:44	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	090	B	7/18/2019	14:50:55	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	090	C	7/18/2019	14:52:03	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	091	A	7/18/2019	14:13:44	17	5	14.47	4 to 3	>4	-5	>4 to -5
Phase 1 Survey Area (OCW)	091	B	7/18/2019	14:14:56	17	5	14.47	4 to 3	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	091	C	7/18/2019	14:16:12	17	5	14.47	4 to 3	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	092	A	7/18/2019	13:53:15	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3
Phase 1 Survey Area (OCW)	092	B	7/18/2019	13:54:31	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	092	C	7/18/2019	13:55:46	17	5	14.47	1 to 0	>4	-2	>4 to -2
Phase 1 Survey Area (OCW)	093	A	7/18/2019	13:09:39	17	5	14.47	3 to 2	>4	1	>4 to 1
Phase 1 Survey Area (OCW)	093	B	7/18/2019	13:10:55	17	5	14.47	3 to 2	>4	2	>4 to 2
Phase 1 Survey Area (OCW)	093	C	7/18/2019	13:12:03	17	5	14.47	3 to 2	>4	1	>4 to 1
B.L. England Export Cable	201	A	7/20/2019	17:31:21	17	5	14.47	2 to 1	>4	0	>4 to 0
B.L. England Export Cable	201	B	7/20/2019	17:32:38	17	5	14.47	2 to 1	>4	-1	>4 to -1
B.L. England Export Cable	201	C	7/20/2019	17:33:54	17	5	14.47	2 to 1	>4	0	>4 to 0
B.L. England Export Cable	202	A	7/20/2019	17:56:52	17	5	14.47	2 to 1	>4	0	>4 to 0
B.L. England Export Cable	202	B	7/20/2019	17:58:02	17	5	14.47	2 to 1	>4	0	>4 to 0
B.L. England Export Cable	202	C	7/20/2019	17:59:05	17	5	14.47	2 to 1	>4	-1	>4 to -1
B.L. England Export Cable	203	A	7/20/2019	18:40:05	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	203	B	7/20/2019	18:41:18	17	5	14.47	3 to 2	>4	1	>4 to 1
B.L. England Export Cable	203	C	7/20/2019	18:42:35	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	204	A	7/20/2019	19:01:42	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	204	B	7/20/2019	19:02:50	17	5	14.47	3 to 2	>4	1	>4 to 1
B.L. England Export Cable	204	C	7/20/2019	19:03:59	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	205	A	7/20/2019	19:25:02	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	205	B	7/20/2019	19:26:11	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	205	C	7/20/2019	19:27:19	17	5	14.47	3 to 2	>4	1	>4 to 1
B.L. England Export Cable	206	A	7/20/2019	20:07:07	17	5	14.47	3 to 2	>4	1	>4 to 1
B.L. England Export Cable	206	B	7/20/2019	20:08:19	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	206	C	7/20/2019	20:09:33	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	207	B	7/20/2019	20:35:27	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	207	C	7/20/2019	20:36:40	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	207	D	7/20/2019	20:37:57	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	208	A	7/20/2019	20:56:41	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	208	B	7/20/2019	20:57:56	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	208	C	7/20/2019	20:59:03	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	209	A	7/20/2019	21:28:32	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	209	B	7/20/2019	21:29:47	17	5	14.47	3 to 2	>4	0	>4 to 0
B.L. England Export Cable	209	C	7/20/2019	21:31:00	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	210	B	7/20/2019	21:53:46	17	5	14.47	3 to 2	>4	1	>4 to 1
B.L. England Export Cable	210	C	7/20/2019	21:54:56	17	5	14.47	3 to 2	>4	1	>4 to 1

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
B.L. England Export Cable	210	D	7/20/2019	21:56:06	17	5	14.47	3 to 2	>4	1	>4 to 1
B.L. England Export Cable	211	A	7/20/2019	22:15:22	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	211	B	7/20/2019	22:16:35	17	5	14.47	3 to 2	>4	2	>4 to 2
B.L. England Export Cable	211	C	7/20/2019	22:17:54	17	5	14.47	3 to 2	>4	2	>4 to 2
Oyster Creek Export Cable	301	A	7/20/2019	16:02:32	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	301	B	7/20/2019	16:03:46	17	5	14.47	2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	301	C	7/20/2019	16:04:56	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	302	A	7/21/2019	0:49:39	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	302	B	7/21/2019	0:50:47	17	5	14.47	-3 to -4/1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	302	C	7/21/2019	0:52:10	17	5	14.47	-3 to -4/1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	303	A	7/21/2019	1:14:14	17	5	14.47	3 to 2	>4	-1	>4 to -1
Oyster Creek Export Cable	303	B	7/21/2019	1:15:41	17	5	14.47	3 to 2	>4	-1	>4 to -1
Oyster Creek Export Cable	303	C	7/21/2019	1:16:48	17	5	14.47	3 to 2	>4	-1	>4 to -1
Oyster Creek Export Cable	304	A	7/21/2019	1:35:08	17	5	14.47	3 to 2	>4	-3	>4 to -3
Oyster Creek Export Cable	304	B	7/21/2019	1:39:10	17	5	14.47	3 to 2	>4	1	>4 to 1
Oyster Creek Export Cable	304	C	7/21/2019	1:40:13	17	5	14.47	3 to 2	>4	0	>4 to 0
Oyster Creek Export Cable	305	A	7/21/2019	2:26:58	17	5	14.47	3 to 2	>4	0	>4 to 0
Oyster Creek Export Cable	305	B	7/21/2019	2:28:00	17	5	14.47	3 to 2	>4	-2	>4 to -2
Oyster Creek Export Cable	305	C	7/21/2019	2:28:59	17	5	14.47	3 to 2	>4	1	>4 to 1
Oyster Creek Export Cable	306	A	7/21/2019	3:12:45	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	306	B	7/21/2019	3:13:49	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	306	C	7/21/2019	3:14:52	17	5	14.47	2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	307	A	7/21/2019	3:33:45	17	5	14.47	1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	307	B	7/21/2019	3:34:56	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	307	C	7/21/2019	3:36:07	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	308	A	7/21/2019	3:53:43	17	5	14.47	>4/3 to 2	>4	-1	>4 to -1
Oyster Creek Export Cable	308	B	7/21/2019	3:55:38	17	5	14.47	3 to 2	>4	-2	>4 to -2
Oyster Creek Export Cable	308	C	7/21/2019	3:56:43	17	5	14.47	3 to 2	>4	-2	>4 to -2
Oyster Creek Export Cable	309	A	7/21/2019	4:45:05	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	309	B	7/21/2019	4:46:12	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	309	C	7/21/2019	4:47:32	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	310	A	7/21/2019	5:04:29	17	5	14.47	1 to 0	>4	-1	>4 to -1
Oyster Creek Export Cable	310	B	7/21/2019	5:05:35	17	5	14.47	1 to 0/2 to 1	>4	-4	>4 to -4
Oyster Creek Export Cable	310	C	7/21/2019	5:06:47	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	311	A	7/21/2019	5:29:05	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	311	B	7/21/2019	5:30:24	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	311	C	7/21/2019	5:31:47	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	312	A	7/21/2019	5:49:02	17	5	14.47	2 to 1	>4	0	>4 to 0
Oyster Creek Export Cable	312	B	7/21/2019	5:50:09	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	312	C	7/21/2019	5:51:31	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	313	A	7/21/2019	6:07:51	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	313	B	7/21/2019	6:09:06	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	313	C	7/21/2019	6:10:16	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	314	A	7/21/2019	6:54:09	17	5	14.47	2 to 1/3 to 2	>4	-1	>4 to -1

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Oyster Creek Export Cable	314	B	7/21/2019	6:55:22	17	5	14.47	2 to 1/3 to 2	>4	0	>4 to 0
Oyster Creek Export Cable	314	C	7/21/2019	6:56:41	17	5	14.47	2 to 1/3 to 2	>4	-1	>4 to -1
Oyster Creek Export Cable	315	A	7/21/2019	7:12:41	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	315	B	7/21/2019	7:14:09	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	315	C	7/21/2019	7:15:40	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	316	A	7/21/2019	7:31:57	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	316	B	7/21/2019	7:33:06	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	316	C	7/21/2019	7:34:20	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	317	A	7/21/2019	7:53:55	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	317	B	7/21/2019	7:55:11	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	317	C	7/21/2019	7:56:40	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	318	B	7/21/2019	8:19:40	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	318	C	7/21/2019	8:20:54	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	318	D	7/21/2019	8:22:03	17	5	14.47	1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	319	A	7/21/2019	9:00:37	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	319	C	7/21/2019	9:02:49	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	319	D	7/21/2019	9:04:07	17	5	14.47	2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	320	A	7/21/2019	9:31:39	17	5	14.47	1 to 0	>4	-1	>4 to -1
Oyster Creek Export Cable	320	B	7/21/2019	9:32:57	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	320	C	7/21/2019	9:34:16	17	5	14.47	1 to 0	>4	-1	>4 to -1
Oyster Creek Export Cable	321	A	7/21/2019	9:52:32	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	321	B	7/21/2019	9:53:45	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	321	C	7/21/2019	9:55:01	17	5	14.47	1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	322	A	7/21/2019	10:15:25	17	5	14.47	1 to 0	>4	-1	>4 to -1
Oyster Creek Export Cable	322	B	7/21/2019	10:16:45	17	5	14.47	1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	322	C	7/21/2019	10:17:56	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	323	A	7/21/2019	10:36:12	17	5	14.47	0 to -1	>4	-1	>4 to -1
Oyster Creek Export Cable	323	B	7/21/2019	10:37:22	17	5	14.47	0 to -1	>4	-2	>4 to -2
Oyster Creek Export Cable	323	C	7/21/2019	10:38:28	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	324	A	7/21/2019	11:38:55	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	324	B	7/21/2019	11:40:15	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	324	C	7/21/2019	11:41:31	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	325	A	7/21/2019	12:19:09	17	5	14.47	-2 to -3/0 to -1	>4	-4	>4 to -4
Oyster Creek Export Cable	325	B	7/21/2019	12:20:18	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	325	C	7/21/2019	12:21:26	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	326	A	7/21/2019	12:36:37	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	326	B	7/21/2019	12:37:50	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	326	C	7/21/2019	12:39:00	17	5	14.47	-2 to -3/0 to -1	>4	-4	>4 to -4
Oyster Creek Export Cable	327	A	7/21/2019	12:53:20	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	327	B	7/21/2019	12:54:30	17	5	14.47	0 to -1	>4	-2	>4 to -2
Oyster Creek Export Cable	327	C	7/21/2019	12:55:49	17	5	14.47	0 to -1	>4	-1	>4 to -1
Oyster Creek Export Cable	328	A	7/21/2019	13:15:35	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	328	B	7/21/2019	13:16:45	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	328	C	7/21/2019	13:17:53	17	5	14.47	0 to -1/1 to 0	>4	-1	>4 to -1

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Oyster Creek Export Cable	329	A	7/21/2019	13:53:41	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	329	B	7/21/2019	13:54:48	17	5	14.47	1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	329	C	7/21/2019	13:55:58	17	5	14.47	1 to 0	>4	-1	>4 to -1
Oyster Creek Export Cable	330	A	7/21/2019	14:15:07	17	5	14.47	-1 to -2	>4	-3	>4 to -3
Oyster Creek Export Cable	330	B	7/21/2019	14:16:18	17	5	14.47	-1 to -2	>4	-3	>4 to -3
Oyster Creek Export Cable	330	D	7/21/2019	14:18:37	17	5	14.47	-1 to -2	>4	-3	>4 to -3
Oyster Creek Export Cable	331	A	7/21/2019	14:30:49	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	331	B	7/21/2019	14:31:59	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	331	C	7/21/2019	14:33:11	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	332	A	7/21/2019	14:50:13	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	332	B	7/21/2019	14:51:40	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	332	C	7/21/2019	14:52:53	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	333	A	7/21/2019	15:10:31	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	333	B	7/21/2019	15:11:43	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	333	C	7/21/2019	15:12:54	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	334	A	7/21/2019	15:59:14	17	5	14.47	0 to -1	>4	-2	>4 to -2
Oyster Creek Export Cable	334	B	7/21/2019	16:00:25	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	334	D	7/21/2019	16:02:40	17	5	14.47	0 to -1	>4	-2	>4 to -2
Oyster Creek Export Cable	335	A	7/21/2019	17:15:46	17	5	14.47	1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	335	B	7/21/2019	17:16:55	17	5	14.47	1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	335	D	7/21/2019	17:19:10	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	336	A	7/21/2019	15:36:12	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	336	B	7/21/2019	15:37:20	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	336	C	7/21/2019	15:38:25	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	337	A	7/21/2019	16:30:44	17	5	14.47	-1 to -2/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	337	B	7/21/2019	16:31:48	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	337	C	7/21/2019	16:33:02	17	5	14.47	-1 to -2/1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	338	A	7/21/2019	16:57:38	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	338	B	7/21/2019	16:58:48	17	5	14.47	2 to 1	>4	0	>4 to 0
Oyster Creek Export Cable	338	C	7/21/2019	17:00:00	17	5	14.47	2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	339	A	7/21/2019	17:38:59	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	339	B	7/21/2019	17:40:09	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	339	C	7/21/2019	17:41:19	17	5	14.47	0 to -1	>4	-2	>4 to -2
Oyster Creek Export Cable	340	A	7/21/2019	18:01:41	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1
Oyster Creek Export Cable	340	B	7/21/2019	18:02:54	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	340	C	7/21/2019	18:04:04	17	5	14.47	2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	341	B	7/21/2019	18:23:04	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	341	C	7/21/2019	18:24:16	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2
Oyster Creek Export Cable	341	D	7/21/2019	18:25:35	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	342	A	7/21/2019	18:49:20	17	5	14.47	3 to 2	>4	-2	>4 to -2
Oyster Creek Export Cable	342	B	7/21/2019	18:50:30	17	5	14.47	3 to 2	>4	-1	>4 to -1
Oyster Creek Export Cable	342	C	7/21/2019	18:51:37	17	5	14.47	3 to 2	>4	-2	>4 to -2
Oyster Creek Export Cable	343	A	7/21/2019	19:08:52	17	5	14.47	2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	343	B	7/21/2019	19:10:10	17	5	14.47	2 to 1	>4	-4	>4 to -4

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)
Oyster Creek Export Cable	343	C	7/21/2019	19:11:18	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	344	A	7/21/2019	19:28:51	17	5	14.47	-1 to -2/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	344	B	7/21/2019	19:30:03	17	5	14.47	-1 to -2/1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	344	D	7/21/2019	19:32:23	17	5	14.47	-1 to -2/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	345	A	7/21/2019	19:52:48	17	5	14.47	0 to -1	>4	-2	>4 to -2
Oyster Creek Export Cable	345	B	7/21/2019	19:54:02	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	345	C	7/21/2019	19:55:10	17	5	14.47	0 to -1	>4	-3	>4 to -3
Oyster Creek Export Cable	346	A	7/21/2019	20:13:33	17	5	14.47	-1 to -2/2 to 1	>4	-3	>4 to -3
Oyster Creek Export Cable	346	B	7/21/2019	20:14:42	17	5	14.47	-1 to -2/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	346	C	7/21/2019	20:15:52	17	5	14.47	-1 to -2/2 to 1	>4	-2	>4 to -2
Oyster Creek Export Cable	347	A	7/21/2019	20:43:39	17	5	14.47	-1 to -2/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	347	B	7/21/2019	20:44:47	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	347	C	7/21/2019	20:45:54	17	5	14.47	-1 to -2/1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	348	A	7/21/2019	21:02:45	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	348	B	7/21/2019	21:03:51	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	348	C	7/21/2019	21:05:05	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	349	A	7/21/2019	21:22:22	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	349	B	7/21/2019	21:23:38	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4
Oyster Creek Export Cable	349	C	7/21/2019	21:24:48	17	5	14.47	-2 to -3/1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	350	A	7/21/2019	21:43:35	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	350	B	7/21/2019	21:44:49	17	5	14.47	1 to 0	>4	-3	>4 to -3
Oyster Creek Export Cable	350	C	7/21/2019	21:46:08	17	5	14.47	1 to 0	>4	-2	>4 to -2
Reference	401	A	7/21/2019	2:48:27	17	5	14.47	3 to 2	>4	2	>4 to 2
Reference	401	B	7/21/2019	2:49:32	17	5	14.47	3 to 2	>4	2	>4 to 2
Reference	401	C	7/21/2019	2:52:25	17	5	14.47	3 to 2	>4	2	>4 to 2
Reference	402	A	7/21/2019	0:12:45	17	5	14.47	3 to 2	>4	2	>4 to 2
Reference	402	B	7/21/2019	0:13:55	17	5	14.47	3 to 2	>4	2	>4 to 2
Reference	402	C	7/21/2019	0:15:06	17	5	14.47	3 to 2	>4	1	>4 to 1
Reference	403	A	7/20/2019	23:46:20	17	5	14.47	2 to 1	>4	0	>4 to 0
Reference	403	B	7/20/2019	23:47:29	17	5	14.47	2 to 1	>4	0	>4 to 0
Reference	403	C	7/20/2019	23:48:48	17	5	14.47	2 to 1	>4	0	>4 to 0

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	001	A	3.89	2.93	5.74	No	2.82	No	None
Phase 1 Survey Area (OCW)	001	B	4.62	2.98	6.21	No	3.22	No	None
Phase 1 Survey Area (OCW)	001	C	5.16	4.29	6.26	No	1.97	No	None
Phase 1 Survey Area (OCW)	002	A	4.69	4.20	5.03	No	0.83	No	None
Phase 1 Survey Area (OCW)	002	B	3.55	3.22	3.83	No	0.61	No	None
Phase 1 Survey Area (OCW)	002	C	4.53	4.19	4.91	No	0.72	No	None
Phase 1 Survey Area (OCW)	003	A	5.22	4.14	6.82	No	2.68	No	None
Phase 1 Survey Area (OCW)	003	B	5.82	4.69	6.84	No	2.15	No	None
Phase 1 Survey Area (OCW)	003	C	5.94	4.83	6.34	No	1.52	No	None
Phase 1 Survey Area (OCW)	004	A	6.23	5.72	6.78	No	1.06	No	None
Phase 1 Survey Area (OCW)	004	B	4.05	3.60	4.47	No	0.87	No	None
Phase 1 Survey Area (OCW)	004	C	5.02	4.31	5.56	No	1.25	No	None
Phase 1 Survey Area (OCW)	005	A	4.99	4.23	5.54	No	1.31	No	None
Phase 1 Survey Area (OCW)	005	B	5.32	4.99	5.67	No	0.68	No	None
Phase 1 Survey Area (OCW)	005	C	5.74	4.96	6.14	No	1.18	No	None
Phase 1 Survey Area (OCW)	006	A	6.31	5.87	6.78	No	0.91	No	None
Phase 1 Survey Area (OCW)	006	B	4.87	4.42	5.78	No	1.35	No	None
Phase 1 Survey Area (OCW)	006	C	6.04	5.54	6.28	No	0.74	No	None
Phase 1 Survey Area (OCW)	007	A	5.54	5.31	5.77	No	0.46	No	None
Phase 1 Survey Area (OCW)	007	B	5.39	4.94	5.84	No	0.91	No	None
Phase 1 Survey Area (OCW)	007	C	6.24	5.80	6.37	No	0.57	No	None
Phase 1 Survey Area (OCW)	008	A	3.86	3.48	4.17	No	0.70	No	None
Phase 1 Survey Area (OCW)	008	B	3.10	2.71	3.52	No	0.81	No	None
Phase 1 Survey Area (OCW)	008	C	3.68	3.36	3.88	No	0.52	No	None
Phase 1 Survey Area (OCW)	009	A	5.97	4.91	6.87	No	1.96	No	None
Phase 1 Survey Area (OCW)	009	B	6.28	5.31	7.15	No	1.84	No	None
Phase 1 Survey Area (OCW)	009	C	5.47	5.12	5.72	No	0.59	No	None
Phase 1 Survey Area (OCW)	010	A	4.60	4.18	5.01	No	0.83	No	None
Phase 1 Survey Area (OCW)	010	B	6.65	6.26	6.84	No	0.58	No	None
Phase 1 Survey Area (OCW)	010	C	5.31	4.79	5.83	No	1.04	No	None
Phase 1 Survey Area (OCW)	011	A	4.38	3.73	4.61	No	0.88	No	None
Phase 1 Survey Area (OCW)	011	B	4.39	3.94	4.63	No	0.69	No	None
Phase 1 Survey Area (OCW)	011	C	4.62	3.78	4.93	No	1.15	No	None
Phase 1 Survey Area (OCW)	012	A	5.00	4.63	5.52	No	0.89	No	None
Phase 1 Survey Area (OCW)	012	B	3.74	3.40	4.31	No	0.91	No	None
Phase 1 Survey Area (OCW)	012	C	4.80	3.84	5.87	No	2.03	No	None
Phase 1 Survey Area (OCW)	013	A	5.64	4.98	6.06	No	1.08	No	None
Phase 1 Survey Area (OCW)	013	B	5.10	4.44	6.27	No	1.82	No	None
Phase 1 Survey Area (OCW)	013	C	4.70	4.36	5.01	No	0.64	No	None
Phase 1 Survey Area (OCW)	014	A	5.43	5.01	6.07	No	1.06	No	None
Phase 1 Survey Area (OCW)	014	B	5.59	5.12	6.01	No	0.89	No	None
Phase 1 Survey Area (OCW)	014	C	6.52	5.71	7.23	No	1.52	No	None
Phase 1 Survey Area (OCW)	015	A	3.81	3.28	4.60	No	1.32	No	None
Phase 1 Survey Area (OCW)	015	B	5.36	4.51	5.89	No	1.38	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	015	C	4.58	4.33	5.04	No	0.71	No	None
Phase 1 Survey Area (OCW)	016	A	6.23	5.58	7.55	No	1.98	No	None
Phase 1 Survey Area (OCW)	016	B	5.82	4.99	6.34	No	1.35	No	None
Phase 1 Survey Area (OCW)	016	C	5.95	5.53	6.25	No	0.72	No	None
Phase 1 Survey Area (OCW)	017	A	6.75	6.04	7.29	No	1.25	No	None
Phase 1 Survey Area (OCW)	017	B	5.76	5.56	6.19	No	0.63	No	None
Phase 1 Survey Area (OCW)	017	C	4.43	3.84	4.95	No	1.12	No	None
Phase 1 Survey Area (OCW)	018	A	6.16	5.89	6.76	No	0.87	No	None
Phase 1 Survey Area (OCW)	018	B	5.23	4.85	5.57	No	0.72	No	None
Phase 1 Survey Area (OCW)	018	C	4.77	4.50	4.95	No	0.45	No	None
Phase 1 Survey Area (OCW)	019	A	5.95	5.47	6.42	No	0.95	No	None
Phase 1 Survey Area (OCW)	019	B	6.24	5.95	6.49	No	0.55	No	None
Phase 1 Survey Area (OCW)	019	C	6.20	5.86	6.30	No	0.45	No	None
Phase 1 Survey Area (OCW)	020	B	6.11	5.94	6.24	No	0.30	No	None
Phase 1 Survey Area (OCW)	020	C	5.22	4.61	5.84	No	1.23	No	None
Phase 1 Survey Area (OCW)	020	D	6.13	5.77	6.39	No	0.62	No	None
Phase 1 Survey Area (OCW)	021	A	12.40	11.53	13.01	No	1.48	No	None
Phase 1 Survey Area (OCW)	021	B	4.84	4.61	5.08	No	0.47	No	None
Phase 1 Survey Area (OCW)	021	C	11.89	11.65	12.05	No	0.39	No	None
Phase 1 Survey Area (OCW)	022	A	4.63	3.96	5.17	No	1.21	No	None
Phase 1 Survey Area (OCW)	022	C	5.48	4.64	6.14	No	1.51	No	None
Phase 1 Survey Area (OCW)	022	D	4.85	3.46	5.80	No	2.35	No	None
Phase 1 Survey Area (OCW)	023	A	4.48	3.95	4.86	No	0.92	No	None
Phase 1 Survey Area (OCW)	023	B	5.26	4.67	5.94	No	1.27	No	None
Phase 1 Survey Area (OCW)	023	C	5.32	5.07	5.67	No	0.60	No	None
Phase 1 Survey Area (OCW)	024	A	6.56	6.28	6.76	No	0.48	No	None
Phase 1 Survey Area (OCW)	024	B	4.00	3.19	4.44	No	1.24	No	None
Phase 1 Survey Area (OCW)	024	C	4.83	4.36	5.41	No	1.05	No	None
Phase 1 Survey Area (OCW)	025	A	5.50	5.01	5.89	No	0.88	No	None
Phase 1 Survey Area (OCW)	025	B	4.37	3.71	4.94	No	1.23	No	None
Phase 1 Survey Area (OCW)	025	D	3.66	3.10	4.62	No	1.52	No	None
Phase 1 Survey Area (OCW)	026	B	4.19	3.50	4.78	No	1.29	No	None
Phase 1 Survey Area (OCW)	026	C	6.08	5.68	6.32	No	0.63	No	None
Phase 1 Survey Area (OCW)	026	D	4.36	4.04	4.77	No	0.74	No	None
Phase 1 Survey Area (OCW)	027	A	5.19	4.57	5.57	No	1.00	No	None
Phase 1 Survey Area (OCW)	027	B	5.32	4.15	5.80	No	1.65	No	None
Phase 1 Survey Area (OCW)	027	C	6.11	5.44	6.66	No	1.22	No	None
Phase 1 Survey Area (OCW)	028	A	5.27	5.05	5.62	No	0.56	No	None
Phase 1 Survey Area (OCW)	028	B	5.92	5.32	6.35	No	1.03	No	None
Phase 1 Survey Area (OCW)	028	C	4.55	4.00	5.16	No	1.16	No	None
Phase 1 Survey Area (OCW)	029	A	5.99	5.68	6.41	No	0.73	No	None
Phase 1 Survey Area (OCW)	029	B	4.75	3.97	5.31	No	1.35	No	None
Phase 1 Survey Area (OCW)	029	C	5.35	5.10	5.56	No	0.46	No	None
Phase 1 Survey Area (OCW)	030	A	6.13	5.65	6.44	No	0.79	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	030	B	5.41	4.99	5.83	No	0.84	No	None
Phase 1 Survey Area (OCW)	030	C	5.06	4.61	5.30	No	0.69	No	None
Phase 1 Survey Area (OCW)	031	A	5.61	4.93	6.28	No	1.36	No	None
Phase 1 Survey Area (OCW)	031	B	5.54	5.16	5.72	No	0.56	No	None
Phase 1 Survey Area (OCW)	031	C	6.21	5.49	6.89	No	1.39	No	None
Phase 1 Survey Area (OCW)	032	A	3.77	2.87	4.34	No	1.47	No	None
Phase 1 Survey Area (OCW)	032	B	3.94	3.50	4.41	No	0.90	No	None
Phase 1 Survey Area (OCW)	032	C	4.36	4.12	4.47	No	0.35	No	None
Phase 1 Survey Area (OCW)	033	A	3.79	3.47	4.01	No	0.54	No	None
Phase 1 Survey Area (OCW)	033	B	3.08	2.82	3.29	No	0.47	No	None
Phase 1 Survey Area (OCW)	033	C	9.65	8.91	9.90	No	0.99	No	None
Phase 1 Survey Area (OCW)	034	A	1.21	0.64	2.28	No	1.64	No	None
Phase 1 Survey Area (OCW)	034	B	3.92	3.39	4.37	No	0.98	No	None
Phase 1 Survey Area (OCW)	034	C	4.95	4.04	6.22	No	2.18	No	None
Phase 1 Survey Area (OCW)	035	B	4.17	3.62	4.93	No	1.31	No	None
Phase 1 Survey Area (OCW)	035	C	5.79	4.86	6.32	No	1.46	No	None
Phase 1 Survey Area (OCW)	035	D	5.77	4.83	6.13	No	1.30	No	None
Phase 1 Survey Area (OCW)	036	A	5.78	5.47	6.07	No	0.60	No	None
Phase 1 Survey Area (OCW)	036	B	5.84	5.30	6.28	No	0.99	No	None
Phase 1 Survey Area (OCW)	036	C	5.08	4.70	5.60	No	0.90	No	None
Phase 1 Survey Area (OCW)	037	A	3.58	3.33	3.89	No	0.56	No	None
Phase 1 Survey Area (OCW)	037	B	3.95	3.55	4.30	No	0.75	No	None
Phase 1 Survey Area (OCW)	037	C	4.55	4.35	4.70	No	0.35	No	None
Phase 1 Survey Area (OCW)	038	A	6.42	6.05	6.85	No	0.79	No	None
Phase 1 Survey Area (OCW)	038	B	5.37	4.72	6.14	No	1.42	No	None
Phase 1 Survey Area (OCW)	038	C	4.87	4.38	5.22	No	0.84	No	None
Phase 1 Survey Area (OCW)	039	B	3.89	3.46	4.58	No	1.13	No	None
Phase 1 Survey Area (OCW)	039	C	4.07	3.62	4.31	No	0.69	No	None
Phase 1 Survey Area (OCW)	039	D	5.13	4.86	5.58	No	0.73	No	None
Phase 1 Survey Area (OCW)	040	A	5.36	5.17	5.60	No	0.43	No	None
Phase 1 Survey Area (OCW)	040	B	4.46	4.13	4.61	No	0.48	No	None
Phase 1 Survey Area (OCW)	040	C	4.43	3.98	4.77	No	0.79	No	None
Phase 1 Survey Area (OCW)	041	A	6.45	5.72	6.86	No	1.13	No	None
Phase 1 Survey Area (OCW)	041	B	4.95	4.18	5.55	No	1.37	No	None
Phase 1 Survey Area (OCW)	041	C	5.84	5.41	6.43	No	1.02	No	None
Phase 1 Survey Area (OCW)	042	A	4.53	4.10	5.11	No	1.01	No	None
Phase 1 Survey Area (OCW)	042	B	6.03	5.39	6.78	No	1.39	No	None
Phase 1 Survey Area (OCW)	042	C	3.64	3.00	4.06	No	1.06	No	None
Phase 1 Survey Area (OCW)	043	A	5.87	5.25	6.32	No	1.07	No	None
Phase 1 Survey Area (OCW)	043	B	4.65	4.35	4.84	No	0.49	No	None
Phase 1 Survey Area (OCW)	043	D	4.71	4.38	5.33	No	0.94	No	None
Phase 1 Survey Area (OCW)	044	A	5.49	4.67	6.53	No	1.87	No	None
Phase 1 Survey Area (OCW)	044	B	5.77	5.45	6.03	No	0.58	No	None
Phase 1 Survey Area (OCW)	044	C	5.10	4.77	5.54	No	0.77	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	045	A	5.69	5.59	5.83	No	0.24	No	None
Phase 1 Survey Area (OCW)	045	B	6.70	5.78	7.30	No	1.52	No	None
Phase 1 Survey Area (OCW)	045	C	6.54	6.02	6.93	No	0.91	No	None
Phase 1 Survey Area (OCW)	046	B	4.08	3.93	4.27	No	0.34	No	None
Phase 1 Survey Area (OCW)	046	C	3.46	3.28	3.59	No	0.32	No	None
Phase 1 Survey Area (OCW)	046	D	3.72	3.50	3.98	No	0.48	No	None
Phase 1 Survey Area (OCW)	047	B	3.65	3.32	3.74	No	0.42	No	None
Phase 1 Survey Area (OCW)	047	C	4.36	3.89	4.75	No	0.87	No	None
Phase 1 Survey Area (OCW)	047	D	3.12	2.97	3.28	No	0.31	No	None
Phase 1 Survey Area (OCW)	048	A	4.28	3.88	4.53	No	0.64	No	None
Phase 1 Survey Area (OCW)	048	B	4.78	4.60	5.00	No	0.39	No	None
Phase 1 Survey Area (OCW)	048	C	4.97	4.66	5.24	No	0.59	No	None
Phase 1 Survey Area (OCW)	049	A	4.58	4.37	4.89	No	0.51	No	None
Phase 1 Survey Area (OCW)	049	B	4.42	4.10	4.61	No	0.51	No	None
Phase 1 Survey Area (OCW)	049	C	4.75	4.02	5.28	No	1.25	No	None
Phase 1 Survey Area (OCW)	050	A	7.87	7.75	8.33	No	0.58	No	None
Phase 1 Survey Area (OCW)	050	B	5.39	4.44	6.09	No	1.64	No	None
Phase 1 Survey Area (OCW)	050	C	5.09	4.74	5.35	No	0.61	No	None
Phase 1 Survey Area (OCW)	051	A	5.59	4.90	5.87	No	0.97	No	None
Phase 1 Survey Area (OCW)	051	B	5.27	4.50	5.83	No	1.32	No	None
Phase 1 Survey Area (OCW)	051	C	4.79	3.82	5.33	No	1.51	No	None
Phase 1 Survey Area (OCW)	052	A	6.34	6.09	6.71	No	0.62	No	None
Phase 1 Survey Area (OCW)	052	B	4.65	4.41	4.87	No	0.46	No	None
Phase 1 Survey Area (OCW)	052	C	5.31	4.98	5.54	No	0.55	No	None
Phase 1 Survey Area (OCW)	053	A	5.68	5.09	5.97	No	0.88	No	None
Phase 1 Survey Area (OCW)	053	B	5.00	4.80	5.21	No	0.42	No	None
Phase 1 Survey Area (OCW)	053	C	5.08	4.91	5.26	No	0.36	No	None
Phase 1 Survey Area (OCW)	054	A	3.53	3.26	3.80	No	0.54	No	None
Phase 1 Survey Area (OCW)	054	B	3.36	2.78	4.09	No	1.31	No	None
Phase 1 Survey Area (OCW)	054	C	4.21	3.95	4.35	No	0.40	No	None
Phase 1 Survey Area (OCW)	055	A	7.60	6.35	8.42	No	2.07	No	None
Phase 1 Survey Area (OCW)	055	B	3.92	3.56	4.07	No	0.51	No	None
Phase 1 Survey Area (OCW)	055	C	3.66	2.32	4.15	No	1.84	No	None
Phase 1 Survey Area (OCW)	056	A	6.06	5.15	6.70	No	1.55	No	None
Phase 1 Survey Area (OCW)	056	B	6.28	5.91	6.73	No	0.83	No	None
Phase 1 Survey Area (OCW)	056	C	4.92	4.50	5.39	No	0.89	No	None
Phase 1 Survey Area (OCW)	057	B	4.04	3.86	4.31	No	0.45	No	None
Phase 1 Survey Area (OCW)	057	C	4.16	3.95	4.46	No	0.52	No	None
Phase 1 Survey Area (OCW)	057	D	4.54	4.12	5.05	No	0.93	No	None
Phase 1 Survey Area (OCW)	058	A	3.47	3.11	3.72	No	0.60	No	None
Phase 1 Survey Area (OCW)	058	B	3.34	3.01	3.64	No	0.63	No	None
Phase 1 Survey Area (OCW)	058	C	2.82	1.90	3.23	No	1.33	No	None
Phase 1 Survey Area (OCW)	059	A	4.57	4.16	4.98	No	0.82	No	None
Phase 1 Survey Area (OCW)	059	B	5.02	4.51	5.40	No	0.89	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	059	C	4.40	4.12	4.73	No	0.61	No	None
Phase 1 Survey Area (OCW)	060	A	3.50	2.68	4.46	No	1.78	No	None
Phase 1 Survey Area (OCW)	060	B	3.50	2.05	3.99	No	1.94	No	None
Phase 1 Survey Area (OCW)	060	C	1.64	1.46	1.79	No	0.33	No	None
Phase 1 Survey Area (OCW)	061	A	4.88	3.54	5.95	No	2.41	No	None
Phase 1 Survey Area (OCW)	061	B	5.09	4.55	5.28	No	0.73	No	None
Phase 1 Survey Area (OCW)	061	C	6.63	5.71	6.93	No	1.22	No	None
Phase 1 Survey Area (OCW)	062	A	4.51	4.24	4.78	No	0.54	No	None
Phase 1 Survey Area (OCW)	062	B	3.47	2.99	3.89	No	0.90	No	None
Phase 1 Survey Area (OCW)	062	C	1.94	1.78	2.16	No	0.38	No	None
Phase 1 Survey Area (OCW)	063	A	3.49	2.87	3.93	No	1.06	No	None
Phase 1 Survey Area (OCW)	063	B	6.43	5.07	8.01	No	2.94	No	None
Phase 1 Survey Area (OCW)	063	C	3.49	3.01	4.05	No	1.04	No	None
Phase 1 Survey Area (OCW)	064	A	3.29	2.99	3.73	No	0.74	No	None
Phase 1 Survey Area (OCW)	064	B	3.44	3.24	3.60	No	0.36	No	None
Phase 1 Survey Area (OCW)	064	C	3.76	2.58	4.45	No	1.88	No	None
Phase 1 Survey Area (OCW)	065	A	3.05	2.42	3.35	No	0.93	No	None
Phase 1 Survey Area (OCW)	065	C	6.04	5.05	6.74	No	1.69	No	None
Phase 1 Survey Area (OCW)	065	D	4.20	3.55	4.64	No	1.10	No	None
Phase 1 Survey Area (OCW)	066	A	4.33	3.23	5.08	No	1.86	No	None
Phase 1 Survey Area (OCW)	066	B	4.19	3.78	4.52	No	0.75	No	None
Phase 1 Survey Area (OCW)	066	C	6.89	6.59	7.26	No	0.67	No	None
Phase 1 Survey Area (OCW)	067	A	4.66	4.13	5.03	No	0.90	No	None
Phase 1 Survey Area (OCW)	067	B	4.11	3.70	4.62	No	0.92	No	None
Phase 1 Survey Area (OCW)	067	C	2.65	1.77	3.71	No	1.94	No	None
Phase 1 Survey Area (OCW)	068	A	4.36	4.02	4.76	No	0.74	No	None
Phase 1 Survey Area (OCW)	068	B	2.12	1.47	2.68	No	1.22	No	None
Phase 1 Survey Area (OCW)	068	C	2.98	0.30	5.53	No	5.22	No	None
Phase 1 Survey Area (OCW)	069	A	5.69	5.20	6.51	No	1.31	No	None
Phase 1 Survey Area (OCW)	069	B	5.89	5.67	6.15	No	0.47	No	None
Phase 1 Survey Area (OCW)	069	C	4.22	3.56	4.63	No	1.07	No	None
Phase 1 Survey Area (OCW)	070	A	6.75	4.24	8.35	No	4.11	No	None
Phase 1 Survey Area (OCW)	070	B	3.84	3.47	4.15	No	0.69	No	None
Phase 1 Survey Area (OCW)	070	C	3.13	2.57	3.55	No	0.99	No	None
Phase 1 Survey Area (OCW)	071	A	4.13	3.87	4.49	No	0.62	No	None
Phase 1 Survey Area (OCW)	071	B	2.72	2.50	3.07	No	0.57	No	None
Phase 1 Survey Area (OCW)	071	C	3.62	2.92	4.39	No	1.46	No	None
Phase 1 Survey Area (OCW)	072	B	4.02	3.78	4.35	No	0.57	No	None
Phase 1 Survey Area (OCW)	072	D	6.14	4.62	7.13	No	2.51	No	None
Phase 1 Survey Area (OCW)	072	E	3.35	3.02	3.71	No	0.68	No	None
Phase 1 Survey Area (OCW)	073	A	3.88	3.33	4.24	No	0.91	No	None
Phase 1 Survey Area (OCW)	073	B	6.46	4.57	7.87	No	3.30	No	None
Phase 1 Survey Area (OCW)	073	C	3.67	3.36	3.92	No	0.56	No	None
Phase 1 Survey Area (OCW)	074	A	6.38	5.50	7.08	No	1.58	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	074	B	4.37	4.00	4.62	No	0.62	No	None
Phase 1 Survey Area (OCW)	074	C	3.75	3.18	4.18	No	0.99	No	None
Phase 1 Survey Area (OCW)	075	B	4.70	4.13	5.15	No	1.02	No	None
Phase 1 Survey Area (OCW)	075	C	5.78	5.03	6.06	No	1.03	No	None
Phase 1 Survey Area (OCW)	075	D	5.75	5.22	6.21	No	0.98	No	None
Phase 1 Survey Area (OCW)	076	A	4.18	4.07	4.38	No	0.31	No	None
Phase 1 Survey Area (OCW)	076	B	3.93	3.71	4.14	No	0.43	No	None
Phase 1 Survey Area (OCW)	076	C	3.53	3.04	4.03	No	0.99	No	None
Phase 1 Survey Area (OCW)	077	A	4.59	4.21	4.75	No	0.53	No	None
Phase 1 Survey Area (OCW)	077	B	3.92	3.54	4.31	No	0.77	No	None
Phase 1 Survey Area (OCW)	077	C	2.82	2.43	3.07	No	0.64	No	None
Phase 1 Survey Area (OCW)	078	A	3.90	3.57	4.24	No	0.66	No	None
Phase 1 Survey Area (OCW)	078	B	3.59	3.09	3.73	No	0.65	No	None
Phase 1 Survey Area (OCW)	078	C	3.86	3.65	4.13	No	0.48	No	None
Phase 1 Survey Area (OCW)	079	E	3.80	3.12	4.53	No	1.40	No	None
Phase 1 Survey Area (OCW)	079	F	3.29	2.62	4.37	No	1.75	No	None
Phase 1 Survey Area (OCW)	079	G	5.03	4.35	5.71	No	1.36	No	None
Phase 1 Survey Area (OCW)	080	A	3.32	2.71	3.83	No	1.11	No	None
Phase 1 Survey Area (OCW)	080	B	3.64	3.31	4.04	No	0.73	No	None
Phase 1 Survey Area (OCW)	080	C	3.31	2.90	3.81	No	0.91	No	None
Phase 1 Survey Area (OCW)	081	A	5.49	5.17	5.89	No	0.72	No	None
Phase 1 Survey Area (OCW)	081	B	5.79	5.26	6.14	No	0.88	No	None
Phase 1 Survey Area (OCW)	081	C	4.80	3.86	5.47	No	1.61	No	None
Phase 1 Survey Area (OCW)	082	A	3.87	3.62	4.08	No	0.46	No	None
Phase 1 Survey Area (OCW)	082	B	3.91	3.00	4.59	No	1.59	No	None
Phase 1 Survey Area (OCW)	082	C	3.42	2.77	3.92	No	1.15	No	None
Phase 1 Survey Area (OCW)	083	A	5.27	4.40	6.07	No	1.66	No	None
Phase 1 Survey Area (OCW)	083	B	4.41	3.58	4.91	No	1.32	No	None
Phase 1 Survey Area (OCW)	083	C	5.60	5.02	6.11	No	1.09	No	None
Phase 1 Survey Area (OCW)	084	A	3.57	2.78	4.01	No	1.22	No	None
Phase 1 Survey Area (OCW)	084	B	3.08	2.41	3.59	No	1.17	No	None
Phase 1 Survey Area (OCW)	084	C	3.66	3.41	3.91	No	0.50	No	None
Phase 1 Survey Area (OCW)	085	B	2.24	1.61	3.22	No	1.61	No	None
Phase 1 Survey Area (OCW)	085	C	3.28	3.10	3.47	No	0.37	No	None
Phase 1 Survey Area (OCW)	085	D	4.46	3.95	4.71	No	0.76	No	None
Phase 1 Survey Area (OCW)	086	A	4.63	4.12	5.09	No	0.96	No	None
Phase 1 Survey Area (OCW)	086	B	4.70	4.40	5.26	No	0.86	No	None
Phase 1 Survey Area (OCW)	086	C	4.21	3.70	4.73	No	1.03	No	None
Phase 1 Survey Area (OCW)	087	A	3.67	3.41	3.89	No	0.48	No	None
Phase 1 Survey Area (OCW)	087	B	3.82	3.57	4.09	No	0.52	No	None
Phase 1 Survey Area (OCW)	087	C	4.74	4.53	5.02	No	0.49	No	None
Phase 1 Survey Area (OCW)	088	A	4.69	4.35	5.13	No	0.78	No	None
Phase 1 Survey Area (OCW)	088	B	3.50	3.13	3.84	No	0.70	No	None
Phase 1 Survey Area (OCW)	088	C	4.56	4.12	5.01	No	0.88	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	089	A	3.96	3.67	4.25	No	0.59	No	None
Phase 1 Survey Area (OCW)	089	B	3.44	3.01	3.68	No	0.67	No	None
Phase 1 Survey Area (OCW)	089	C	3.32	2.98	3.74	No	0.76	No	None
Phase 1 Survey Area (OCW)	090	A	4.57	4.10	4.74	No	0.64	No	None
Phase 1 Survey Area (OCW)	090	B	4.96	4.30	5.31	No	1.00	No	None
Phase 1 Survey Area (OCW)	090	C	4.02	3.67	4.39	No	0.72	No	None
Phase 1 Survey Area (OCW)	091	A	4.17	3.93	4.44	No	0.51	No	None
Phase 1 Survey Area (OCW)	091	B	3.80	3.28	4.52	No	1.23	No	None
Phase 1 Survey Area (OCW)	091	C	4.35	2.98	4.64	No	1.66	No	None
Phase 1 Survey Area (OCW)	092	A	3.86	2.96	4.46	No	1.50	No	None
Phase 1 Survey Area (OCW)	092	B	5.02	4.22	5.77	No	1.55	No	None
Phase 1 Survey Area (OCW)	092	C	3.49	2.17	4.44	No	2.27	No	None
Phase 1 Survey Area (OCW)	093	A	4.89	4.66	5.18	No	0.52	No	None
Phase 1 Survey Area (OCW)	093	B	3.04	2.32	3.49	No	1.16	No	None
Phase 1 Survey Area (OCW)	093	C	3.66	2.89	4.21	No	1.32	No	None
B.L. England Export Cable	201	A	5.67	5.23	6.07	No	0.84	No	None
B.L. England Export Cable	201	B	4.62	4.10	5.02	No	0.92	No	None
B.L. England Export Cable	201	C	4.48	3.50	5.13	No	1.63	No	None
B.L. England Export Cable	202	A	4.21	3.46	4.74	No	1.28	No	None
B.L. England Export Cable	202	B	3.88	3.55	4.55	No	1.00	No	None
B.L. England Export Cable	202	C	5.10	3.94	5.53	No	1.59	No	None
B.L. England Export Cable	203	A	4.14	3.69	4.49	No	0.80	No	None
B.L. England Export Cable	203	B	3.28	3.03	3.51	No	0.48	No	None
B.L. England Export Cable	203	C	3.75	3.50	4.07	No	0.57	No	None
B.L. England Export Cable	204	A	4.16	4.04	4.29	No	0.25	No	None
B.L. England Export Cable	204	B	3.89	3.52	4.11	No	0.59	No	None
B.L. England Export Cable	204	C	3.53	2.60	3.85	No	1.25	No	None
B.L. England Export Cable	205	A	3.89	3.49	4.11	No	0.63	No	None
B.L. England Export Cable	205	B	3.94	3.70	4.19	No	0.50	No	None
B.L. England Export Cable	205	C	3.76	3.10	4.31	No	1.21	No	None
B.L. England Export Cable	206	A	3.38	3.00	3.67	No	0.68	No	None
B.L. England Export Cable	206	B	2.89	2.51	3.19	No	0.68	No	None
B.L. England Export Cable	206	C	3.96	3.66	4.28	No	0.61	No	None
B.L. England Export Cable	207	B	3.74	3.48	4.16	No	0.68	No	None
B.L. England Export Cable	207	C	3.46	2.42	3.91	No	1.49	No	None
B.L. England Export Cable	207	D	3.32	3.04	3.73	No	0.69	No	None
B.L. England Export Cable	208	A	4.21	3.84	4.49	No	0.64	No	None
B.L. England Export Cable	208	B	3.77	3.58	4.04	No	0.45	No	None
B.L. England Export Cable	208	C	3.63	3.33	3.82	No	0.49	No	None
B.L. England Export Cable	209	A	3.76	3.48	4.26	No	0.79	No	None
B.L. England Export Cable	209	B	4.21	3.75	4.64	No	0.89	No	None
B.L. England Export Cable	209	C	3.81	3.32	4.70	No	1.38	No	None
B.L. England Export Cable	210	B	4.66	4.17	5.07	No	0.90	No	None
B.L. England Export Cable	210	C	4.01	3.47	4.84	No	1.37	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
B.L. England Export Cable	210	D	4.09	3.84	4.24	No	0.40	No	None
B.L. England Export Cable	211	A	3.86	3.40	4.26	No	0.86	No	None
B.L. England Export Cable	211	B	4.79	3.76	5.37	No	1.61	No	None
B.L. England Export Cable	211	C	4.12	3.80	4.38	No	0.58	No	None
Oyster Creek Export Cable	301	A	5.97	5.55	6.70	No	1.16	No	None
Oyster Creek Export Cable	301	B	5.59	5.11	5.87	No	0.76	No	None
Oyster Creek Export Cable	301	C	4.80	4.62	5.12	No	0.50	No	None
Oyster Creek Export Cable	302	A	5.92	4.56	6.37	No	1.81	No	None
Oyster Creek Export Cable	302	B	5.14	4.86	5.34	No	0.47	No	None
Oyster Creek Export Cable	302	C	4.15	3.92	4.42	No	0.50	No	None
Oyster Creek Export Cable	303	A	4.85	4.65	4.99	No	0.34	No	None
Oyster Creek Export Cable	303	B	5.95	5.66	6.19	No	0.54	No	None
Oyster Creek Export Cable	303	C	5.29	4.97	6.06	No	1.10	No	None
Oyster Creek Export Cable	304	A	4.56	4.38	4.76	No	0.38	No	None
Oyster Creek Export Cable	304	B	5.21	5.01	5.35	No	0.34	No	None
Oyster Creek Export Cable	304	C	4.65	4.07	5.00	No	0.93	No	None
Oyster Creek Export Cable	305	A	4.33	3.96	4.80	No	0.84	No	None
Oyster Creek Export Cable	305	B	4.60	4.39	4.84	No	0.46	No	None
Oyster Creek Export Cable	305	C	3.92	3.81	4.04	No	0.23	No	None
Oyster Creek Export Cable	306	A	5.73	5.17	6.18	No	1.01	No	None
Oyster Creek Export Cable	306	B	4.03	3.75	4.31	No	0.56	No	None
Oyster Creek Export Cable	306	C	4.57	4.31	4.83	No	0.52	No	None
Oyster Creek Export Cable	307	A	7.12	6.74	7.45	No	0.71	No	None
Oyster Creek Export Cable	307	B	4.80	4.38	5.24	No	0.86	No	None
Oyster Creek Export Cable	307	C	4.75	4.33	6.04	No	1.71	No	None
Oyster Creek Export Cable	308	A	3.66	3.08	4.16	No	1.08	No	None
Oyster Creek Export Cable	308	B	5.04	4.59	5.41	No	0.82	No	None
Oyster Creek Export Cable	308	C	4.90	4.46	5.54	No	1.07	No	None
Oyster Creek Export Cable	309	A	4.67	4.40	4.90	No	0.51	No	None
Oyster Creek Export Cable	309	B	4.70	4.20	5.36	No	1.16	No	None
Oyster Creek Export Cable	309	C	5.49	4.82	5.82	No	1.00	No	None
Oyster Creek Export Cable	310	A	5.16	5.01	5.50	No	0.49	No	None
Oyster Creek Export Cable	310	B	5.48	4.84	5.91	No	1.07	No	None
Oyster Creek Export Cable	310	C	6.47	6.38	6.68	No	0.30	No	None
Oyster Creek Export Cable	311	A	4.59	4.29	4.79	No	0.50	No	None
Oyster Creek Export Cable	311	B	4.01	3.59	4.29	No	0.71	No	None
Oyster Creek Export Cable	311	C	5.96	5.65	6.21	No	0.56	No	None
Oyster Creek Export Cable	312	A	4.06	3.88	4.35	No	0.48	No	None
Oyster Creek Export Cable	312	B	3.80	3.15	4.23	No	1.08	No	None
Oyster Creek Export Cable	312	C	5.72	5.37	5.96	No	0.59	No	None
Oyster Creek Export Cable	313	A	5.36	4.53	6.17	No	1.64	No	None
Oyster Creek Export Cable	313	B	4.54	4.27	4.75	No	0.48	No	None
Oyster Creek Export Cable	313	C	5.57	5.13	5.94	No	0.82	No	None
Oyster Creek Export Cable	314	A	6.57	5.24	7.24	No	2.00	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Oyster Creek Export Cable	314	B	5.61	5.11	6.24	No	1.13	No	None
Oyster Creek Export Cable	314	C	5.88	4.73	6.44	No	1.71	No	None
Oyster Creek Export Cable	315	A	5.40	5.17	5.52	No	0.35	No	None
Oyster Creek Export Cable	315	B	4.82	4.48	5.28	No	0.79	No	None
Oyster Creek Export Cable	315	C	5.58	4.97	5.80	No	0.83	No	None
Oyster Creek Export Cable	316	A	5.50	4.22	6.28	No	2.06	No	None
Oyster Creek Export Cable	316	B	5.77	5.32	6.06	No	0.74	No	None
Oyster Creek Export Cable	316	C	4.83	4.24	5.27	No	1.04	No	None
Oyster Creek Export Cable	317	A	4.36	4.00	4.67	No	0.67	No	None
Oyster Creek Export Cable	317	B	6.26	5.38	6.63	No	1.25	No	None
Oyster Creek Export Cable	317	C	4.81	3.23	5.89	No	2.66	No	None
Oyster Creek Export Cable	318	B	3.81	3.40	4.74	No	1.34	No	None
Oyster Creek Export Cable	318	C	5.19	3.88	5.93	No	2.05	No	None
Oyster Creek Export Cable	318	D	4.89	3.67	5.54	No	1.87	No	None
Oyster Creek Export Cable	319	A	4.43	3.73	4.88	No	1.16	No	None
Oyster Creek Export Cable	319	C	4.38	3.54	5.15	No	1.61	No	None
Oyster Creek Export Cable	319	D	4.58	4.05	5.01	No	0.97	No	None
Oyster Creek Export Cable	320	A	6.45	4.76	7.58	No	2.82	No	None
Oyster Creek Export Cable	320	B	4.60	4.14	4.93	No	0.79	No	None
Oyster Creek Export Cable	320	C	4.71	3.90	5.90	No	2.00	No	None
Oyster Creek Export Cable	321	A	6.53	5.32	7.04	No	1.72	No	None
Oyster Creek Export Cable	321	B	4.45	2.61	6.36	No	3.76	No	None
Oyster Creek Export Cable	321	C	4.49	4.14	4.71	No	0.57	No	None
Oyster Creek Export Cable	322	A	6.53	5.10	7.40	No	2.31	No	None
Oyster Creek Export Cable	322	B	3.74	3.18	4.21	No	1.03	No	None
Oyster Creek Export Cable	322	C	5.29	4.64	6.24	No	1.60	No	None
Oyster Creek Export Cable	323	A	5.59	4.46	6.91	No	2.44	No	None
Oyster Creek Export Cable	323	B	7.65	6.98	8.01	No	1.03	No	None
Oyster Creek Export Cable	323	C	5.08	4.79	5.64	No	0.86	No	None
Oyster Creek Export Cable	324	A	5.75	5.32	6.20	No	0.88	No	None
Oyster Creek Export Cable	324	B	5.39	4.98	5.76	No	0.77	No	None
Oyster Creek Export Cable	324	C	5.77	5.41	5.99	No	0.58	No	None
Oyster Creek Export Cable	325	A	4.44	3.97	5.03	No	1.05	No	None
Oyster Creek Export Cable	325	B	6.22	4.58	7.58	No	3.00	No	None
Oyster Creek Export Cable	325	C	5.91	4.92	6.59	No	1.67	No	None
Oyster Creek Export Cable	326	A	3.52	2.25	5.10	No	2.85	No	None
Oyster Creek Export Cable	326	B	5.77	4.43	7.20	No	2.77	No	None
Oyster Creek Export Cable	326	C	2.25	1.92	2.68	No	0.76	No	None
Oyster Creek Export Cable	327	A	4.73	3.97	5.29	No	1.32	No	None
Oyster Creek Export Cable	327	B	4.66	3.72	6.01	No	2.29	No	None
Oyster Creek Export Cable	327	C	4.69	4.16	5.32	No	1.15	No	None
Oyster Creek Export Cable	328	A	7.41	5.50	8.17	No	2.67	No	None
Oyster Creek Export Cable	328	B	3.35	3.00	4.11	No	1.12	No	None
Oyster Creek Export Cable	328	C	5.54	4.75	6.60	No	1.84	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Oyster Creek Export Cable	329	A	5.77	5.35	6.07	No	0.72	No	None
Oyster Creek Export Cable	329	B	5.02	4.54	5.41	No	0.87	No	None
Oyster Creek Export Cable	329	C	5.25	4.56	5.91	No	1.35	No	None
Oyster Creek Export Cable	330	A	3.92	3.59	4.63	No	1.03	No	None
Oyster Creek Export Cable	330	B	3.99	3.63	4.41	No	0.78	No	None
Oyster Creek Export Cable	330	D	3.98	3.73	4.56	No	0.83	No	None
Oyster Creek Export Cable	331	A	5.00	4.83	5.30	No	0.47	No	None
Oyster Creek Export Cable	331	B	4.22	3.19	5.23	No	2.04	No	None
Oyster Creek Export Cable	331	C	5.31	4.28	6.31	No	2.02	No	None
Oyster Creek Export Cable	332	A	4.62	4.25	5.25	No	1.00	No	None
Oyster Creek Export Cable	332	B	4.22	2.67	4.88	No	2.21	No	None
Oyster Creek Export Cable	332	C	6.32	5.07	7.08	No	2.02	No	None
Oyster Creek Export Cable	333	A	5.16	3.84	6.13	No	2.29	No	None
Oyster Creek Export Cable	333	B	5.16	4.67	5.71	No	1.04	No	None
Oyster Creek Export Cable	333	C	4.30	2.85	5.40	No	2.56	No	None
Oyster Creek Export Cable	334	A	5.79	4.61	6.54	No	1.93	No	None
Oyster Creek Export Cable	334	B	5.13	4.87	5.49	No	0.62	No	None
Oyster Creek Export Cable	334	D	5.01	4.24	5.96	No	1.72	No	None
Oyster Creek Export Cable	335	A	4.90	4.03	5.26	No	1.23	No	None
Oyster Creek Export Cable	335	B	4.99	3.36	6.06	No	2.69	No	None
Oyster Creek Export Cable	335	D	4.83	3.28	5.71	No	2.43	No	None
Oyster Creek Export Cable	336	A	5.28	4.29	6.15	No	1.86	No	None
Oyster Creek Export Cable	336	B	4.30	3.72	4.82	No	1.10	No	None
Oyster Creek Export Cable	336	C	5.52	5.03	6.02	No	0.99	No	None
Oyster Creek Export Cable	337	A	5.56	5.00	5.78	No	0.78	No	None
Oyster Creek Export Cable	337	B	3.49	2.91	4.89	No	1.98	No	None
Oyster Creek Export Cable	337	C	4.85	2.81	6.60	No	3.79	No	None
Oyster Creek Export Cable	338	A	6.92	5.73	7.35	No	1.61	No	None
Oyster Creek Export Cable	338	B	4.72	3.95	5.46	No	1.51	No	None
Oyster Creek Export Cable	338	C	5.17	4.43	5.73	No	1.31	No	None
Oyster Creek Export Cable	339	A	2.35	0.29	4.12	No	3.83	No	None
Oyster Creek Export Cable	339	B	1.70	1.12	3.11	No	2.00	No	None
Oyster Creek Export Cable	339	C	6.67	5.90	7.71	No	1.81	No	None
Oyster Creek Export Cable	340	A	4.88	3.68	5.63	No	1.95	No	None
Oyster Creek Export Cable	340	B	4.16	3.76	4.43	No	0.67	No	None
Oyster Creek Export Cable	340	C	4.02	3.51	4.36	No	0.85	No	None
Oyster Creek Export Cable	341	B	5.43	4.98	5.82	No	0.85	No	None
Oyster Creek Export Cable	341	C	3.97	2.75	4.50	No	1.75	No	None
Oyster Creek Export Cable	341	D	5.97	5.57	6.31	No	0.74	No	None
Oyster Creek Export Cable	342	A	3.06	2.76	3.36	No	0.60	No	None
Oyster Creek Export Cable	342	B	4.01	2.73	5.87	No	3.14	No	None
Oyster Creek Export Cable	342	C	4.23	3.00	4.89	No	1.89	No	None
Oyster Creek Export Cable	343	A	4.19	3.67	5.04	No	1.37	No	None
Oyster Creek Export Cable	343	B	3.92	2.54	4.54	No	2.00	No	None

Area	StationID	Replicate	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?	Boundary Roughness (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Oyster Creek Export Cable	343	C	4.03	3.29	5.07	No	1.78	No	None
Oyster Creek Export Cable	344	A	5.10	4.56	5.72	No	1.17	No	None
Oyster Creek Export Cable	344	B	5.26	4.53	5.90	No	1.37	No	None
Oyster Creek Export Cable	344	D	4.60	3.49	5.24	No	1.75	No	None
Oyster Creek Export Cable	345	A	4.65	4.12	5.13	No	1.01	No	None
Oyster Creek Export Cable	345	B	4.55	4.22	4.97	No	0.75	No	None
Oyster Creek Export Cable	345	C	4.31	3.78	4.99	No	1.21	No	None
Oyster Creek Export Cable	346	A	3.66	3.19	4.09	No	0.90	No	None
Oyster Creek Export Cable	346	B	3.99	3.18	4.65	No	1.48	No	None
Oyster Creek Export Cable	346	C	3.98	2.87	5.08	No	2.21	No	None
Oyster Creek Export Cable	347	A	5.08	3.58	5.56	No	1.98	No	None
Oyster Creek Export Cable	347	B	4.19	3.21	4.85	No	1.63	No	None
Oyster Creek Export Cable	347	C	3.92	2.87	5.03	No	2.15	No	None
Oyster Creek Export Cable	348	A	3.38	3.01	3.84	No	0.84	No	None
Oyster Creek Export Cable	348	B	4.60	3.48	5.04	No	1.57	No	None
Oyster Creek Export Cable	348	C	4.78	4.05	5.22	No	1.17	No	None
Oyster Creek Export Cable	349	A	3.59	2.94	4.36	No	1.41	No	None
Oyster Creek Export Cable	349	B	3.82	3.52	4.26	No	0.74	No	None
Oyster Creek Export Cable	349	C	4.96	4.38	5.49	No	1.10	No	None
Oyster Creek Export Cable	350	A	3.69	3.03	4.73	No	1.70	No	None
Oyster Creek Export Cable	350	B	3.36	2.74	3.72	No	0.99	No	None
Oyster Creek Export Cable	350	C	4.71	3.90	5.39	No	1.50	No	None
Reference	401	A	4.58	4.15	4.71	No	0.57	No	None
Reference	401	B	4.59	4.23	4.85	No	0.62	No	None
Reference	401	C	3.97	3.71	4.21	No	0.50	No	None
Reference	402	A	3.61	3.36	3.91	No	0.55	No	None
Reference	402	B	4.48	0.40	5.20	No	4.80	No	None
Reference	402	C	3.42	3.05	3.70	No	0.65	No	None
Reference	403	A	5.00	4.15	6.43	No	2.28	No	None
Reference	403	B	5.09	4.62	5.36	No	0.74	No	None
Reference	403	C	4.71	4.29	5.14	No	0.85	No	None

APPENDIX E

Plan View Image Analysis Results

Notes:

IND=Indeterminate

Bedform Size Measurement: "-" indicates variable is not measured for the replicate

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Phase 1 Survey Area (OCW)	001	A	7/20/2019	11:03:27	78.35	52.24	0.41	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	001	B	7/20/2019	11:04:54	75.99	50.66	0.38	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	001	C	7/20/2019	11:06:22	77.61	51.74	0.40	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	002	A	7/20/2019	11:37:05	76.36	50.91	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	002	B	7/20/2019	11:38:23	77.96	51.97	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	002	C	7/20/2019	11:39:52	76.43	50.96	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	003	A	7/20/2019	12:20:44	79.55	53.03	0.42	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	003	B	7/20/2019	12:21:59	75.58	50.39	0.38	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	003	C	7/20/2019	12:23:17	78.99	52.66	0.42	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	004	A	7/20/2019	13:03:05	78.91	52.60	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	004	B	7/20/2019	13:04:19	83.16	55.44	0.46	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	004	C	7/20/2019	13:05:33	81.89	54.59	0.45	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	005	A	7/20/2019	13:21:32	77.00	51.33	0.40	Slightly Gravelly	Slightly Gravelly Sand	7.70	No	None
Phase 1 Survey Area (OCW)	005	B	7/20/2019	13:22:46	78.31	52.21	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	005	C	7/20/2019	13:23:55	78.35	52.24	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	006	A	7/20/2019	14:01:16	79.84	53.22	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	006	B	7/20/2019	14:02:25	83.16	55.44	0.46	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	006	C	7/20/2019	14:03:34	77.08	51.38	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	007	A	7/20/2019	14:20:18	76.58	51.06	0.39	Gravelly	Gravelly Sand	6.38	No	None
Phase 1 Survey Area (OCW)	007	B	7/20/2019	14:21:32	79.67	53.12	0.42	Gravelly	Gravelly Sand	6.64	No	None
Phase 1 Survey Area (OCW)	007	C	7/20/2019	14:22:41	81.80	54.54	0.45	Gravelly	Gravelly Sand	4.09	No	None
Phase 1 Survey Area (OCW)	008	A	7/20/2019	14:37:14	75.44	50.29	0.38	Gravel Mixes	Sandy Gravel	2.51	No	None
Phase 1 Survey Area (OCW)	008	B	7/20/2019	14:38:33	82.67	55.11	0.46	Slightly Gravelly	Slightly Gravelly Sand	3.44	No	None
Phase 1 Survey Area (OCW)	008	C	7/20/2019	14:39:43	79.19	52.79	0.42	Gravel Mixes	Sandy Gravel	2.64	No	None
Phase 1 Survey Area (OCW)	009	A	7/20/2019	15:44:05	79.80	53.20	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	009	B	7/20/2019	15:45:19	78.83	52.55	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	009	C	7/20/2019	15:46:26	80.08	53.39	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	010	A	7/20/2019	15:23:59	78.27	52.18	0.41	Slightly Gravelly	Slightly Gravelly Sand	3.26	No	None
Phase 1 Survey Area (OCW)	010	B	7/20/2019	15:25:14	80.41	53.61	0.43	Slightly Gravelly	Slightly Gravelly Sand	2.01	No	None
Phase 1 Survey Area (OCW)	010	C	7/20/2019	15:26:30	74.96	49.98	0.37	Slightly Gravelly	Slightly Gravelly Sand	5.00	No	None
Phase 1 Survey Area (OCW)	011	A	7/20/2019	10:42:37	82.89	55.26	0.46	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	011	B	7/20/2019	10:43:49	82.54	55.03	0.45	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	011	C	7/20/2019	10:45:20	84.14	56.09	0.47	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	012	A	7/20/2019	10:03:31	77.23	51.49	0.40	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	012	B	7/20/2019	10:04:44	76.77	51.18	0.39	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	012	C	7/20/2019	10:05:56	76.13	50.76	0.39	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	013	A	7/20/2019	9:27:58	75.73	50.49	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	013	B	7/20/2019	9:29:13	79.43	52.95	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	013	C	7/20/2019	9:30:48	80.50	53.66	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	014	A	7/20/2019	9:08:04	78.55	52.37	0.41	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	014	B	7/20/2019	9:09:41	76.25	50.83	0.39	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	014	C	7/20/2019	9:10:49	79.88	53.25	0.43	Slightly Gravelly	Slightly Gravelly Sand	3.33	No	Ripples
Phase 1 Survey Area (OCW)	015	A	7/20/2019	16:48:40	75.25	50.17	0.38	Gravel Mixes	Sandy Gravel	3.14	No	None
Phase 1 Survey Area (OCW)	015	B	7/20/2019	16:49:51	85.06	56.71	0.48	Gravel Mixes	Sandy Gravel	3.54	No	None

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Phase 1 Survey Area (OCW)	015	C	7/20/2019	16:51:04	78.35	52.24	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	016	A	7/20/2019	8:47:17	77.23	51.49	0.40	Slightly Gravelly	Slightly Gravelly Sand	2.57	No	None
Phase 1 Survey Area (OCW)	016	B	7/20/2019	8:48:36	76.96	51.31	0.39	Slightly Gravelly	Slightly Gravelly Sand	1.92	No	None
Phase 1 Survey Area (OCW)	016	C	7/20/2019	8:49:53	78.04	52.03	0.41	Slightly Gravelly	Slightly Gravelly Sand	1.95	No	Ripples
Phase 1 Survey Area (OCW)	017	A	7/20/2019	8:15:19	77.84	51.90	0.40	Gravelly	Gravelly Sand	3.24	No	Ripples
Phase 1 Survey Area (OCW)	017	B	7/20/2019	8:16:41	73.69	49.13	0.36	Slightly Gravelly	Slightly Gravelly Sand	3.68	No	None
Phase 1 Survey Area (OCW)	017	C	7/20/2019	8:17:58	72.19	48.13	0.35	Slightly Gravelly	Slightly Gravelly Sand	3.61	No	Ripples
Phase 1 Survey Area (OCW)	018	A	7/20/2019	16:25:47	78.00	52.00	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	018	B	7/20/2019	16:26:53	75.07	50.05	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	018	C	7/20/2019	16:28:05	77.50	51.66	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	019	A	7/20/2019	7:51:03	76.02	50.68	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	019	B	7/20/2019	7:52:12	78.51	52.34	0.41	Slightly Gravelly	Slightly Gravelly Sand	1.96	No	None
Phase 1 Survey Area (OCW)	019	C	7/20/2019	7:53:32	79.15	52.77	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	020	B	7/20/2019	7:11:08	82.98	55.32	0.46	Slightly Gravelly	Slightly Gravelly Sand	2.77	No	None
Phase 1 Survey Area (OCW)	020	C	7/20/2019	7:12:25	78.67	52.45	0.41	Slightly Gravelly	Slightly Gravelly Sand	3.93	No	None
Phase 1 Survey Area (OCW)	020	D	7/20/2019	7:13:40	80.83	53.89	0.44	Slightly Gravelly	Slightly Gravelly Sand	4.72	No	None
Phase 1 Survey Area (OCW)	021	A	7/20/2019	6:27:46	78.79	52.53	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	021	B	7/20/2019	6:29:14	80.50	53.66	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	021	C	7/20/2019	6:30:27	80.91	53.94	0.44	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	022	A	7/20/2019	2:44:48	78.31	52.21	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	022	C	7/20/2019	2:48:42	82.76	55.17	0.46	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	022	D	7/20/2019	2:50:36	79.35	52.90	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	023	A	7/20/2019	3:19:29	78.79	52.53	0.41	Gravel Mixes	Sandy Gravel	3.94	No	None
Phase 1 Survey Area (OCW)	023	B	7/20/2019	3:20:45	70.52	47.02	0.33	Gravel Mixes	Sandy Gravel	5.29	No	None
Phase 1 Survey Area (OCW)	023	C	7/20/2019	3:22:18	79.92	53.28	0.43	Gravel	Granule	4.00	No	None
Phase 1 Survey Area (OCW)	024	A	7/20/2019	3:38:13	76.02	50.68	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	024	B	7/20/2019	3:39:43	75.95	50.63	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	024	C	7/20/2019	3:40:59	79.92	53.28	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	025	A	7/20/2019	3:55:53	81.17	54.11	0.44	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	025	B	7/20/2019	3:57:04	75.51	50.34	0.38	Gravelly	Gravelly Sand	10.07	No	None
Phase 1 Survey Area (OCW)	025	D	7/20/2019	3:59:33	70.91	47.27	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	026	B	7/20/2019	4:38:19	78.63	52.42	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	026	C	7/20/2019	4:39:57	70.72	47.14	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	026	D	7/20/2019	4:41:59	79.67	53.12	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	027	A	7/20/2019	4:54:00	79.88	53.25	0.43	Slightly Gravelly	Slightly Gravelly Sand	2.00	No	None
Phase 1 Survey Area (OCW)	027	B	7/20/2019	4:55:08	79.75	53.17	0.42	Slightly Gravelly	Slightly Gravelly Sand	1.99	No	None
Phase 1 Survey Area (OCW)	027	C	7/20/2019	4:56:32	76.96	51.31	0.39	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	028	A	7/20/2019	5:33:36	79.31	52.87	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	028	B	7/20/2019	5:34:49	76.47	50.98	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	028	C	7/20/2019	5:35:59	80.00	53.33	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	029	A	7/20/2019	5:48:08	74.86	49.90	0.37	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	029	B	7/20/2019	5:49:19	80.58	53.72	0.43	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	029	C	7/20/2019	5:50:25	78.95	52.63	0.42	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	030	A	7/20/2019	6:10:37	78.08	52.05	0.41	Sand or Finer	Sand or Finer	IND	No	None

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Phase 1 Survey Area (OCW)	030	B	7/20/2019	6:11:42	78.71	52.47	0.41	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	030	C	7/20/2019	6:12:59	81.55	54.36	0.44	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	031	A	7/19/2019	23:47:25	76.17	50.78	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	031	B	7/19/2019	23:48:39	79.55	53.03	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	031	C	7/19/2019	23:49:48	80.16	53.44	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	032	A	7/19/2019	19:51:38	76.66	51.11	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	032	B	7/19/2019	19:52:52	78.04	52.03	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	032	C	7/19/2019	19:54:06	75.40	50.27	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	033	A	7/19/2019	20:11:17	68.72	45.81	0.31	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	033	B	7/19/2019	20:12:34	72.93	48.62	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	033	C	7/19/2019	20:13:46	79.67	53.12	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	034	A	7/19/2019	20:52:52	80.12	53.42	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	034	B	7/19/2019	20:54:12	78.75	52.50	0.41	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	034	C	7/19/2019	20:55:26	75.47	50.31	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	035	B	7/20/2019	2:21:52	75.95	50.63	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	035	C	7/20/2019	2:23:51	75.80	50.53	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	035	D	7/20/2019	2:25:26	79.07	52.71	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	036	A	7/19/2019	21:11:01	77.50	51.66	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	036	B	7/19/2019	21:12:14	80.66	53.77	0.43	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	036	C	7/19/2019	21:13:26	83.07	55.38	0.46	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	037	A	7/20/2019	2:00:18	74.57	49.71	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	037	B	7/20/2019	2:02:09	77.96	51.97	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	037	C	7/20/2019	2:03:41	76.58	51.06	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	038	A	7/19/2019	21:44:38	77.08	51.38	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	038	B	7/19/2019	21:45:50	80.41	53.61	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	038	C	7/19/2019	21:47:06	81.80	54.54	0.45	Sand or Finer	Sand or Finer	IND	No	Ripples
Phase 1 Survey Area (OCW)	039	B	7/19/2019	22:02:16	79.39	52.93	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	039	C	7/19/2019	22:03:28	74.04	49.36	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	039	D	7/19/2019	22:04:41	81.42	54.28	0.44	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	040	A	7/20/2019	1:35:12	75.95	50.63	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	040	B	7/20/2019	1:36:59	74.07	49.38	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	040	C	7/20/2019	1:38:12	77.00	51.33	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	041	A	7/20/2019	0:53:05	77.57	51.72	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	041	B	7/20/2019	0:54:56	80.54	53.69	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	041	C	7/20/2019	0:56:21	72.29	48.19	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	042	A	7/19/2019	22:24:23	70.72	47.14	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	042	B	7/19/2019	22:25:32	75.88	50.58	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	042	C	7/19/2019	22:26:44	79.43	52.95	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	043	A	7/20/2019	0:10:50	70.14	46.76	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	043	B	7/20/2019	0:11:58	77.11	51.41	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	043	D	7/20/2019	0:14:19	71.72	47.82	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	044	A	7/19/2019	22:43:34	71.89	47.93	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	044	B	7/19/2019	22:44:48	80.50	53.66	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	044	C	7/19/2019	22:46:02	75.76	50.51	0.38	Sand or Finer	Sand or Finer	IND	No	None

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Phase 1 Survey Area (OCW)	045	A	7/19/2019	23:01:54	70.75	47.17	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	045	B	7/19/2019	23:03:04	79.51	53.01	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	045	C	7/19/2019	23:04:21	81.12	54.08	0.44	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	046	B	7/19/2019	19:35:44	75.18	50.12	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	046	C	7/19/2019	19:36:54	78.43	52.29	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	046	D	7/19/2019	19:38:10	77.88	51.92	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	047	B	7/19/2019	18:31:33	70.62	47.08	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	047	C	7/19/2019	18:32:54	79.96	53.31	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	047	D	7/19/2019	18:34:25	80.54	53.69	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	048	A	7/19/2019	18:04:20	75.58	50.39	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	048	B	7/19/2019	18:05:32	71.72	47.82	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	048	C	7/19/2019	18:06:42	77.42	51.61	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	049	A	7/19/2019	13:26:08	75.14	50.10	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	049	B	7/19/2019	13:27:28	76.92	51.28	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	049	C	7/19/2019	13:28:39	74.00	49.34	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	050	A	7/19/2019	17:31:01	76.58	51.06	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	050	B	7/19/2019	17:32:12	78.87	52.58	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	050	C	7/19/2019	17:33:28	72.49	48.33	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	051	A	7/19/2019	16:58:58	73.69	49.13	0.36	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	051	B	7/19/2019	17:00:18	76.28	50.86	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	051	C	7/19/2019	17:01:32	79.11	52.74	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	052	A	7/19/2019	16:11:44	70.49	47.00	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	052	B	7/19/2019	16:12:59	78.63	52.42	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	052	C	7/19/2019	16:14:19	77.38	51.59	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	053	A	7/19/2019	15:44:43	77.88	51.92	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	053	B	7/19/2019	15:45:57	68.06	45.38	0.31	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	053	C	7/19/2019	15:48:38	74.53	49.69	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	054	A	7/19/2019	18:56:06	73.00	48.67	0.36	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	054	B	7/19/2019	18:57:21	73.07	48.71	0.36	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	054	C	7/19/2019	18:58:34	77.30	51.54	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	055	A	7/19/2019	11:39:21	72.63	48.42	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	055	B	7/19/2019	11:40:44	68.36	45.57	0.31	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	055	C	7/19/2019	11:42:13	71.40	47.60	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	056	A	7/19/2019	12:24:17	75.04	50.02	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	056	B	7/19/2019	12:25:23	74.93	49.95	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	056	C	7/19/2019	12:26:32	81.29	54.19	0.44	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	057	B	7/19/2019	12:50:00	75.95	50.63	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	057	C	7/19/2019	12:51:16	76.51	51.01	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	057	D	7/19/2019	12:52:30	80.37	53.58	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	058	A	7/19/2019	13:07:58	71.66	47.77	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	058	B	7/19/2019	13:09:14	77.61	51.74	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	058	C	7/19/2019	13:10:32	75.40	50.27	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	059	A	7/19/2019	8:00:46	73.10	48.73	0.36	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	059	B	7/19/2019	8:02:22	71.53	47.68	0.34	Sand or Finer	Sand or Finer	IND	No	None

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Phase 1 Survey Area (OCW)	059	C	7/19/2019	8:03:55	70.59	47.06	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	060	A	7/19/2019	7:07:13	78.55	52.37	0.41	Gravelly	Gravelly Sand	5.89	No	None
Phase 1 Survey Area (OCW)	060	B	7/19/2019	7:08:52	80.50	53.66	0.43	Gravelly	Gravelly Sand	8.05	No	None
Phase 1 Survey Area (OCW)	060	C	7/19/2019	7:10:27	75.14	50.10	0.38	Gravelly	Gravelly Sand	5.01	No	None
Phase 1 Survey Area (OCW)	061	A	7/19/2019	14:34:19	79.19	52.79	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	061	B	7/19/2019	14:35:30	72.29	48.19	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	061	C	7/19/2019	14:36:35	77.84	51.90	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	062	A	7/19/2019	6:46:40	74.39	49.59	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	062	B	7/19/2019	6:48:19	79.15	52.77	0.42	Slightly Gravelly	Slightly Gravelly Sand	6.60	No	None
Phase 1 Survey Area (OCW)	062	C	7/19/2019	6:50:20	78.43	52.29	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	063	A	7/19/2019	14:53:13	75.14	50.10	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	063	B	7/19/2019	14:54:25	80.54	53.69	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	063	C	7/19/2019	14:55:36	69.43	46.28	0.32	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	064	A	7/19/2019	6:24:48	80.62	53.75	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	064	B	7/19/2019	6:26:52	80.00	53.33	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	064	C	7/19/2019	6:28:26	77.53	51.69	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	065	A	7/19/2019	5:40:10	77.53	51.69	0.40	Gravelly	Gravelly Sand	6.46	No	None
Phase 1 Survey Area (OCW)	065	C	7/19/2019	5:43:38	78.99	52.66	0.42	Gravelly	Gravelly Sand	8.56	No	None
Phase 1 Survey Area (OCW)	065	D	7/19/2019	5:45:15	79.15	52.77	0.42	Gravelly	Gravelly Sand	5.94	No	None
Phase 1 Survey Area (OCW)	066	A	7/19/2019	15:21:06	72.90	48.60	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	066	B	7/19/2019	15:22:19	77.19	51.46	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	066	C	7/19/2019	15:23:38	74.82	49.88	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	067	A	7/19/2019	4:35:59	75.00	50.00	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	067	B	7/19/2019	4:37:39	70.33	46.89	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	067	C	7/19/2019	4:39:22	79.11	52.74	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	068	A	7/19/2019	11:12:45	77.57	51.72	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	068	B	7/19/2019	11:13:58	77.38	51.59	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	068	C	7/19/2019	11:15:25	72.63	48.42	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	069	A	7/19/2019	1:04:10	70.94	47.29	0.34	Slightly Gravelly	Slightly Gravelly Sand	10.64	No	None
Phase 1 Survey Area (OCW)	069	B	7/19/2019	1:06:21	68.75	45.84	0.32	Slightly Gravelly	Slightly Gravelly Sand	14.32	No	None
Phase 1 Survey Area (OCW)	069	C	7/19/2019	1:13:25	78.27	52.18	0.41	Slightly Gravelly	Slightly Gravelly Sand	10.44	No	None
Phase 1 Survey Area (OCW)	070	A	7/19/2019	10:08:23	71.92	47.95	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	070	B	7/19/2019	10:09:40	81.38	54.25	0.44	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	070	C	7/19/2019	10:14:04	71.20	47.47	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	071	A	7/19/2019	1:34:18	80.29	53.53	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	071	B	7/19/2019	1:35:43	78.43	52.29	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	071	C	7/19/2019	1:37:46	79.31	52.87	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	072	B	7/19/2019	9:35:02	74.89	49.93	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	072	D	7/19/2019	9:40:18	77.30	51.54	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	072	E	7/19/2019	9:41:39	78.16	52.10	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	073	A	7/19/2019	1:56:39	77.15	51.43	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	073	B	7/19/2019	1:58:15	79.84	53.22	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	073	C	7/19/2019	2:00:06	79.75	53.17	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	074	A	7/19/2019	8:28:14	82.32	54.88	0.45	Sand or Finer	Sand or Finer	IND	No	None

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Phase 1 Survey Area (OCW)	074	B	7/19/2019	8:29:37	77.65	51.77	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	074	C	7/19/2019	8:31:37	73.34	48.90	0.36	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	075	B	7/19/2019	2:23:45	80.12	53.42	0.43	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	075	C	7/19/2019	2:25:30	75.91	50.61	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	075	D	7/19/2019	2:27:25	82.24	54.82	0.45	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	076	A	7/19/2019	3:04:27	75.25	50.17	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	076	B	7/19/2019	3:06:13	70.40	46.93	0.33	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	076	C	7/19/2019	3:07:55	79.07	52.71	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	077	A	7/19/2019	3:24:34	72.66	48.44	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	077	B	7/19/2019	3:26:03	74.89	49.93	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	077	C	7/19/2019	3:28:00	69.06	46.04	0.32	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	078	A	7/19/2019	4:12:08	78.87	52.58	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	078	B	7/19/2019	4:14:11	68.00	45.34	0.31	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	078	C	7/19/2019	4:15:39	74.64	49.76	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	079	E	7/19/2019	0:32:48	78.59	52.39	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	079	F	7/19/2019	0:34:31	76.36	50.91	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	079	G	7/19/2019	0:36:24	79.15	52.77	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	080	A	7/18/2019	21:20:01	76.77	51.18	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	080	B	7/18/2019	21:21:15	77.23	51.49	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	080	C	7/18/2019	21:22:27	77.19	51.46	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	081	A	7/18/2019	21:02:02	74.78	49.86	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	081	B	7/18/2019	21:03:13	76.17	50.78	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	081	C	7/18/2019	21:04:26	71.30	47.53	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	082	A	7/18/2019	20:12:32	71.56	47.71	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	082	B	7/18/2019	20:13:45	82.67	55.11	0.46	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	082	C	7/18/2019	20:14:58	76.21	50.81	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	083	A	7/18/2019	19:51:46	74.04	49.36	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	083	B	7/18/2019	19:52:56	72.97	48.64	0.35	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	083	C	7/18/2019	19:54:04	73.76	49.17	0.36	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	084	A	7/18/2019	19:18:37	77.69	51.79	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	084	B	7/18/2019	19:19:37	71.59	47.73	0.34	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	084	C	7/18/2019	19:20:55	80.79	53.86	0.44	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	085	B	7/18/2019	18:44:38	67.50	45.00	0.30	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	085	C	7/18/2019	18:52:19	68.63	45.75	0.31	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	085	D	7/18/2019	18:53:24	77.38	51.59	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	086	A	7/18/2019	18:19:22	74.07	49.38	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	086	B	7/18/2019	18:20:31	78.55	52.37	0.41	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	086	C	7/18/2019	18:21:43	76.13	50.76	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	087	A	7/18/2019	17:29:03	69.30	46.20	0.32	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	087	B	7/18/2019	17:39:58	74.29	49.52	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	087	C	7/18/2019	17:41:12	67.44	44.96	0.30	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	088	A	7/18/2019	16:09:24	77.08	51.38	0.40	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	088	B	7/18/2019	16:10:35	74.29	49.52	0.37	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	088	C	7/18/2019	16:11:44	78.23	52.16	0.41	Sand or Finer	Sand or Finer	IND	No	None

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Phase 1 Survey Area (OCW)	089	A	7/18/2019	15:25:54	73.03	48.69	0.36	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	089	B	7/18/2019	15:27:10	76.10	50.73	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	089	C	7/18/2019	15:28:16	78.95	52.63	0.42	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	090	A	7/18/2019	14:49:27	67.80	45.20	0.31	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	090	B	7/18/2019	14:50:38	75.40	50.27	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	090	C	7/18/2019	14:51:45	76.43	50.96	0.39	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	091	A	7/18/2019	14:13:27	69.55	46.37	0.32	Gravel	Pebble	17.39	No	None
Phase 1 Survey Area (OCW)	091	B	7/18/2019	14:14:38	79.03	52.68	0.42	Slightly Gravelly	Slightly Gravelly Sand	19.76	No	None
Phase 1 Survey Area (OCW)	091	C	7/18/2019	14:15:52	70.43	46.95	0.33	Gravelly	Gravelly Sand	11.74	No	None
Phase 1 Survey Area (OCW)	092	A	7/18/2019	13:52:58	76.62	51.08	0.39	Gravelly	Gravelly Sand	10.22	No	None
Phase 1 Survey Area (OCW)	092	B	7/18/2019	13:54:13	75.95	50.63	0.38	Gravelly	Gravelly Sand	12.66	No	None
Phase 1 Survey Area (OCW)	092	C	7/18/2019	13:55:28	75.54	50.36	0.38	Gravelly	Gravelly Sand	11.33	No	None
Phase 1 Survey Area (OCW)	093	A	7/18/2019	13:09:22	75.54	50.36	0.38	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	093	B	7/18/2019	13:10:34	73.10	48.73	0.36	Sand or Finer	Sand or Finer	IND	No	None
Phase 1 Survey Area (OCW)	093	C	7/18/2019	13:11:46	73.17	48.78	0.36	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	201	A	7/20/2019	17:31:03	75.29	50.19	0.38	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	201	B	7/20/2019	17:32:18	77.77	51.84	0.40	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	201	C	7/20/2019	17:33:36	78.75	52.50	0.41	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	202	A	7/20/2019	17:56:35	77.34	51.56	0.40	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	202	B	7/20/2019	17:57:44	76.55	51.03	0.39	Sand or Finer	Sand or Finer	IND	No	Ripples
B.L. England Export Cable	202	C	7/20/2019	17:58:47	75.47	50.31	0.38	Sand or Finer	Sand or Finer	IND	No	Ripples
B.L. England Export Cable	203	A	7/20/2019	18:39:47	74.53	49.69	0.37	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	203	B	7/20/2019	18:41:00	79.96	53.31	0.43	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	203	C	7/20/2019	18:42:17	79.47	52.98	0.42	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	204	A	7/20/2019	19:01:24	79.51	53.01	0.42	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	204	B	7/20/2019	19:02:31	79.03	52.68	0.42	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	204	C	7/20/2019	19:03:41	75.04	50.02	0.38	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	205	A	7/20/2019	19:24:44	76.51	51.01	0.39	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	205	B	7/20/2019	19:25:53	77.84	51.90	0.40	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	205	C	7/20/2019	19:27:02	74.78	49.86	0.37	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	206	A	7/20/2019	20:06:50	75.84	50.56	0.38	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	206	B	7/20/2019	20:08:01	81.76	54.51	0.45	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	206	C	7/20/2019	20:09:15	76.73	51.16	0.39	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	207	B	7/20/2019	20:35:08	78.47	52.31	0.41	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	207	C	7/20/2019	20:36:21	78.20	52.13	0.41	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	207	D	7/20/2019	20:37:38	81.38	54.25	0.44	Sand or Finer	Sand or Finer	IND	No	Ripples
B.L. England Export Cable	208	A	7/20/2019	20:56:23	73.45	48.96	0.36	Sand or Finer	Sand or Finer	IND	No	Ripples
B.L. England Export Cable	208	B	7/20/2019	20:57:38	78.71	52.47	0.41	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	208	C	7/20/2019	20:58:45	75.91	50.61	0.38	Sand or Finer	Sand or Finer	IND	No	Ripples
B.L. England Export Cable	209	A	7/20/2019	21:28:14	77.61	51.74	0.40	Sand or Finer	Sand or Finer	IND	No	Ripples
B.L. England Export Cable	209	B	7/20/2019	21:29:28	77.30	51.54	0.40	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	209	C	7/20/2019	21:30:40	76.66	51.11	0.39	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	210	B	7/20/2019	21:53:28	78.23	52.16	0.41	Sand or Finer	Sand or Finer	IND	No	Ripples
B.L. England Export Cable	210	C	7/20/2019	21:54:37	78.91	52.60	0.42	Sand or Finer	Sand or Finer	IND	No	Ripples

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
B.L. England Export Cable	210	D	7/20/2019	21:55:48	80.70	53.80	0.43	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	211	A	7/20/2019	22:15:04	76.89	51.26	0.39	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	211	B	7/20/2019	22:16:16	79.55	53.03	0.42	Sand or Finer	Sand or Finer	IND	No	None
B.L. England Export Cable	211	C	7/20/2019	22:17:33	80.04	53.36	0.43	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	301	A	7/20/2019	16:02:15	76.28	50.86	0.39	Slightly Gravelly	Slightly Gravelly Sand	4.45	No	None
Oyster Creek Export Cable	301	B	7/20/2019	16:03:28	79.23	52.82	0.42	Slightly Gravelly	Slightly Gravelly Sand	5.94	No	None
Oyster Creek Export Cable	301	C	7/20/2019	16:04:38	77.38	51.59	0.40	Slightly Gravelly	Slightly Gravelly Sand	6.45	No	None
Oyster Creek Export Cable	302	A	7/21/2019	0:49:21	77.77	51.84	0.40	Gravel	Pebble	7.13	No	None
Oyster Creek Export Cable	302	B	7/21/2019	0:50:29	77.77	51.84	0.40	Gravel	Pebble	9.07	No	None
Oyster Creek Export Cable	302	C	7/21/2019	0:51:51	81.55	54.36	0.44	Gravel	Pebble	16.31	No	None
Oyster Creek Export Cable	303	A	7/21/2019	1:13:56	78.79	52.53	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	303	B	7/21/2019	1:15:23	80.33	53.55	0.43	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	303	C	7/21/2019	1:16:30	78.47	52.31	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	304	A	7/21/2019	1:34:48	79.15	52.77	0.42	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	304	B	7/21/2019	1:38:51	80.29	53.53	0.43	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	304	C	7/21/2019	1:39:54	77.69	51.79	0.40	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	305	A	7/21/2019	2:26:40	78.55	52.37	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	305	B	7/21/2019	2:27:42	75.99	50.66	0.38	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	305	C	7/21/2019	2:28:41	84.46	56.31	0.48	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	306	A	7/21/2019	3:12:28	75.84	50.56	0.38	Sand or Finer	Sand or Finer	IND	No	Ripples
Oyster Creek Export Cable	306	B	7/21/2019	3:13:32	78.20	52.13	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	306	C	7/21/2019	3:14:34	78.59	52.39	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	307	A	7/21/2019	3:33:27	77.53	51.69	0.40	Slightly Gravelly	Slightly Gravelly Sand	5.17	No	None
Oyster Creek Export Cable	307	B	7/21/2019	3:34:38	80.04	53.36	0.43	Slightly Gravelly	Slightly Gravelly Sand	4.00	No	None
Oyster Creek Export Cable	307	C	7/21/2019	3:35:48	76.89	51.26	0.39	Slightly Gravelly	Slightly Gravelly Sand	3.84	No	None
Oyster Creek Export Cable	308	A	7/21/2019	3:53:25	78.59	52.39	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	308	B	7/21/2019	3:55:19	78.51	52.34	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	308	C	7/21/2019	3:56:25	75.80	50.53	0.38	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	309	A	7/21/2019	4:44:47	74.68	49.78	0.37	Sand or Finer	Sand or Finer	IND	No	Ripples
Oyster Creek Export Cable	309	B	7/21/2019	4:45:53	80.21	53.47	0.43	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	309	C	7/21/2019	4:47:14	78.71	52.47	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	310	A	7/21/2019	5:04:11	78.35	52.24	0.41	Slightly Gravelly	Slightly Gravelly Sand	3.26	No	None
Oyster Creek Export Cable	310	B	7/21/2019	5:05:17	75.99	50.66	0.38	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	310	C	7/21/2019	5:06:29	76.96	51.31	0.39	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	311	A	7/21/2019	5:28:47	76.81	51.21	0.39	Slightly Gravelly	Slightly Gravelly Sand	3.84	No	None
Oyster Creek Export Cable	311	B	7/21/2019	5:30:05	81.85	54.56	0.45	Slightly Gravelly	Slightly Gravelly Sand	1.36	No	None
Oyster Creek Export Cable	311	C	7/21/2019	5:31:29	77.08	51.38	0.40	Slightly Gravelly	Slightly Gravelly Sand	2.57	No	None
Oyster Creek Export Cable	312	A	7/21/2019	5:48:44	81.72	54.48	0.45	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	312	B	7/21/2019	5:49:51	75.04	50.02	0.38	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	312	C	7/21/2019	5:51:13	81.17	54.11	0.44	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	313	A	7/21/2019	6:07:33	78.47	52.31	0.41	Slightly Gravelly	Slightly Gravelly Sand	3.92	No	None
Oyster Creek Export Cable	313	B	7/21/2019	6:08:48	80.45	53.64	0.43	Gravelly	Gravelly Sand	3.35	No	None
Oyster Creek Export Cable	313	C	7/21/2019	6:09:57	79.23	52.82	0.42	Slightly Gravelly	Slightly Gravelly Sand	3.30	No	None
Oyster Creek Export Cable	314	A	7/21/2019	6:53:51	76.81	51.21	0.39	Sand or Finer	Sand or Finer	3.84	No	None

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Oyster Creek Export Cable	314	B	7/21/2019	6:55:04	73.07	48.71	0.36	Sand or Finer	Sand or Finer	3.65	No	None
Oyster Creek Export Cable	314	C	7/21/2019	6:56:23	79.15	52.77	0.42	Sand or Finer	Sand or Finer	3.96	No	None
Oyster Creek Export Cable	315	A	7/21/2019	7:12:22	75.84	50.56	0.38	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	315	B	7/21/2019	7:13:50	77.23	51.49	0.40	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	315	C	7/21/2019	7:15:21	76.81	51.21	0.39	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	316	A	7/21/2019	7:31:39	76.96	51.31	0.39	Slightly Gravelly	Slightly Gravelly Sand	3.85	No	Ripples
Oyster Creek Export Cable	316	B	7/21/2019	7:32:48	76.51	51.01	0.39	Slightly Gravelly	Slightly Gravelly Sand	5.74	No	None
Oyster Creek Export Cable	316	C	7/21/2019	7:34:02	80.50	53.66	0.43	Slightly Gravelly	Slightly Gravelly Sand	4.70	No	None
Oyster Creek Export Cable	317	A	7/21/2019	7:53:36	76.92	51.28	0.39	Slightly Gravelly	Slightly Gravelly Sand	1.92	No	None
Oyster Creek Export Cable	317	B	7/21/2019	7:54:53	79.88	53.25	0.43	Slightly Gravelly	Slightly Gravelly Sand	3.99	No	Ripples
Oyster Creek Export Cable	317	C	7/21/2019	7:56:21	78.23	52.16	0.41	Slightly Gravelly	Slightly Gravelly Sand	2.61	No	Ripples
Oyster Creek Export Cable	318	B	7/21/2019	8:19:22	76.28	50.86	0.39	Gravelly	Gravelly Sand	3.81	No	Ripples
Oyster Creek Export Cable	318	C	7/21/2019	8:20:36	79.63	53.09	0.42	Gravelly	Gravelly Sand	4.65	No	Ripples
Oyster Creek Export Cable	318	D	7/21/2019	8:21:45	76.58	51.06	0.39	Gravelly	Gravelly Sand	4.47	No	Ripples
Oyster Creek Export Cable	319	A	7/21/2019	9:00:19	77.11	51.41	0.40	Gravelly	Gravelly Sand	3.21	No	Ripples
Oyster Creek Export Cable	319	C	7/21/2019	9:02:31	79.92	53.28	0.43	Gravelly	Gravelly Sand	3.33	No	Ripples
Oyster Creek Export Cable	319	D	7/21/2019	9:03:48	79.59	53.06	0.42	Gravelly	Gravelly Sand	5.97	No	Ripples
Oyster Creek Export Cable	320	A	7/21/2019	9:31:21	76.92	51.28	0.39	Gravelly	Gravelly Sand	5.13	No	Ripples
Oyster Creek Export Cable	320	B	7/21/2019	9:32:39	75.65	50.44	0.38	Gravelly	Gravelly Sand	4.41	No	Ripples
Oyster Creek Export Cable	320	C	7/21/2019	9:33:57	77.27	51.51	0.40	Slightly Gravelly	Slightly Gravelly Sand	3.86	No	Ripples
Oyster Creek Export Cable	321	A	7/21/2019	9:52:14	76.96	51.31	0.39	Slightly Gravelly	Slightly Gravelly Sand	2.57	No	Ripples
Oyster Creek Export Cable	321	B	7/21/2019	9:53:27	78.35	52.24	0.41	Slightly Gravelly	Slightly Gravelly Sand	3.92	No	Ripples
Oyster Creek Export Cable	321	C	7/21/2019	9:54:43	78.20	52.13	0.41	Slightly Gravelly	Slightly Gravelly Sand	3.26	No	Ripples
Oyster Creek Export Cable	322	A	7/21/2019	10:15:06	75.22	50.14	0.38	Sand or Finer	Sand or Finer	IND	No	Ripples
Oyster Creek Export Cable	322	B	7/21/2019	10:16:28	76.62	51.08	0.39	Sand or Finer	Sand or Finer	IND	No	Ripples
Oyster Creek Export Cable	322	C	7/21/2019	10:17:38	84.92	56.61	0.48	Sand or Finer	Sand or Finer	IND	No	Ripples
Oyster Creek Export Cable	323	A	7/21/2019	10:35:53	80.62	53.75	0.43	Gravelly	Gravelly Sand	4.70	No	Ripples
Oyster Creek Export Cable	323	B	7/21/2019	10:37:04	76.81	51.21	0.39	Gravelly	Gravelly Sand	5.76	No	Ripples
Oyster Creek Export Cable	323	C	7/21/2019	10:38:10	80.08	53.39	0.43	Gravelly	Gravelly Sand	6.67	No	Ripples
Oyster Creek Export Cable	324	A	7/21/2019	11:38:36	78.83	52.55	0.41	Gravelly	Gravelly Sand	5.91	No	Ripples
Oyster Creek Export Cable	324	B	7/21/2019	11:39:58	75.00	50.00	0.38	Gravelly	Gravelly Sand	5.00	No	Ripples
Oyster Creek Export Cable	324	C	7/21/2019	11:41:13	78.08	52.05	0.41	Gravelly	Gravelly Sand	3.25	No	Ripples
Oyster Creek Export Cable	325	A	7/21/2019	12:18:51	78.55	52.37	0.41	Gravelly	Gravelly Sand	5.24	No	Ripples
Oyster Creek Export Cable	325	B	7/21/2019	12:20:00	77.23	51.49	0.40	Gravelly	Gravelly Sand	4.50	No	Ripples
Oyster Creek Export Cable	325	C	7/21/2019	12:21:07	83.65	55.76	0.47	Gravelly	Gravelly Sand	2.79	No	Ripples
Oyster Creek Export Cable	326	A	7/21/2019	12:36:19	72.80	48.53	0.35	Gravelly	Gravelly Sand	4.25	No	Ripples
Oyster Creek Export Cable	326	B	7/21/2019	12:37:31	79.19	52.79	0.42	Gravelly	Gravelly Sand	3.96	No	Ripples
Oyster Creek Export Cable	326	C	7/21/2019	12:38:42	78.51	52.34	0.41	Gravelly	Gravelly Sand	5.23	No	Ripples
Oyster Creek Export Cable	327	A	7/21/2019	12:53:02	77.65	51.77	0.40	Gravelly	Gravelly Sand	1.94	No	Ripples
Oyster Creek Export Cable	327	B	7/21/2019	12:54:12	76.06	50.71	0.39	Gravelly	Gravelly Sand	3.80	No	None
Oyster Creek Export Cable	327	C	7/21/2019	12:55:29	75.99	50.66	0.38	Gravelly	Gravelly Sand	5.70	No	None
Oyster Creek Export Cable	328	A	7/21/2019	13:15:18	76.89	51.26	0.39	Slightly Gravelly	Slightly Gravelly Sand	5.13	No	Ripples
Oyster Creek Export Cable	328	B	7/21/2019	13:16:27	77.69	51.79	0.40	Slightly Gravelly	Slightly Gravelly Sand	3.24	No	Ripples
Oyster Creek Export Cable	328	C	7/21/2019	13:17:35	76.06	50.71	0.39	Slightly Gravelly	Slightly Gravelly Sand	3.17	No	Ripples

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Oyster Creek Export Cable	329	A	7/21/2019	13:53:23	74.04	49.36	0.37	Slightly Gravelly	Slightly Gravelly Sand	3.70	No	Ripples
Oyster Creek Export Cable	329	B	7/21/2019	13:54:31	74.18	49.45	0.37	Slightly Gravelly	Slightly Gravelly Sand	2.47	No	Ripples
Oyster Creek Export Cable	329	C	7/21/2019	13:55:40	77.19	51.46	0.40	Slightly Gravelly	Slightly Gravelly Sand	3.22	No	Ripples
Oyster Creek Export Cable	330	A	7/21/2019	14:14:48	77.50	51.66	0.40	Gravel	Granule	2.58	No	None
Oyster Creek Export Cable	330	B	7/21/2019	14:16:00	79.39	52.93	0.42	Gravel	Granule	2.65	No	None
Oyster Creek Export Cable	330	D	7/21/2019	14:18:19	77.73	51.82	0.40	Gravel	Granule	2.59	No	None
Oyster Creek Export Cable	331	A	7/21/2019	14:30:31	76.70	51.13	0.39	Slightly Gravelly	Slightly Gravelly Sand	3.20	No	None
Oyster Creek Export Cable	331	B	7/21/2019	14:31:41	76.92	51.28	0.39	Slightly Gravelly	Slightly Gravelly Sand	1.92	No	None
Oyster Creek Export Cable	331	C	7/21/2019	14:32:52	79.03	52.68	0.42	Gravelly	Gravelly Sand	1.98	No	None
Oyster Creek Export Cable	332	A	7/21/2019	14:49:56	76.17	50.78	0.39	Slightly Gravelly	Slightly Gravelly Sand	3.81	No	None
Oyster Creek Export Cable	332	B	7/21/2019	14:51:21	78.47	52.31	0.41	Slightly Gravelly	Slightly Gravelly Sand	3.27	No	None
Oyster Creek Export Cable	332	C	7/21/2019	14:52:35	75.29	50.19	0.38	Slightly Gravelly	Slightly Gravelly Sand	3.76	No	None
Oyster Creek Export Cable	333	A	7/21/2019	15:10:14	71.86	47.90	0.34	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	333	B	7/21/2019	15:11:24	82.15	54.77	0.45	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	333	C	7/21/2019	15:12:36	78.87	52.58	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	334	A	7/21/2019	15:58:56	71.40	47.60	0.34	Gravel	Granule	2.38	No	None
Oyster Creek Export Cable	334	B	7/21/2019	16:00:08	73.79	49.20	0.36	Gravel	Granule	2.46	No	None
Oyster Creek Export Cable	334	D	7/21/2019	16:02:22	75.22	50.14	0.38	Gravel	Granule	1.88	No	None
Oyster Creek Export Cable	335	A	7/21/2019	17:15:27	73.48	48.99	0.36	Gravelly	Gravelly Sand	4.29	No	None
Oyster Creek Export Cable	335	B	7/21/2019	17:16:36	77.73	51.82	0.40	Gravelly	Gravelly Sand	5.18	No	None
Oyster Creek Export Cable	335	D	7/21/2019	17:18:52	75.80	50.53	0.38	Gravelly	Gravelly Sand	5.05	No	None
Oyster Creek Export Cable	336	A	7/21/2019	15:35:54	72.56	48.37	0.35	Gravelly	Gravelly Sand	5.44	No	None
Oyster Creek Export Cable	336	B	7/21/2019	15:37:02	77.46	51.64	0.40	Gravelly	Gravelly Sand	5.81	No	None
Oyster Creek Export Cable	336	C	7/21/2019	15:38:07	80.91	53.94	0.44	Gravelly	Gravelly Sand	4.72	No	None
Oyster Creek Export Cable	337	A	7/21/2019	16:30:26	72.46	48.30	0.35	Gravelly	Gravelly Sand	7.25	No	None
Oyster Creek Export Cable	337	B	7/21/2019	16:31:30	75.25	50.17	0.38	Gravel	Pebble	7.53	No	None
Oyster Creek Export Cable	337	C	7/21/2019	16:32:44	77.11	51.41	0.40	Gravelly	Gravelly Sand	4.50	No	None
Oyster Creek Export Cable	338	A	7/21/2019	16:57:20	79.92	53.28	0.43	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	338	B	7/21/2019	16:58:30	77.65	51.77	0.40	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	338	C	7/21/2019	16:59:42	78.55	52.37	0.41	Sand or Finer	Sand or Finer	IND	No	None
Oyster Creek Export Cable	339	A	7/21/2019	17:38:41	71.96	47.97	0.35	Gravel	Granule	3.00	No	None
Oyster Creek Export Cable	339	B	7/21/2019	17:39:50	80.95	53.97	0.44	Gravel	Granule	4.05	No	None
Oyster Creek Export Cable	339	C	7/21/2019	17:41:01	77.65	51.77	0.40	Gravel	Granule	1.94	No	None
Oyster Creek Export Cable	340	A	7/21/2019	18:01:23	72.29	48.19	0.35	Slightly Gravelly	Slightly Gravelly Sand	4.22	No	None
Oyster Creek Export Cable	340	B	7/21/2019	18:02:35	77.46	51.64	0.40	Slightly Gravelly	Slightly Gravelly Sand	2.58	No	None
Oyster Creek Export Cable	340	C	7/21/2019	18:03:46	78.59	52.39	0.41	Slightly Gravelly	Slightly Gravelly Sand	5.89	No	None
Oyster Creek Export Cable	341	B	7/21/2019	18:22:46	76.51	51.01	0.39	Gravelly	Gravelly Sand	6.38	No	None
Oyster Creek Export Cable	341	C	7/21/2019	18:23:57	76.58	51.06	0.39	Gravelly	Gravelly Sand	4.47	No	None
Oyster Creek Export Cable	341	D	7/21/2019	18:25:17	74.43	49.62	0.37	Gravelly	Gravelly Sand	2.48	No	None
Oyster Creek Export Cable	342	A	7/21/2019	18:49:02	75.47	50.31	0.38	Slightly Gravelly	Slightly Gravelly Sand	5.66	No	None
Oyster Creek Export Cable	342	B	7/21/2019	18:50:12	78.79	52.53	0.41	Slightly Gravelly	Slightly Gravelly Sand	5.91	No	None
Oyster Creek Export Cable	342	C	7/21/2019	18:51:19	77.19	51.46	0.40	Slightly Gravelly	Slightly Gravelly Sand	6.43	No	None
Oyster Creek Export Cable	343	A	7/21/2019	19:08:34	73.52	49.01	0.36	Gravel Mixes	Sandy Gravel	7.96	No	None
Oyster Creek Export Cable	343	B	7/21/2019	19:09:51	81.33	54.22	0.44	Gravel Mixes	Sandy Gravel	7.46	No	None

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms
Oyster Creek Export Cable	343	C	7/21/2019	19:11:00	76.47	50.98	0.39	Gravel Mixes	Sandy Gravel	6.37	No	None
Oyster Creek Export Cable	344	A	7/21/2019	19:28:33	75.91	50.61	0.38	Gravel	Pebble	4.43	No	None
Oyster Creek Export Cable	344	B	7/21/2019	19:29:45	78.47	52.31	0.41	Gravel	Pebble	5.89	No	None
Oyster Creek Export Cable	344	D	7/21/2019	19:32:05	79.27	52.85	0.42	Gravel Mixes	Sandy Gravel	3.30	No	None
Oyster Creek Export Cable	345	A	7/21/2019	19:52:30	77.77	51.84	0.40	Gravel Mixes	Sandy Gravel	4.54	No	None
Oyster Creek Export Cable	345	B	7/21/2019	19:53:42	78.51	52.34	0.41	Gravel Mixes	Sandy Gravel	5.23	No	None
Oyster Creek Export Cable	345	C	7/21/2019	19:54:52	77.57	51.72	0.40	Gravel Mixes	Sandy Gravel	6.46	No	None
Oyster Creek Export Cable	346	A	7/21/2019	20:13:15	78.00	52.00	0.41	Gravelly	Gravelly Sand	3.25	No	None
Oyster Creek Export Cable	346	B	7/21/2019	20:14:23	79.23	52.82	0.42	Gravelly	Gravelly Sand	3.96	No	None
Oyster Creek Export Cable	346	C	7/21/2019	20:15:33	82.54	55.03	0.45	Slightly Gravelly	Slightly Gravelly Sand	4.13	No	None
Oyster Creek Export Cable	347	A	7/21/2019	20:43:21	74.75	49.83	0.37	Gravel Mixes	Sandy Gravel	7.47	No	Ripples
Oyster Creek Export Cable	347	B	7/21/2019	20:44:29	76.06	50.71	0.39	Gravel Mixes	Sandy Gravel	5.70	No	Ripples
Oyster Creek Export Cable	347	C	7/21/2019	20:45:35	77.42	51.61	0.40	Gravel Mixes	Sandy Gravel	9.68	No	Ripples
Oyster Creek Export Cable	348	A	7/21/2019	21:02:27	76.36	50.91	0.39	Gravelly	Gravelly Sand	4.45	No	None
Oyster Creek Export Cable	348	B	7/21/2019	21:03:33	72.22	48.15	0.35	Gravelly	Gravelly Sand	3.61	No	None
Oyster Creek Export Cable	348	C	7/21/2019	21:04:46	76.06	50.71	0.39	Gravelly	Gravelly Sand	3.17	No	None
Oyster Creek Export Cable	349	A	7/21/2019	21:22:04	79.07	52.71	0.42	Gravel	Pebble	6.59	No	None
Oyster Creek Export Cable	349	B	7/21/2019	21:23:20	72.46	48.30	0.35	Gravel	Pebble	4.23	No	None
Oyster Creek Export Cable	349	C	7/21/2019	21:24:29	76.66	51.11	0.39	Gravel	Pebble	5.75	No	None
Oyster Creek Export Cable	350	A	7/21/2019	21:43:17	IND	IND	IND	Gravelly	Gravelly Sand	IND	No	None
Oyster Creek Export Cable	350	B	7/21/2019	21:44:31	IND	IND	IND	Gravelly	Gravelly Sand	IND	No	None
Oyster Creek Export Cable	350	C	7/21/2019	21:45:49	IND	IND	IND	Gravelly	Gravelly Sand	IND	No	None
Reference	401	A	7/21/2019	2:48:08	76.25	50.83	0.39	Sand or Finer	Sand or Finer	IND	No	None
Reference	401	B	7/21/2019	2:49:14	79.92	53.28	0.43	Sand or Finer	Sand or Finer	IND	No	None
Reference	401	C	7/21/2019	2:52:07	75.44	50.29	0.38	Sand or Finer	Sand or Finer	IND	No	None
Reference	402	A	7/21/2019	0:12:26	75.14	50.10	0.38	Sand or Finer	Sand or Finer	IND	No	None
Reference	402	B	7/21/2019	0:13:37	74.46	49.64	0.37	Sand or Finer	Sand or Finer	IND	No	None
Reference	402	C	7/21/2019	0:14:47	78.67	52.45	0.41	Sand or Finer	Sand or Finer	IND	No	None
Reference	403	A	7/20/2019	23:46:02	73.76	49.17	0.36	Sand or Finer	Sand or Finer	IND	No	None
Reference	403	B	7/20/2019	23:47:10	78.20	52.13	0.41	Sand or Finer	Sand or Finer	IND	No	None
Reference	403	C	7/20/2019	23:48:29	79.88	53.25	0.43	Sand or Finer	Sand or Finer	IND	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	001	A	12.41	No	None
Phase 1 Survey Area (OCW)	001	B	19.63	No	None
Phase 1 Survey Area (OCW)	001	C	12.94	No	None
Phase 1 Survey Area (OCW)	002	A	-	No	None
Phase 1 Survey Area (OCW)	002	B	-	No	None
Phase 1 Survey Area (OCW)	002	C	-	No	None
Phase 1 Survey Area (OCW)	003	A	10.61	No	None
Phase 1 Survey Area (OCW)	003	B	9.45	No	None
Phase 1 Survey Area (OCW)	003	C	13.16	No	None
Phase 1 Survey Area (OCW)	004	A	-	No	None
Phase 1 Survey Area (OCW)	004	B	-	No	None
Phase 1 Survey Area (OCW)	004	C	-	No	None
Phase 1 Survey Area (OCW)	005	A	-	No	None
Phase 1 Survey Area (OCW)	005	B	-	No	None
Phase 1 Survey Area (OCW)	005	C	-	No	None
Phase 1 Survey Area (OCW)	006	A	-	No	None
Phase 1 Survey Area (OCW)	006	B	-	No	None
Phase 1 Survey Area (OCW)	006	C	-	No	None
Phase 1 Survey Area (OCW)	007	A	-	No	None
Phase 1 Survey Area (OCW)	007	B	-	No	None
Phase 1 Survey Area (OCW)	007	C	-	No	None
Phase 1 Survey Area (OCW)	008	A	-	No	None
Phase 1 Survey Area (OCW)	008	B	-	No	None
Phase 1 Survey Area (OCW)	008	C	-	No	None
Phase 1 Survey Area (OCW)	009	A	-	No	None
Phase 1 Survey Area (OCW)	009	B	-	No	None
Phase 1 Survey Area (OCW)	009	C	-	No	None
Phase 1 Survey Area (OCW)	010	A	-	No	None
Phase 1 Survey Area (OCW)	010	B	-	No	None
Phase 1 Survey Area (OCW)	010	C	-	No	None
Phase 1 Survey Area (OCW)	011	A	-	No	None
Phase 1 Survey Area (OCW)	011	B	-	No	None
Phase 1 Survey Area (OCW)	011	C	-	No	None
Phase 1 Survey Area (OCW)	012	A	16.09	No	None
Phase 1 Survey Area (OCW)	012	B	8.32	No	None
Phase 1 Survey Area (OCW)	012	C	6.98	No	None
Phase 1 Survey Area (OCW)	013	A	-	No	None
Phase 1 Survey Area (OCW)	013	B	-	No	None
Phase 1 Survey Area (OCW)	013	C	-	No	None
Phase 1 Survey Area (OCW)	014	A	9.16	No	None
Phase 1 Survey Area (OCW)	014	B	7.62	No	None
Phase 1 Survey Area (OCW)	014	C	8.65	No	None
Phase 1 Survey Area (OCW)	015	A	-	No	None
Phase 1 Survey Area (OCW)	015	B	-	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	015	C	-	No	None
Phase 1 Survey Area (OCW)	016	A	-	No	None
Phase 1 Survey Area (OCW)	016	B	-	No	None
Phase 1 Survey Area (OCW)	016	C	7.80	No	None
Phase 1 Survey Area (OCW)	017	A	6.49	No	None
Phase 1 Survey Area (OCW)	017	B	-	No	None
Phase 1 Survey Area (OCW)	017	C	8.42	No	None
Phase 1 Survey Area (OCW)	018	A	-	No	None
Phase 1 Survey Area (OCW)	018	B	-	No	None
Phase 1 Survey Area (OCW)	018	C	-	No	None
Phase 1 Survey Area (OCW)	019	A	-	No	None
Phase 1 Survey Area (OCW)	019	B	-	No	None
Phase 1 Survey Area (OCW)	019	C	-	No	None
Phase 1 Survey Area (OCW)	020	B	-	No	None
Phase 1 Survey Area (OCW)	020	C	-	No	None
Phase 1 Survey Area (OCW)	020	D	-	No	None
Phase 1 Survey Area (OCW)	021	A	-	No	None
Phase 1 Survey Area (OCW)	021	B	-	No	None
Phase 1 Survey Area (OCW)	021	C	-	No	None
Phase 1 Survey Area (OCW)	022	A	-	No	None
Phase 1 Survey Area (OCW)	022	C	-	No	None
Phase 1 Survey Area (OCW)	022	D	-	No	None
Phase 1 Survey Area (OCW)	023	A	-	No	None
Phase 1 Survey Area (OCW)	023	B	-	No	None
Phase 1 Survey Area (OCW)	023	C	-	No	None
Phase 1 Survey Area (OCW)	024	A	-	No	None
Phase 1 Survey Area (OCW)	024	B	-	No	None
Phase 1 Survey Area (OCW)	024	C	-	No	None
Phase 1 Survey Area (OCW)	025	A	-	No	None
Phase 1 Survey Area (OCW)	025	B	-	No	None
Phase 1 Survey Area (OCW)	025	D	-	No	None
Phase 1 Survey Area (OCW)	026	B	-	No	None
Phase 1 Survey Area (OCW)	026	C	-	No	None
Phase 1 Survey Area (OCW)	026	D	-	No	None
Phase 1 Survey Area (OCW)	027	A	-	No	None
Phase 1 Survey Area (OCW)	027	B	-	No	None
Phase 1 Survey Area (OCW)	027	C	10.90	No	None
Phase 1 Survey Area (OCW)	028	A	-	No	None
Phase 1 Survey Area (OCW)	028	B	-	No	None
Phase 1 Survey Area (OCW)	028	C	-	No	None
Phase 1 Survey Area (OCW)	029	A	5.93	No	None
Phase 1 Survey Area (OCW)	029	B	6.04	No	None
Phase 1 Survey Area (OCW)	029	C	8.55	No	None
Phase 1 Survey Area (OCW)	030	A	-	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	030	B	7.21	No	None
Phase 1 Survey Area (OCW)	030	C	7.48	No	None
Phase 1 Survey Area (OCW)	031	A	-	No	None
Phase 1 Survey Area (OCW)	031	B	-	No	None
Phase 1 Survey Area (OCW)	031	C	-	No	None
Phase 1 Survey Area (OCW)	032	A	-	No	None
Phase 1 Survey Area (OCW)	032	B	-	No	None
Phase 1 Survey Area (OCW)	032	C	-	No	None
Phase 1 Survey Area (OCW)	033	A	-	No	None
Phase 1 Survey Area (OCW)	033	B	-	No	None
Phase 1 Survey Area (OCW)	033	C	-	No	None
Phase 1 Survey Area (OCW)	034	A	-	No	None
Phase 1 Survey Area (OCW)	034	B	11.02	No	None
Phase 1 Survey Area (OCW)	034	C	-	No	None
Phase 1 Survey Area (OCW)	035	B	-	No	None
Phase 1 Survey Area (OCW)	035	C	-	No	None
Phase 1 Survey Area (OCW)	035	D	-	No	None
Phase 1 Survey Area (OCW)	036	A	-	No	None
Phase 1 Survey Area (OCW)	036	B	44.36	No	None
Phase 1 Survey Area (OCW)	036	C	41.53	No	None
Phase 1 Survey Area (OCW)	037	A	-	No	None
Phase 1 Survey Area (OCW)	037	B	-	No	None
Phase 1 Survey Area (OCW)	037	C	-	No	None
Phase 1 Survey Area (OCW)	038	A	-	No	None
Phase 1 Survey Area (OCW)	038	B	-	No	None
Phase 1 Survey Area (OCW)	038	C	9.54	No	None
Phase 1 Survey Area (OCW)	039	B	-	No	None
Phase 1 Survey Area (OCW)	039	C	-	No	None
Phase 1 Survey Area (OCW)	039	D	-	No	None
Phase 1 Survey Area (OCW)	040	A	-	No	None
Phase 1 Survey Area (OCW)	040	B	-	No	None
Phase 1 Survey Area (OCW)	040	C	-	No	None
Phase 1 Survey Area (OCW)	041	A	-	No	None
Phase 1 Survey Area (OCW)	041	B	-	No	None
Phase 1 Survey Area (OCW)	041	C	-	No	None
Phase 1 Survey Area (OCW)	042	A	-	No	None
Phase 1 Survey Area (OCW)	042	B	-	No	None
Phase 1 Survey Area (OCW)	042	C	-	No	None
Phase 1 Survey Area (OCW)	043	A	-	No	None
Phase 1 Survey Area (OCW)	043	B	-	No	None
Phase 1 Survey Area (OCW)	043	D	-	No	None
Phase 1 Survey Area (OCW)	044	A	-	No	None
Phase 1 Survey Area (OCW)	044	B	-	No	None
Phase 1 Survey Area (OCW)	044	C	-	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	045	A	-	No	None
Phase 1 Survey Area (OCW)	045	B	-	No	None
Phase 1 Survey Area (OCW)	045	C	-	No	None
Phase 1 Survey Area (OCW)	046	B	-	No	None
Phase 1 Survey Area (OCW)	046	C	-	No	None
Phase 1 Survey Area (OCW)	046	D	-	No	None
Phase 1 Survey Area (OCW)	047	B	-	No	None
Phase 1 Survey Area (OCW)	047	C	-	No	None
Phase 1 Survey Area (OCW)	047	D	-	No	None
Phase 1 Survey Area (OCW)	048	A	-	No	None
Phase 1 Survey Area (OCW)	048	B	-	No	None
Phase 1 Survey Area (OCW)	048	C	-	No	None
Phase 1 Survey Area (OCW)	049	A	-	No	None
Phase 1 Survey Area (OCW)	049	B	-	No	None
Phase 1 Survey Area (OCW)	049	C	-	No	None
Phase 1 Survey Area (OCW)	050	A	-	No	None
Phase 1 Survey Area (OCW)	050	B	-	No	None
Phase 1 Survey Area (OCW)	050	C	-	No	None
Phase 1 Survey Area (OCW)	051	A	-	No	None
Phase 1 Survey Area (OCW)	051	B	-	No	None
Phase 1 Survey Area (OCW)	051	C	-	No	None
Phase 1 Survey Area (OCW)	052	A	-	No	None
Phase 1 Survey Area (OCW)	052	B	-	No	None
Phase 1 Survey Area (OCW)	052	C	-	No	None
Phase 1 Survey Area (OCW)	053	A	-	No	None
Phase 1 Survey Area (OCW)	053	B	-	No	None
Phase 1 Survey Area (OCW)	053	C	-	No	None
Phase 1 Survey Area (OCW)	054	A	-	No	None
Phase 1 Survey Area (OCW)	054	B	-	No	None
Phase 1 Survey Area (OCW)	054	C	-	No	None
Phase 1 Survey Area (OCW)	055	A	-	No	None
Phase 1 Survey Area (OCW)	055	B	-	No	None
Phase 1 Survey Area (OCW)	055	C	-	No	None
Phase 1 Survey Area (OCW)	056	A	-	No	None
Phase 1 Survey Area (OCW)	056	B	-	No	None
Phase 1 Survey Area (OCW)	056	C	-	No	None
Phase 1 Survey Area (OCW)	057	B	-	No	None
Phase 1 Survey Area (OCW)	057	C	-	No	None
Phase 1 Survey Area (OCW)	057	D	-	No	None
Phase 1 Survey Area (OCW)	058	A	-	No	None
Phase 1 Survey Area (OCW)	058	B	-	No	None
Phase 1 Survey Area (OCW)	058	C	-	No	None
Phase 1 Survey Area (OCW)	059	A	-	No	None
Phase 1 Survey Area (OCW)	059	B	-	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	059	C	-	No	None
Phase 1 Survey Area (OCW)	060	A	-	No	None
Phase 1 Survey Area (OCW)	060	B	-	No	None
Phase 1 Survey Area (OCW)	060	C	-	No	None
Phase 1 Survey Area (OCW)	061	A	-	No	None
Phase 1 Survey Area (OCW)	061	B	-	No	None
Phase 1 Survey Area (OCW)	061	C	-	No	None
Phase 1 Survey Area (OCW)	062	A	-	No	None
Phase 1 Survey Area (OCW)	062	B	-	No	None
Phase 1 Survey Area (OCW)	062	C	-	No	None
Phase 1 Survey Area (OCW)	063	A	-	No	None
Phase 1 Survey Area (OCW)	063	B	-	No	None
Phase 1 Survey Area (OCW)	063	C	-	No	None
Phase 1 Survey Area (OCW)	064	A	-	No	None
Phase 1 Survey Area (OCW)	064	B	-	No	None
Phase 1 Survey Area (OCW)	064	C	-	No	None
Phase 1 Survey Area (OCW)	065	A	-	No	None
Phase 1 Survey Area (OCW)	065	C	-	No	None
Phase 1 Survey Area (OCW)	065	D	-	No	None
Phase 1 Survey Area (OCW)	066	A	-	No	None
Phase 1 Survey Area (OCW)	066	B	-	No	None
Phase 1 Survey Area (OCW)	066	C	-	No	None
Phase 1 Survey Area (OCW)	067	A	-	No	None
Phase 1 Survey Area (OCW)	067	B	-	No	None
Phase 1 Survey Area (OCW)	067	C	-	No	None
Phase 1 Survey Area (OCW)	068	A	-	No	None
Phase 1 Survey Area (OCW)	068	B	-	No	None
Phase 1 Survey Area (OCW)	068	C	-	No	None
Phase 1 Survey Area (OCW)	069	A	-	No	None
Phase 1 Survey Area (OCW)	069	B	-	No	None
Phase 1 Survey Area (OCW)	069	C	-	No	None
Phase 1 Survey Area (OCW)	070	A	-	No	None
Phase 1 Survey Area (OCW)	070	B	-	No	None
Phase 1 Survey Area (OCW)	070	C	-	No	None
Phase 1 Survey Area (OCW)	071	A	-	No	None
Phase 1 Survey Area (OCW)	071	B	-	No	None
Phase 1 Survey Area (OCW)	071	C	-	No	None
Phase 1 Survey Area (OCW)	072	B	-	No	None
Phase 1 Survey Area (OCW)	072	D	-	No	None
Phase 1 Survey Area (OCW)	072	E	-	No	None
Phase 1 Survey Area (OCW)	073	A	-	No	None
Phase 1 Survey Area (OCW)	073	B	-	No	None
Phase 1 Survey Area (OCW)	073	C	-	No	None
Phase 1 Survey Area (OCW)	074	A	-	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	074	B	-	No	None
Phase 1 Survey Area (OCW)	074	C	-	No	None
Phase 1 Survey Area (OCW)	075	B	-	No	None
Phase 1 Survey Area (OCW)	075	C	-	No	None
Phase 1 Survey Area (OCW)	075	D	-	No	None
Phase 1 Survey Area (OCW)	076	A	-	No	None
Phase 1 Survey Area (OCW)	076	B	-	No	None
Phase 1 Survey Area (OCW)	076	C	-	No	None
Phase 1 Survey Area (OCW)	077	A	-	No	None
Phase 1 Survey Area (OCW)	077	B	-	No	None
Phase 1 Survey Area (OCW)	077	C	-	No	None
Phase 1 Survey Area (OCW)	078	A	-	No	None
Phase 1 Survey Area (OCW)	078	B	-	No	None
Phase 1 Survey Area (OCW)	078	C	-	No	None
Phase 1 Survey Area (OCW)	079	E	-	No	None
Phase 1 Survey Area (OCW)	079	F	-	No	None
Phase 1 Survey Area (OCW)	079	G	-	No	None
Phase 1 Survey Area (OCW)	080	A	-	No	None
Phase 1 Survey Area (OCW)	080	B	-	No	None
Phase 1 Survey Area (OCW)	080	C	-	No	None
Phase 1 Survey Area (OCW)	081	A	-	No	None
Phase 1 Survey Area (OCW)	081	B	-	No	None
Phase 1 Survey Area (OCW)	081	C	-	No	None
Phase 1 Survey Area (OCW)	082	A	-	No	None
Phase 1 Survey Area (OCW)	082	B	-	No	None
Phase 1 Survey Area (OCW)	082	C	-	No	None
Phase 1 Survey Area (OCW)	083	A	-	No	None
Phase 1 Survey Area (OCW)	083	B	-	No	None
Phase 1 Survey Area (OCW)	083	C	-	No	None
Phase 1 Survey Area (OCW)	084	A	-	No	None
Phase 1 Survey Area (OCW)	084	B	-	No	None
Phase 1 Survey Area (OCW)	084	C	-	No	None
Phase 1 Survey Area (OCW)	085	B	-	No	None
Phase 1 Survey Area (OCW)	085	C	-	No	None
Phase 1 Survey Area (OCW)	085	D	-	No	None
Phase 1 Survey Area (OCW)	086	A	-	No	None
Phase 1 Survey Area (OCW)	086	B	-	No	None
Phase 1 Survey Area (OCW)	086	C	-	No	None
Phase 1 Survey Area (OCW)	087	A	-	No	None
Phase 1 Survey Area (OCW)	087	B	-	No	None
Phase 1 Survey Area (OCW)	087	C	-	No	None
Phase 1 Survey Area (OCW)	088	A	-	No	None
Phase 1 Survey Area (OCW)	088	B	-	No	None
Phase 1 Survey Area (OCW)	088	C	-	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Phase 1 Survey Area (OCW)	089	A	-	No	None
Phase 1 Survey Area (OCW)	089	B	-	No	None
Phase 1 Survey Area (OCW)	089	C	-	No	None
Phase 1 Survey Area (OCW)	090	A	-	No	None
Phase 1 Survey Area (OCW)	090	B	-	No	None
Phase 1 Survey Area (OCW)	090	C	-	No	None
Phase 1 Survey Area (OCW)	091	A	-	No	None
Phase 1 Survey Area (OCW)	091	B	-	No	None
Phase 1 Survey Area (OCW)	091	C	-	No	None
Phase 1 Survey Area (OCW)	092	A	-	No	None
Phase 1 Survey Area (OCW)	092	B	-	No	None
Phase 1 Survey Area (OCW)	092	C	-	No	None
Phase 1 Survey Area (OCW)	093	A	-	No	None
Phase 1 Survey Area (OCW)	093	B	-	No	None
Phase 1 Survey Area (OCW)	093	C	-	No	None
B.L. England Export Cable	201	A	-	No	None
B.L. England Export Cable	201	B	-	No	None
B.L. England Export Cable	201	C	-	No	None
B.L. England Export Cable	202	A	-	No	None
B.L. England Export Cable	202	B	42.33	No	None
B.L. England Export Cable	202	C	39.89	No	None
B.L. England Export Cable	203	A	-	No	None
B.L. England Export Cable	203	B	-	No	None
B.L. England Export Cable	203	C	-	No	None
B.L. England Export Cable	204	A	-	No	None
B.L. England Export Cable	204	B	-	No	None
B.L. England Export Cable	204	C	-	No	None
B.L. England Export Cable	205	A	-	No	None
B.L. England Export Cable	205	B	-	No	None
B.L. England Export Cable	205	C	-	No	None
B.L. England Export Cable	206	A	-	No	None
B.L. England Export Cable	206	B	-	No	None
B.L. England Export Cable	206	C	-	No	None
B.L. England Export Cable	207	B	-	No	None
B.L. England Export Cable	207	C	-	No	None
B.L. England Export Cable	207	D	4.75	No	None
B.L. England Export Cable	208	A	6.00	No	None
B.L. England Export Cable	208	B	-	No	None
B.L. England Export Cable	208	C	4.74	No	None
B.L. England Export Cable	209	A	4.66	No	None
B.L. England Export Cable	209	B	-	No	None
B.L. England Export Cable	209	C	-	No	None
B.L. England Export Cable	210	B	5.87	No	None
B.L. England Export Cable	210	C	6.90	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
B.L. England Export Cable	210	D	-	No	None
B.L. England Export Cable	211	A	-	No	None
B.L. England Export Cable	211	B	-	No	None
B.L. England Export Cable	211	C	-	No	None
Oyster Creek Export Cable	301	A	-	No	None
Oyster Creek Export Cable	301	B	-	No	None
Oyster Creek Export Cable	301	C	-	No	None
Oyster Creek Export Cable	302	A	-	No	None
Oyster Creek Export Cable	302	B	-	No	None
Oyster Creek Export Cable	302	C	-	No	None
Oyster Creek Export Cable	303	A	-	No	None
Oyster Creek Export Cable	303	B	-	No	None
Oyster Creek Export Cable	303	C	-	No	None
Oyster Creek Export Cable	304	A	-	No	None
Oyster Creek Export Cable	304	B	-	No	None
Oyster Creek Export Cable	304	C	-	No	None
Oyster Creek Export Cable	305	A	-	No	None
Oyster Creek Export Cable	305	B	-	No	None
Oyster Creek Export Cable	305	C	-	No	None
Oyster Creek Export Cable	306	A	8.85	No	None
Oyster Creek Export Cable	306	B	-	No	None
Oyster Creek Export Cable	306	C	-	No	None
Oyster Creek Export Cable	307	A	-	No	None
Oyster Creek Export Cable	307	B	-	No	None
Oyster Creek Export Cable	307	C	-	No	None
Oyster Creek Export Cable	308	A	-	No	None
Oyster Creek Export Cable	308	B	-	No	None
Oyster Creek Export Cable	308	C	-	No	None
Oyster Creek Export Cable	309	A	28.00	No	None
Oyster Creek Export Cable	309	B	-	No	None
Oyster Creek Export Cable	309	C	-	No	None
Oyster Creek Export Cable	310	A	-	No	None
Oyster Creek Export Cable	310	B	-	No	None
Oyster Creek Export Cable	310	C	-	No	None
Oyster Creek Export Cable	311	A	-	No	None
Oyster Creek Export Cable	311	B	-	No	None
Oyster Creek Export Cable	311	C	-	No	None
Oyster Creek Export Cable	312	A	-	No	None
Oyster Creek Export Cable	312	B	-	No	None
Oyster Creek Export Cable	312	C	-	No	None
Oyster Creek Export Cable	313	A	-	No	None
Oyster Creek Export Cable	313	B	-	No	None
Oyster Creek Export Cable	313	C	-	No	None
Oyster Creek Export Cable	314	A	-	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Oyster Creek Export Cable	314	B	-	No	None
Oyster Creek Export Cable	314	C	-	No	None
Oyster Creek Export Cable	315	A	-	No	None
Oyster Creek Export Cable	315	B	-	No	None
Oyster Creek Export Cable	315	C	-	No	None
Oyster Creek Export Cable	316	A	44.89	No	None
Oyster Creek Export Cable	316	B	-	No	None
Oyster Creek Export Cable	316	C	-	No	None
Oyster Creek Export Cable	317	A	-	No	None
Oyster Creek Export Cable	317	B	54.58	No	None
Oyster Creek Export Cable	317	C	47.27	No	None
Oyster Creek Export Cable	318	B	50.22	No	None
Oyster Creek Export Cable	318	C	42.47	No	None
Oyster Creek Export Cable	318	D	8.30	No	None
Oyster Creek Export Cable	319	A	48.84	No	None
Oyster Creek Export Cable	319	C	37.30	No	None
Oyster Creek Export Cable	319	D	59.69	No	None
Oyster Creek Export Cable	320	A	50.00	No	None
Oyster Creek Export Cable	320	B	37.20	No	None
Oyster Creek Export Cable	320	C	66.96	No	None
Oyster Creek Export Cable	321	A	52.59	No	None
Oyster Creek Export Cable	321	B	49.62	No	None
Oyster Creek Export Cable	321	C	47.57	No	None
Oyster Creek Export Cable	322	A	40.74	No	None
Oyster Creek Export Cable	322	B	21.59	No	None
Oyster Creek Export Cable	322	C	44.70	No	None
Oyster Creek Export Cable	323	A	62.48	No	None
Oyster Creek Export Cable	323	B	56.33	No	None
Oyster Creek Export Cable	323	C	38.71	No	None
Oyster Creek Export Cable	324	A	60.43	No	None
Oyster Creek Export Cable	324	B	60.00	No	None
Oyster Creek Export Cable	324	C	59.86	No	None
Oyster Creek Export Cable	325	A	68.08	No	None
Oyster Creek Export Cable	325	B	57.92	No	None
Oyster Creek Export Cable	325	C	66.92	No	None
Oyster Creek Export Cable	326	A	69.16	No	None
Oyster Creek Export Cable	326	B	50.81	No	None
Oyster Creek Export Cable	326	C	68.04	No	None
Oyster Creek Export Cable	327	A	62.77	No	None
Oyster Creek Export Cable	327	B	-	No	None
Oyster Creek Export Cable	327	C	-	No	None
Oyster Creek Export Cable	328	A	46.77	No	None
Oyster Creek Export Cable	328	B	43.38	No	None
Oyster Creek Export Cable	328	C	47.54	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Oyster Creek Export Cable	329	A	42.57	No	None
Oyster Creek Export Cable	329	B	38.33	No	None
Oyster Creek Export Cable	329	C	37.31	No	None
Oyster Creek Export Cable	330	A	-	No	None
Oyster Creek Export Cable	330	B	-	No	None
Oyster Creek Export Cable	330	D	-	No	None
Oyster Creek Export Cable	331	A	-	No	None
Oyster Creek Export Cable	331	B	-	No	None
Oyster Creek Export Cable	331	C	-	No	None
Oyster Creek Export Cable	332	A	-	No	None
Oyster Creek Export Cable	332	B	-	No	None
Oyster Creek Export Cable	332	C	-	No	None
Oyster Creek Export Cable	333	A	-	No	None
Oyster Creek Export Cable	333	B	-	No	None
Oyster Creek Export Cable	333	C	-	No	None
Oyster Creek Export Cable	334	A	-	No	None
Oyster Creek Export Cable	334	B	-	No	None
Oyster Creek Export Cable	334	D	-	No	None
Oyster Creek Export Cable	335	A	-	No	None
Oyster Creek Export Cable	335	B	-	No	None
Oyster Creek Export Cable	335	D	-	No	None
Oyster Creek Export Cable	336	A	-	No	None
Oyster Creek Export Cable	336	B	-	No	None
Oyster Creek Export Cable	336	C	-	No	None
Oyster Creek Export Cable	337	A	-	No	None
Oyster Creek Export Cable	337	B	-	No	None
Oyster Creek Export Cable	337	C	-	No	None
Oyster Creek Export Cable	338	A	-	No	None
Oyster Creek Export Cable	338	B	-	No	None
Oyster Creek Export Cable	338	C	-	No	None
Oyster Creek Export Cable	339	A	-	No	None
Oyster Creek Export Cable	339	B	-	No	None
Oyster Creek Export Cable	339	C	-	No	None
Oyster Creek Export Cable	340	A	-	No	None
Oyster Creek Export Cable	340	B	-	No	None
Oyster Creek Export Cable	340	C	-	No	None
Oyster Creek Export Cable	341	B	-	No	None
Oyster Creek Export Cable	341	C	-	No	None
Oyster Creek Export Cable	341	D	-	Yes	Squid Eggs
Oyster Creek Export Cable	342	A	-	No	None
Oyster Creek Export Cable	342	B	-	No	None
Oyster Creek Export Cable	342	C	-	No	None
Oyster Creek Export Cable	343	A	-	No	None
Oyster Creek Export Cable	343	B	-	No	None

Area	StationID	Replicate	Bedform Size Measurement (cm)	Sensitive Taxa Present?	Type of Sensitive Taxa
Oyster Creek Export Cable	343	C	-	No	None
Oyster Creek Export Cable	344	A	-	No	None
Oyster Creek Export Cable	344	B	-	No	None
Oyster Creek Export Cable	344	D	-	No	None
Oyster Creek Export Cable	345	A	-	No	None
Oyster Creek Export Cable	345	B	-	No	None
Oyster Creek Export Cable	345	C	-	No	None
Oyster Creek Export Cable	346	A	-	No	None
Oyster Creek Export Cable	346	B	-	No	None
Oyster Creek Export Cable	346	C	-	No	None
Oyster Creek Export Cable	347	A	52.32	No	None
Oyster Creek Export Cable	347	B	31.69	No	None
Oyster Creek Export Cable	347	C	38.71	No	None
Oyster Creek Export Cable	348	A	-	No	None
Oyster Creek Export Cable	348	B	-	No	None
Oyster Creek Export Cable	348	C	-	No	None
Oyster Creek Export Cable	349	A	-	No	None
Oyster Creek Export Cable	349	B	-	No	None
Oyster Creek Export Cable	349	C	-	No	None
Oyster Creek Export Cable	350	A	IND	No	None
Oyster Creek Export Cable	350	B	IND	No	None
Oyster Creek Export Cable	350	C	IND	No	None
Reference	401	A	-	No	None
Reference	401	B	-	No	None
Reference	401	C	-	No	None
Reference	402	A	-	No	None
Reference	402	B	-	No	None
Reference	402	C	-	No	None
Reference	403	A	-	No	None
Reference	403	B	-	No	None
Reference	403	C	-	No	None

Attachment E – Sediment Profile and Plan View Imaging Benthic Assessment Survey in Support of the Ocean Wind Offshore Wind Farm Site Assessment, INSPIRE, January 2020

Sediment Profile and Plan View Imaging Benthic Assessment Survey in Support of the Ocean Wind Offshore Wind Farm Site Assessment

DATA REPORT

Survey Conducted 18-21 July 2019

Prepared for:

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January 2020

REVISION HISTORY

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aRPD	apparent Redox Potential Discontinuity
BOEM	Bureau of Ocean Energy Management
CMECS	Coastal and Marine Ecological Classification Standard
COP	Construction and Operation Plan
DSLR	Digital single-lens reflex
FGDC	Federal Geographic Data Committee
Fugro	Fugro USA Marine
G&G	Geological and Geophysical
IND	Indeterminate
INSPIRE	INSPIRE Environmental, LLC
NEF	Nikon Electronic Format
OCS	Outer Continental Shelf
OCW	Ocean Wind Offshore Wind Farm
PSD	Photoshop Document
PV	Plan View
SD	Standard deviation
SOD	Sediment oxygen demand
SPI	Sediment Profile Imaging

EXECUTIVE SUMMARY

As part of Fugro USA Marine's Benthic Habitat survey for the Ocean Wind Offshore Wind Farm (OCW), proposed by Ørsted U.S. (Ørsted), scientists from INSPIRE Environmental performed a combined Sediment Profile and Plan View Imaging (SPI/PV) survey at stations inside the OCW Phase 1 survey area (within Lease OCS-A-0498) and along two proposed cable routes that terminate in New Jersey: one leading toward Ocean City (B.L. England Export Cable) and the other leading toward Oyster Creek (Oyster Creek Export Cable). Three reference stations situated just outside of the survey area were also sampled.

The OCW is located offshore along the Outer Continental Shelf off the coast of New Jersey. To document the benthic habitat, associated taxa, and biological characteristics in the OCW Phase 1 survey area, along the B.L. England and Oyster Creek export cable routes, and at reference stations northwest of the OCW Phase 1 survey area, the Fugro/INSPIRE project team designed a 157-station SPI/PV survey. The SPI/PV survey was conducted July 18-21, 2019 aboard the research vessel *Fugro Enterprise*.

Interpretation of the SPI/PV data provided detail on the benthic habitat and biological characteristics of the surveyed surficial sediments. The dominant habitat type identified at the surveyed area was Sand Sheets, observed throughout the OCW Phase 1 survey area, along both the Oyster Creek and B.L. England export cable routes, and at the reference stations. Habitats such as Sand with Mobile Gravel, Continuous Pebbles on Sand, and Continuous Granules were observed sparsely scattered throughout the OCW Phase 1 survey area and throughout the Oyster Creek export cable, with a concentration of observations in the northern region of the cable route.

The dominant Biotic Subclass across the surveyed area was Soft Sediment Fauna. The dominance of Soft Sediment Fauna corresponded with the predominant Habitat Type of Sand Sheets. Attached Fauna were documented at 17 stations throughout the entire surveyed area and, when observed, were limited in their percent cover with only Trace and Sparse coverages of Attached Fauna observed. The minimal documentation of Attached Fauna corresponded with the limited observations of suitable habitat, with most Attached Fauna present along the Oyster Creek export cable route at stations where mobile gravel, pebbles, and granules were observed. Sand Dollar Beds and both Small and Larger Tube-Building Fauna were the predominant Biotic Groups observed across the surveyed area. Tubes at the sediment–water interface were often the result of polychaetae activity, but amphipod tubes were also observed. Sensitive taxa were documented at one station (Station 341) along the Oyster Creek export cable route, where an egg mop of longfin squid (*Doryteuthis pealeii*) eggs was observed in one replicate PV image. The only species of concern observed across the surveyed area was the sea scallop (*Placopecten magellanicus)*, which was found at Station 047. Sea scallops are an important fishery in the Mid-Atlantic region. No invasive species were identified within the surveyed area.

Throughout the surveyed area, successional taxa were overwhelmingly designated as Stage 2, with only a few stations documented to contain other successional designations. Due to the dynamic nature of the sandy habitat and the very low organic loads found in medium and coarse sands, Stage 3 head-down deposit feeders would not be expected to be prevalent in these habitats. The depth of oxygenated sediments, estimated by the apparent redox potential discontinuity, was not determinable at most of the stations. This is a common occurrence in mobile, well-washed sands with high porewater content. In coarser sandy sediments, the oxidation depth is based more on diffusion through sand grains and less on organic inputs and bioturbation of deposit-feeding infauna. For the same reasons, the vast majority of stations also had low sediment oxygen demand. Overall, the reference stations exhibited similar biological and taxonomic conditions to those of the OCW Phase 1 survey area and both the B.L. England and Oyster Creek export cable routes

The results and images from this survey will provide an accurate characterization and delineation of benthic habitats and establish a baseline of both large- and small-scale biological features within the OCW Phase 1 survey area, along the potential export cable routes, and at the reference stations. The results will also allow Ørsted to broadly communicate the results of the survey using seafloor images of predevelopment conditions. Contributions from this survey will provide valuable information to address the Bureau of Ocean Energy Management guidelines and regulations, as well as stakeholder concerns.

1.0 INTRODUCTION

1.1 Project Background

Ørsted U.S. (Ørsted), and the United States Department of Interior's Bureau of Ocean Energy Management (BOEM) executed a commercial lease for the development of a wind energy installation in the Outer Continental Shelf (OCS) waters offshore New Jersey (Lease OCS-A 0498). Ørsted awarded Fugro USA Marine (Fugro) the Geological & Geophysical (G&G) investigations as part of the preparation of the Construction and Operations Plan (COP) for the Lease Area.

The Ocean Wind Offshore Wind Farm (OCW) will be located within Lease Area OCS-A-0498 (Figure 1-1). Sampling was conducted inside the OCW lease area (Phase 1 survey area) and along two proposed cable routes. Benthic communities in this area of the OCS are adapted to survive in this dynamic environment, which is driven by oceanic and tidal currents. The data available for the OCW area suggests that the surficial sediments are primarily comprised of mobile sands with some areas of coarser material (gravel or small cobble) (USGS usSEABED 2019). The topography in this area is characterized by massive sand sheets that manifest themselves as a part of a coast-wide series of sand ridges that are found on the OCS from New York to Florida (McBride and Moslow 1991; Smith 1996; Guida et al. 2017).

INSPIRE Environmental (INSPIRE) conducted a benthic assessment survey at Ørsted's OCW utilizing Sediment Profile and Plan View Imaging (SPI/PV). The survey was conducted at stations within the lease area, along the proposed cable routes, and at reference stations (Figures 1-1, 1-2, and 1-3). The reference stations were chosen at a location within the lease area where Ørsted did not anticipate construction to occur in the future so that comparisons to the data collected there could be made in the future.

The Mid-Atlantic OCS is an ideal area for offshore wind exploration and development. A slowly sloping shelf in concert with relatively high average wind conditions and large urban population centers provide a prime location for offshore wind energy production. BOEM has produced regulations and guidelines for preparing a COP for the proposed development of all offshore wind projects in U.S. Federal waters. The SPI/PV survey was conducted to provide Fugro and OCW with data contributing to:

- Guidelines for Information Requirements for a Renewable Energy Construction and Operations Plan (COP) (BOEM 2016),
- Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information Pursuant to 30 CFR Part 585 (BOEM 2015),
- Guidelines for Providing Benthic Habitat Survey Information for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585 (BOEM 2019).

1.2 Objectives

The purpose of the SPI/PV survey was to provide data about benthic habitats and communities at the OCW Phase 1 survey area and along the B.L England and Oyster Creek potential cable route corridors. Results from the SPI/PV survey are intended to contribute to Ørsted's ability to satisfy multiple BOEM COP guidelines (Table 1-1). This SPI/PV study provides valuable data for the assessment of the physical, geological, and biological conditions of the benthic habitat structure within the study area.

The specific objectives, derived in part from BOEM Benthic Habitat Guidelines (BOEM 2019), of the benthic assessment portion of this SPI/PV survey were to survey stations within the proposed development site and at a potential reference area to:

- Characterize and delineate benthic habitats
    - Characterization of benthic habitat attributes
    - Identification of dominant benthic macrofaunal and macrofloral communities classified to at least the CMECS Biotic Subclass level
    - Documentation of taxa diversity and characterization of benthic community composition visible in SPI and PV images
    - Identification of sensitive taxa (SPI/PV)
    - Identification of invasive taxa
- Identification of potentially sensitive seafloor habitats, such as corals, submerged aquatic vegetation beds, and cobble and boulder habitat (BOEM 2019). Cobble and boulder habitat can serve as nursery ground for juvenile lobster and as preferable benthic habitat for squid to deposit their eggs. Both lobster and squid are specific in their habitat requirements and are also economically important species in the Mid-Atlantic. For these reasons, federal and state agencies consider evidence of these taxa to indicate potentially sensitive habitats.
- Establishment of a pre-construction baseline that may be used to assess whether detectable changes occur in post-construction benthic habitats associated with proposed operations.
- Determination of suitability of the sampled reference stations to serve as control stations for future Benthic Assessment monitoring and assessment surveys.

Table 1-1. SPI/PV Survey Parameters with Corresponding BOEM COP Guidelines

Parameter	BOEM COP Guidelines (BOEM 2015, 2019)
SPI Parameters	
Apparent Redox Potential Discontinuity*	Characterization of benthic habitat attributes
Sediment Oxygen Demand and Proxies (methane, *Beggiatoa*)	Characterization of benthic habitat attributes
Epifauna	Characterization of macrofaunal community Identification of taxa diversity
Tubes/Voids	Characterization of macrofaunal community Identification of taxa diversity
Successional Stage*	Characterization of macrofaunal community
Sensitive Taxa	Identification of potentially sensitive seafloor habitat
Invasive Taxa	Identification of invasive taxa
PV Parameters	
CMECS Biotic Classifications: Dominant and Co-occurring Biotic Subclass and Group	Identification of potentially sensitive seafloor habitat Characterization of macrofaunal community Classification of CMECS Biotic Component to lowest taxonomic unit practicable
Attached Flora/Fauna Percent Cover*	Identification of potentially sensitive seafloor habitat Characterization of macrofaunal community
Epifauna*	Identification of potentially sensitive seafloor habitat Characterization of macrofaunal community
Burrows/Tubes/Tracks	Characterization of macrofaunal community
Infauna	Characterization of macrofaunal community
Flora	Characterization of macrofloral community and any submerged aquatic vegetation (seagrass and macroalgae)
Sensitive Taxa	Identification of potentially sensitive seafloor habitat
Invasive Taxa	Identification of invasive taxa

* Indicates variable that is a CMECS modifier. CMECS Modifiers provide additional detail to further characterize habitat components using a consistent set of definitions.

2.0 METHODS

2.1 Sediment Profile and Plan View Imaging

SPI/PV imaging is a monitoring technique used to provide data on the physical characteristics of the seafloor and the status of the benthic biological community (Germano et al. 2011). SPI has been shown to be a powerful reconnaissance tool that can efficiently map gradients in sediment type, biological communities, or disturbances from physical forces, anthropogenic input, or organic enrichment (Germano et al. 2011). Results and interpretations from SPI/PV data are about dynamic processes that have been deduced from imaged structures; as such, they should be considered hypotheses available for further testing/confirmation.

The 157-station SPI/PV survey was conducted in the Phase 1 OCW survey area, along the B.L. England and Oyster Creek export cable routes, and at reference stations (Figures 1-1, 1-2, and 1-3) from July 18-21, 2019 aboard the research vessel *Fugro Enterprise*. SPI/PV station locations are provided in Appendix A. The methodology for data acquisition and analysis for these images was consistent with the sampling methods described in detail in the INSPIRE standard operating procedures (INSPIRE 2019).

At each station, the vessel was positioned at the target coordinates and the camera was deployed within a defined station tolerance and replicate images were collected. Station positions were recorded by onboard Fugro surveyors by documenting the global positioning system coordinates of the vessel each time the camera frame was determined to be in contact with the seafloor. Seafloor contact was determined visually when the winch cable was observed to go slack.

Within the surveyed area, a station tolerance radius of 25 meters was used. A minimum of four replicate image pairs (SPI and PV) were collected at each station (Appendix B) except at Station 061 where only three PV images were collected and at Station 206 where only three SPI images were collected. The three replicate images with the best quality were selected for analysis at each station (Appendices C and D)

2.1.1 Sediment Profile Imaging

The SPI technique involves deploying an underwater camera system to photograph a cross-section of the sediment–water interface. High-resolution SPI images were acquired using a Nikon® D7200 digital single-lens reflex (DSLR) camera mounted inside an Ocean Imaging® Model 3731 pressure housing. The pressure housing sat atop a wedge-shaped steel prism with a plexiglass front faceplate and a back mirror, that was mounted at a 45° angle. The camera lens looked down at the mirror, which reflected the image from the faceplate. The prism had an internal strobe mounted inside at the back of the wedge to provide illumination for the image; this chamber was filled with distilled water, so the camera always had an optically clear path. The descent of the prism into the sediment was controlled by a hydraulic piston. As the prism penetrated the seafloor, a trigger activated a time-delayed circuit that fired the internal strobe to obtain a cross-sectional image of the upper 15–20 cm of the sediment column (Figure 2-1). The camera remained on the seafloor for approximately 20 seconds to ensure that successful images were obtained.

Test exposures of a Color Calibration Target were made on deck at the beginning of the survey to verify that all internal electronic systems were working to design specifications and to provide a color standard against which final images could be checked for proper white balance. Test images were also captured to confirm proper camera settings for site conditions. For this survey, the ISO-equivalent was set at 640, shutter speed was 1/250, and the f-stop was f11. Images were stored in compressed raw Nikon Electronic Format (NEF) files (approximately 30 MB each). Images were checked periodically throughout the survey to confirm that the initial camera settings were still resulting in the highest quality images possible. All camera settings and any setting changes were recorded in the field log (Appendix B). Details of the camera settings for each digital image also are available in the associated parameters file embedded in each electronic image file.

Whenever the camera was brought back on board (typically after every fifth station), the frame counter was checked to ensure that the requisite number of replicates had been obtained. In addition, a prism penetration depth indicator on the camera frame was checked to verify that the optical prism had penetrated the bottom to a sufficient depth. If images were missed or the penetration depth was insufficient, the camera frame stop collars were adjusted and/or weights were added or removed, and additional replicate images were taken. Frame counts, time of image acquisition, frame stop-collar position, and the number of weights used were recorded in the field log for each replicate image (Appendix B). Visual checks and hand tightening checks of all nuts and bolts on the SPI/PV camera frame were conducted periodically to make sure nothing vibrated loose during the survey.

Prior to field operations, the internal clock in the digital SPI system was synchronized with the vessel's navigation. Each image was assigned a unique time stamp in the digital file attributes by the camera's data logger and cross-checked with the time stamp in the navigational system's computer data file. Images were downloaded periodically to verify successful sample acquisition and/or to assess the type(s) of sediment and other relevant features present at a given station. Digital image files were renamed with the appropriate station names immediately after downloading as a further quality assurance step.

2.1.2 Plan View Imaging

An Ocean Imaging® Model DSC24000 plan view underwater camera system with two Ocean Imaging® Model 400-37 Deep Sea Scaling lasers was attached to the sediment profile camera frame and used to collect plan view images of the seafloor surface. Both SPI and PV images were collected during each "drop" of the system. The PV system consisted of a Nikon® D-7200 DSLR camera encased in a pressure housing, a 24 VDC autonomous power pack, a 500 W strobe, and a bounce trigger. A weight was attached to the bounce trigger with a stainless-steel cable so that the weight hung below the camera frame; the scaling lasers projected two red dots that were separated by a constant distance (26 cm) regardless of the field-of-view of the PV system. The field-of-view can be varied by increasing or decreasing the length of the trigger wire and, thereby, the camera height above the bottom when the picture is taken. As the SPI/PV camera system was lowered to the seafloor, the weight attached to the bounce trigger contacted the seafloor prior to the camera frame reaching the seafloor and triggered the PV camera (Figure 2-1).

During set-up and testing of the PV camera, the positions of lasers on the PV camera were checked and calibrated to ensure separation of 26 cm. Test images were also captured to confirm proper camera settings for site conditions. For this survey, the ISO-equivalent was set at 640, shutter speed was 1/15, and the f-stop was f18. Images were stored in compressed raw NEF files (approximately 30 MB each). Images were checked periodically throughout the survey to confirm that the initial camera settings were still resulting in the highest quality images possible. All camera settings and any setting changes were recorded in the field log (Appendix B). Details of the camera settings for each digital image also are available in the associated parameters file embedded in each electronic image file.

Prior to field operations, the internal clock in the digital PV system was synchronized with the vessel's navigation system and the SPI camera. Each image was assigned a unique time stamp in the digital file attributes by the camera's data logger and cross-checked with the time stamp in the navigational system's computer data file. In addition, the field crew kept redundant field logs (Appendix B). Throughout the survey, PV images were downloaded at the same time as SPI images and were evaluated for successful image acquisition and image clarity. Digital image files were renamed with the appropriate station names immediately after downloading as a further quality assurance step.

The ability of the PV system to collect usable images is dependent on the clarity of the water column. Water conditions during this survey allowed use of a 0.9 m trigger wire, resulting in a mean image width of 0.8 m and a mean field-of-view of 0.4 m2.

2.1.3 Image Conversion and Calibration

Following completion of field operations, quality control checks were conducted of filenames, date/time stamps, and the field log. After these procedures, the NEF raw image files were color calibrated in Adobe Camera Raw® by synchronizing the raw color profiles to the Color Calibration Target that was photographed prior to field operations with the SPI camera. The raw SPI and PV images were then converted to high-resolution Photoshop Document (PSD) format files, using a lossless conversion file process and maintaining an Adobe RGB (1998) color profile. The PSD images were then calibrated and analyzed in Adobe Photoshop®. Length and area measurements were recorded as number of pixels and converted to scientific units using the calibration information.

2.1.4 SPI and PV Data Analysis

Computer-aided analysis of SPI/PV images provided a set of standard measurements to allow comparisons among different locations and surveys.

Measured parameters for SPI and PV images were recorded in Microsoft Excel© spreadsheets. These data were subsequently checked by INSPIRE's senior scientists as an independent quality assurance/quality control review before final image interpretation was performed. Spatial distributions of SPI/PV parameters were mapped using ESRI ArcGIS 10.6. Results of the SPI/PV survey are symbolized on these maps as either station means or at a replicate level as "pies".

Pursuant to several BOEM guidelines (2019), the Coastal and Marine Ecological Classification Standard (CMECS) (Federal Geographic Data Committee [FGDC] 2012) was used to classify benthic habitats and communities (Table 2-1). "The Coastal and Marine Ecological Classification Standard (CMECS) is a catalog of terms that provides a means for classifying ecological units using a simple, standard format and common terminology. CMECS offers a way to organize and interpret data about the marine environment, and it provides a common platform for inter-relating data. It builds upon approaches from published national, regional, and local habitat classification procedures, and it offers an umbrella under which a national coastal and marine ecological classification can grow and evolve (FGDC 2012)." SPI/PV parameters collected as part of this survey were 'mapped' to corresponding BOEM guidelines (BOEM 2015, 2019) (Table 1-1.). This allows for a clear representation of how data collected as part of this survey contribute to the completion of the OCW COP and satisfaction of BOEM recommended guidelines.

2.2 Sediment Profile Image Analysis Parameters

The parameters discussed below were assessed and/or measured for each replicate SPI image. Descriptive comments were also made for each. A depiction of standard variables derived from example SPI images from soft bottom settings are provided in Figure 2-2.

2.2.1 Apparent Redox Potential Discontinuity Depth

Aerobic near-surface marine sediments typically have higher reflectance relative to underlying hypoxic or anoxic sediments. Surface sands washed free of mud also have higher optical reflectance than underlying muddy sands. These differences in optical reflectance are visible in SPI images; oxidized surface sediments contain particles coated with ferric hydroxide (an olive or tan color when associated with particles) and reduced and muddy sediments below this oxygenated layer are darker, generally gray to black (Fenchel 1969; Lyle 1983; Sturdivant and Shimizu 2017). The boundary between colored ferric hydroxide surface sediments and underlying gray to black sediments is called the apparent redox potential discontinuity (aRPD). The aRPD is described as "apparent" because of the potential discrepancy between where the sediment color shifts and the complete depletion of dissolved oxygen concentration occurs due to the lag time between when the redox potential (Eh) reaches 0 millivolts (mV) and the precipitation of darker sulfidic sediments (Jorgensen and Fenchel 1974). However, the mean aRPD measured in SPI is a suitable proxy for the RPD with the depth of the actual Eh = 0 horizon generally either equal to or slightly shallower than the depth of the optical reflectance boundary (Rosenberg et al. 2001; Simone and Grant 2017). Factors that influence the depth of the aRPD include biological processes such as respiration and bioturbation and physical processes including advection and diffusion. The mean aRPD depth also can be affected by local erosion. Scouring can wash away fines and shell or gravel lag deposits and can result in a very thin surface oxidized layer. During storm periods, erosion may completely remove any evidence of the aRPD (Fredette et al. 1988).

In sandy sediments that have very low sediment oxygen demand (SOD), the sediment may lack a visibly reduced layer even if an RPD is present. Because the determination of the aRPD requires discrimination of optical contrast between oxidized and reduced particles, it is difficult, if not impossible, to determine the depth of the aRPD in well-sorted sands of any size that have little to no silt or organic matter in them. When using SPI technology on sand bottoms, little information other than grain size, prism penetration depth, and boundary roughness values can be measured; while oxygen has penetrated the sand beneath the sediment–water interface due to physical forcing factors acting on surface roughness elements (Ziebis et al. 1996; Huettel et al. 1998), estimates of the mean aRPD depths in these types of sediments are indeterminate with conventional white light photography. Also, aRPD is a CMECS modifier, adding detail to the CMECS classifications.

2.2.2 Sediment Oxygen Demand Proxies

Sediment oxygen demand (SOD) represents the overall rate of oxygen consumption, biologically and chemically, by the sediment column. The relative amount of organic enrichment is indicated by sediment color; darker coloration indicates more reduced sediments with greater organic loading and higher SOD (Fenchel 1969; Rhoads 1974; Lyle 1983; Bull and Williamson 2001; Sturdivant and Shimizu 2017). SOD levels (i.e., none, low, medium, and high) were assessed for all images. Under high organic matter loading and subsequently high SOD, microbial sulfate reduction proceeds and may completely deplete porewater sulfate concentrations. Under these conditions, methanogensis can occur, leading to methane bubbles in the sediment column. In SPI, methane appears as irregular shaped gas-filled voids with a glassy texture (due to the reflection of the strobe off the gas bubble). Any presence of methane was noted. Similarly, under highly reduced anoxic conditions, *Beggiatoa* bacteria may be present. These bacterial colonies have diagnostic morphology that has been documented in numerous other sediment profile imaging surveys (Nilsson and Rosenberg 1997; Rosenberg et al. 2001; Karakassis et al. 2002; Germano et al. 2011). Although unlikely to be present in OCS sediments, if encountered *Beggiatoa* or *Beggiatoa*-like colonies were noted.

2.2.3 Infaunal Successional Stage

The mapping of infaunal successional stages is readily accomplished with SPI technology. Infaunal successional stage is a measure of the biological community inhabiting the seafloor. Current theory holds that organism–sediment interactions in fine-grained sediments follow a predictable sequence of development after a major disturbance (e.g., dredged material disposal) (Pearson and Rosenberg 1978; Rhoads and Germano 1982; Rhoads and Boyer 1982). This continuum is divided subjectively into four stages: Stage 0, indicative of a sediment column that is largely devoid of macrofauna, occurs immediately following a physical disturbance or in close proximity to an organic enrichment source; Stage 1 is the initial recolonizing tiny, densely populated polychaete assemblages; Stage 2 is the start of the transition to head-down deposit feeders; and Stage 3 is the mature, equilibrium community of deep-dwelling, head-down deposit feeders (Figure 2-3).

In dynamic environments, it is simplistic to assume that benthic communities always progress completely and sequentially through all four stages in accordance with the idealized conceptual model depicted in Figure 2-3. Various combinations of these basic successional stages are possible. For example, secondary succession can occur (Horn 1974) in response to additional labile carbon input to surface sediments, with surface-dwelling Stage 1 or 2 organisms coexisting at the same time and place with Stage 3, resulting in the assignment of a “Stage 1 on 3” or “Stage 2 on 3” designation. If both Stage 1 and Stage 2 organisms exist in an image with Stage 3 fauna, the Stage 1 on 3 designation is used because it is more important to denote the presence of recruiting organisms than intermediate Stage 2 fauna. While the successional dynamics of invertebrate communities in fine-grained sediments have been well documented, the successional dynamics of invertebrate communities in sand and coarser sediments are not well known. Consequently, the insights gained from sediment profile imaging technology regarding biological community structure and dynamics in sandy and coarse-grained bottoms are limited.

Successional stage was assigned by assessing the types of infauna and related activities (e.g., feeding voids) apparent in the images. Also, successional stage is a CMECS modifier, adding detail to the CMECS classifications.

2.2.4 Taxa Present

Where visible, flora and fauna were identified to the lowest possible taxonomic grouping. Taxa were grouped into three classifications: sensitive, invasive, and epifauna. The presence of surficial tubes and deep voids were also noted.

2.3 Plan View Image Analysis Parameters

Plan view images record conditions at the seafloor surface in a downward-looking orientation. They provide a much larger field-of-view than SPI images and provide valuable information about the landscape ecology and sediment topography in the area where the pinpoint “optical core” of the sediment profile was taken (Figure 2-4). The parameters discussed below were assessed and/or measured and recorded for each replicate PV image selected for analysis (Appendix D). Descriptive comments were also recorded for each.

2.3.1 Field-of-View

For each replicate PV image, the field-of-view area was measured. The scale information provided by the underwater lasers allows accurate density counts of attached epifaunal colonies, sediment burrow openings, or larger macrofauna or fish which may not have been captured in the sediment profile cross-section, as well as measurements of features of interest observed in the image.

2.3.2 CMECS Biotic Subclass and CMECS Biotic Group

The Biotic Component of CMECS is a classification of the living organisms of the seabed and water column together with their physical associations at a variety of spatial scales. The Biotic Component is organized into a branched hierarchy of five nested levels: Biotic Setting, Biotic Class, Biotic Subclass, Biotic Group, and Biotic Community. Biotic Component classifications are defined by the dominance of life forms, taxa, or other classifiers in the observation. In the case of PV images dominance is assigned to the taxa with the greatest percent cover in the observational footprint (FGDC 2012).

The Biotic Subclass is a key CMECS classifier that presents valuable information about the surveyed area in terms of physical habitat and the potential presence of sensitive taxa; therefore, it was identified as a parameter for PV image analysis. Biotic Subclasses describe dominant biota at a coarse level, and, to provide additional information, a co-occurring biotic subclass was designated as any secondarily dominant (by percent cover) Biotic Subclass. Within the Benthic/Attached Biota Biotic Component setting, there are 8 classes, of which the Faunal Bed class is of most relevance to the OCS. Three subclasses fall under the Faunal Bed hierarchy: Attached Fauna, Soft Sediment Fauna, and Inferred Fauna. Another Biotic Class relevant to the OCS is Reef Biota, of which there are many subclasses related to reef-building fauna. These fauna include living corals, mollusks, polychaetes, and glass sponges.

Although the Biotic Subclass is not directly based on sediment grain size distributions, it reflects them at the scale of relevance to the dominant fauna present, thus serving as an integrator of physical and biological characteristics of the seafloor. CMECS expressly states that “substrate type is such a defining aspect of the Faunal Bed class that CMECS Faunal Bed subclasses are assigned as physical-biological associations involving both biota and substrate (FGDC 2012).”

Plan view images were assigned one of the five following Biotic Subclasses (definitions from FGDC 2012):

- Attached Fauna – “Areas characterized by rock substrates, gravel substrates, other hard substrates, or mixed substrates that are dominated by fauna which maintain contact with the substrate surface, including firmly attached, crawling, resting, interstitial, or clinging fauna. Fauna may be found on, between, or under rocks or other hard substrates or substrate mixes. These fauna use pedal discs, cement, byssal threads, feet, claws, appendages, spines, suction, negative density, or other means to stay in contact with the (generally) hard substrate, and may or may not be capable of slow movement over the substrate. Many attached fauna are suspension feeders and feed from the water column. Other attached fauna are benthic feeders, including herbivores, predators, detritivores, and omnivores.”

- Soft Sediment Fauna – “Areas that are characterized by fine unconsolidated substrates (sand, mud) and that are dominated in percent cover or in estimated biomass by infauna, sessile epifauna, mobile epifauna, mobile fauna that create semi-permanent burrows as homes, or by structures or evidence associated with these fauna (e.g., tilefish burrows, lobster burrows). These animals may tunnel freely within the sediment or embed themselves wholly or partially in the sediment. In many cases, they will regularly leave their burrows, and may move rapidly or swim actively after doing so, but any animal that creates a semi-permanent home in the sediment can be classified as Soft Sediment Fauna. These animals may also move slowly over the sediment surface, but are not capable of moving outside of the boundaries of the classification unit within one day. Most of these fauna possess specialized organs for burrowing, digging, embedding, tube-building, anchoring, or locomotory activities in soft substrates."

- Worm Reef Biota – "Areas dominated by relatively stable, ridge- or mound-like aggregations of living and non-living material formed by the colonization and growth of worm species (e.g., sabellariids)."
- Inferred Fauna – "Areas dominated by evidence (real or inferred) of faunal activity, but where the fauna themselves are not currently present or evident, given the sampling methodology."
- IND – an indeterminate Biotic Subclass

The Biotic Component subclasses of Attached and Soft Sediment Fauna are excellent broad-brush tool for screening level assessments of seafloor habitats for offshore wind development. Mapping proposed development areas with this CMECS classifier can highlight locations, that from a benthic habitat perspective, might be considered suitable for offshore wind development (Soft Sediment Fauna) and those that may be unsuitable or require further detailed study to determine suitability (Attached Fauna). Depending on the results and scale of reconnaissance surveys, additional studies would likely be needed as specific siting alternatives are examined.

While Biotic Subclasses describe major biological characteristics at a fairly coarse level, Biotic Groups are descriptive terms based on finer distinctions of taxonomy, structure, position, environment, and salinity levels (FGDC 2012). CMECS provides definitions and descriptions of dozens of Biotic Groups. Only a subset of these Biotic Groups could potentially occur in the surveyed area (based on water depth, latitude, depth, etc.). The full set of defined Biotic Groups are available in the CMECS document (FGDC 2012) and a subset of Biotic Groups observed within the surveyed area are found in Table 2-1.

2.3.3 Fauna and Flora Presence

The inferred presence of fauna was identified through the presence of burrows, tubes, tracks, foraging pits, and fecal casts. Where fauna and flora were visibly present in SPI/PV images they were identified to the lowest possible taxonomic grouping. Fauna were grouped into five categories: fish, soft sediment infauna, mobile epifauna, sensitive taxa (Section 2.3.4), and invasive taxa (Section 2.3.5). Where attached flora and fauna were present, the percent coverage of the image was estimated using the CMECS Percent Cover Modifier (FGDC 2012).

2.3.4 Sensitive Taxa and Species of Concern

While G&G multibeam echosounder and side-scan sonar data provide high quality remote imaging of the seafloor, they do not provide adequate resolution for the identification of sensitive taxa. The image resolution of the SPI/PV survey allows for the identification of sensitive taxa. Sensitive seafloor habitats include corals, submerged aquatic vegetation beds, and valuable cobble and boulder habitat (BOEM 2019). Cobble and boulder habitat can serve as structure for hard and soft corals, nursery ground for juvenile lobster, and as preferable benthic habitat for squid to deposit their eggs. Both lobster and squid are specific in their habitat requirements and are also economically important species in the Mid-Atlantic. For these reasons, federal and state agencies consider evidence of these taxa to indicate potentially sensitive habitats. Taxa considered sensitive for this survey included soft and hard corals, seagrasses, squid eggs, and American lobster. Species of ecological and/or economical concern for this area included black sea bass, sea scallops, and surfclams (Guida et al. 2017). Presence/absence of each sensitive taxa or species of concern was noted for each replicate SPI/PV image.

2.3.5 Invasive Taxa

The introduction of invasive species to the water column and benthic habitat is an important concern related to offshore development. The utilization of vessels originating from many different ports can lead to the introduction of invasive species through fouled hulls and contaminated ballast water. The introduction of new structures, such as scour protection, turbine structure, transmission cable, and concrete mattresses, to the water column and seafloor during construction may also lead to the introduction of invasive species. The SPI/PV survey collected baseline presence/absence data for marine invasive species within the surveyed area. A list of potential invasive species was derived from the Northeastern Aquatic Nuisance Species Panel (https://www.northeastans.org) and Northeast Marine Introduced Species (https://nemis.mit.edu/introduced_species.php). The list of invasive species that SPI and PV images were analyzed for are found in Table 2-2.

2.4 Data Quality Assurance and Quality Control

Measures were taken both during field data collection and during post-collection analysis for data quality assurance and control in alignment with INSPIRE's standard operating procedure for sediment profile and plan view imaging sample collection and image analysis (INSPIRE 2019).

Prior to survey mobilization, the camera electronics were "bench-tested" to ensure the cameras were focused and firing properly, the lasers were aligned properly, and the strobe was operational. The positions of lasers on the PV camera were checked and calibrated to ensure separation of 26 cm. Spare camera parts, fully charged battery packs, and spare cables were carried in the field to ensure uninterrupted sample acquisition. At the beginning of the survey, the times on the digital SPI and PV cameras were synchronized with the navigation system clock. Each SPI and PV station replicate was identified by the time stamp recorded as part of the digital image file and the corresponding time and position recorded by the navigation system. Redundant field logs were kept by the field crew (Appendix B). Test shots were fired on deck at the beginning of each field day to verify all internal electronic systems were working according to specifications. These test shots included taking pictures of standard color cards to ensure proper color balance of the digital images during collection and to verify the calibration of the image analysis system during processing.

At regular intervals during each survey day, the frame counter on the SPI camera was checked to make sure the desired number of replicates had been taken. In addition, both the SPI and PV images were downloaded at regular intervals (typically every 3 to 5 stations) using external USB ports. These images then were viewed to confirm the settings on the digital cameras were optimal for the conditions in the survey area. These settings were adjusted if necessary and changes noted in the field log (Appendix B). In addition, if images were missed or penetration depth was insufficient, proper adjustments were made (e.g., weight added to the frame) and additional replicates taken. Digital image files were renamed with the appropriate station names immediately after downloading as a further quality assurance step. Visual checks and hand tightening checks of all nuts and bolts on the SPI/PV camera frame were conducted periodically to make sure nothing vibrated loose during the survey.

A quality assurance review of all data and results presented in this report was performed in accordance with INSPIRE's standard operating procedure for sediment profile and plan view imaging sample collection and image analysis (INSPIRE 2019).

Table 2-1. CMECS Classification Levels Used in Analysis and Classifications for the Ocean Wind Offshore Wind Farm Survey

CMECS Term	Scale of Classification	Classifications
Biotic Component		
Biotic Setting	SPI/PV	Benthic/Attached Biota
Biotic Class	SPI/PV	**Faunal Bed**; Reef Biota
+Biotic Subclass	SPI/PV	**Soft Sediment Fauna**; Attached Fauna; Inferred Fauna; Worm Reef Biota
+Biotic Group	SPI/PV	**Small Tube-Building Fauna**; **Sand Dollar Bed**; Attached Hydroids; Burrowing Anemones; Diverse Soft Sediment Epifauna; Larger Tube-Building Fauna; Mobile Crustaceans; Mobile Mollusks; Tracks and Trails; Tunicate Bed; Sabellariid Reef

+ Indicates variability within the surveyed area at this level of the hierarchy.

Bold text indicates an overwhelming dominant classification across the surveyed area.

Table 2-2. Invasive species list for SPI and PV image analysis

Taxonomic Group	Scientific Name	Common Name
Anemones	*Diadumene lineata*	Orange-striped anemone
	Sagartia elegans	Purple anemone
Crustacean	*Caprella mutica*	Skeleton shrimp
Tunicates	*Didemnum vexillum*	Sea squirt
	Botrylloides violaceus	Sheath tunicate
	Botryllus schlosseri	Star tunicate
	Styela clava	Club tunicate

3.0 RESULTS

A complete set of all the data measured and assessed from each analyzed SPI image are presented in Appendix C; data measured and assessed from each PV image are in Appendix D. Station summary data grouped by spatial area of interest (OCW Phase 1 Survey Area, B.L. England export cable route, Oyster Creek export cable route, and reference stations) are presented in Tables 3-1 through 3-4. Section 3.1 summarizes results from the entire surveyed area; Section 3.2 reports results from the OCW Phase 1 Survey Area, Section 3.3 reports results from the B.L. England export cable route; Section 3.4 reports results from the Oyster Creek export cable route; and Section 3.5 reports results from the reference stations.

3.1 Types of Biota and Habitat Observed

The CMECS Biotic Subclass of Soft Sediment Fauna was the dominant Biotic Subclass (96% of stations) observed across the surveyed area (Tables 3-1 through 3-4, Figures 3-1 and 3-2). This subclass is defined as “Areas that are characterized by fine unconsolidated substrates (sand, mud) and that are dominated in percent cover or in estimated biomass by infauna, sessile epifauna, mobile epifauna, mobile fauna that create semi-permanent burrows as homes, or by structures or evidence associated with these fauna (e.g., tilefish burrows, lobster burrows)” (see Section 2.3.5 for a full definition). The CMECS Biotic Subclasses of Worm Reef Biota and Inferred Fauna were also observed in the surveyed area, present as either the dominant Subclass or as the Co-occurring Biotic Subclass present (see Section 2.3.2 for full definitions; Tables 3-1 through 3-4; Figures 3-1 through 3-4). A Co-occurring Biotic Subclass mapped as “Variable” indicates that there was no predominant Co-occurring Biotic Subclass among station replicates; a station was only mapped as “None” if all three replicates had no evidence of a Co-occurring Biotic Subclass (Tables 3-1 through 3-4; Figures 3-3 and 3-4).

Observations of the Soft Sediment Fauna Subclass typically were present in the form of infaunal tubes (primarily from the plumed worm, *Diopatra cuprea*) and burrows visible at the sediment–water interface and epifauna tracks on the sediment surface (Figure 3-5). Observed within the Worm Reef Biota subclass were ridge- or mound-like features formed by the colonization and growth of living sabellariid worm species that have cemented sediment grains into complex structures (Figure 3-5B). Certain types of sabellariid reefs most often occur parallel to an ocean shoreline in shallow water, but many are also found in deeper waters where current energy is high (FGDC 2012). The primary evidence of taxa observed within the Inferred Fauna subclass were egg casings and tracks and trails (Figure 3-5C).

The CMECS Biotic Groups of Small Tube-Building Fauna, Larger Tube-Building Fauna, and Sand Dollar Bed were the most prevalent Biotic Groups observed across the surveyed area (Tables 3-1 through 3-4; Figures 3-6 and 3-7). Biotic Groups related closely to the dominant Biotic Subclass observed. Larger Tube-Building Fauna, Small Tube-Building Fauna, and Sand Dollar Beds are all Biotic Groups within Soft Sediment Fauna. Larger Tube-Building Fauna are evidenced by “areas dominated by larger tube builders (tube width > 2 millimeters, or tube length > 30 millimeters), most commonly polychaetes, but including many other worm-like phyla (phoronids, sipunculids), crustaceans, and others” (FGDC 2012; Figure 3-8A). Small Tube-

Building Fauna are evidenced by, “Soft sediment areas dominated by tube-building annelids (e.g., spionids, sabellids), amphipods, small phoronids, or other small, surface-dwelling, tube-building fauna” (FGDC 2012; Figure 3-8B). Sand Dollar Beds are evidenced by “surface-dwelling, “irregular” echinoids of the Phylum Echinodermata and Order Clypeasteroida (e.g., sand dollars, sea biscuits). Sand dollars typically move on top of the sediment surface or burrow in the top few centimeters of sediment” (FGDC 2012; Figure 3-8C).

Other CMECS Biotic Groups and Co-occurring Biotic Groups that were observed at higher frequency across the surveyed area included Diverse Soft Sediment Epifauna, Tracks and Trails, Tunicate Bed, and Sabellariid Reef (Tables 3-1 through 3-4; Figures 3-6, 3-7, 3-9, and 3-10). Stations in the northwestern portion of the Phase 1 survey area and along the Oyster Creek export cable route were predominantly where these taxa were found at coverage levels that led to classifications at the Biotic Group level, rather than as the Co-occurring Biotic Group (Figures 3-6 and 3-7). Definitions of all CMECS Biotic Groups can be found in the Classification Standard (FGDC 2012).

The dominant habitat type across the surveyed area (69% of stations) was Sand Sheet (Tables 3-1 through 3-4, Figures 3-11 and 3-12); habitat type is a parameter documented through PV imagery that considers physical substrate descriptors and community composition characterization (Biotic Subclass and Group). Other habitat types observed were Sand with Mobile Gravel (21%) Sand with Mobile Gravel and Shell Hash (5%), Continuous Granules (2%), Continuous Pebbles on Sand (2%), and Continuous Shell Hash on Sand (<1%; Tables 3-1 through 3-4; Figures 3-11 and 3-12). There was very low intra-station heterogeneity to habitat type, i.e., at the vast majority of stations habitat type was the same across replicates.

No sensitive taxa were observed in the SPI and PV images captured across the surveyed area except at Station 341 where evidence of the presence of squid was observed as a mop of longfin squid (*Doryteuthis pealeii*) eggs (Appendix D; Tables 3-1 through 3-4; Figures 3-13 and 3-14). Spent squid egg casings were also observed at three stations (Stations 008, 040, and 090) within the OCW Phase 1 survey area and three stations (Stations 302, 339, and 345) along the Oyster Creek export cable route (Appendix D). The only species of concern observed across the surveyed area was the sea scallop (*Placopecten magellanicus)*, which was found at Station 047 (Table 3-1; Figures 3-15 and 3-16). No invasive species were identified within the surveyed area.

3.2 Ocean Wind Offshore Wind Farm Phase 1 Survey Area

Ninety-three SPI/PV stations were sampled within the OCW Phase 1 survey area (Table 3-1; Figure 1-2). The majority of stations (96%) within the OCW Phase 1 survey area were classified as the CMECS Biotic Subclass Soft Sediment Fauna, with only four stations (Stations 008, 023, 042, and 075) characterized as Worm Reef Biota (Table 3-1; Figure 3-1). The predominant Co-occurring Biotic Subclass was Inferred Fauna, which was observed at 74 of the 93 stations (80%; Table 3-1; Figure 3-3). Other Co-occurring Biotic Subclasses included Soft Sediment Fauna and Worm Reef Biota (Figure 3-3). Only two stations within the Phase 1 survey area exhibited Attached Fauna, and neither exhibited Attached Fauna as a dominant or Co-occurring Subclass; in each instance Attached Fauna were documented to have sparse coverage (Table 3-1; Figure 3-17). Station 007 exhibited encrusting sponges and Station 091 exhibited attached sponges, bryozoan, and hydroids (Figure 3-18).

Nine different Biotic Group classifications were observed within the OCW Phase 1 survey area. Larger Tube-Building Fauna, Small Tube-Building Fauna, and Sand Dollar Bed were the most frequently observed and described as the predominant Biotic Group at 69 of the 93 stations (74%; Table 3-1; Figure 3-6). Sabellariid Reef, Tunicate Bed, Tracks and Trails, and Diverse Soft Sediment Epifauna were found as the predominant Biotic Group at stations (18 of the 93 stations; 19%) within the northwestern portion of the OCW Phase 1 survey area (Table 3-1; Figure 3-6). Tracks and Trails and Mobile Crustaceans were also observed as the Biotic Group in replicate images within the OCW Phase 1 survey area (Table 3-1). The Co-occurring Biotic Group was more varied within the Phase 1 survey area, with Burrowing Anemones, Mobile Crustaceans on Soft Sediments, Mobile Mollusks on Soft Sediments, Clam Beds, Attached Sponges, and Mobile Crustaceans on Hard or Mixed Substrates also present within the survey area (Table 3-1; Figure 3-9). Also present within replicates, though not predominant at any station, were the Co-occurring Biotic Groups of Attached Bryozoans, Attached Hydroids, and Small Surface-Burrowing Fauna (Table 3-1).

Habitat type was most frequently described as Sand Sheet within the OCW Phase 1 survey area (Table 3-1; Figure 3-11). Six stations (Stations 060, 062, 065, 069, 091, and 092) in the southern portion of the Phase 1 survey area were characterized as Sand with Mobile Gravel and Shell Hash in at least one replicate image (Figure 3-11). One station (Station 076) in the southern portion of the Phase 1 survey area exhibited Continuous Shell Hash on Sand (Figure 3-11). In the northwestern portion of the OCW Phase 1 survey area, eight stations exhibited habitat types of Sand with Mobile Gravel or Sand with Mobile Gravel and Shell Hash, with three of the latter near the terminus of the Oyster Creek export cable (Figure 3-11).

Delineation of the aRPD was not possible for the majority of stations within the OCW Phase 1 survey area Station because of the coarse-grained sediments present throughout the area (Table 3-1; Figure 3-19). At the 13 stations where an aRPD was measurable, aRPD values ranged from 1.1 to 3.8 cm with a mean of 2.4 cm (SD 0.8; Table 3-1; Figures 3-19 and 3-20). One station (Station 091) had medium sediment oxygen demand, indicated by the presence of gray reduced sediments near the sediment–water interface; all other stations had low sediment oxygen demand (Table 3-1; Figures 3-21 and 3-22).

Within the OCW Phase 1 survey area, the predominant successional stage of benthic taxa was intermediate, denoted by Stage 2 succession (Table 3-1; Figure 3-23). Four stations exhibited one replicate with Stage 1->2 succession and were dispersed throughout the OCW Phase 1 survey area (Table 3-1; Figure 3-23). Advanced successional taxa, documented as Stage 2->3 and Stage 3 taxa, were observed or inferred at a number of stations throughout the Phase 1 survey area (Table 3-1; Figure 3-23), with no discernible spatial trend. Evidence of Stage 3 taxa included deep burrows and large subsurface feeding voids (Figure 3-24).

3.3 B.L. England Export Cable Route

Eleven SPI/PV stations were sampled along the B.L. England export cable route (Table 3-2; Figure 1-3). All eleven stations along the export cable route were characterized with the CMECS Biotic Subclass Soft Sediment Fauna (Table 3-2; Figure 3-2). The only documented Co-occurring Biotic Subclass along the B.L. England export cable route was Inferred Fauna, which was observed at all eleven stations (Table 3-2; Figure 3-4). No stations along the B.L. England route exhibited Attached Fauna.

Five different Biotic Group classifications were observed along the B.L. England export cable route (Table 3-2; Figure 3-7). Small Tube-Building Fauna, were the most frequently observed, described as the dominant Biotic Group at 7 of the 11 stations (64%; Table 3-2; Figure 3-7). Larger Tube-Building Taxa were the predominant Biotic Group at the two stations closest to shore along the B.L. England export cable route (Table 3-2; Figure 3-7). Diverse Soft Sediment Epifauna, Mobile Crustaceans on Soft Sediments, and Sand Dollar Bed were also documented as the dominant Biotic Group along the cable route, but only occurred at stations closest to the Phase 1 survey area (Table 3-2; Figure 3-7). The Co-occurring Biotic Group was slightly more varied than the dominant Biotic Group, with Diverse Soft Sediment Epifauna, Mobile Crustaceans on Soft Sediments, Mobile Mollusks on Soft Sediments, Tracks and Trails, and Small Tube-Building Fauna present at stations along the B.L. England export cable (Table 3-2; Figure 3-10). Five of the eleven stations imaged along the B.L. England export cable route did not exhibit a Co-occurring Biotic Group (Table 3-2; Figure 3-10). Habitat type was described as Sand Sheet for all replicate images at all stations along the B.L. England export cable route (Table 3-2; Figure 3-12).

The aRPD was not optically distinguished for eight of the eleven stations along the B.L. England export cable route because of the coarse-grained sediments along this potential cable route (Table 3-2; Figure 3-25). At the three stations where an aRPD was detectable, mean aRPD values within were 1.6 cm (SD 0.4) and ranged from 1.3 to 2.1 cm (Table 3-2; Figure 3-25). One station (Station 211) had medium sediment oxygen demand, indicated by the presence of gray reduced sediments near the sediment–water interface; all other stations had low sediment oxygen demand (Table 3-2; Figure 3-26).

Along the B.L. England export cable route, the predominant successional stage of benthic taxa was intermediate, denoted by Stage 2 succession (Table 3-2; Figure 3-27). One station (Station 207) exhibited one replicate with Stage 1->2 succession (Table 3-2; Figure 3-27). Advanced successional taxa, documented as Stage 2->3 and Stage 3 taxa, were not observed in or inferred from any replicate image along the B.L. England export cable route.

3.4 Oyster Creek Export Cable Route

Fifty SPI/PV stations were sampled along the Oyster Creek export cable route (Table 3-3; Figure 1-3). The majority of stations (92%) along the Oyster Creek export cable route were characterized with the CMECS Biotic Subclass Soft Sediment Fauna, with only four stations (Stations 336, 337, 342, and 346) characterized as Worm Reef Biota (Table 3-3; Figure 3-2).

The predominant Co-occurring Biotic Subclass was Inferred Fauna, which was observed as the dominant Co-occurring Biotic Subclass at 31 of the 50 stations (62%; Table 3-3; Figure 3-4). Other dominant Co-occurring Biotic Subclasses included Soft Sediment Fauna and Worm Reef Biota (Table 3-3; Figure 3-4). Twelve stations along the Oyster Creek export cable route did not exhibit a Co-occurring Biotic Subclass; and the Co-occurring Biotic Subclass at the station nearest shore could not be determined (Table 3-3; Figure 3-4). Fifteen stations along the Oyster Creek export cable route exhibited Attached Fauna, although the percent cover of Attached Fauna was very limited with only Trace or Sparse coverage observed (Table 3-3; Figure 3-28). Hydroids, sponges, bryozoa, and barnacles were the most common Attached Fauna. Attached fauna in the form of the sensitive taxa, squid eggs, were documented in one PV replicate at Station 341 along the Oyster Creek export cable route (Table 3-3; Figures 3-13 and 3-14).

Eleven different Biotic Group classifications were observed within the OCW Phase 1 survey area (Table 3-3; Figure 3-7). Small Tube-Building Fauna and Sand Dollar Bed were the most frequently observed, described as the dominant Biotic Group at 30 of the 50 stations (60%; Table 3-3; Figure 3-7). Sabellariid Reef, Tunicate Bed, Larger Tube-Building Fauna, and Diverse Soft Sediment Epifauna were also found as the dominant Biotic Group along the Oyster Creek export cable route (Table 3-3; Figure 3-7). Co-occurring Biotic Group was more varied, with Small Tube-Building Fauna, Larger Tube-Building Fauna, Diverse Soft Sediment Epifauna, Sand Dollar Bed, Burrowing Anemones, Tracks and Trails, Mobile Crustaceans on Soft Sediments, Clam Beds, Attached Sponges, and Mobile Crustaceans all present along the potential export cable route (Table 3-3; Figure 3-10). Sixteen stations along the Oyster Creek export cable route did not exhibit a Co-occurring Biotic Group; and the Co-occurring Biotic Group at the station nearest shore could not be determined (Table 3-3; Figure 3-10).

Habitat type along the Oyster Creek export cable route was more varied than along the B.L. England export cable route and the OCW Phase 1 survey area (Figure 3-12). The majority of stations along the Oyster Creek cable route exhibited Sand with Mobile Gravel (Table 3-3; Figure 3-12). Stations 301 and 302 along the Oyster Creek export cable that were within and nearest the OCW Phase 1 area exhibited Sand with Mobile Gravel and Continuous Pebbles on Sand (Figure 3-12). Along the Oyster Creek cable route at eight stations just to the north of the OCW Phase 1 survey area, Sand Sheets were the predominant habitat type (Figure 3-12). Along the far north portion of the cable route, Sand with Mobile Gravel was intermixed with Continuous Pebbles on Sand and Continuous Granules habitat types, with occasional stations in the furthest northern portion of the cable route exhibiting Sand with Mobile Gravel and Shell Hash (Figure 3-12).

The aRPD was not optically distinguishable for 48 of the 50 stations along the Oyster Creek export cable route because of the coarse-grained sediments along the route (Table 3-3; Figure 3-25). At the two stations (Stations 302 and 305) where an aRPD was discernible, mean aRPD values were 1.6 cm (SD 0.1) and ranged from 1.5 to 1.6 cm (Table 3-3; Figure 3-25). All stations along the Oyster Creek export cable route had low sediment oxygen demand (Table 3-3; Figure 3-26).

Along the Oyster Creek export cable route, the predominant successional stage of benthic taxa was intermediate, denoted by Stage 2 succession (Table 3-3; Figure 3-27). Ten stations exhibited at least one replicate with Stage 1->2 succession and were dispersed throughout the export cable route, with a grouping of stations near the OCW Phase 1 survey area (Figure 3-27). Advanced successional taxa, documented as Stage 2->3 and Stage 3 taxa, were observed or inferred at ten stations along the Oyster Creek export cable route, with no discernable spatial trend (Figure 3-27).

3.5 Reference Stations

Three SPI/PV stations were designated to represent reference conditions (Table 3-4; Figure 1-2). All three reference stations were characterized with the CMECS Biotic Subclass Soft Sediment Fauna and the Co-occurring Biotic Subclass of Inferred Fauna (Table 3-4; Figure 3-1).

Four different dominant Biotic Group classifications were observed at the reference stations (Table 3-4). Small Tube-Building Fauna was observed in all replicates at stations 401 and 402, while Diverse Soft Sediment Epifauna, Mobile Crustaceans on Soft Sediments, and Mobile Mollusks on Soft Sediments were all observed at station 403 (Table 3-4; Figure 3-6). Diverse Soft Sediment Epifauna and Sand Dollar Bed were the two dominant Co-occurring Biotic Groups at the reference stations (Table 3-4; Figure 3-9). Station 403 did not exhibit a Co-occurring Biotic Group (Table 3-4; Figure 3-9). All of the reference stations were classified with a Habitat Type of Sand Sheet (Table 3-4; Figure 3-11).

The aRPD was not optically distinguishable for any of the reference stations because of the coarse-grained sediment composition at these stations (Table 3-4; Figure 3-19). All reference stations had low sediment oxygen demand (Table 3-4; Figure 3-21). Stations 401 and 402 exhibited Stage 2 intermediate succession in all replicate images and Station 403 exhibited Stage 1->2 succession (Table 3-4; Figure 3-23). Advanced successional taxa, documented as Stage 2->3 and Stage 3 taxa, were not observed in or inferred from any replicate captured at the reference stations.

Overall, the reference stations exhibited similar biological and taxonomic conditions to those of the OCW Phase 1 survey area and both the B.L. England and Oyster Creek export cable routes.

Table 3-1. Summary of Sediment Profile and Plan View Image Analysis Benthic Results at the Ocean Wind Offshore Wind Farm Survey Area

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
001	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	No	Yes	None	Yes	Sand Dollars, Snails	None	None
002	3	IND	Low	No	IND	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None (2), Tracks and Trails (1)	None	Yes	Yes	Unidentified	No	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails	None	None
003	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars	None	None
004	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Mobile Mollusks on Soft Sediments (1), Tracks and Trails (2)	None	Yes	Yes	None	No	Hermit Crab, Sand Dollars, Snails	None	None
005	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None (1), Tracks and Trails (2)	None	No	Yes	None	Yes	Sand Dollars	None	None
006	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Mobile Mollusks on Soft Sediments (1), None (2)	None	No	Yes	None	Yes	Cancer Crab, Sand Dollars, Snails	None	None
007	3	IND	Low	No	2	2	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	None (2), Worm Reef Biota (1)	IND (1), Mobile Crustaceans on Soft Sediments (1), Small Tube-Building Fauna (1)	None (2), Sabellariid Reef (1)	Sparse (1 to <30%)	No	No	None	Yes	Encrusting Sponge, Hermit Crabs	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
008	3	IND	Low	No	2 -> 3	2 -> 3	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (1), Worm Reef Biota (2)	Soft Sediment Fauna (2), Worm Reef Biota (1)	Sabellariid Reef (2), Small Tube-Building Fauna (1)	Mobile Crustaceans on Soft Sediments (1), None (1), Sabellariid Reef (1)	None	No	No	None	Yes	Cancer Crab, Hermit Crabs, Nudibranch, Podocerid Amphipoda	None	None
009	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Tracks and Trails (3)	None	No	Yes	None	Yes	Hermit Crabs, Moon Snail, Sand Dollars	None	None
010	3	IND	Low	No	2	2	IND	3	Sand Sheet	Inferred Fauna (1), Soft Sediment Fauna (2)	Inferred Fauna (2), None (1)	Tracks and Trails (3)	None	None	No	Yes	None	Yes	Crab, Gastropod, Hermit Crabs, Sand Dollar, Snails	None	None
011	3	IND	Low	No	2	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (1), Tracks and Trails (2)	None (1), Sand Dollar Bed (1), Tracks and Trails (1)	None	No	Yes	Flatfish	No	Hermit Crab, Sand Dollars	None	None
012	3	IND	Low	No	2	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (2), Tracks and Trails (1)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars, Snails, Unidentified	None	None
013	3	IND	Low	No	2	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	IND (1), Sand Dollar Bed (2)	None	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails	None	None
014	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	None	None	No	Yes	Striped Sea Robin	Yes	Hermit Crabs, Snails	None	None
015	3	IND	Low	No	2	2	2	3	Sand with Mobile Gravel and Shell Hash	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (1), Small Tube-Building Fauna (2)	Mobile Crustaceans on Soft Sediments (1), None (1), Sand Dollar Bed (1)	None	No	Yes	None	Yes	Cancer Crab, Hermit Crabs, Sand Dollars, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
016	3	IND	Low	No	2	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (1), Tracks and Trails (2)	None	No	Yes	Unidentified	Yes	Hermit Crabs, Sand Dollars, Snails	None	None
017	3	IND	Low	No	2	2	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (1), Tracks and Trails (2)	None	Yes	Yes	None	No	Sand Dollars	None	None
018	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (2), Tracks and Trails (1)	None (1), Tracks and Trails (2)	None	No	Yes	None	Yes	Hermit Crab, Sand Dollars, Snails	None	None
019	3	IND	Low	No	IND	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (1), Tracks and Trails (2)	None	No	Yes	None	No	Hermit Crabs, Sand Dollars	None	None
020	3	IND	Low	No	IND	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (1), None (2)	None	No	Yes	None	Yes	Anemone, Cancer Crab, Hermit Crabs, Sand Dollars	None	None
021	3	IND	Low	No	2	2	2 on 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (2)	None	Yes	Yes	None	Yes	Hermit Crabs, Sand Dollars	None	None
022	3	IND	Low	No	2	2	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (2), Worm Reef Biota (1)	Inferred Fauna (1), Soft Sediment Fauna (1), Worm Reef Biota (1)	Larger Tube-Building Fauna (1), Sabellariid Reef (2)	Diverse Soft Sediment Epifauna (1), Larger Tube-Building Fauna (1), None (1)	None	No	Yes	Sea Robin	Yes	Hermit Crabs, Nudibranch	None	None
023	3	IND	Low	No	2	2	2 -> 3	3	Sand with Mobile Gravel	Soft Sediment Fauna (1), Worm Reef Biota (2)	Inferred Fauna (1), Soft Sediment Fauna (2)	Mobile Crustaceans on Soft Sediments (1), Sabellariid Reef (2)	Mobile Crustaceans on Hard or Mixed Substrates (2), None (1)	None	No	Yes	Flatfish	Yes	Cancer Crabs, Hermit Crabs, Moon Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
024	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (3)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
025	3	IND	Low	No	2	2 -> 3	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (1), Sabellariid Reef (1), Small Tube-Building Fauna (1)	Mobile Crustaceans on Soft Sediments (1), None (2)	None	No	Yes	Flatfish	Yes	Cancer Crab, Hermit Crabs, Podocerid Amphipoda	None	None
026	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	No	Yes	Flatfish	Yes	Cancer Crab, Gastropod, Hermit Crabs, Sand Dollars, Snails	None	None
027	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (1), Sand Dollar Bed (2)	IND (1), None (1), Tracks and Trails (1)	None	No	Yes	None	No	Cancer Crab, Sand Dollars, Snails	None	None
028	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Tunicate Bed (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None	No	Yes	None	No	Gastropod, Hermit Crab, Nudibranch, Sand Dollars, Snails, Tunicates	None	None
029	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Tunicate Bed (3)	Mobile Crustaceans on Soft Sediments (1), None (2)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars, Tunicates	None	None
030	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Tunicate Bed (3)	Sand Dollar Bed (3)	None	No	Yes	Flatfish	Yes	Sand Dollars, Snails, Surf Clam, Tunicates	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
031	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Tunicate Bed (3)	None (1), Sand Dollar Bed (2)	None	No	Yes	Tonguefish	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None
032	3	IND	Low	No	IND	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (1), Small Tube-Building Fauna (2)	None (1), Sand Dollar Bed (2)	None	No	Yes	None	No	Hermit Crabs, Sand Dollars	None	None
033	3	IND	Low	No	2	1 -> 2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (2), Small Tube-Building Fauna (1)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars	None	None
034	3	IND	Low	No	2	2 -> 3	IND	3	Sand Sheet	Soft Sediment Fauna (2), Worm Reef Biota (1)	Inferred Fauna (1), None (1), Soft Sediment Fauna (1)	Diverse Soft Sediment Epifauna (1), Sabellariid Reef (1), Tunicate Bed (1)	Mobile Mollusks on Soft Sediments (1), None (1), Small Tube-Building Fauna (1)	None	No	Yes	None	Yes	Hermit Crabs, Nudibranchs, Snails, Tunicates	None	None
035	3	1.9	Low	No	2 -> 3	2 -> 3	IND	3	Sand Sheet	Soft Sediment Fauna (2), Worm Reef Biota (1)	Inferred Fauna (1), Soft Sediment Fauna (1), Worm Reef Biota (1)	Diverse Soft Sediment Epifauna (1), Sabellariid Reef (1), Small Tube-Building Fauna (1)	Diverse Soft Sediment Epifauna (1), None (1), Small Tube-Building Fauna (1)	None	No	Yes	None	Yes	Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Sand Dollars, Snails, Tunicates	None	None
036	3	IND	Low	No	2	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Tunicate Bed (3)	None	None	No	Yes	None	No	Snails, Tunicates	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
037	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (1), Worm Reef Biota (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (1), Small Tube-Building Fauna (2)	None	No	Yes	Sea Robin	Yes	Hermit Crabs, Sand Dollars, Snails	None	None
038	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Tunicate Bed (2)	None	No	Yes	Sea Robin, Unidentified	Yes	Gastropod, Hermit Crabs, Nudibranch, Sand Dollars, Snails, Tunicates	None	None
039	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (1), Small Tube-Building Fauna (2)	Diverse Soft Sediment Epifauna (2), Small Tube-Building Fauna (1)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None
040	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (3)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars, Snails	None	None
041	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (2), Tracks and Trails (1)	None	Yes	Yes	None	Yes	Hermit Crabs, Nudibranchs, Sea Cucumber, Snails	None	None
042	3	3.7	Low	No	2	2 -> 3	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (1), Worm Reef Biota (2)	Inferred Fauna (1), Soft Sediment Fauna (2)	Larger Tube-Building Fauna (1), Sabellariid Reef (2)	Diverse Soft Sediment Epifauna (1), Mobile Crustaceans on Soft Sediments (2)	None	Yes	Yes	None	Yes	Cancer Crabs, Hermit Crabs, Jonah Crab, Podocerid Amphipoda, Sand Dollars	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
043	3	2.6	Low	No	2	2 -> 3	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	Larger Tube-Building Fauna (2), Mobile Crustaceans on Soft Sediments (1)	None	No	Yes	None	Yes	Bryozoa, Hermit Crabs, Sand Dollars, Snails	None	None
044	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None (2), Small Tube-Building Fauna (1)	None	Yes	Yes	None	Yes	Anemone, Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None
045	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Tunicate Bed (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None
046	3	IND	Low	No	2	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (1), Small Tube-Building Fauna (2)	None	No	Yes	None	Yes	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails	None	None
047	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	No	Yes	None	Yes	Gastropods, Hermit Crabs, Sand Dollars, Sea Scallop	None	Sea Scallop
048	3	3.8	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
049	3	2.8	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
050	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (1), Tunicate Bed (2)	Sand Dollar Bed (1), Small Surface-Burrowing Fauna (1), Tunicate Bed (1)	None	Yes	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None
051	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (3)	None	Yes	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None
052	3	IND	Low	No	2	2	1 -> 2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Sand Dollar Bed (2)	None	No	Yes	None	Yes	Cancer Crabs, Gastropod, Hermit Crabs, Sand Dollars, Snails	None	None
053	3	IND	Low	No	IND	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Tunicate Bed (3)	None	No	Yes	None	Yes	Gastropod, Sand Dollars, Snails, Tunicates	None	None
054	3	IND	Low	No	IND	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (1), Larger Tube-Building Fauna (2)	Diverse Soft Sediment Epifauna (2), Larger Tube-Building Fauna (1)	None	Yes	Yes	None	Yes	Cancer Crabs, Sand Dollars, Snails	None	None
055	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), Worm Reef Biota (2)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
056	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (3)	Small Tube-Building Fauna (3)	None	Yes	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
057	3	IND	Low	No	2	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (2), Small Tube-Building Fauna (1)	Diverse Soft Sediment Epifauna (1), Small Tube-Building Fauna (2)	None	No	Yes	None	Yes	Cancer Crabs, Gastropod, Hermit Crabs, Sand Dollars, Snails	None	None
058	3	IND	Low	No	2	2	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
059	3	IND	Low	No	2	1 -> 2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	Yes	Yes	None	Yes	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
060	3	IND	Low	No	2	2	2 -> 3	3	Sand with Mobile Gravel and Shell Hash	Soft Sediment Fauna (2), Worm Reef Biota (1)	Soft Sediment Fauna (1), Worm Reef Biota (2)	Larger Tube-Building Fauna (1), Sabellariid Reef (1), Tunicate Bed (1)	Sabellariid Reef (2), Tunicate Bed (1)	None	Yes	No	None	Yes	Cancer Crabs, Hermit Crabs, Nudibranchs	None	None
061	3	IND	Low	No	2	2 -> 3	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
062	3	1.5	Low	No	2 -> 3	2 -> 3	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (2), Worm Reef Biota (1)	Soft Sediment Fauna (1), Worm Reef Biota (2)	Larger Tube-Building Fauna (2), Sabellariid Reef (1)	None (2), Sabellariid Reef (1)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
063	3	1.9	Low	No	2	2	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	Mobile Crustaceans on Soft Sediments (1), Sand Dollar Bed (2)	None	No	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
064	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), Worm Reef Biota (1)	Larger Tube-Building Fauna (1), Sand Dollar Bed (2)	Larger Tube-Building Fauna (2), Sabellariid Reef (1)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
065	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel and Shell Hash	Soft Sediment Fauna (3)	None (2), Worm Reef Biota (1)	Diverse Soft Sediment Epifauna (2), Mobile Crustaceans on Hard or Mixed Substrates (1)	Larger Tube-Building Fauna (1), None (1), Sabellariid Reef (1)	None	No	No	None	Yes	Hermit Crabs, Sand Dollars, Snails	None	None
066	3	IND	Low	No	2	2	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	No	Yes	None	Yes	Cancer Crab, Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
067	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
068	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	Yes	Yes	Unidentified	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
069	3	IND	Low	No	2	2 -> 3	2 -> 3	3	Sand with Mobile Gravel and Shell Hash	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	None	None	Yes	Yes	None	Yes	Cancer Crabs, Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Sand Dollars	None	None
070	3	IND	Low	No	2	2	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	Yes	Yes	None	Yes	Cancer Crabs, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
071	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
072	3	IND	Low	No	2	2 -> 3	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	Yes	Yes	None	Yes	Hermit Crabs, Nudibranch, Podocerid Amphipoda, Sand Dollars, Snails	None	None
073	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	Yes	Yes	None	Yes	Hermit Crabs, Sand Dollars, Snails	None	None
074	3	IND	Low	No	2	2	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	Yes	Yes	Flatfish	Yes	Cancer Crabs, Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
075	3	IND	Low	No	2	2	2	3	Sand Sheet	Worm Reef Biota (3)	Inferred Fauna (1), None (1), Soft Sediment Fauna (1)	Sabellariid Reef (3)	Larger Tube-Building Fauna (1), None (2)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
076	3	IND	Low	No	2	2	IND	3	Continuous Shell Hash on Sand	Soft Sediment Fauna (3)	None	IND (1), Small Tube-Building Fauna (2)	Larger Tube-Building Fauna (1), None (2)	None	No	No	None	Yes	Hermit Crab, Jonah Crab	None	None
077	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	Yes	No	None	Yes	Gastropod, Hermit Crabs, Jonah Crab, Podocerid Amphipoda, Sand Dollars, Snails	None	None
078	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (2), Sand Dollar Bed (1)	Larger Tube-Building Fauna (1), Sand Dollar Bed (2)	None	Yes	Yes	Flatfish	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
079	3	1.1	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	No	Yes	None	Yes	Cancer Crabs, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
080	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Mobile Crustaceans on Soft Sediments (1), Small Tube-Building Fauna (2)	None	No	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
081	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Sand Dollar Bed (2)	None	Yes	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None
082	3	2.7	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (3)	None	Yes	Yes	Unidentified	Yes	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
083	3	2.6	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None
084	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (1), Small Surface-Burrowing Fauna (1), Small Tube-Building Fauna (1)	None	Yes	Yes	None	Yes	Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
085	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Mobile Mollusks on Soft Sediments (2)	None	No	No	None	Yes	Bivalve, Cancer Crabs, Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Snails	None	None
086	3	2.2	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (3)	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails	None	None
087	3	2.8	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Larger Tube-Building Fauna (3)	None	Yes	Yes	None	Yes	Gastropod, Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
088	3	IND	Low	No	2	2	1 -> 2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None	None	Yes	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
089	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (2), Sand Dollar Bed (1)	Larger Tube-Building Fauna (1), Sand Dollar Bed (2)	None	Yes	Yes	None	Yes	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
090	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (1), Sand Dollar Bed (1)	None	Yes	Yes	Unidentified	Yes	Hermit Crab, Nudibranchs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
091	3	1.8	Medium	No	2	2	2 -> 3	3	Sand with Mobile Gravel and Shell Hash	Soft Sediment Fauna (2), Worm Reef Biota (1)	None (2), Soft Sediment Fauna (1)	Larger Tube-Building Fauna (1), Sabellariid Reef (1), Small Tube-Building Fauna (1)	Attached Bryozoa (1), Attached Hydroids (1), None (1)	Sparse (1 to <30%)	Yes	No	None	Yes	Boring Sponge, Bryozoa, Cancer Crabs, Hermit Crabs, Hydroids, Snails, Sponge	None	None
092	3	IND	Low	No	IND	IND	IND	3	Sand with Mobile Gravel and Shell Hash	Soft Sediment Fauna (3)	None	None	None	None	No	No	Unidentified	No	Cancer Crab, Hermit Crabs	None	None
093	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Podocerid Amphipoda, Sand Dollars, Snails	None	None
n = 93																					
Max		**3.8**																			
Min		**1.1**																			
Mean		**2.4**																			
Standard Deviation		**0.8**																			
n = 157																					
Max		**3.8**																			
Min		**1.1**																			
Mean		**2.2**																			

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
Standard Deviation		**0.8**																			

IND=Indeterminate
*Successional Stage: “on” indicates one Stage is found on top of another Stage (i.e., 1 on 3); “->” indicates one Stage is progressing to another Stage (i.e., 2 -> 3).
[1]Variable determined from combined SPI and PV analysis

Table 3-2. Summary of Sediment Profile and Plan View Image Analysis Benthic Results at the B.L. England Export Cable Route

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
201	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (2), Small Tube-Building Fauna (1)	Diverse Soft Sediment Epifauna (1), Small Tube-Building Fauna (2)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars, Snails	None	None
202	3	1.5	Low	No	IND	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (1), Mobile Crustaceans on Soft Sediments (1), None (1)	None	None	No	Yes	None	No	Cancer Crabs, Hermit Crabs, Moon Snails	None	None
203	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (1), Tracks and Trails (2)	None	No	Yes	None	Yes	Sand Dollars, Snails	None	None
204	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (1), Tracks and Trails (1)	None	No	Yes	None	Yes	Cancer Crabs, Crab, Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None
205	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Mobile Crustaceans on Soft Sediments (1), None (1), Tracks and Trails (1)	None	Yes	Yes	None	Yes	Hermit Crabs, Nudibranchs, Snails	None	None
206	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	No	Yes	None	Yes	Cancer Crabs, Hermit Crabs, Nudibranchs	None	None
207	3	IND	Low	No	2	2	1 -> 2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	No	Yes	None	Yes	Cancer Crabs, Hermit Crabs, Snails	None	None
208	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	Mobile Mollusks on Soft Sediments (1), None (2)	None	No	Yes	None	Yes	Cancer Crabs, Hermit Crabs, Nudibranchs, Snails	None	None
209	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	No	Yes	None	Yes	Cancer Crabs, Gastropod, Hermit Crabs, Snails	None	None
210	3	1.3	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (3)	None	None	No	Yes	None	Yes	Hermit Crabs, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
211	3	2.1	Medium	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (2)	None	No	Yes	Flatfish	Yes	Anemones, Hermit Crabs, Sand Dollars, Slipper Shell Clam, Snails	None	None
n = 11																					
Max		**2.1**																			
Min		**1.3**																			
Mean		**1.6**																			
Standard Deviation		**0.4**																			
n = 157																					
Max		**3.8**																			
Min		**1.1**																			
Mean		**2.2**																			
Standard Deviation		**0.8**																			

IND=Indeterminate
*Successional Stage: “on” indicates one Stage is found on top of another Stage (i.e., 1 on 3); “->” indicates one Stage is progressing to another Stage (i.e., 2 -> 3).
[1]Variable determined from combined SPI and PV analysis

Table 3-3. Summary of Sediment Profile and Plan View Image Analysis Benthic Results at the Oyster Creek Export Cable Route

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
301	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	None (1), Worm Reef Biota (2)	Sabellariid Reef (1), Small Tube-Building Fauna (2)	None	None	No	Yes	None	Yes	Cerianthids, Hermit Crabs, Sand Dollars, Snails, Surf Clam	None	None
302	3	1.6	Low	No	2 -> 3	2 -> 3	2 -> 3	3	Continuous Pebbles on Sand	Soft Sediment Fauna (3)	None (1), Worm Reef Biota (2)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (3)	Trace (<1%)	No	No	None	Yes	Bryozoa, Hermit Crabs, Nudibranchs, Snails, Unidentified Clam	None	None
303	3	IND	Low	No	1 -> 2	1 -> 2	1 -> 2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (1), Small Tube-Building Fauna (1), Tracks and Trails (1)	None (2), Sand Dollar Bed (1)	None	Yes	Yes	None	Yes	Cancer Crabs, Sand Dollars, Snails	None	None
304	3	IND	Low	No	2	1 -> 2	1 -> 2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (2), Tracks and Trails (1)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars, Snails, Surf Clam	None	None
305	3	1.5	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	None	Sand Dollar Bed (3)	Small Tube-Building Fauna (3)	None	No	Yes	None	Yes	Cancer Crabs, Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None
306	3	IND	Low	No	1 -> 2	1 -> 2	1 -> 2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Mobile Mollusks on Soft Sediments (1), Small Tube-Building Fauna (1), Tracks and Trails (1)	None (2), Sand Dollar Bed (1)	None	No	Yes	None	Yes	Cancer Crab, Nudibranchs, Sand Dollars, Snails	None	None
307	3	IND	Low	No	1 -> 2	1 -> 2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (2), Tracks and Trails (1)	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None
308	3	IND	Low	No	2	2	2 -> 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	No	Yes	None	Yes	Cerianthids, Hermit Crabs, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
309	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None	None	Yes	Yes	None	Yes	Hermit Crabs, Nudibranchs, Sand Dollars, Snails, Unidentified Organism	None	None
310	3	IND	Low	No	2	2	2 on 3	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	No	Yes	None	Yes	Hermit Crabs, Sand Dollars	None	None
311	3	IND	Low	No	2	2	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (1), Small Tube-Building Fauna (2)	Larger Tube-Building Fauna (1), None (2)	None	No	Yes	None	Yes	Nudibranchs, Sand Dollars, Snails	None	None
312	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (2), Sand Dollar Bed (1)	None	Yes	Yes	None	Yes	Nudibranchs, Sand Dollars	None	None
313	3	IND	Low	No	1 -> 2	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Diverse Soft Sediment Epifauna (2), Larger Tube-Building Fauna (1)	None	None	No	Yes	None	Yes	Hermit Crabs, Limpets, Nudibranch, Sand Dollars	None	None
314	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), None (1), Sand Dollar Bed (1)	None	No	Yes	None	Yes	Hermit Crabs, Nudibranchs, Sand Dollars	None	None
315	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (1), Sand Dollar Bed (1), Small Tube-Building Fauna (1)	Diverse Soft Sediment Epifauna (2), Small Tube-Building Fauna (1)	None	No	Yes	Sea Robin	Yes	Bryozoa, Hermit Crabs, Nudibranchs, Sand Dollars, Surf Clam, Tunicates	None	None
316	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (1), Small Tube-Building Fauna (2)	None (1), Sand Dollar Bed (2)	None	No	Yes	Sea Robin	Yes	Cerianthids, Sand Dollars, Surf Clam	None	None
317	3	IND	Low	No	2	IND	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Sand Dollar Bed (3)	None (2), Tracks and Trails (1)	None	No	Yes	None	No	Cerianthids, Sand Dollars, Surf Clam	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
318	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Diverse Soft Sediment Epifauna (1), None (1), Sand Dollar Bed (1)	Attached Sponges (1), None (2)	Sparse (1 to <30%)	Yes	Yes	None	Yes	Hermit Crabs, Hydroids, Nudibranchs, Sand Dollars, Snails, Sponges	None	None
319	3	IND	Low	No	2	2	2	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Diverse Soft Sediment Epifauna (1), None (1), Sand Dollar Bed (1)	None	None	No	Yes	None	Yes	Nudibranchs, Sand Dollars, Snails, Surf Clam	None	None
320	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	None	None	No	Yes	None	No	Ceranthids, Sand Dollars	None	None
321	3	IND	Low	No	IND	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (3)	Sand Dollar Bed (3)	Small Tube-Building Fauna (1), Tracks and Trails (2)	None	No	Yes	None	Yes	Sand Dollars, Snails, Surf Clam	None	None
322	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Larger Tube-Building Fauna (1), Small Tube-Building Fauna (2)	Sand Dollar Bed (2), Small Tube-Building Fauna (1)	Trace (<1%)	No	Yes	None	Yes	Bryozoa, Cancer Crabs, Sand Dollars, Snails	None	None
323	3	IND	Low	No	2	2	1 -> 2	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	Clam Bed (2), Diverse Soft Sediment Epifauna (1)	None	No	Yes	Sea Robin	Yes	Hermit Crabs, Nudibranchs, Sand Dollars, Surf Clam	None	None
324	3	IND	Low	No	IND	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	None	Sand Dollar Bed (3)	Clam Bed (2), Diverse Soft Sediment Epifauna (1)	None	No	No	None	Yes	Ceriantids, Hermit Crabs, Moon Snails, Sand Dollars, Surf Clam	None	None
325	3	IND	Low	No	IND	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	None	Sand Dollar Bed (3)	None	None	No	No	None	No	Hermit Crabs, Sand Dollars, Snails, Surf Clam	None	None
326	3	IND	None	No	2 -> 3	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (3)	None	Trace (<1%)	No	Yes	None	No	Bryozoa, Hermit Crabs, Nudibranchs, Sand Dollars, Surf Clam	None	None
327	3	IND	None	No	IND	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Sand Dollar Bed (3)	None	Trace (<1%)	No	Yes	None	No	Cerianthids, Hermit Crabs, Hydroid, Sand Dollars, Surf Clam	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
328	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	None (1), Small Tube-Building Fauna (2)	None	None	No	Yes	None	Yes	Hermit Crabs, Moon Snails, Snails	None	None
329	3	IND	Low	No	2	2	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (1), Sand Dollar Bed (2)	None	No	Yes	None	Yes	Hermit Crabs, Nudibranchs, Sand Dollars, Tunicates	None	None
330	3	IND	None	No	IND	IND	IND	3	Continuous Granules	Soft Sediment Fauna (3)	None	Tunicate Bed (3)	Diverse Soft Sediment Epifauna (3)	None	No	No	None	Yes	Cerianthids, Gastropod, Hermit Crabs, Nudibranchs, Sea Slugs, Snails, Surf Clam, Tunicates	None	None
331	3	IND	Low	No	2	2	2 -> 3	3	Sand with Mobile Gravel	Soft Sediment Fauna (2), Worm Reef Biota (1)	None (1), Soft Sediment Fauna (1), Worm Reef Biota (1)	Sabellariid Reef (1), Small Tube-Building Fauna (2)	Diverse Soft Sediment Epifauna (1), None (2)	None	No	Yes	None	Yes	Cerianthids, Clam, Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None
332	3	IND	Low	No	2	1 -> 2	IND	3	Sand with Mobile Gravel	Attached Fauna (1), Soft Sediment Fauna (2)	Inferred Fauna (2), None (1)	Small Tube-Building Fauna (3)	None	Trace (<1%)	No	Yes	None	Yes	Hydroids, Sand Dollars, Snails	None	None
333	3	IND	Low	No	2	2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (2), Sand Dollar Bed (1)	None	No	Yes	None	Yes	Cerianthids, Hermit Crabs, Sand Dollars	None	None
334	3	IND	Low	No	2	2	IND	3	Continuous Granules	Soft Sediment Fauna (3)	None	Small Tube-Building Fauna (2), Tunicate Bed (1)	Diverse Soft Sediment Epifauna (1), None (2)	Trace (<1%)	No	No	None	Yes	Cerianthids, Gastropod, Hermit Crabs, Hydroids, Snails, Surf Clam, Tunicates	None	None
335	3	IND	Low	No	2	2 -> 3	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Larger Tube-Building Fauna (1), None (2)	None	Trace (<1%)	No	Yes	None	Yes	Cerianthids, Hermit Crabs, Hydroids, Snails	None	None
336	3	IND	Low	No	2	2	2	3	Sand with Mobile Gravel	Worm Reef Biota (3)	Inferred Fauna (1), Soft Sediment Fauna (2)	Sabellariid Reef (3)	Larger Tube-Building Fauna (2), None (1)	None	No	Yes	None	Yes	Cerianthids, Clam, Hermit Crabs, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
337	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel	Worm Reef Biota (3)	None	Sabellariid Reef (3)	Diverse Soft Sediment Epifauna (1), None (2)	None	No	No	None	Yes	Bryozoa, Hermit Crabs, Limpets, Nudibranchs	None	None
338	3	IND	Low	No	2	1 -> 2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Small Tube-Building Fauna (3)	None (2), Tracks and Trails (1)	None	No	Yes	None	Yes	Gastropod, Snails	None	None
339	3	IND	Low	No	2	2	2 -> 3	3	Continuous Granules	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (2), None (1)	None	No	No	None	Yes	Cancer Crabs, Cerianthids, Clams, Hermit Crabs, Nudibranchs, Podocerid Amphipoda, Snails	None	None
340	3	IND	Low	No	2	1 -> 2	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	None	Trace (<1%)	Yes	Yes	None	Yes	Bryozoa, Cerianthids	None	None
341	3	IND	Low	No	2	2	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	None	Small Tube-Building Fauna (3)	None	Trace (<1%)	No	Yes	None	Yes	Cerianthids, Clam, Hermit Crabs, Hydroids	Squid Eggs	None
342	3	IND	Low	No	2	2	2 -> 3	3	Sand with Mobile Gravel	Worm Reef Biota (3)	Inferred Fauna (1), None (1), Soft Sediment Fauna (1)	Sabellariid Reef (3)	Diverse Soft Sediment Epifauna (2), None (1)	Trace (<1%)	No	Yes	None	Yes	Cerianthids, Clam, Hermit Crabs, Hydroids, Limpets	None	None
343	3	IND	Low	No	2	2	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	None	Small Tube-Building Fauna (3)	Larger Tube-Building Fauna (1), None (2)	Trace (<1%)	No	No	None	Yes	Cerianthids, Clams, Hermit Crabs, Hydroids	None	None
344	3	IND	Low	No	2	2	2 -> 3	3	Continuous Pebbles on Sand	Soft Sediment Fauna (3)	None	Attached Hydroids (1), Mobile Crustaceans on Hard or Mixed Substrates (1), Small Tube-Building Fauna (1)	Burrowing Anemones (1), Mobile Crustaceans on Hard or Mixed Substrates (2)	Sparse (1 to <30%)	No	No	None	Yes	Bryozoa, Cerianthids, Hermit Crabs, Hydroids, Snails	None	None

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
345	3	IND	None	No	1 -> 2	1 -> 2	1 -> 2	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Burrowing Anemones (1), Mobile Crustaceans on Hard or Mixed Substrates (1), Small Tube-Building Fauna (1)	Burrowing Anemones (1), Diverse Soft Sediment Epifauna (1), Mobile Crustaceans on Hard or Mixed Substrates (1)	None	No	Yes	None	Yes	Cerianthids, Hermit Crabs, Tunicates	None	None
346	3	IND	Low	No	2	2 -> 3	2 -> 3	3	Sand with Mobile Gravel and Shell Hash	Worm Reef Biota (3)	Soft Sediment Fauna (3)	Sabellariid Reef (3)	Mobile Crustaceans on Soft Sediments (2), None (1)	Sparse (1 to <30%)	No	No	None	Yes	Cerianthids, Hermit Crabs, Hydroids	None	None
347	3	IND	Low	No	2	2	2	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	None	Burrowing Anemones (1), Larger Tube-Building Fauna (2)	Burrowing Anemones (1), None (2)	None	No	No	None	Yes	Cerianthids, Clams, Gastropod, Snails	None	None
348	3	IND	Low	No	2	IND	IND	3	Sand with Mobile Gravel	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Diverse Soft Sediment Epifauna (1), Larger Tube-Building Fauna (1), None (1)	None	None	No	Yes	None	Yes	Cerianthids, Clam, Hermit Crabs	None	None
349	3	IND	Low	No	IND	IND	IND	3	Continuous Pebbles on Sand	Soft Sediment Fauna (3)	None	Larger Tube-Building Fauna (2), None (1)	None	Sparse (1 to <30%)	No	No	None	Yes	Barnacles, Hermit Crabs, Hydroids	None	None
350	3	IND	Low	No	IND	IND	IND	3	Sand with Mobile Gravel and Shell Hash	IND (2), Soft Sediment Fauna (1)	IND (2), None (1)	IND	IND	None	No	No	None	No	Hermit Crabs	None	None
n = 50																					
Max		**1.6**																			
Min		**1.5**																			
Mean		**1.6**																			
Standard Deviation		**0.1**																			
n = 157																					
Max		**3.8**																			
Min		**1.1**																			

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Type[1]	Species of Concern[1]
Mean		**2.2**																			
Standard Deviation		**0.8**																			

IND=Indeterminate
*Successional Stage: “on” indicates one Stage is found on top of another Stage (i.e., 1 on 3); “->” indicates one Stage is progressing to another Stage (i.e., 2 -> 3).
[1]Variable determined from combined SPI and PV analysis

Table 3-4. Summary of Sediment Profile and Plan View Image Analysis Benthic Results at the Reference Stations

Station ID	SPI Replicate (n)	Mean aRPD Depth (cm)	Sediment Oxygen Demand Level	Methane Presence	Successional Stage (by replicate)*			PV Replicate (n)	Habitat Type	CMECS Biotic Subclasses (# of reps)	CMECS Co-occurring Biotic Subclasses (# of reps)	CMECS Biotic Groups (# of reps)	CMECS Co-occurring Biotic Groups (# of reps)	Maximum Attached Fauna Percent Cover (CMECS Percent Cover Modifier)	Burrow Presence	Tracks Presence	Fish Presence/Type	Presence of Tubes[1]	Epifauna Present[1]	Sensitive Taxa Present[1]	Species of Concern[1]
401	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (2), None (1)	Small Tube-Building Fauna (3)	Sand Dollar Bed (3)	None	No	Yes	None	Yes	Cancer Crabs, Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails, Tunicate	No	None
402	3	IND	Low	No	2	2	2	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (1), None (2)	Small Tube-Building Fauna (3)	Diverse Soft Sediment Epifauna (2), Sand Dollar Bed (1)	None	No	Yes	None	Yes	Gastropod, Hermit Crabs, Sand Dollars, Snails	No	None
403	3	IND	Low	No	1 -> 2	1 -> 2	IND	3	Sand Sheet	Soft Sediment Fauna (3)	Inferred Fauna (3)	Diverse Soft Sediment Epifauna (1), Mobile Crustaceans on Soft Sediments (1), Mobile Mollusks on Soft Sediments (1)	None	None	No	Yes	None	Yes	Cancer Crabs, Gastropod, Hermit Crabs, Nudibranchs, Sand Dollars, Snails	No	None
n = 3																					
Max		-																			
Min		-																			
Mean		-																			
Standard Deviation		-																			
n = 157																					
Max		**3.8**																			
Min		**1.1**																			
Mean		**2.2**																			
Standard Deviation		**0.8**																			

IND=Indeterminate
*Successional Stage: “on” indicates one Stage is found on top of another Stage (i.e., 1 on 3); “->” indicates one Stage is progressing to another Stage (i.e., 2 -> 3).
[1]Variable determined from combined SPI and PV analysis

4.0 DISCUSSION

The purpose of the SPI/PV survey was to characterize benthic habitats within the OCW Phase 1 survey area, along two potential export cable routes for the Lease OCS-A 0498, and at designated reference stations. Results from the SPI/PV survey are intended to support spatial planning decisions, reduce uncertainty associated with baseline conditions, and inform future approaches. This benthic SPI/PV study provides a valuable data for the assessment of the biological conditions of the surficial sediments within the surveyed area. This study also carefully considered all BOEM regulations and guideline recommendations; SPI and PV images provide important data pertaining to several of these regulations and guidelines (Table 4-1). The SPI and PV images were useful in mapping the biological properties of the surface sediments and helped to document and characterize the types of habitats and benthic taxa present within the OCW Phase 1 survey area, along the potential cable routes, and at the reference stations.

Habitat types were defined based on their physical habitat structure and mobility, as well as their dominant CMECS Biotic Subclass and CMECS Biotic Group The dominant habitat type identified at the surveyed area was Sand Sheets, observed throughout the Phase 1 survey area, along both the Oyster Creek and B.L. England export cable routes, and at the reference stations (Tables 3-1 through 3-4; Figures 3-11 and 3-12). Habitats such as Sand with Mobile Gravel, Continuous Pebbles on Sand, and Continuous Granules were observed in distinct locations. Sand with Mobile Gravel was documented throughout the Oyster Creek export cable route and at a few stations scattered within the OCW Phase 1 survey area. Continuous Pebbles on Sand were documented at both the area of the Oyster Creek export cable route closest to the Phase 1 survey area and the northernmost stations of the Oyster Creek cable route. Continuous Granules were documented at stations in the northern portion of the Oyster Creek export cable route. Habitats such as Continuous Pebbles on Sand and Continuous Granules are suitable for certain life stages of sensitive taxa such as squid eggs.

The dominant Biotic Subclass observed across the surveyed area was Soft Sediment Fauna (Tables 3-1 through 3-4; Figures 3-1 and 3-2). The prevalence of Soft Sediment Fauna corresponded with the predominant Habitat type of Sand Sheets. Worm Reef Biota were present as the CMECS Biotic Subclass or Co-occurring Biotic Subclass at 14 of the 157 stations sampled across the surveyed area. Attached fauna were documented at only 17 stations throughout the entire surveyed area and, when observed, were limited in percent coverage with only Trace and Sparse coverages observed (Tables 3-1 through 3-4; Figures 3-17 and 3-28). The limited documentation of attached fauna corresponded with the limited observations of suitable habitat, with most attached fauna present along the Oyster Creek export cable route at stations where mobile gravel, pebbles, and granules were observed. The reference stations were similar to the Phase 1 survey area, with Soft Sediment Fauna as the predominant Biotic Subclass. There were no observations of attached fauna at any of the reference stations.

While dominant Biotic Subclass was mostly homogeneous across the surveyed area, Biotic Group was much more heterogeneous. Sand Dollar Beds and both Small and Larger Tube-Building Fauna were the predominant Biotic Groups observed (Tables 3-1 through 3-4; Figures

3-6 and 3-7). Tubes at the sediment–water interface were often the result of polychaetae activity, but amphipod tubes were also observed. Many tubes were formed by plumed worm, a polychaete that regularly incorporates shell particles into its tube construction giving these tubes a distinct appearance (Figure 3-5A). The variability in dominant Biotic and Co-Occurring Biotic Groups at the OCW Phase 1 survey area and along the proposed cable routes highlights the benthic diversity of the seafloor in the surveyed area. The Dominant Biotic Group at the reference areas was Small Tube-Building Fauna, one of the dominant Biotic Groups observed throughout the rest of the surveyed area.

Evidence of the presence of sensitive taxa was documented at one station (Station 341) along the Oyster Creek export cable route, where an egg mop of longfin squid eggs was observed in one replicate PV image (Figures 3-13 and 3-14). These egg mops are prominent in the summer and early fall (Guida et al. 2017), which corresponds with the timeframe this survey was conducted. The later life stage of the squid is mobile and considered resistant to disturbance, but the immobile, attached egg mops of the early life stage are sensitive to local disturbance (Guida et al. 2017). Unfortunately, little is known about the habitat conditions or the geographic distribution of egg-deposition by this species (Guida et al. 2017). Spent squid egg casings were also observed at three stations (Stations 008, 040, and 090) within the OCW Phase 1 survey area and three stations (Stations 302, 339, and 345) along the Oyster Creek export cable route (Appendix D). The presence of these spent casings and the egg mop suggest that squid are utilizing the surveyed area. However, because of the low prevalence of egg mops and casings documented in this survey, any disturbance from construction should be minimal and localized. The only species of concern observed across the surveyed area was the sea scallop, which was found at Station 047 (Figures 3-15 and 3-16). Sea scallops and longfin squid are both important fisheries in the Mid-Atlantic region. No invasive species were identified within the surveyed area.

Throughout the surveyed area, successional taxa were overwhelmingly designated as Stage 2, with only a few stations documented to contain another successional designation (Figures 3-23 and 3-27). In many cases, the Stage 2 determination was based on the presence of plumed worm tubes; specialized shell tubes (Figure 3-5A). Due to the dynamic nature of these sandy environments and the very low organic loads found in medium and coarse sands, Stage 3 head-down deposit feeders would not be expected to be prevalent in these habitats. In instances where more advanced successional taxa were observed, the sediment grain-size was finer which can correlate with a higher organic content to support advanced successional taxa (Pearson and Rosenberg 1978). The aRPD was not measurable at most of the stations, often because it was not optically determinable (Tables 3-1 through 3-4; Figures 3-19 and 3-25). This is a common occurrence in mobile, well-washed sands with high porewater content. In coarser sandy sediments, the oxidation depth is based more on diffusion through sand grains and less on organic inputs and bioturbation of deposit-feeding infauna. The result is that the vast majority of stations also had low sediment oxygen demand, and there were no signs of bottom water hypoxia or methanogenesis (Tables 3-1 through 3-4; Figures 3-21 and 3-26).

Overall, the reference stations exhibited similar biological and taxonomic conditions to those of the OCW Phase 1 survey area and both the B.L. England and Oyster Creek export cable routes (Tables 3-1 through 3-4). These stations should serve as an appropriate baseline of benthic conditions in the lease area dependent upon no wind turbine generators being placed at their locations.

The results and images from this survey will provide an accurate characterization and delineation of benthic habitats and establish a baseline of both large- and small-scale biological features within the OCW Phase 1 survey area, along the potential export cable routes, and at the reference stations. The results will also allow Ørsted to broadly communicate the results of the survey using seafloor images of pre-development conditions. Contributions from this survey will provide valuable information to address the BOEM guidelines and regulations, as well as stakeholder concerns.

Table 4-1. BOEM Guidelines, SPI Survey Approaches and Results

Guideline	SPI/PV Survey Approach and/or Parameter(s)	Results
Characterization of benthic habitat attributes	SPI: aRPD, Sediment Oxygen Demand and proxies (methane, *Beggiatoa*) PV: Habitat type	• Overwhelmingly Sand Sheet habitat type across surveyed area; • Sand with Mobile Gravel documented throughout the Oyster Creek export cable route and at a few stations scattered within the Phase 1 survey area; • Continuous Pebbles on Sand documented at both the area of the Oyster Creek export cable route closest to the Phase 1 survey area and the northernmost stations of the Oyster Creek cable route; • Continuous Granules were documented at stations in the northern portion of the Oyster Creek export cable route; • Generally deep or indeterminate aRPD with low sediment oxygen demand; • No methane or *Beggiatoa* documented.
Classification to CMECS Biotic Component to lowest taxonomic unit practicable	PV: CMECS Dominant and Co-occurring Biotic Subclass and Group	• Survey area overwhelmingly dominated by Soft Sediment Fauna; • Attached fauna documented at 17 stations (generally corresponded with coarser habitats, particularly at northern portion of the Oyster Creek export cable route); • Co-occurring Biotic Subclasses were generally Inferred Fauna; • Larger Tube Building Fauna, Small Tube-Building Fauna, and Sand Dollar Bed (Biotic Group) dominated the surveyed area.

Guideline	SPI/PV Survey Approach and/or Parameter(s)	Results
Identification of potentially sensitive seafloor habitat	SPI and PV: Sensitive Taxa, Epifauna* PV: CMECS Dominant and Co-occurring Biotic Subclass and Group, Attached Flora/Fauna Percent Cover, Habitat type	• Longfin squid eggs documented at Station 341 along the Oyster Creek export cable route.
Characterization of macrofaunal community and any submerged aquatic vegetation (seagrass and macroalgae) Identification of taxa diversity	SPI and PV: Epifauna SPI: Tubes/Voids, Successional Stage PV: CMECS Dominant and Co-occurring Biotic Subclass and Group, Attached Flora/Fauna Percent Cover, Burrows/Tubes/Tracks, Infauna, Flora	• Larger Tube-Building Fauna, Small Tube-Building Fauna, and Sand Dollar Bed most prevalent Biotic Groups; • Majority of surveyed area characterized as intermediate successional stage 2; • Stations with attached fauna tended to have more diverse epifaunal assemblages including bryozoa, sponges, hydroids, colonial tunicates, mobile crustaceans.
Identification of invasive taxa	SPI and PV: Invasive Taxa	• No invasive species documented.

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Sediment Profile and Plan View Imaging Benthic Assessment Survey in Support of the Ocean Wind Offshore Wind Farm Site Assessment

DATA REPORT

Survey Conducted 18-21 July 2019

FIGURES

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January 2020

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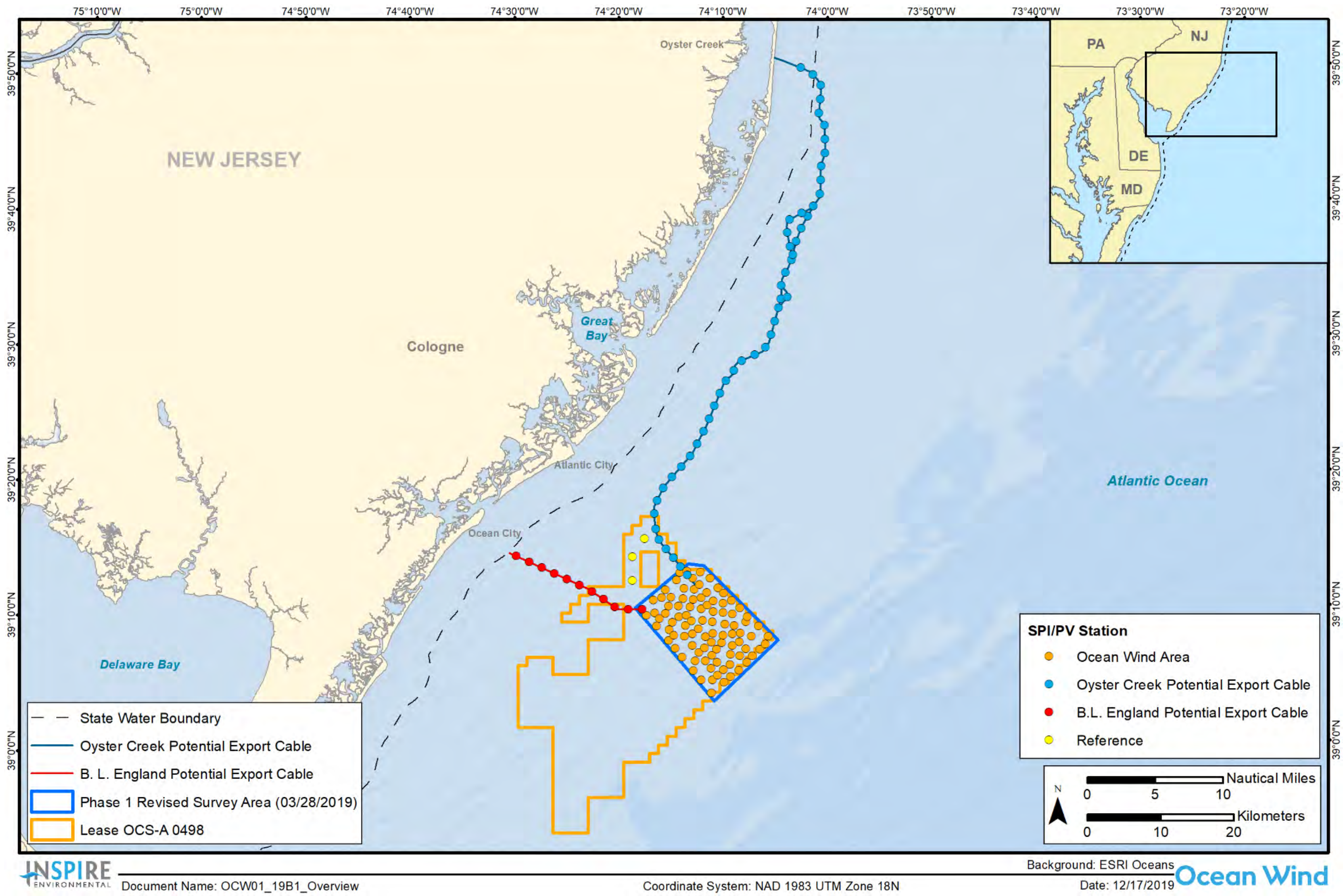


Figure 1-1. Location of the Ocean Wind Offshore Wind Farm (OCW) Phase 1 survey area and proposed export cable routes

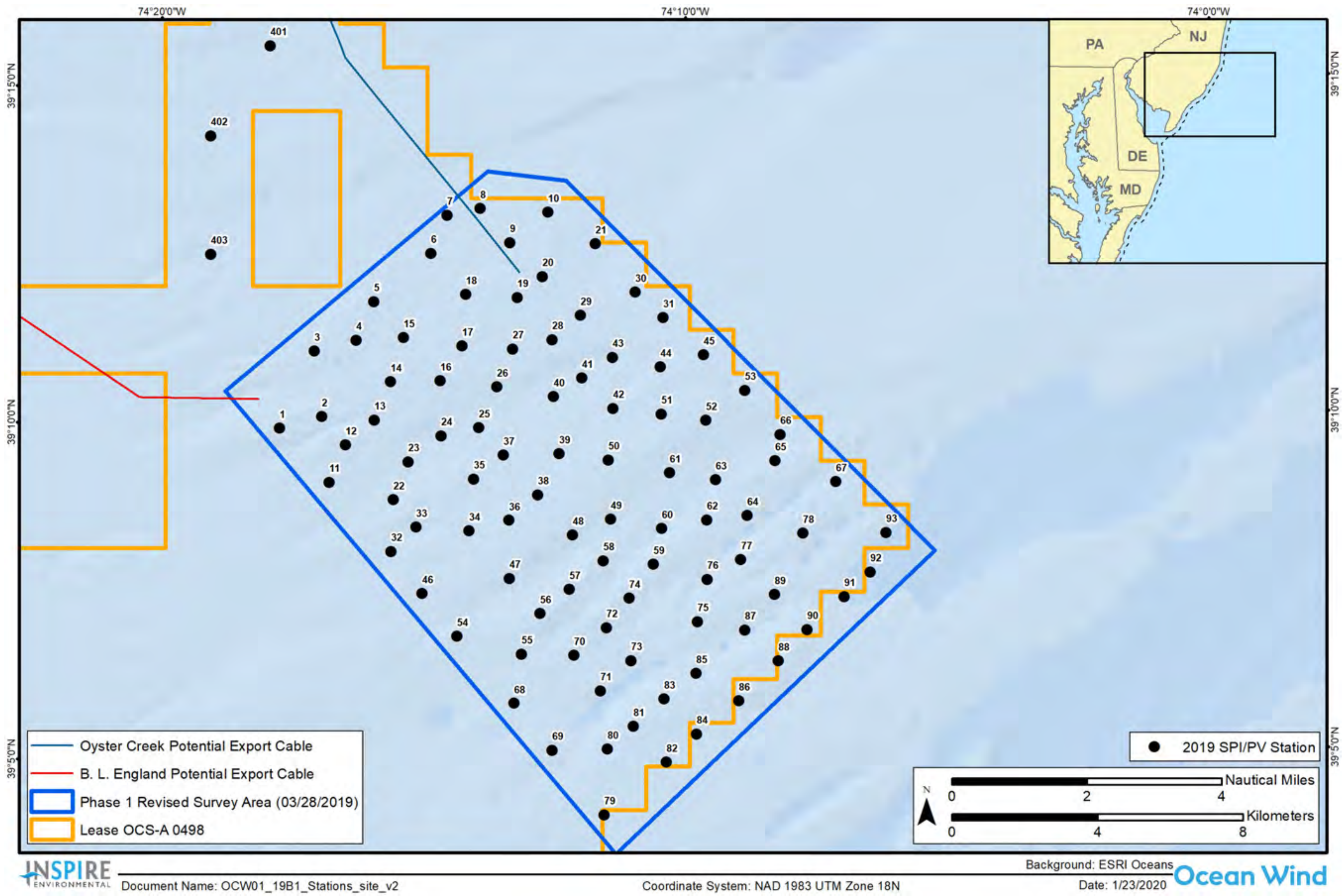


Figure 1-2. ***Station locations sampled at the Ocean Wind survey area and the reference stations***

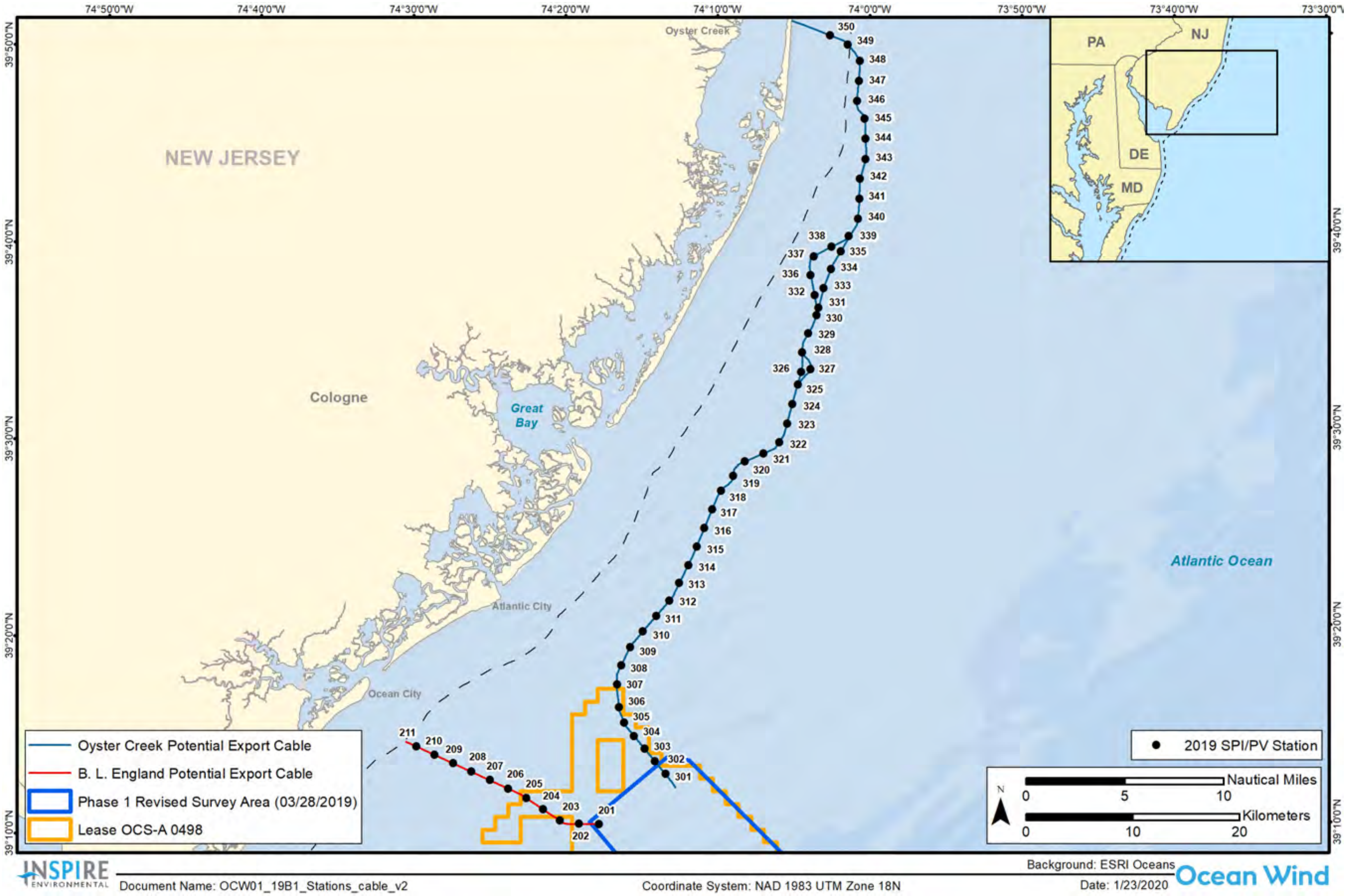


Figure 1-3. ***Station locations sampled along the Export Cable Routes***

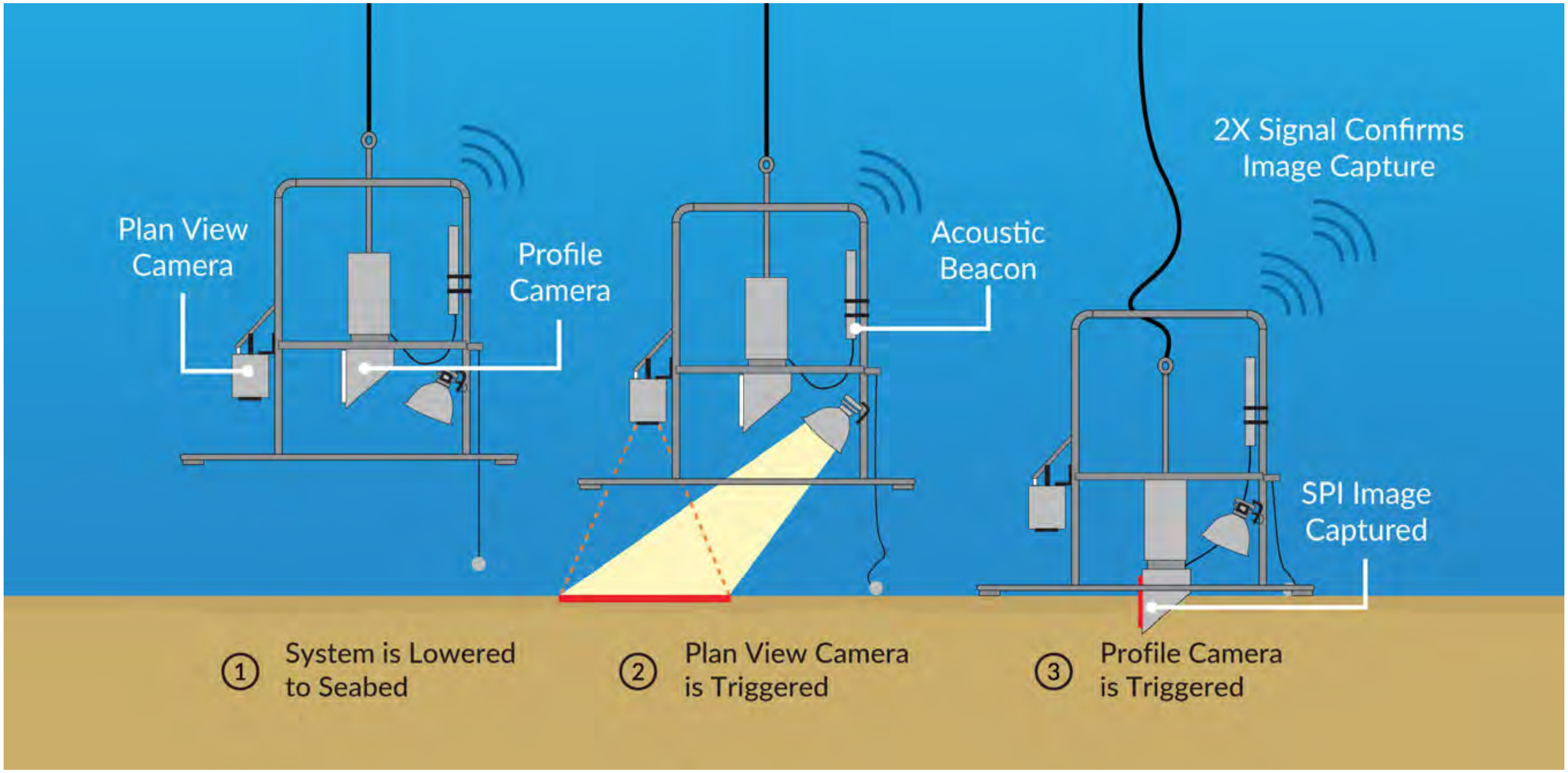


Figure 2-1. Operation of the sediment profile and plan view camera imaging system

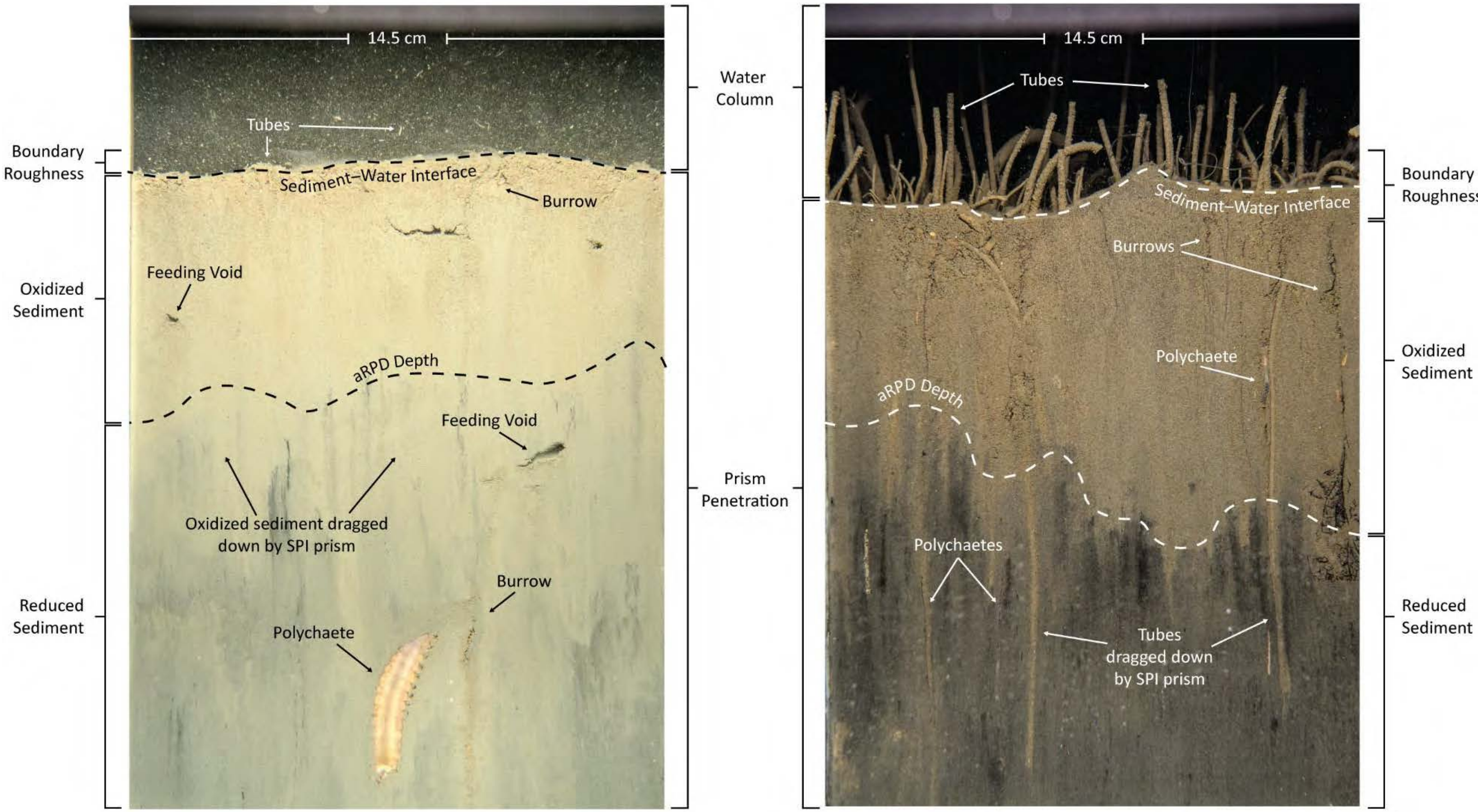


Figure 2-2. ***SPI images from soft bottom coastal and estuarine environments annotated with many standard variables derived from SPI images. The water column, depth of prism penetration, boundary roughness of the sediment–water interface, and zones of oxidized and reduced sediment are denoted with brackets. The apparent redox potential discontinuity (aRPD), the boundary between oxidized and reduced sediments, is marked with a dashed line. Infauna and related structures (tubes, burrows, feeding voids) are noted with arrows.***

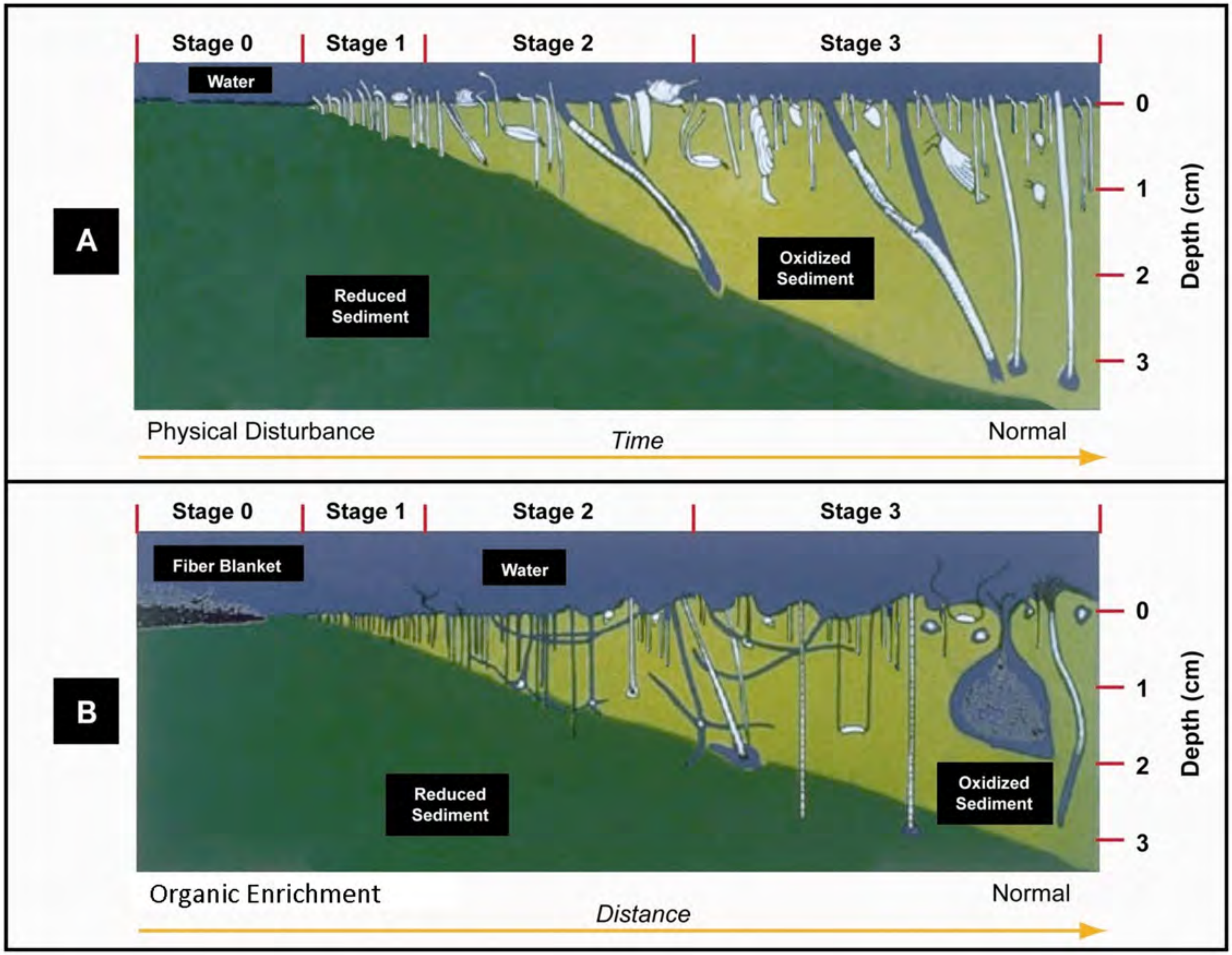


Figure 2-3. ***The stages of infaunal succession as a response of soft-bottom benthic communities to (A) physical disturbance or (B) organic enrichment; from Rhoads and Germano (1982)***

Figure 2-4. ***This representative plan view image shows the sampling relationship between plan view and sediment profile images. Note: plan view images differ between surveys and stations and the area covered by each plan view image may vary slightly between images and stations.***

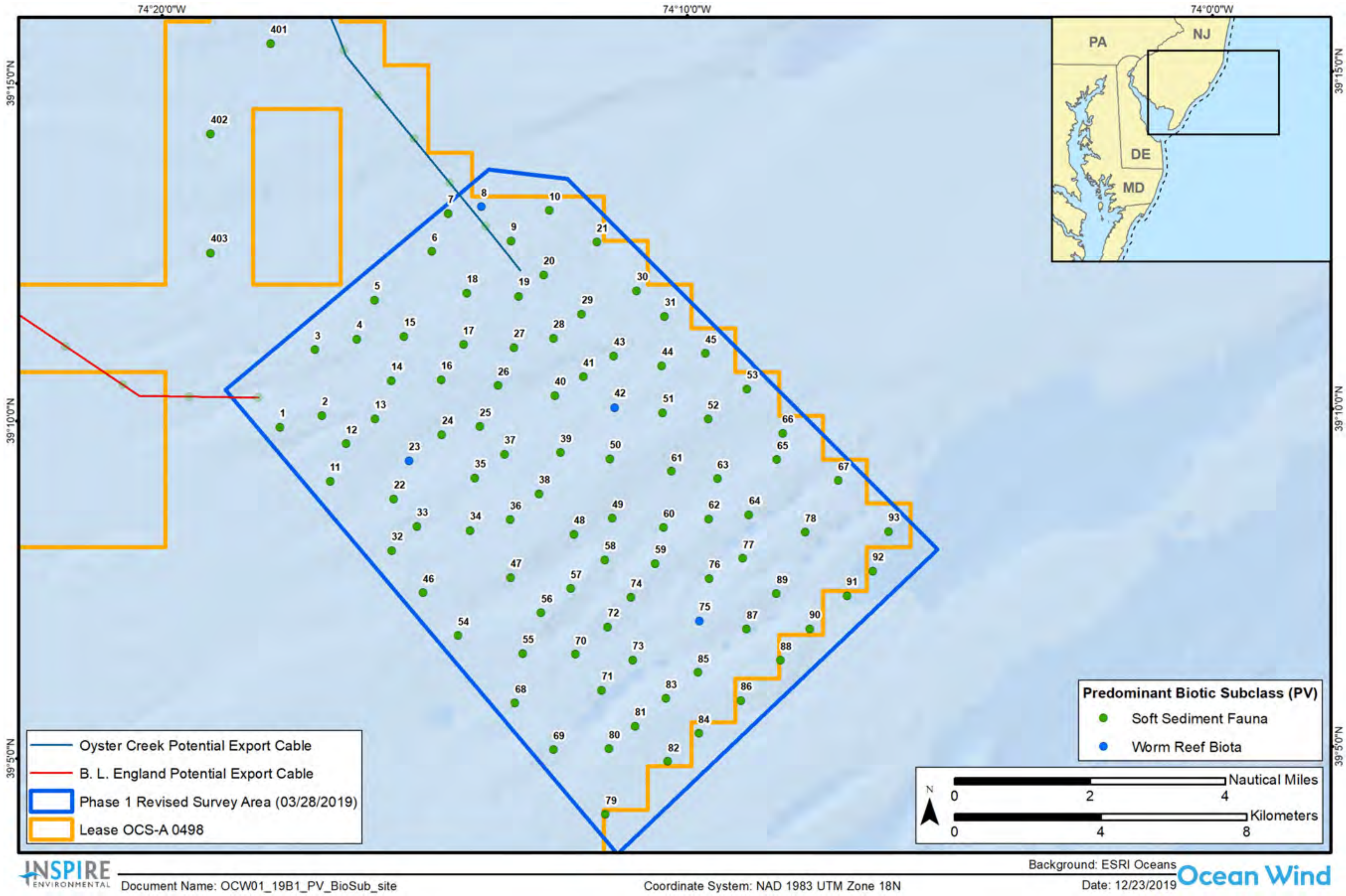


Figure 3-1. Predominant CMECS Biotic Subclass determined from PV images at the OCW Phase 1 survey area and reference stations

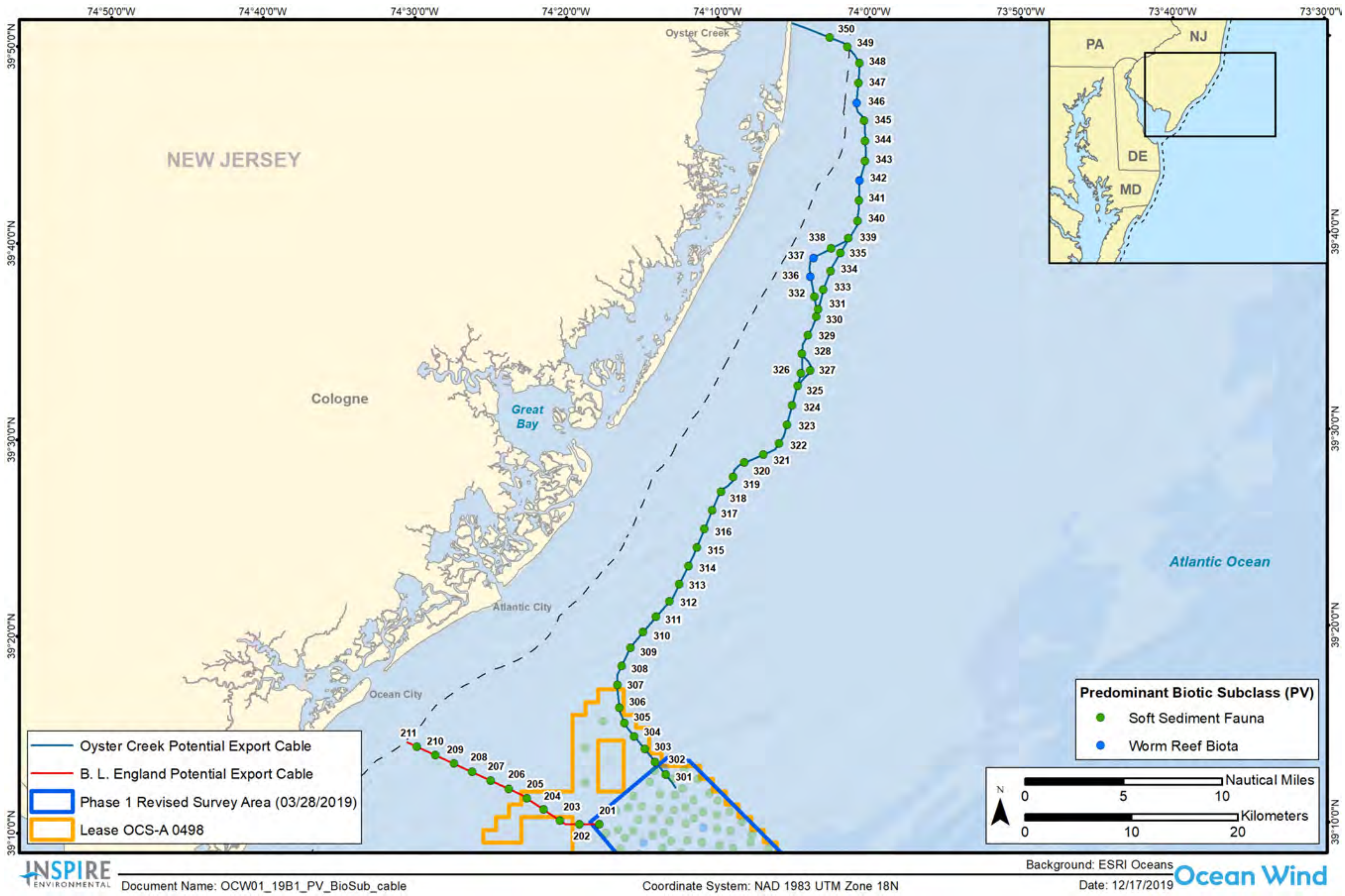


Figure 3-2. ***Predominant CMECS Biotic Subclass determined from PV images along the export cable routes***

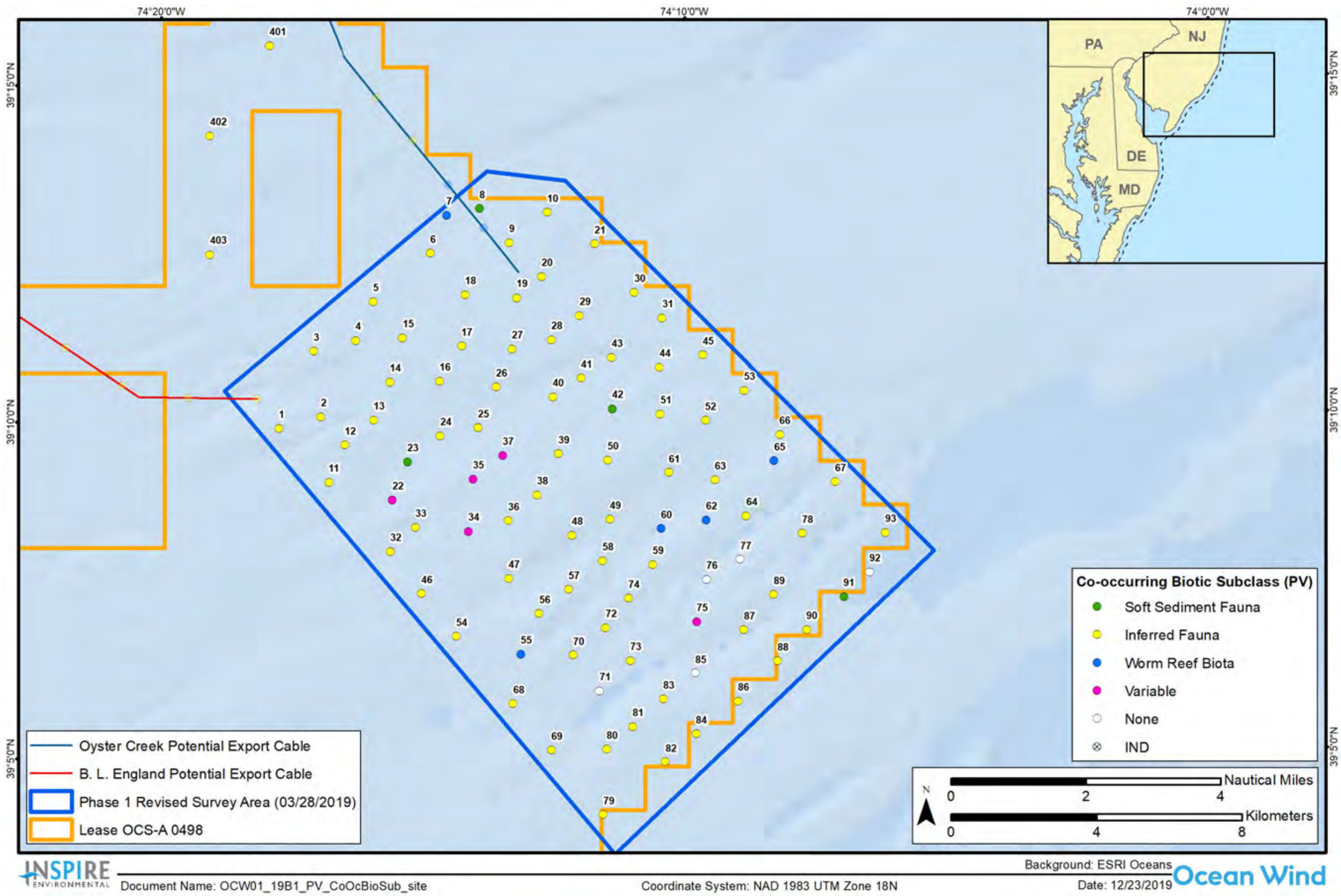


Figure 3-3. Predominant Co-Occurring CMECS Biotic Subclass determined from PV images at the OCW Phase 1 survey area and reference stations

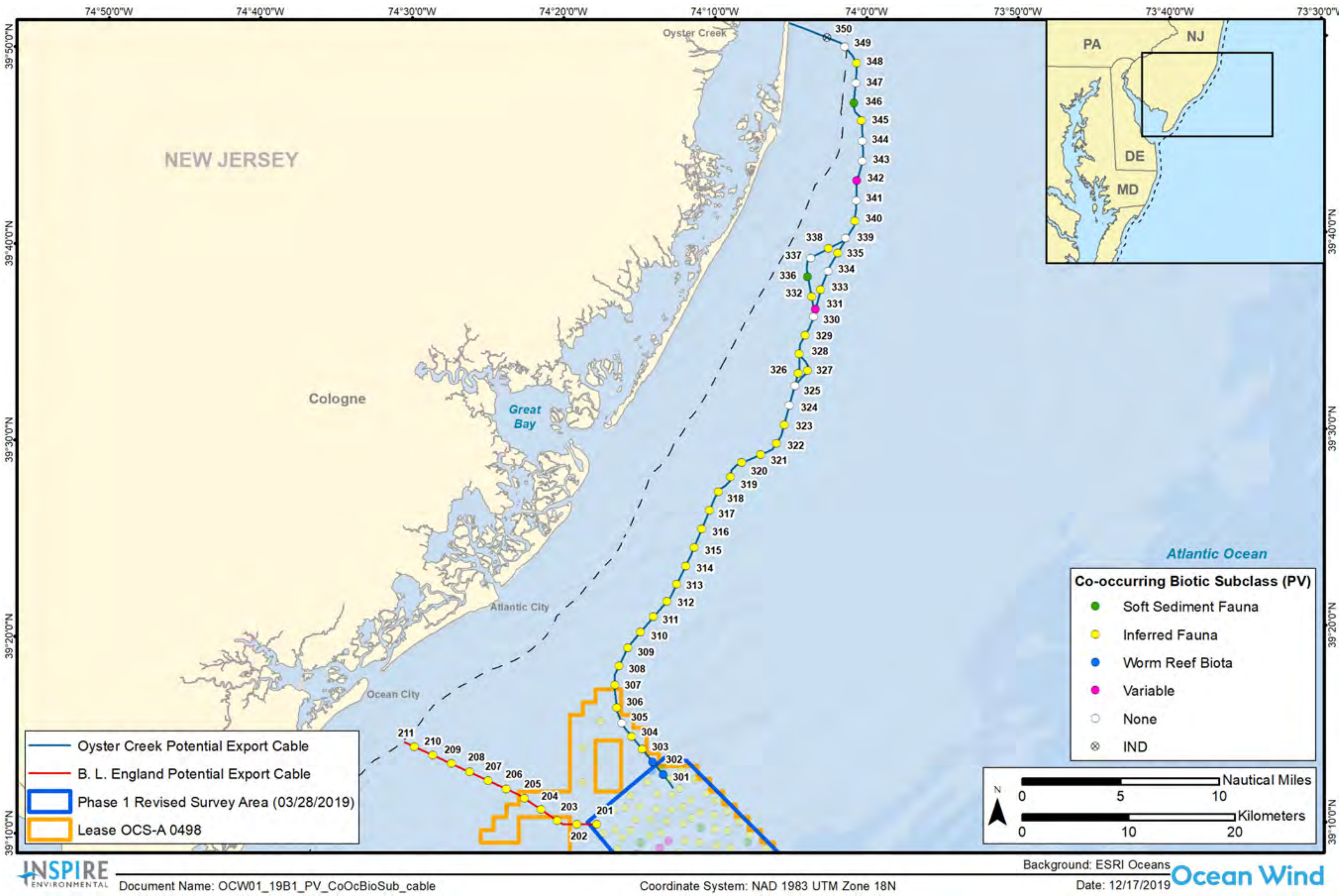


Figure 3-4. ***Predominant Co-Occurring CMECS Biotic Subclass determined from PV images along the export cable routes***

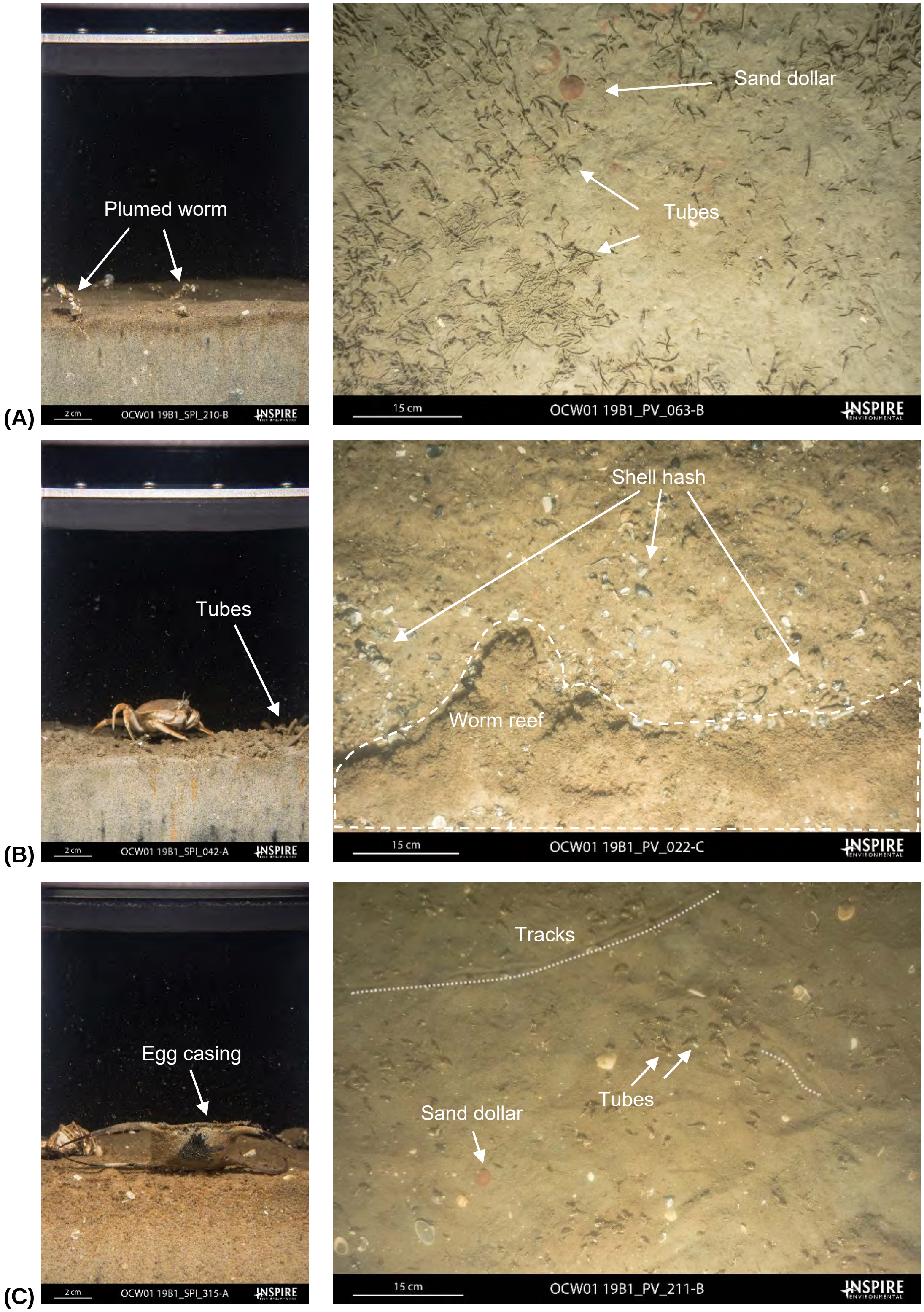


Figure 3-5. ***Representative SPI and PV images showing CMECS Biotic Subclass and/or Co-Occurring Subclass of (A) Soft Sediment Fauna, with large infaunal tubes and sand dollars; (B) Worm Reef Biota, characterized by tubes constructed of large-grained sediment and shell hash, mounds, and burrows; and (C) Inferred Fauna, characterized by egg casings, tracks, and trails***

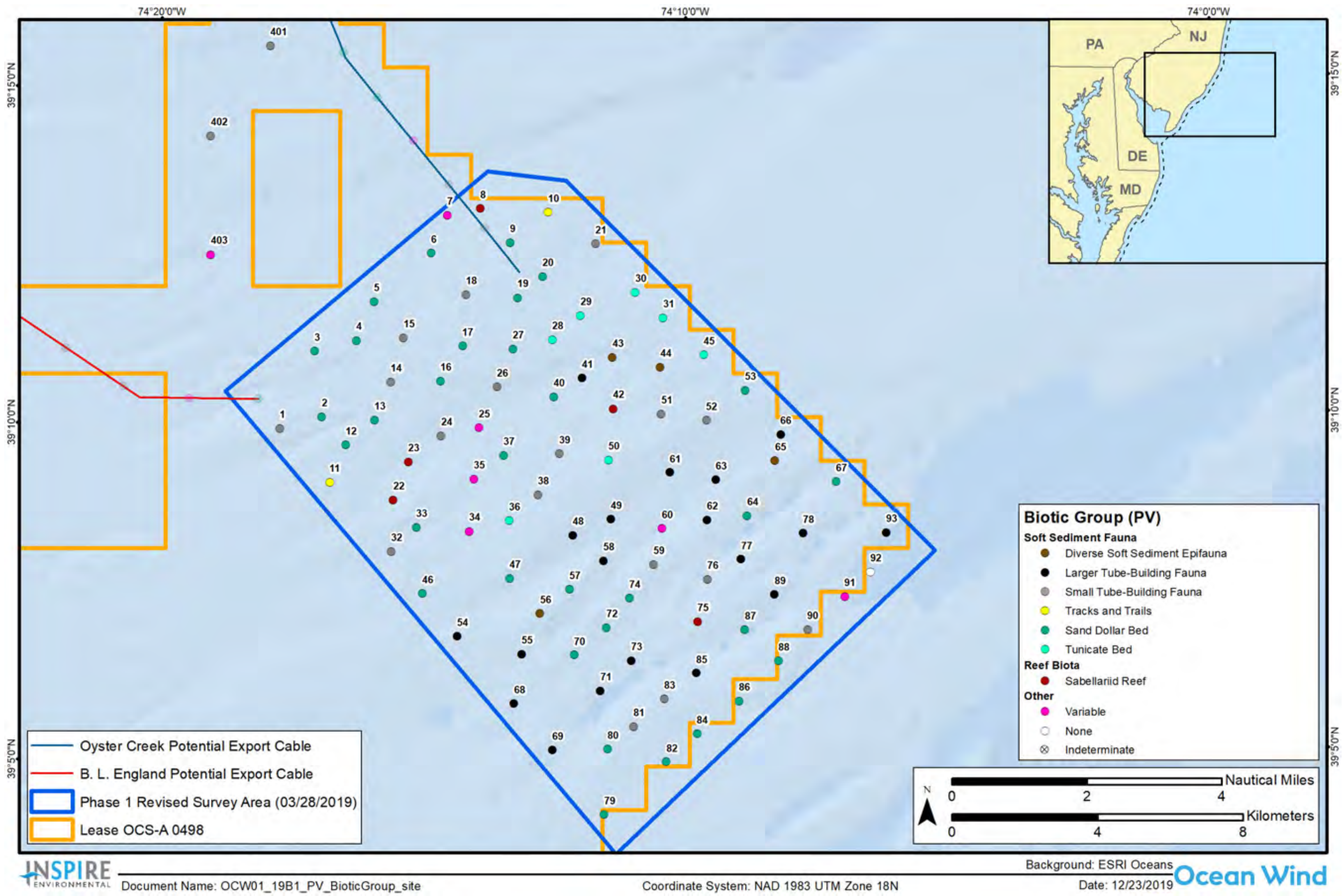


Figure 3-6. Predominant CMECS Biotic Group determined from PV images at the OCW Phase 1 survey area and reference stations

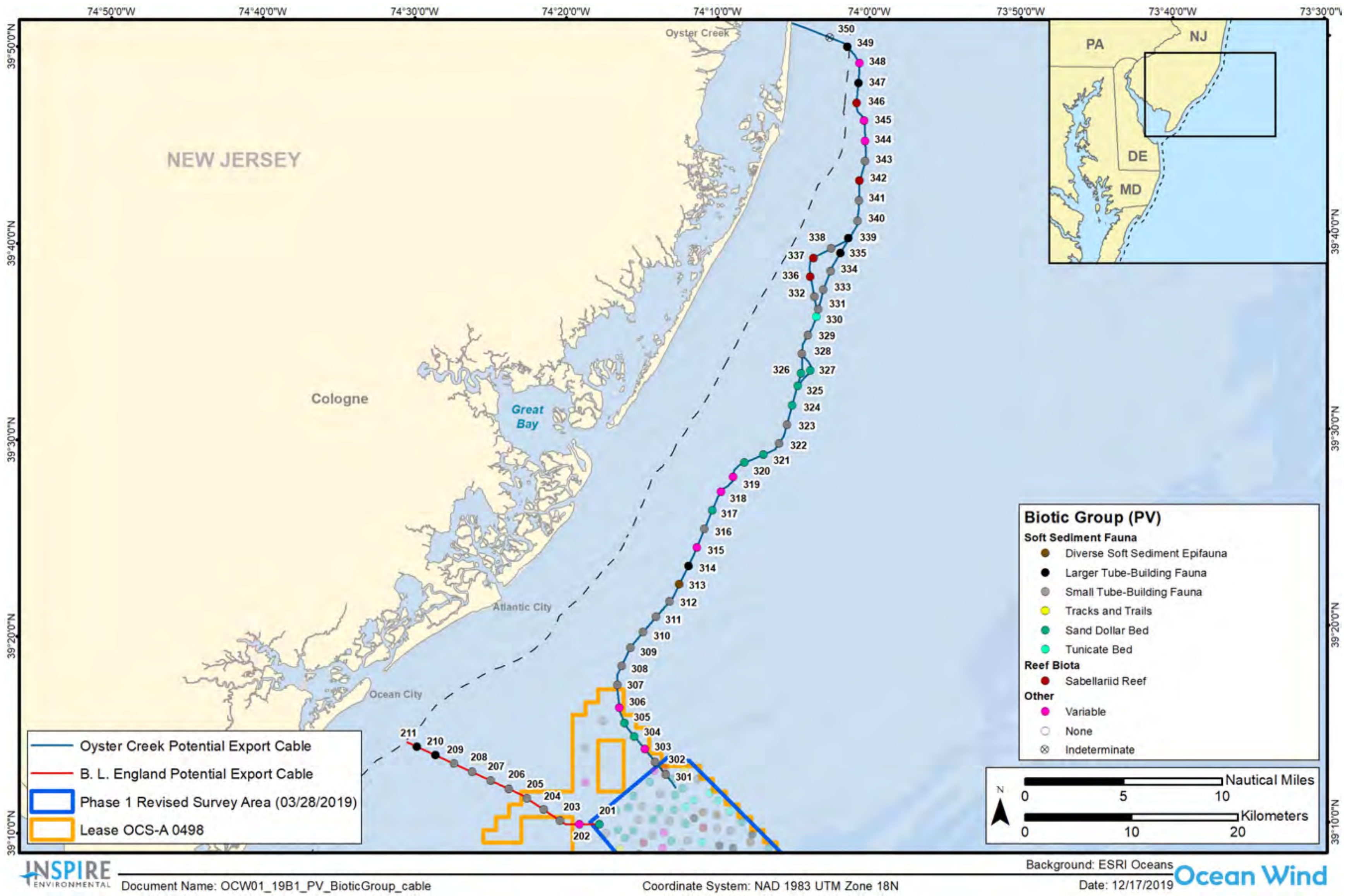


Figure 3-7. Predominant CMECS Biotic Group determined from PV images along the export cable route

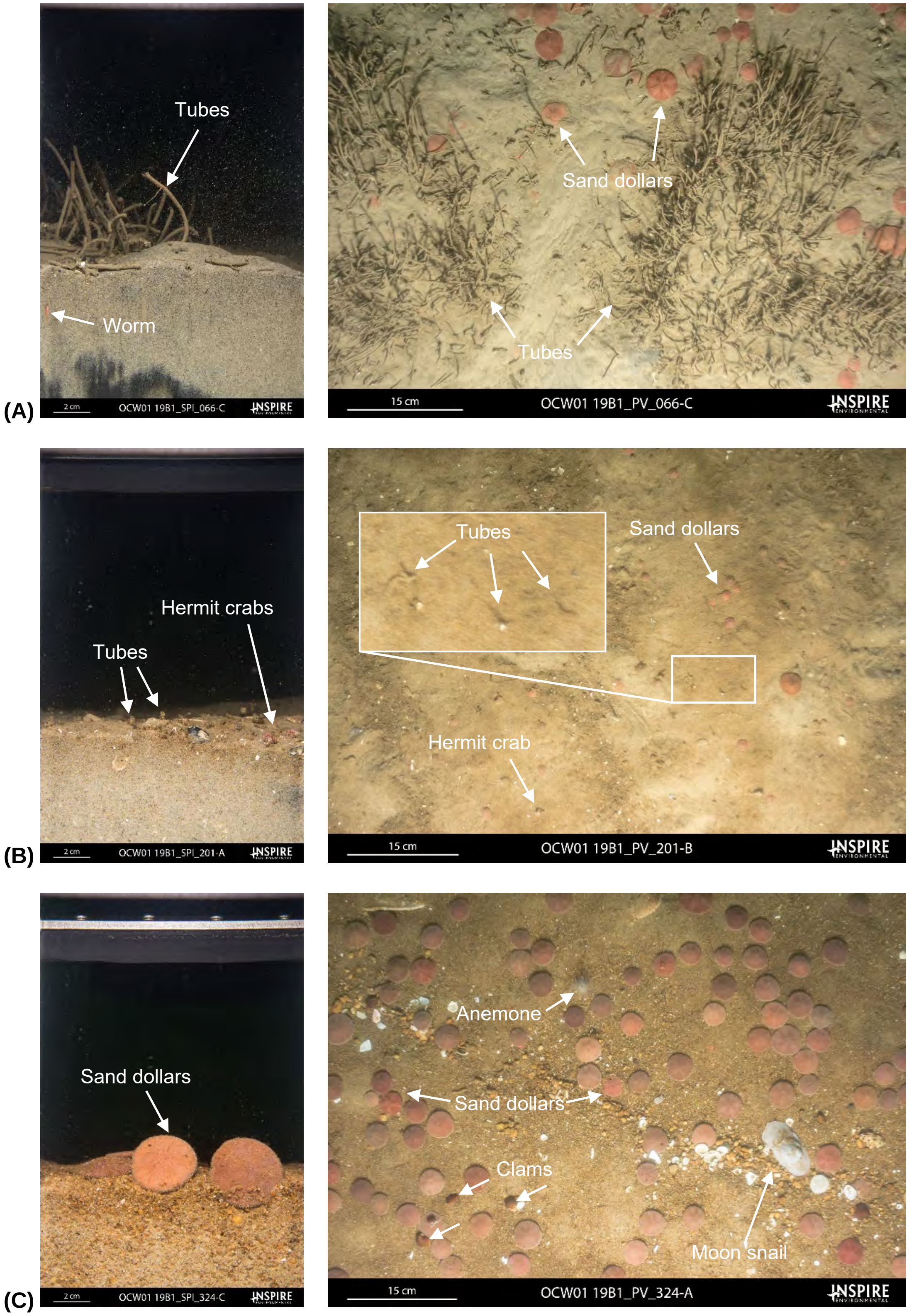


Figure 3-8. ***Representative SPI and PV images from the surveyed area where the CMECS Subclass Soft Sediment Fauna was observed, concurrent with the following CMECS Biotic Groups: (A) Larger Tube-Building Fauna; (B) Small Tube-Building Fauna; and (C) Sand Dollar Bed***

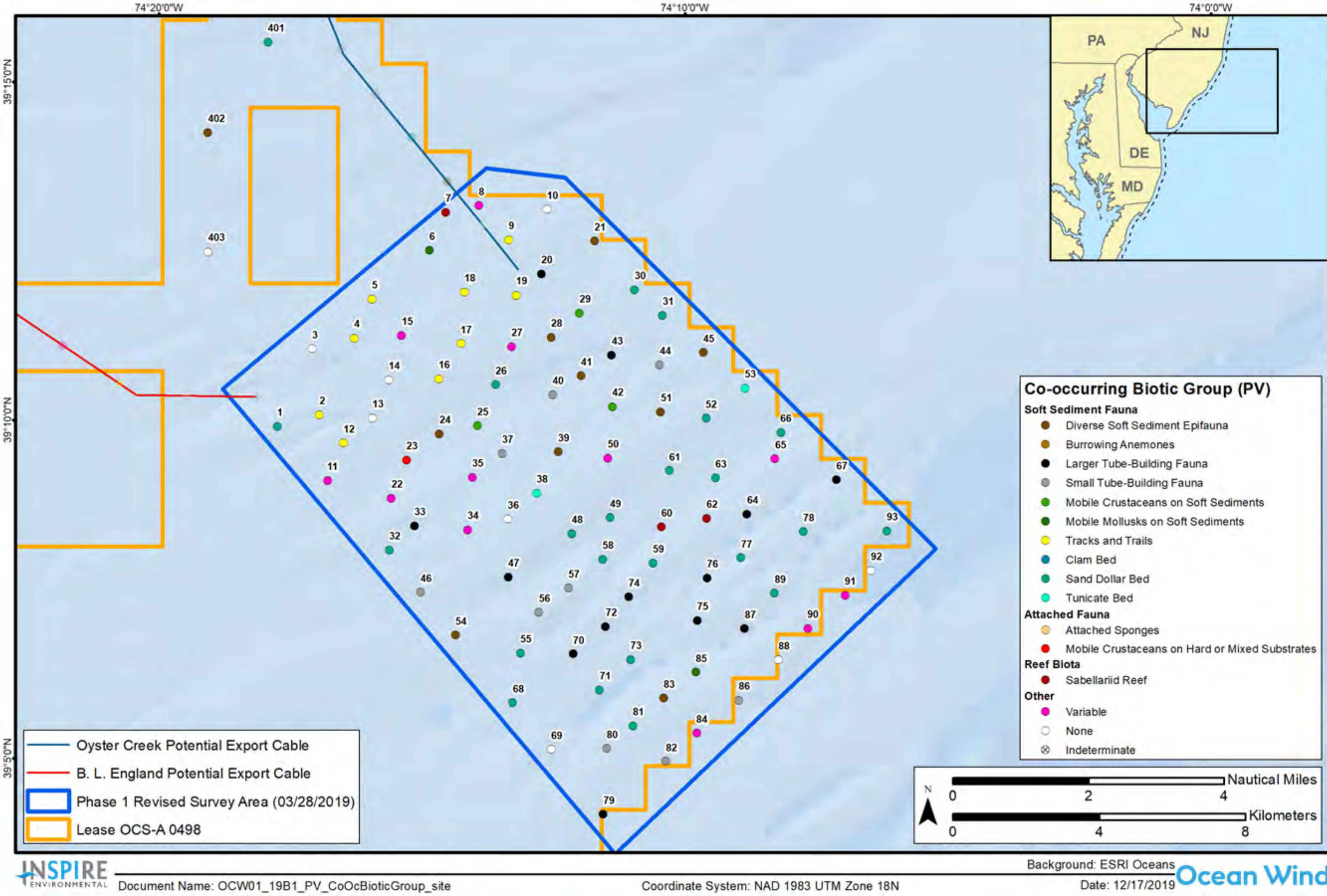


Figure 3-9. Predominant Co-occurring CMECS Biotic Group determined from PV images at the OCW Phase 1 survey area and reference stations

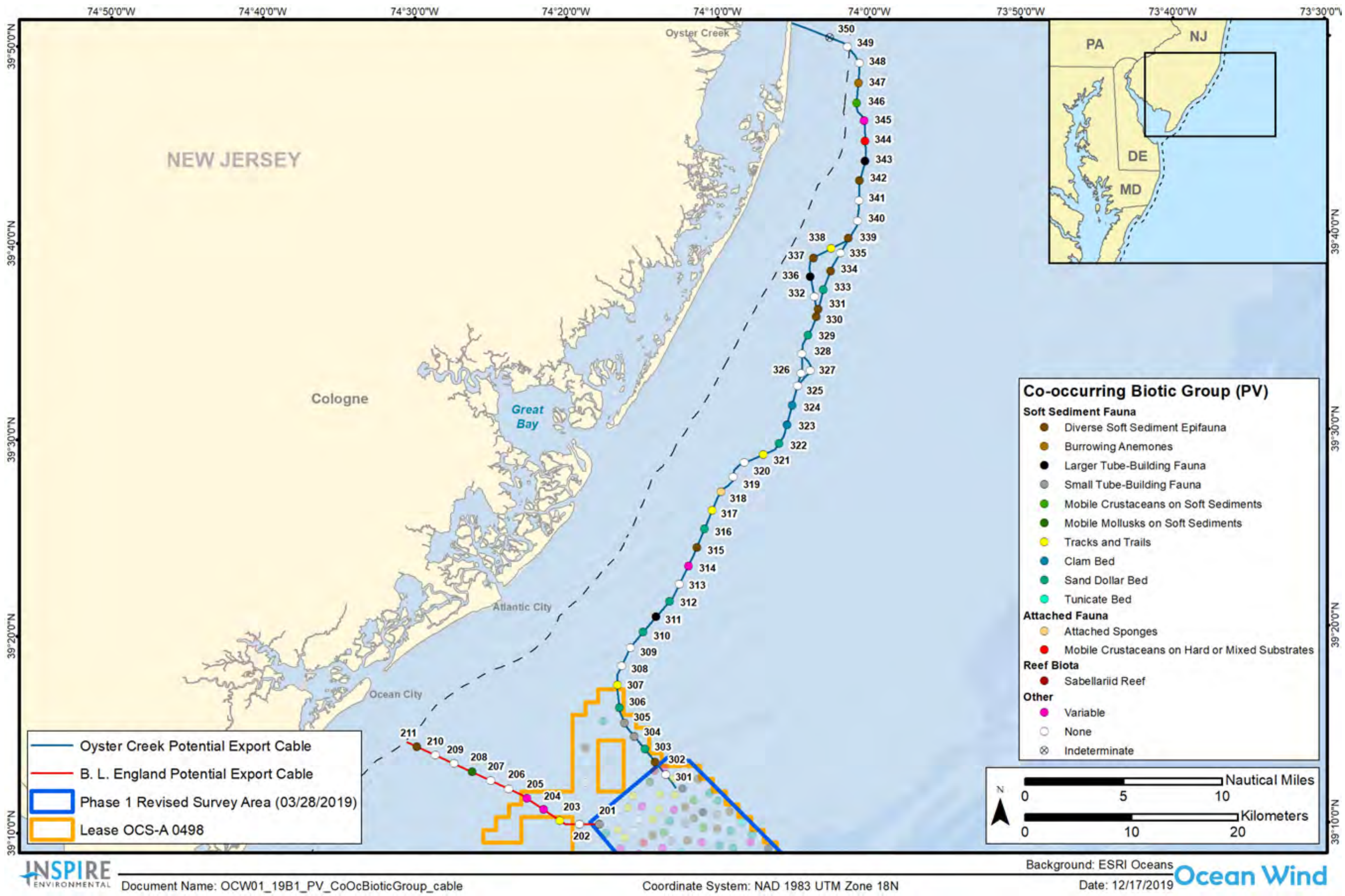


Figure 3-10. Predominant Co-occurring CMECS Biotic Group determined from PV images along the export cable routes

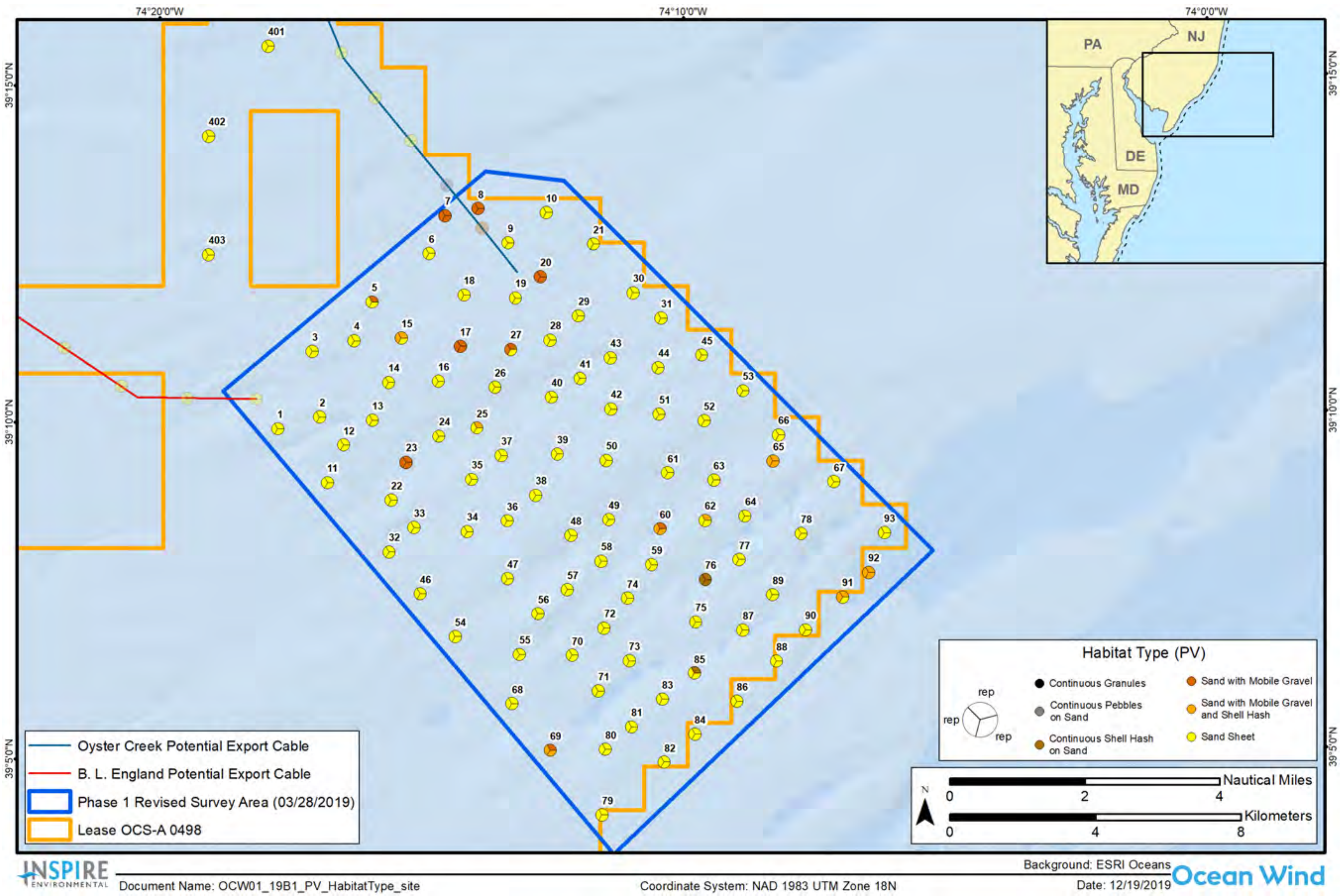


Figure 3-11. Habitat type determined from PV images at OCW Phase 1 survey area and reference stations, each replicate value at each station is shown

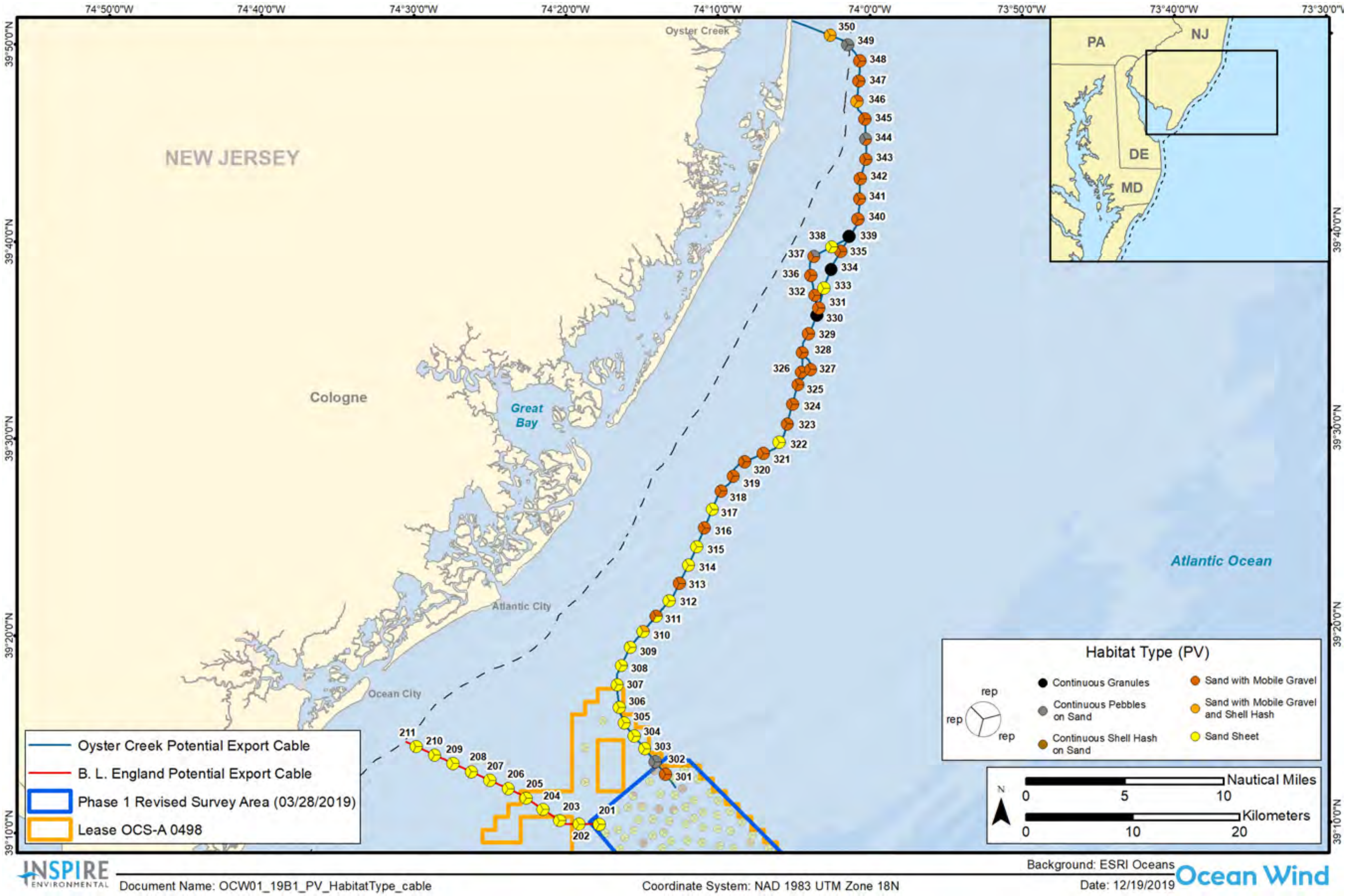


Figure 3-12. Habitat type determined from PV images along the export cable routes, each replicate value at each station is shown

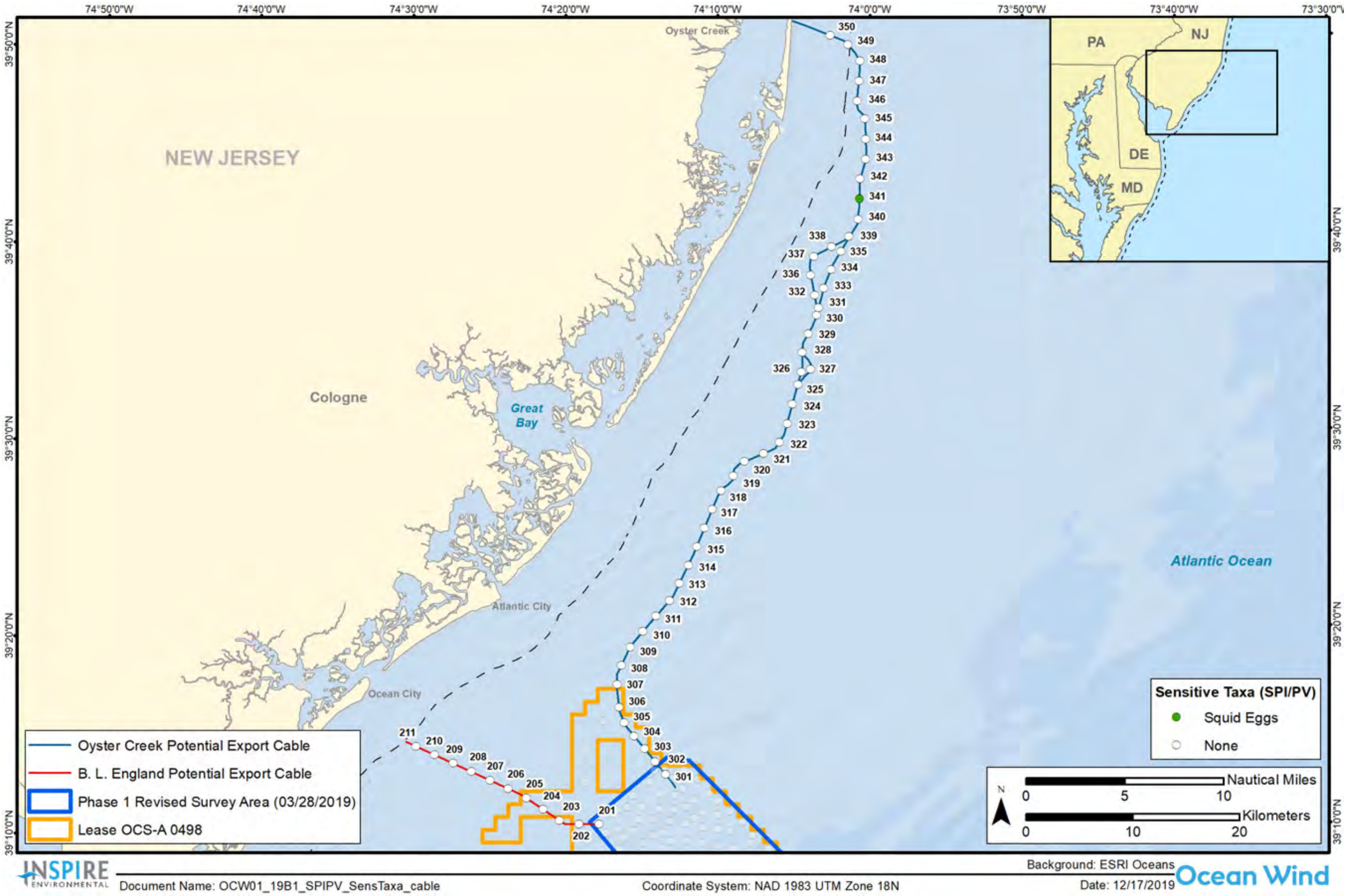


Figure 3-13. Distribution of sensitive taxa, squid eggs along the export cable routes, not observed at the OCW Phase 1 survey area or reference stations

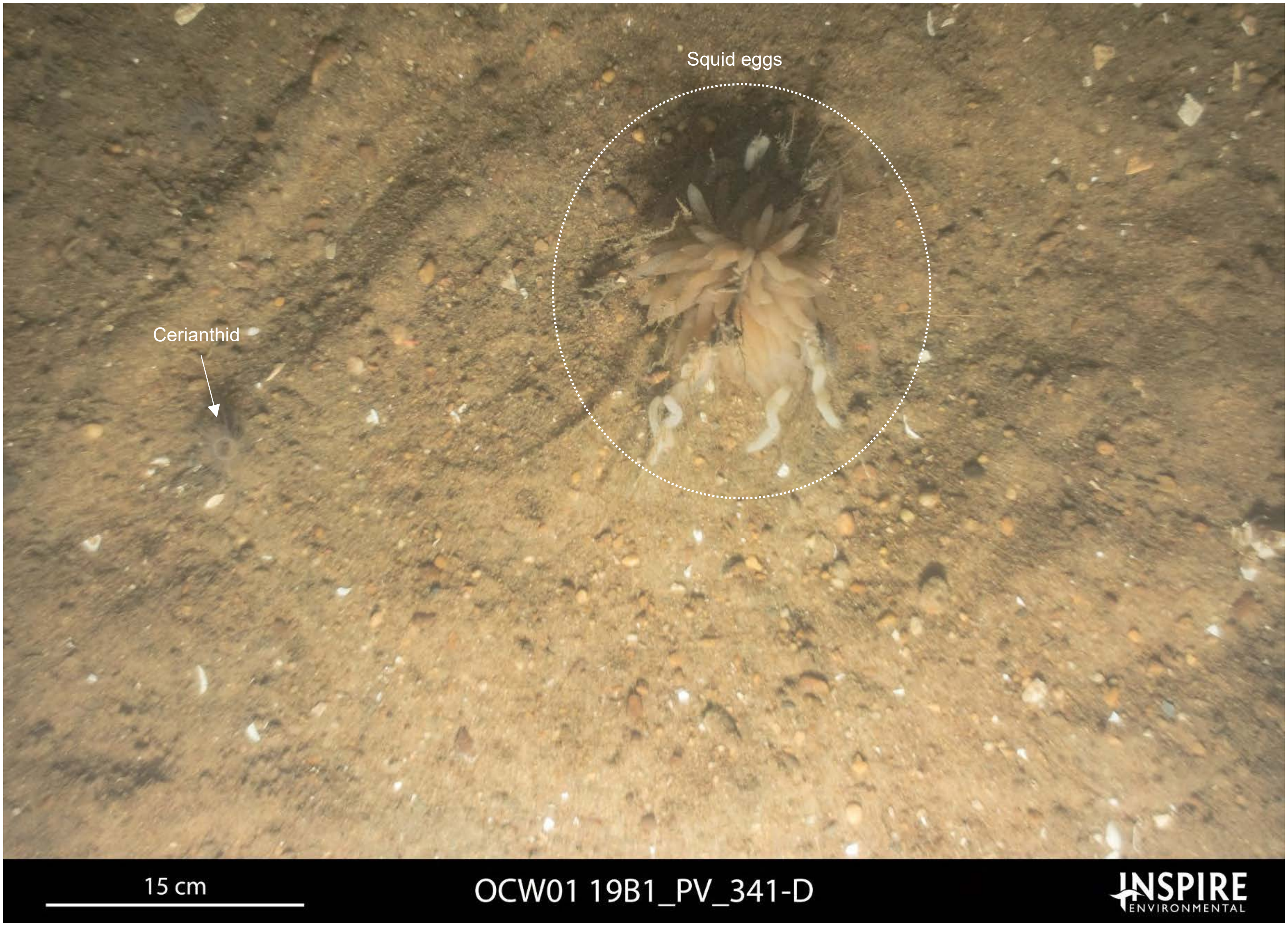


Figure 3-14. Plan view image at Station 341 on the Oyster Creek export cable route depicting squid eggs on the seafloor

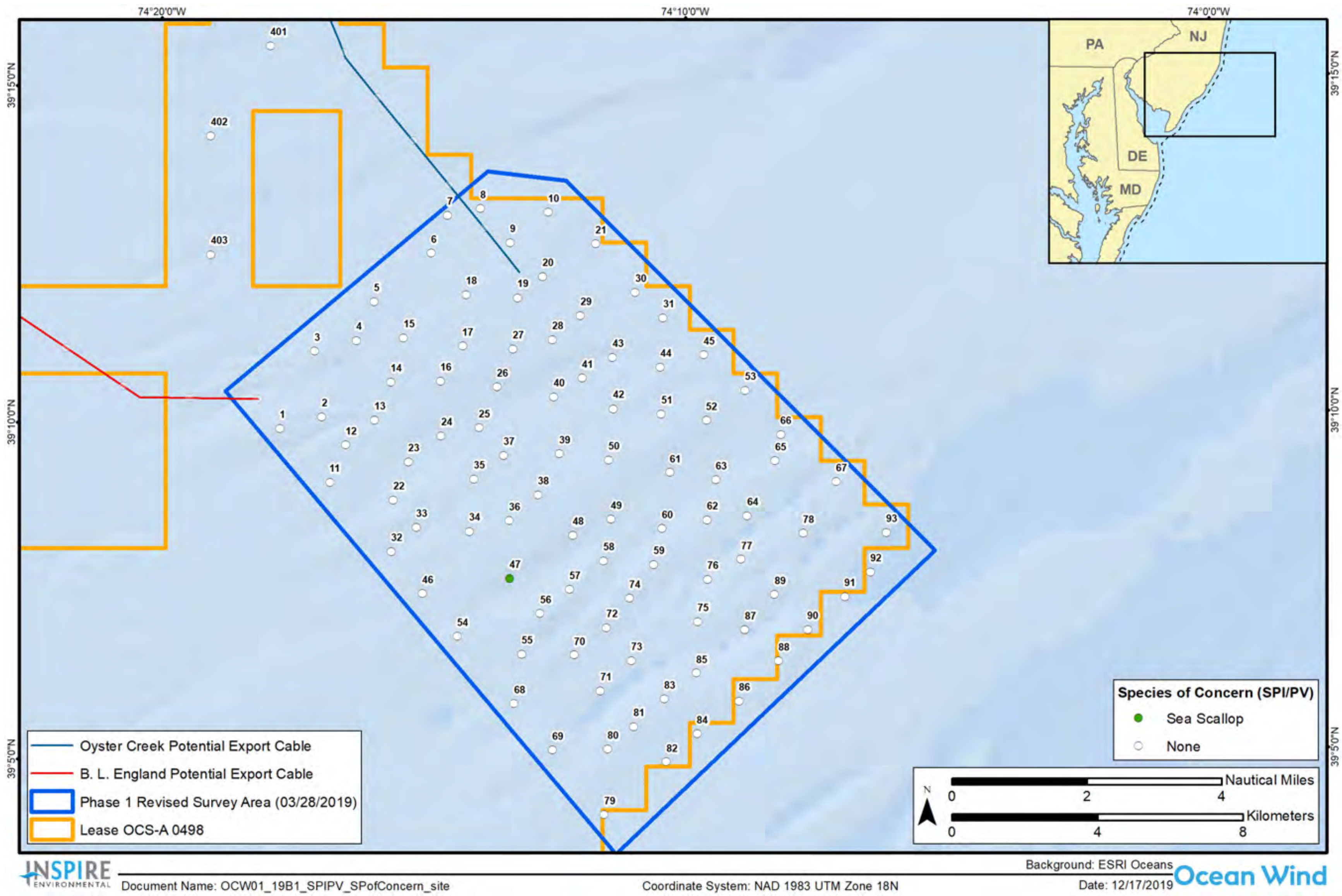


Figure 3-15. Distribution of species of concern, which only included the sea scallop (Placopecten magellanicus) at the OCW Phase 1 survey area, not observed at the reference stations or along the export cable routes

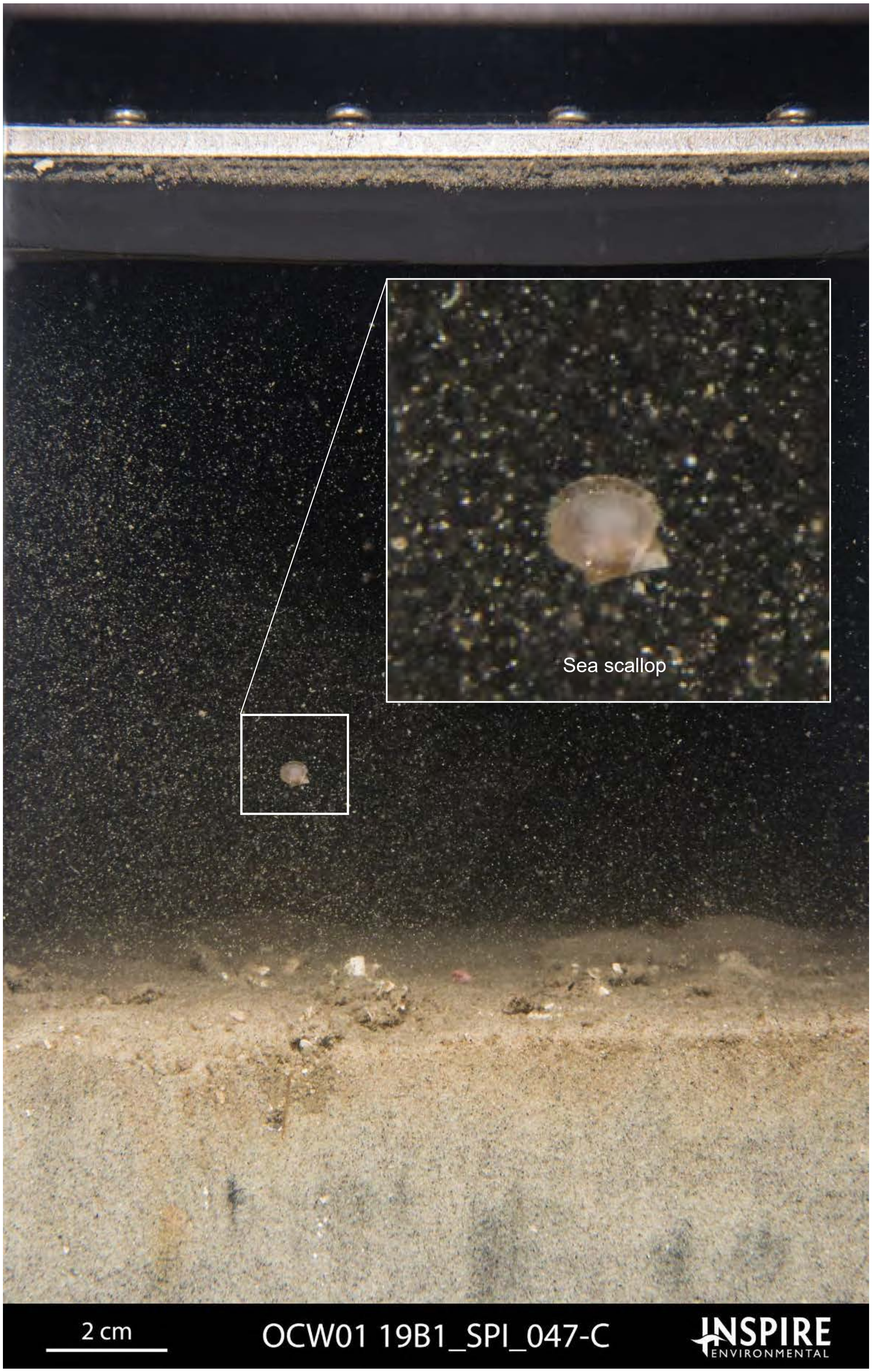


Figure 3-16. Sediment profile image at Station 047 in the OCW Phase 1 survey area depicting a very small sea scallop in the water column

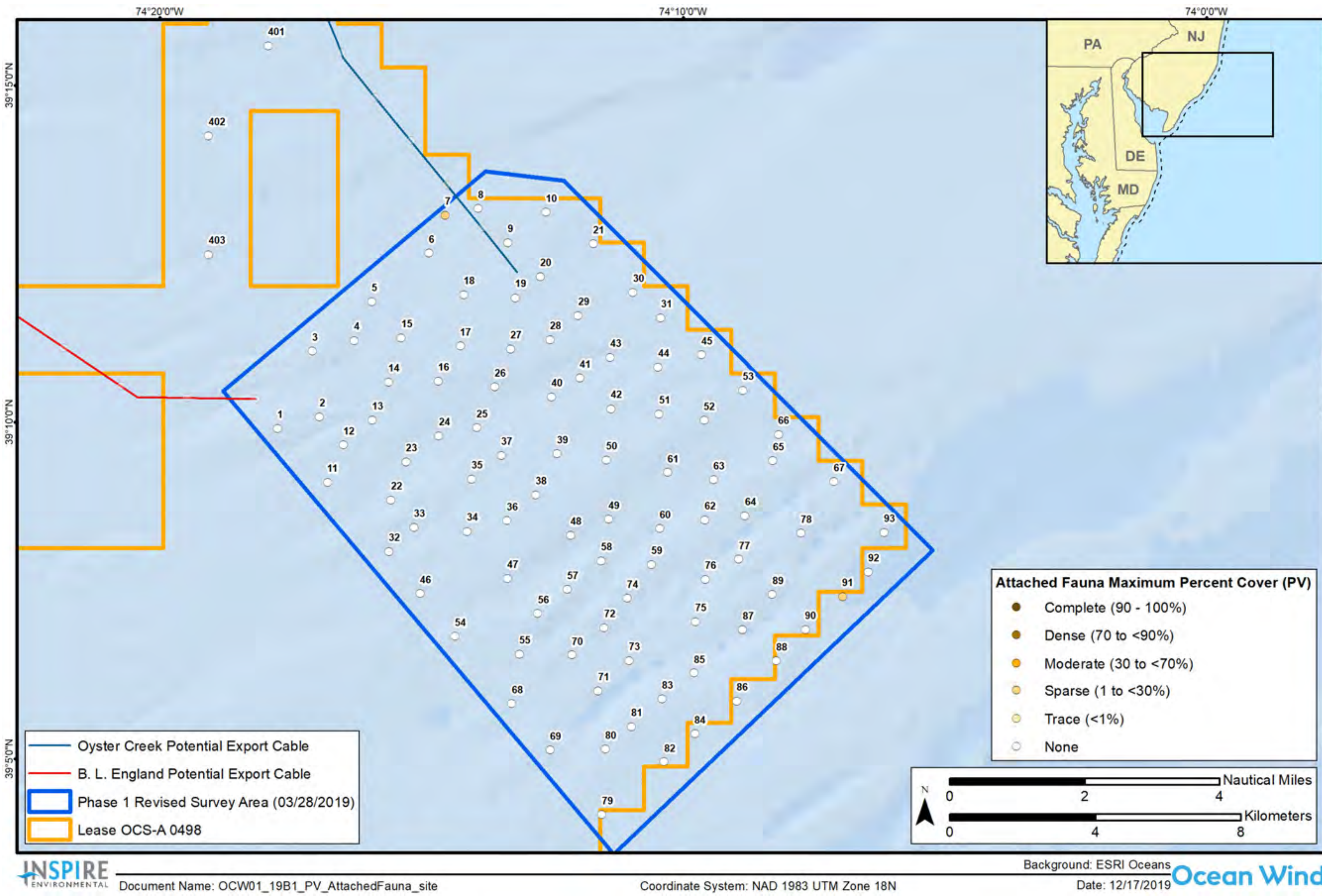


Figure 3-17. Maximum Attached Fauna Percent Cover at the OCW Phase 1 survey area and reference stations

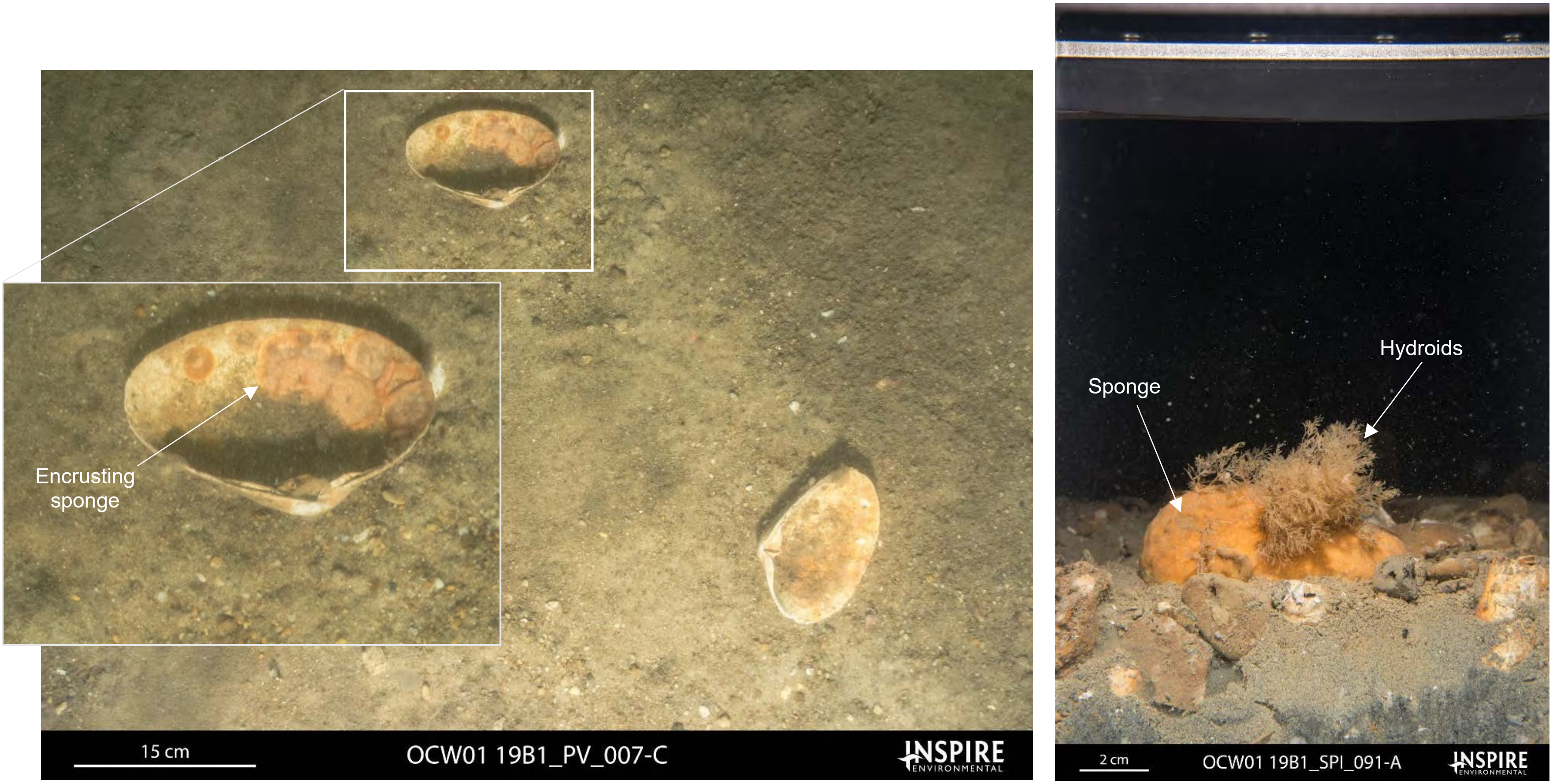


Figure 3-18. Plan view and sediment profile images of sparse coverage (1% to 30% coverage) of attached fauna within the OCW Phase 1 survey area at (A) Station 007 exhibiting encrusting sponges; and (B) Station 091 exhibiting sponge and hydroids

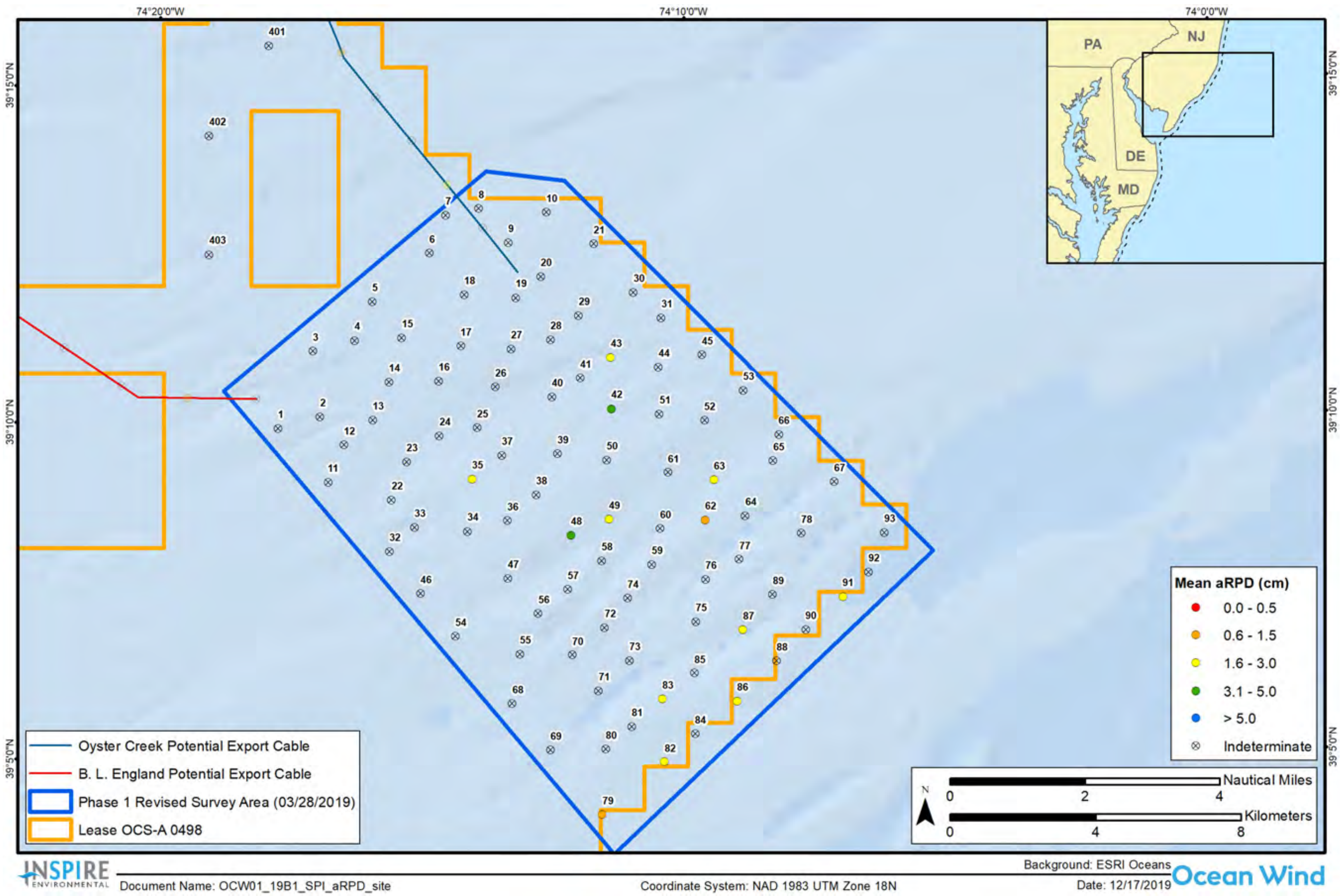
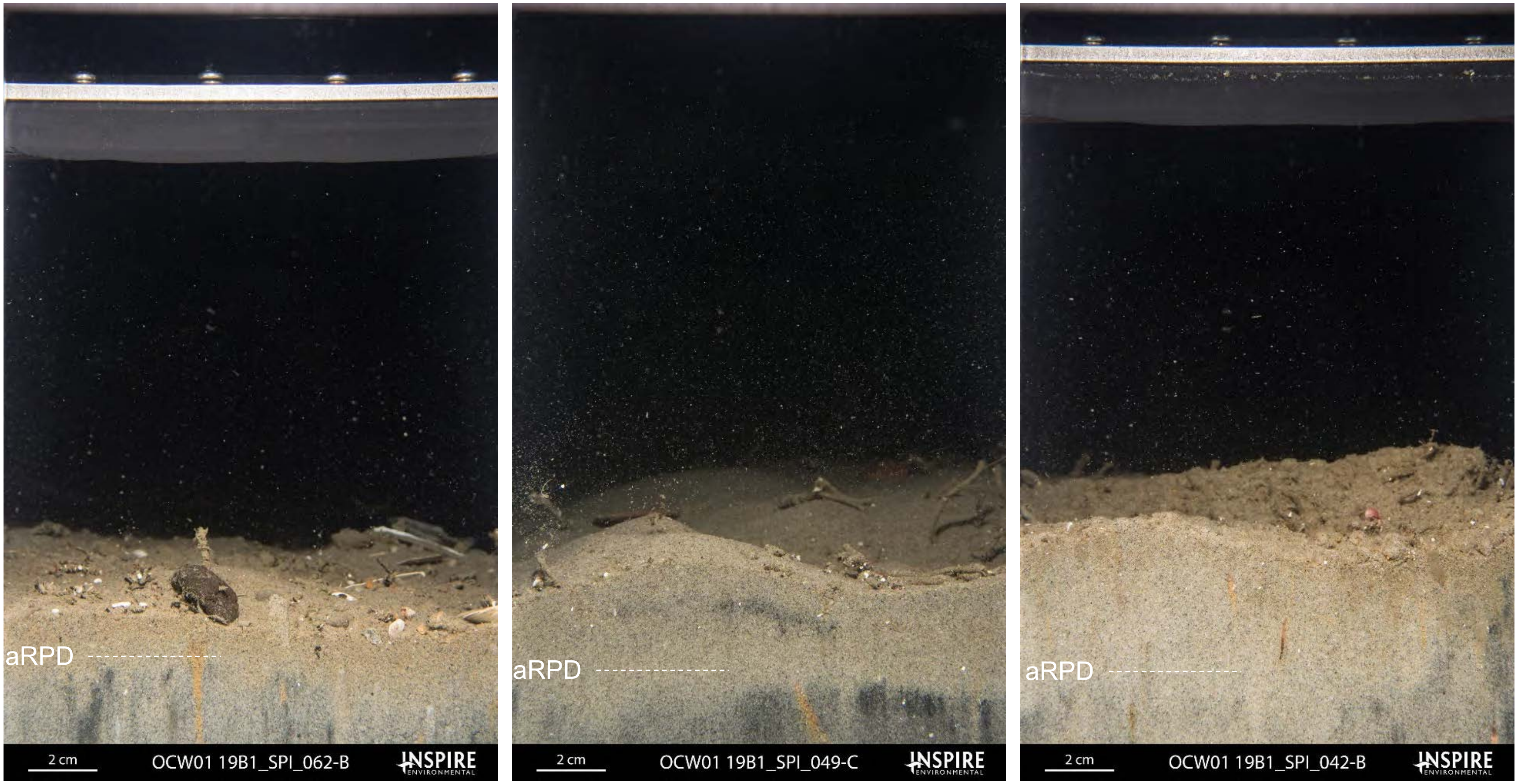


Figure 3-19. Mean station aRPD depth values (cm) at the OCW Phase 1 survey area and reference stations



(A)

(C)

(B)

Figure 3-20. Sediment profile images depicting the range of aRPD values found within the OCW Phase 1 survey area (A) Station 062 with an aRPD of 1.1 cm; (B) Station 049 with an aRPD of 2.8 cm; and (C) Station 042 with an aRPD of 4.1 cm

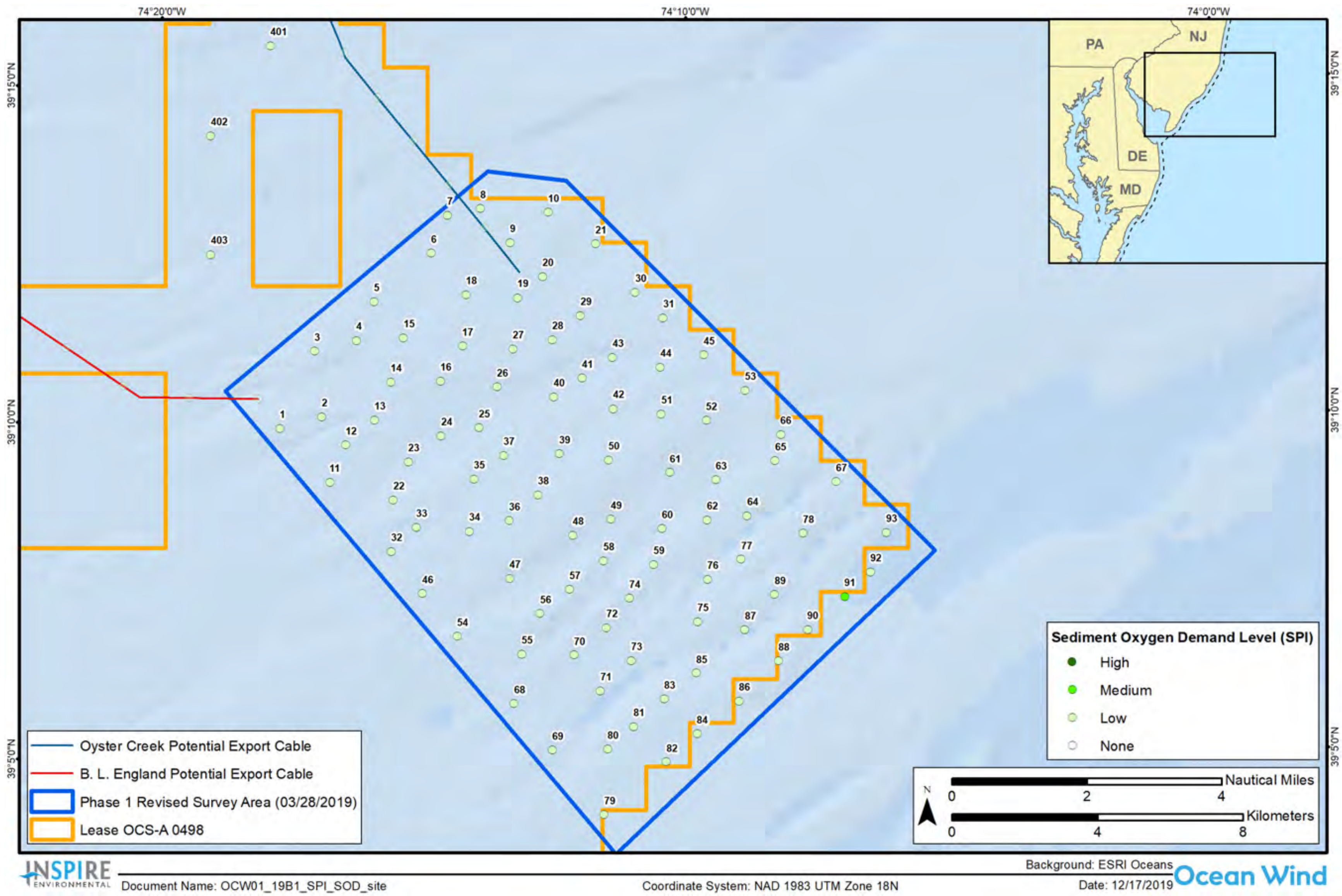


Figure 3-21. Sediment oxygen demand classifications at the OCW Phase 1 survey area and reference stations

(A)

(B)

Figure 3-22. Sediment profile images from the OCW Phase 1 survey area depicting (A) low sediment oxygen demand at Station 090; and (B) medium sediment oxygen demand at Station 091

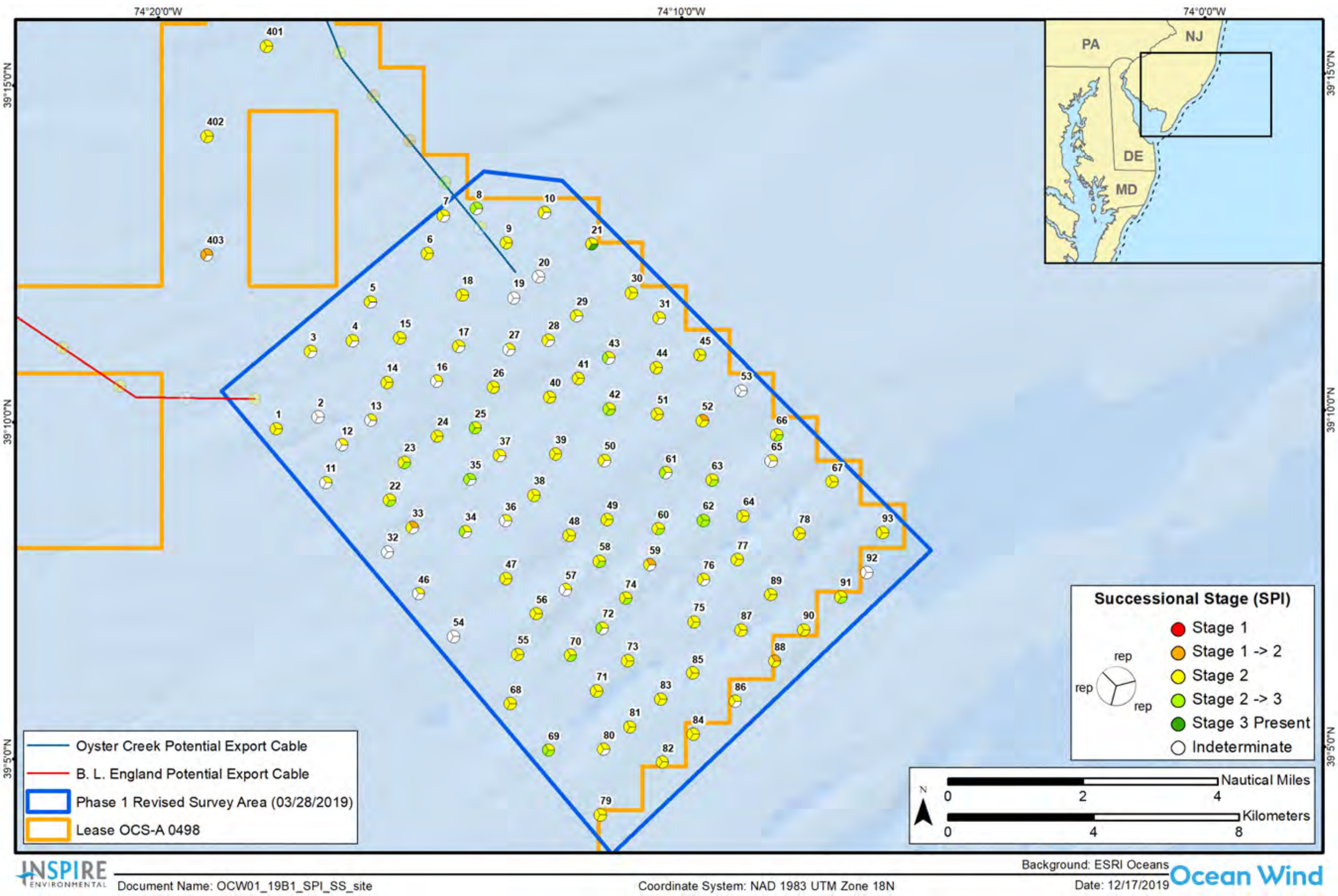


Figure 3-23. Infaunal successional stages at the OCW Phase 1 survey area and reference stations, each replicate value at each station is shown

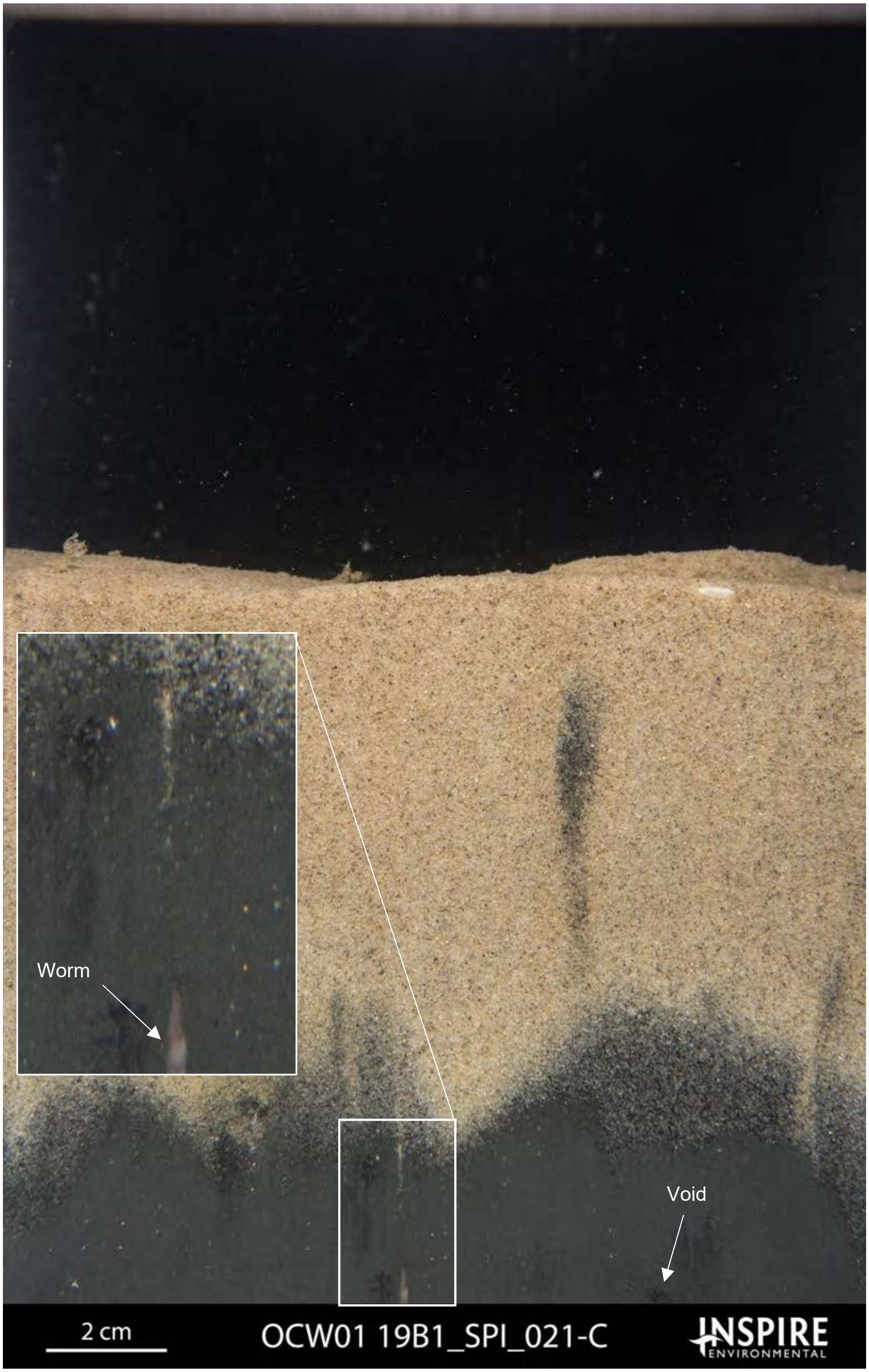


Figure 3-24. A sediment profile image from Station 021 within the OCW Phase 1 survey area depicting a large worm in a deep burrow and open feeding voids as evidence of Stage 3 fauna

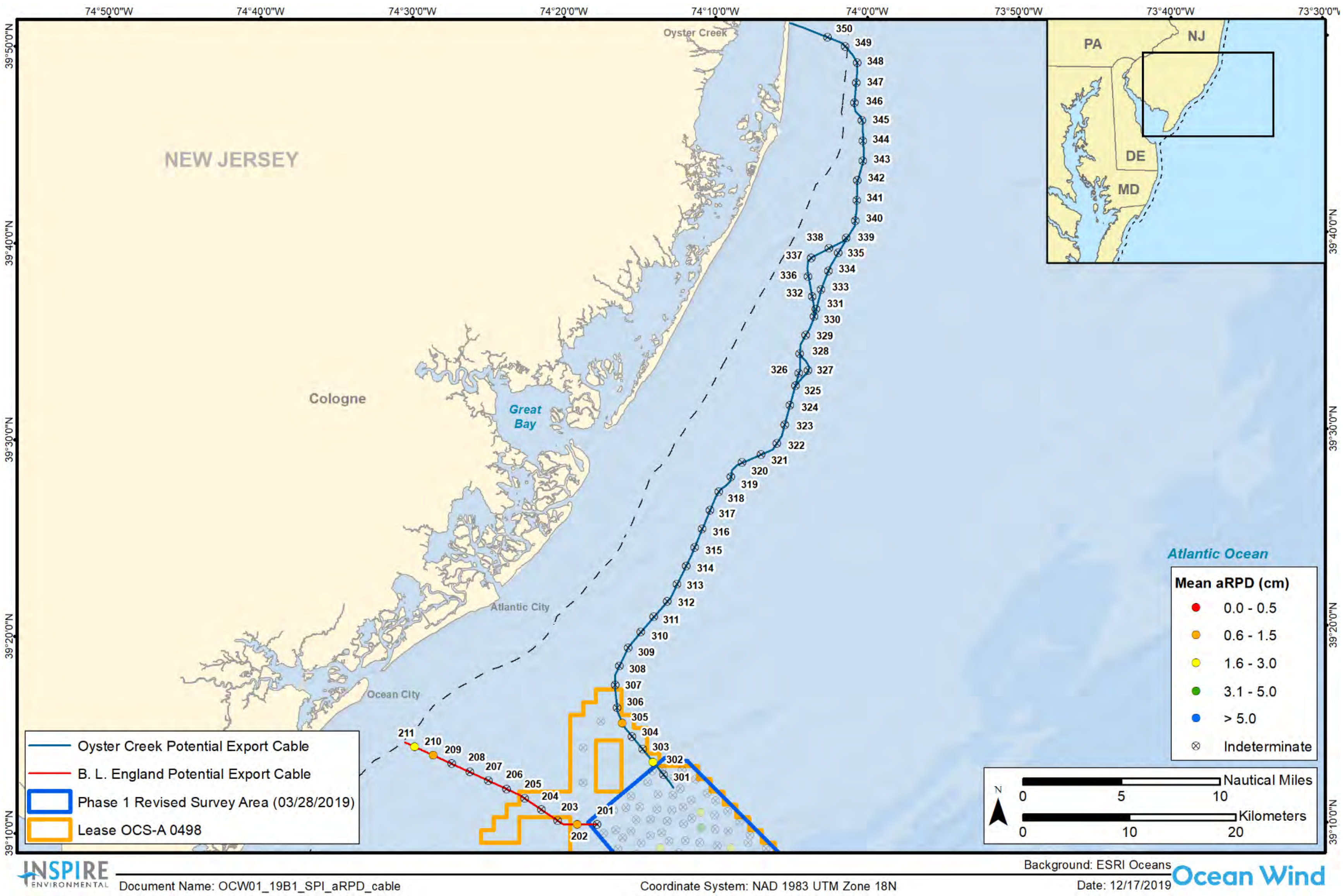


Figure 3-25. Mean station aRPD depth values (cm) along the export cable routes

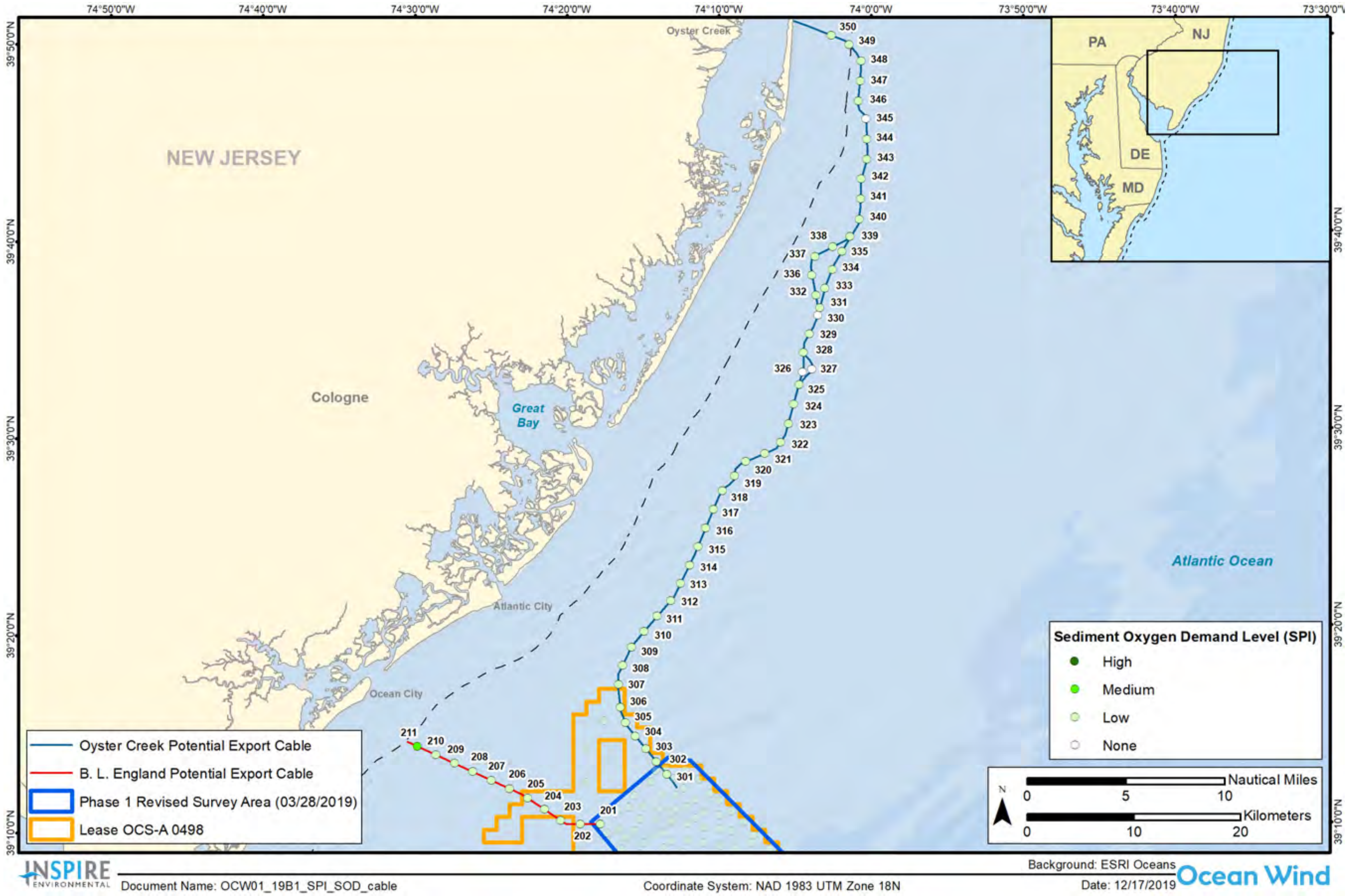


Figure 3-26. Sediment oxygen demand classifications along the export cable routes

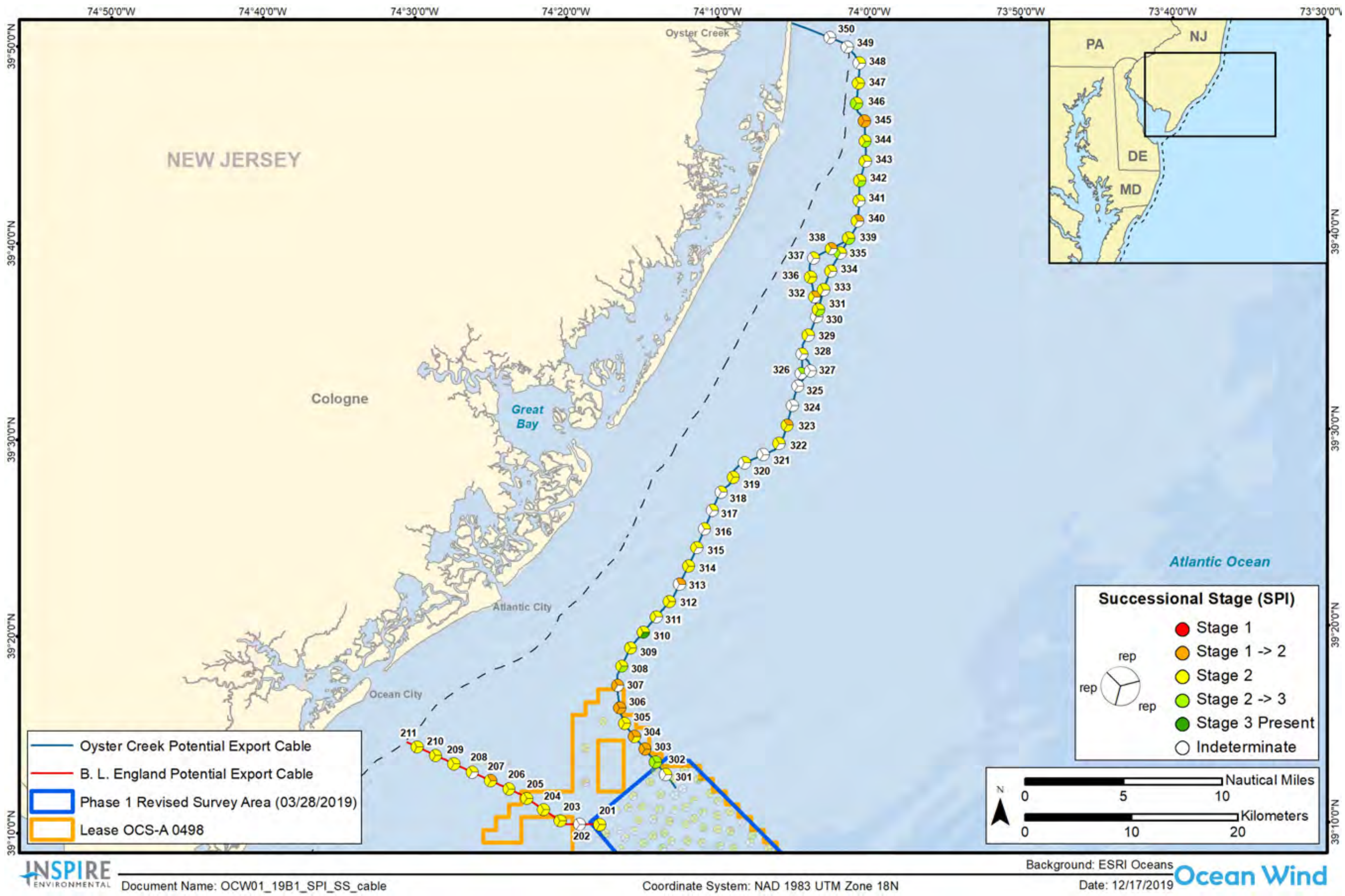


Figure 3-27. Infaunal successional stages along the export cable routes, each replicate value at each station is shown

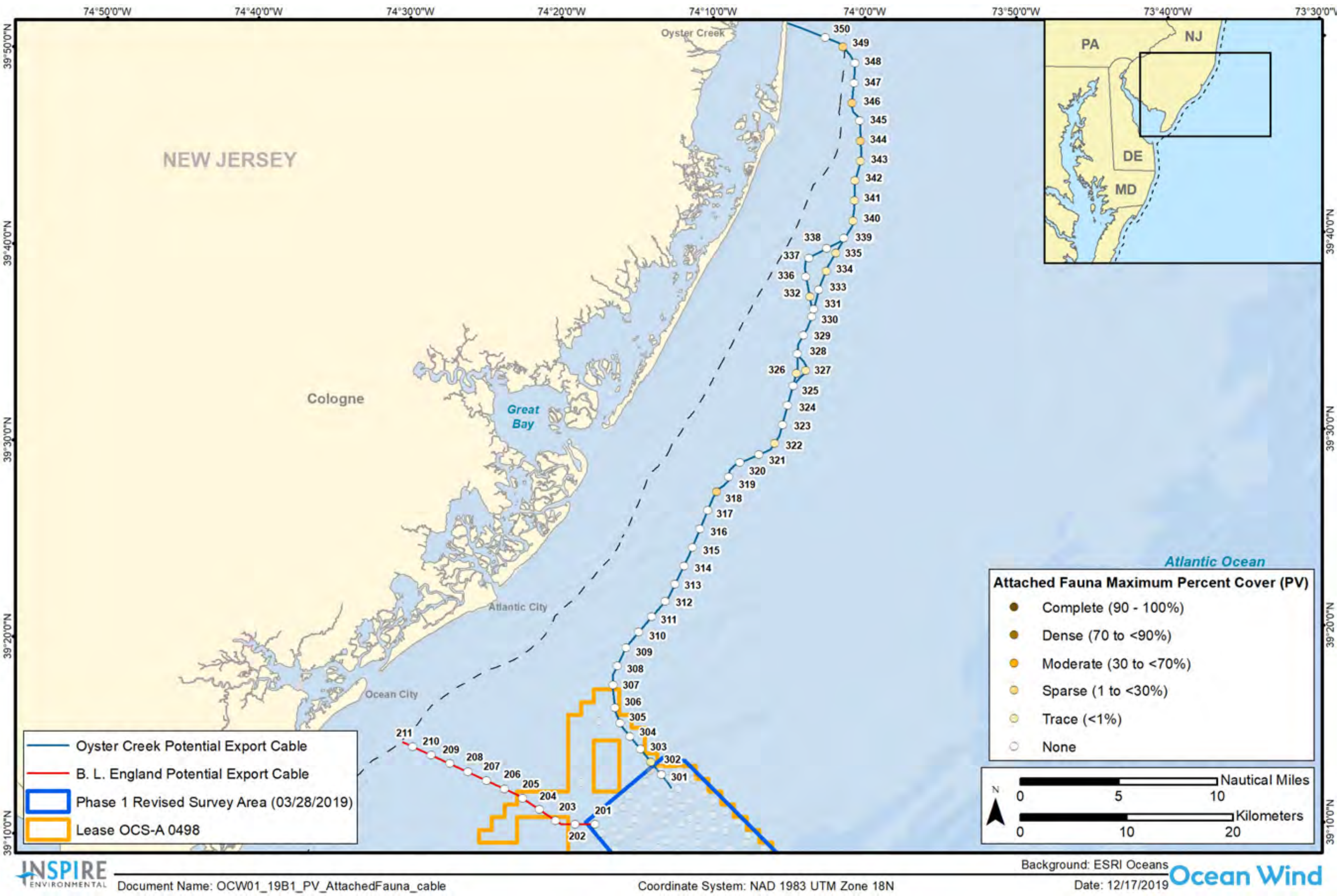


Figure 3-28. Maximum Attached Fauna Percent Cover along the export cable routes

Sediment Profile and Plan View Imaging Benthic Assessment Survey in Support of the Ocean Wind Offshore Wind Farm Site Assessment

DATA REPORT

Survey Conducted 18-21 July 2019

APPENDICES

Prepared for:

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and

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January 2020

APPENDIX A

SPI/PV Station Locations

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	001	A	7/20/2019	11:03	560741	4335278	39°09’52.57”N	74°17’48.87”W	
Phase 1 Survey Area (OCW)	001	B	7/20/2019	11:05	560737	4335286	39°09’52.81”N	74°17’49.03”W	
Phase 1 Survey Area (OCW)	001	C	7/20/2019	11:06	560735	4335292	39°09’53.02”N	74°17’49.10”W	
Phase 1 Survey Area (OCW)	001	D	7/20/2019	11:07	560736	4335302	39°09’53.35”N	74°17’49.05”W	
Phase 1 Survey Area (OCW)	002	A	7/20/2019	11:37	561890	4335600	39°10’02.70”N	74°17’00.89”W	
Phase 1 Survey Area (OCW)	002	B	7/20/2019	11:38	561896	4335604	39°10’02.85”N	74°17’00.62”W	
Phase 1 Survey Area (OCW)	002	C	7/20/2019	11:39	561901	4335612	39°10’03.09”N	74°17’00.43”W	
Phase 1 Survey Area (OCW)	002	D	7/20/2019	11:41	561905	4335616	39°10’03.23”N	74°17’00.26”W	
Phase 1 Survey Area (OCW)	003	A	7/20/2019	12:20	561691	4337405	39°11’01.31”N	74°17’08.59”W	
Phase 1 Survey Area (OCW)	003	B	7/20/2019	12:22	561696	4337410	39°11’01.46”N	74°17’08.38”W	
Phase 1 Survey Area (OCW)	003	C	7/20/2019	12:23	561700	4337412	39°11’01.54”N	74°17’08.20”W	
Phase 1 Survey Area (OCW)	003	D	7/20/2019	12:24	561702	4337417	39°11’01.69”N	74°17’08.12”W	
Phase 1 Survey Area (OCW)	004	A	7/20/2019	13:03	562839	4337694	39°11’10.38”N	74°16’20.65”W	
Phase 1 Survey Area (OCW)	004	B	7/20/2019	13:04	562838	4337698	39°11’10.50”N	74°16’20.69”W	
Phase 1 Survey Area (OCW)	004	C	7/20/2019	13:05	562838	4337706	39°11’10.77”N	74°16’20.66”W	
Phase 1 Survey Area (OCW)	004	D	7/20/2019	13:06	562839	4337709	39°11’10.87”N	74°16’20.65”W	
Phase 1 Survey Area (OCW)	005	A	7/20/2019	13:21	563330	4338762	39°11’44.91”N	74°15’59.83”W	
Phase 1 Survey Area (OCW)	005	B	7/20/2019	13:22	563325	4338768	39°11’45.10”N	74°16’00.02”W	
Phase 1 Survey Area (OCW)	005	C	7/20/2019	13:23	563326	4338770	39°11’45.16”N	74°15’59.97”W	
Phase 1 Survey Area (OCW)	005	D	7/20/2019	13:25	563323	4338767	39°11’45.08”N	74°16’00.12”W	
Phase 1 Survey Area (OCW)	006	A	7/20/2019	14:01	564897	4340098	39°12’27.81”N	74°14’54.03”W	
Phase 1 Survey Area (OCW)	006	B	7/20/2019	14:02	564902	4340094	39°12’27.70”N	74°14’53.81”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	006	C	7/20/2019	14:03	564906	4340089	39°12’27.53”N	74°14’53.65”W	
Phase 1 Survey Area (OCW)	006	D	7/20/2019	14:04	564904	4340091	39°12’27.59”N	74°14’53.74”W	
Phase 1 Survey Area (OCW)	007	A	7/20/2019	14:20	565338	4341131	39°13’01.20”N	74°14’35.29”W	
Phase 1 Survey Area (OCW)	007	B	7/20/2019	14:21	565337	4341130	39°13’01.19”N	74°14’35.32”W	
Phase 1 Survey Area (OCW)	007	C	7/20/2019	14:22	565338	4341136	39°13’01.38”N	74°14’35.29”W	
Phase 1 Survey Area (OCW)	007	D	7/20/2019	14:23	565340	4341143	39°13’01.59”N	74°14’35.20”W	
Phase 1 Survey Area (OCW)	008	A	7/20/2019	14:37	566244	4341328	39°13’07.34”N	74°13’57.45”W	
Phase 1 Survey Area (OCW)	008	B	7/20/2019	14:38	566244	4341321	39°13’07.14”N	74°13’57.44”W	
Phase 1 Survey Area (OCW)	008	C	7/20/2019	14:39	566241	4341333	39°13’07.51”N	74°13’57.56”W	
Phase 1 Survey Area (OCW)	008	D	7/20/2019	14:41	566246	4341340	39°13’07.74”N	74°13’57.36”W	
Phase 1 Survey Area (OCW)	009	A	7/20/2019	15:44	567066	4340384	39°12’36.50”N	74°13’23.50”W	
Phase 1 Survey Area (OCW)	009	B	7/20/2019	15:45	567064	4340383	39°12’36.46”N	74°13’23.58”W	
Phase 1 Survey Area (OCW)	009	C	7/20/2019	15:46	567068	4340387	39°12’36.61”N	74°13’23.42”W	
Phase 1 Survey Area (OCW)	009	D	7/20/2019	15:47	567068	4340391	39°12’36.73”N	74°13’23.41”W	
Phase 1 Survey Area (OCW)	010	A	7/20/2019	15:24	568115	4341218	39°13’03.26”N	74°12’39.45”W	
Phase 1 Survey Area (OCW)	010	B	7/20/2019	15:25	568116	4341214	39°13’03.14”N	74°12’39.40”W	
Phase 1 Survey Area (OCW)	010	C	7/20/2019	15:26	568113	4341218	39°13’03.26”N	74°12’39.52”W	
Phase 1 Survey Area (OCW)	010	D	7/20/2019	15:27	568117	4341218	39°13’03.25”N	74°12’39.39”W	
Phase 1 Survey Area (OCW)	011	A	7/20/2019	10:42	562109	4333796	39°09’04.15”N	74°16’52.34”W	
Phase 1 Survey Area (OCW)	011	B	7/20/2019	10:43	562106	4333794	39°09’04.09”N	74°16’52.48”W	
Phase 1 Survey Area (OCW)	011	C	7/20/2019	10:45	562105	4333798	39°09’04.19”N	74°16’52.51”W	
Phase 1 Survey Area (OCW)	011	D	7/20/2019	10:46	562103	4333801	39°09’04.31”N	74°16’52.59”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	012	A	7/20/2019	10:03	562548	4334834	39°09’37.70”N	74°16’33.73”W	
Phase 1 Survey Area (OCW)	012	B	7/20/2019	10:04	562548	4334832	39°09’37.61”N	74°16’33.73”W	
Phase 1 Survey Area (OCW)	012	C	7/20/2019	10:06	562546	4334834	39°09’37.71”N	74°16’33.81”W	
Phase 1 Survey Area (OCW)	012	D	7/20/2019	10:07	562546	4334839	39°09’37.87”N	74°16’33.81”W	
Phase 1 Survey Area (OCW)	013	A	7/20/2019	9:28	563340	4335510	39°09’59.42”N	74°16’00.49”W	
Phase 1 Survey Area (OCW)	013	B	7/20/2019	9:29	563342	4335511	39°09’59.44”N	74°16’00.39”W	
Phase 1 Survey Area (OCW)	013	C	7/20/2019	9:30	563348	4335512	39°09’59.49”N	74°16’00.18”W	
Phase 1 Survey Area (OCW)	013	D	7/20/2019	9:32	563341	4335517	39°09’59.65”N	74°16’00.45”W	
Phase 1 Survey Area (OCW)	014	A	7/20/2019	9:08	563785	4336549	39°10’33.00”N	74°15’41.59”W	
Phase 1 Survey Area (OCW)	014	B	7/20/2019	9:09	563784	4336561	39°10’33.38”N	74°15’41.66”W	
Phase 1 Survey Area (OCW)	014	C	7/20/2019	9:10	563778	4336561	39°10’33.38”N	74°15’41.90”W	
Phase 1 Survey Area (OCW)	014	D	7/20/2019	9:12	563780	4336569	39°10’33.65”N	74°15’41.80”W	
Phase 1 Survey Area (OCW)	015	A	7/20/2019	16:48	564137	4337768	39°11’12.45”N	74°15’26.52”W	
Phase 1 Survey Area (OCW)	015	B	7/20/2019	16:49	564145	4337772	39°11’12.59”N	74°15’26.17”W	
Phase 1 Survey Area (OCW)	015	C	7/20/2019	16:51	564154	4337776	39°11’12.71”N	74°15’25.80”W	
Phase 1 Survey Area (OCW)	015	D	7/20/2019	16:52	564156	4337785	39°11’13.00”N	74°15’25.72”W	
Phase 1 Survey Area (OCW)	016	A	7/20/2019	8:47	565150	4336583	39°10’33.74”N	74°14’44.71”W	
Phase 1 Survey Area (OCW)	016	B	7/20/2019	8:48	565155	4336586	39°10’33.85”N	74°14’44.50”W	
Phase 1 Survey Area (OCW)	016	C	7/20/2019	8:50	565154	4336591	39°10’34.00”N	74°14’44.52”W	
Phase 1 Survey Area (OCW)	016	D	7/20/2019	8:51	565157	4336596	39°10’34.16”N	74°14’44.40”W	
Phase 1 Survey Area (OCW)	017	A	7/20/2019	8:15	565758	4337545	39°11’04.77”N	74°14’19.04”W	
Phase 1 Survey Area (OCW)	017	B	7/20/2019	8:16	565759	4337553	39°11’05.05”N	74°14’18.98”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	017	C	7/20/2019	8:18	565753	4337556	39°11’05.14”N	74°14’19.25”W	
Phase 1 Survey Area (OCW)	017	D	7/20/2019	8:19	565750	4337557	39°11’05.18”N	74°14’19.34”W	
Phase 1 Survey Area (OCW)	018	A	7/20/2019	16:25	565860	4338951	39°11’50.34”N	74°14’14.29”W	
Phase 1 Survey Area (OCW)	018	B	7/20/2019	16:27	565855	4338958	39°11’50.59”N	74°14’14.49”W	
Phase 1 Survey Area (OCW)	018	C	7/20/2019	16:28	565854	4338962	39°11’50.73”N	74°14’14.54”W	
Phase 1 Survey Area (OCW)	018	D	7/20/2019	16:29	565856	4338972	39°11’51.05”N	74°14’14.46”W	
Phase 1 Survey Area (OCW)	019	A	7/20/2019	7:51	567268	4338868	39°11’47.26”N	74°13’15.61”W	
Phase 1 Survey Area (OCW)	019	B	7/20/2019	7:52	567271	4338874	39°11’47.47”N	74°13’15.50”W	
Phase 1 Survey Area (OCW)	019	C	7/20/2019	7:53	567275	4338876	39°11’47.52”N	74°13’15.33”W	
Phase 1 Survey Area (OCW)	019	D	7/20/2019	7:55	567274	4338882	39°11’47.73”N	74°13’15.38”W	
Phase 1 Survey Area (OCW)	020	A	7/20/2019	7:10	567949	4339444	39°12’05.79”N	74°12’47.02”W	
Phase 1 Survey Area (OCW)	020	B	7/20/2019	7:11	567955	4339452	39°12’06.03”N	74°12’46.78”W	
Phase 1 Survey Area (OCW)	020	C	7/20/2019	7:12	567959	4339457	39°12’06.19”N	74°12’46.61”W	
Phase 1 Survey Area (OCW)	020	D	7/20/2019	7:13	567949	4339465	39°12’06.45”N	74°12’47.01”W	
Phase 1 Survey Area (OCW)	021	A	7/20/2019	6:27	569414	4340356	39°12’34.94”N	74°11’45.60”W	
Phase 1 Survey Area (OCW)	021	B	7/20/2019	6:29	569418	4340360	39°12’35.06”N	74°11’45.46”W	
Phase 1 Survey Area (OCW)	021	C	7/20/2019	6:30	569421	4340361	39°12’35.09”N	74°11’45.30”W	
Phase 1 Survey Area (OCW)	021	D	7/20/2019	6:31	569422	4340365	39°12’35.21”N	74°11’45.27”W	
Phase 1 Survey Area (OCW)	022	A	7/20/2019	2:44	563854	4333315	39°08’48.08”N	74°15’39.82”W	
Phase 1 Survey Area (OCW)	022	B	7/20/2019	2:46	563858	4333320	39°08’48.24”N	74°15’39.66”W	
Phase 1 Survey Area (OCW)	022	C	7/20/2019	2:48	563860	4333325	39°08’48.39”N	74°15’39.58”W	
Phase 1 Survey Area (OCW)	022	D	7/20/2019	2:50	563861	4333335	39°08’48.72”N	74°15’39.51”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	023	A	7/20/2019	3:19	564266	4334354	39°09’21.68”N	74°15’22.30”W	
Phase 1 Survey Area (OCW)	023	B	7/20/2019	3:20	564266	4334359	39°09’21.85”N	74°15’22.29”W	
Phase 1 Survey Area (OCW)	023	C	7/20/2019	3:22	564267	4334362	39°09’21.95”N	74°15’22.27”W	
Phase 1 Survey Area (OCW)	023	D	7/20/2019	3:23	564276	4334364	39°09’21.99”N	74°15’21.87”W	
Phase 1 Survey Area (OCW)	024	A	7/20/2019	3:38	565166	4335071	39°09’44.69”N	74°14’44.58”W	
Phase 1 Survey Area (OCW)	024	B	7/20/2019	3:39	565168	4335072	39°09’44.73”N	74°14’44.49”W	
Phase 1 Survey Area (OCW)	024	C	7/20/2019	3:41	565168	4335075	39°09’44.81”N	74°14’44.46”W	
Phase 1 Survey Area (OCW)	024	D	7/20/2019	3:42	565182	4335085	39°09’45.13”N	74°14’43.89”W	
Phase 1 Survey Area (OCW)	025	A	7/20/2019	3:56	566213	4335303	39°09’51.92”N	74°14’00.84”W	
Phase 1 Survey Area (OCW)	025	B	7/20/2019	3:57	566212	4335306	39°09’52.03”N	74°14’00.90”W	
Phase 1 Survey Area (OCW)	025	C	7/20/2019	3:58	566216	4335311	39°09’52.21”N	74°14’00.73”W	
Phase 1 Survey Area (OCW)	025	D	7/20/2019	3:59	566222	4335315	39°09’52.31”N	74°14’00.45”W	
Phase 1 Survey Area (OCW)	026	A	7/20/2019	4:37	566709	4336412	39°10’27.78”N	74°13’39.78”W	
Phase 1 Survey Area (OCW)	026	B	7/20/2019	4:38	566710	4336419	39°10’28.00”N	74°13’39.76”W	
Phase 1 Survey Area (OCW)	026	C	7/20/2019	4:40	566713	4336422	39°10’28.10”N	74°13’39.63”W	
Phase 1 Survey Area (OCW)	026	D	7/20/2019	4:42	566711	4336434	39°10’28.49”N	74°13’39.72”W	
Phase 1 Survey Area (OCW)	027	A	7/20/2019	4:54	567143	4337455	39°11’01.48”N	74°13’21.32”W	
Phase 1 Survey Area (OCW)	027	B	7/20/2019	4:55	567143	4337458	39°11’01.57”N	74°13’21.33”W	
Phase 1 Survey Area (OCW)	027	C	7/20/2019	4:56	567147	4337466	39°11’01.84”N	74°13’21.18”W	
Phase 1 Survey Area (OCW)	027	D	7/20/2019	4:57	567145	4337470	39°11’01.96”N	74°13’21.25”W	
Phase 1 Survey Area (OCW)	028	A	7/20/2019	5:33	568221	4337710	39°11’09.44”N	74°12’36.30”W	
Phase 1 Survey Area (OCW)	028	B	7/20/2019	5:34	568226	4337713	39°11’09.56”N	74°12’36.12”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	028	C	7/20/2019	5:36	568227	4337718	39°11’09.70”N	74°12’36.06”W	
Phase 1 Survey Area (OCW)	028	D	7/20/2019	5:37	568234	4337730	39°11’10.08”N	74°12’35.78”W	
Phase 1 Survey Area (OCW)	029	A	7/20/2019	5:48	568999	4338379	39°11’30.92”N	74°12’03.65”W	
Phase 1 Survey Area (OCW)	029	B	7/20/2019	5:49	568999	4338386	39°11’31.16”N	74°12’03.65”W	
Phase 1 Survey Area (OCW)	029	C	7/20/2019	5:50	569003	4338391	39°11’31.32”N	74°12’03.47”W	
Phase 1 Survey Area (OCW)	029	D	7/20/2019	5:51	569002	4338396	39°11’31.47”N	74°12’03.51”W	
Phase 1 Survey Area (OCW)	030	A	7/20/2019	6:10	570504	4339011	39°11’50.98”N	74°11’00.66”W	
Phase 1 Survey Area (OCW)	030	B	7/20/2019	6:11	570506	4339018	39°11’51.22”N	74°11’00.60”W	
Phase 1 Survey Area (OCW)	030	C	7/20/2019	6:13	570508	4339027	39°11’51.51”N	74°11’00.50”W	
Phase 1 Survey Area (OCW)	030	D	7/20/2019	6:14	570515	4339035	39°11’51.77”N	74°11’00.18”W	
Phase 1 Survey Area (OCW)	031	A	7/19/2019	23:47	571270	4338317	39°11’28.26”N	74°10’28.98”W	
Phase 1 Survey Area (OCW)	031	B	7/19/2019	23:48	571274	4338314	39°11’28.16”N	74°10’28.84”W	
Phase 1 Survey Area (OCW)	031	C	7/19/2019	23:49	571274	4338322	39°11’28.42”N	74°10’28.85”W	
Phase 1 Survey Area (OCW)	031	D	7/19/2019	23:51	571277	4338331	39°11’28.69”N	74°10’28.72”W	
Phase 1 Survey Area (OCW)	032	A	7/19/2019	19:51	563801	4331889	39°08’01.84”N	74°15’42.52”W	
Phase 1 Survey Area (OCW)	032	B	7/19/2019	19:52	563800	4331897	39°08’02.08”N	74°15’42.56”W	
Phase 1 Survey Area (OCW)	032	C	7/19/2019	19:54	563795	4331898	39°08’02.13”N	74°15’42.77”W	
Phase 1 Survey Area (OCW)	032	D	7/19/2019	19:55	563795	4331900	39°08’02.19”N	74°15’42.76”W	
Phase 1 Survey Area (OCW)	033	A	7/19/2019	20:11	564485	4332563	39°08’23.52”N	74°15’13.77”W	
Phase 1 Survey Area (OCW)	033	B	7/19/2019	20:12	564489	4332572	39°08’23.80”N	74°15’13.63”W	
Phase 1 Survey Area (OCW)	033	C	7/19/2019	20:13	564490	4332582	39°08’24.12”N	74°15’13.57”W	
Phase 1 Survey Area (OCW)	033	D	7/19/2019	20:15	564482	4332581	39°08’24.12”N	74°15’13.92”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	034	A	7/19/2019	20:52	565945	4332447	39°08’19.36”N	74°14’13.04”W	
Phase 1 Survey Area (OCW)	034	B	7/19/2019	20:54	565940	4332458	39°08’19.73”N	74°14’13.21”W	
Phase 1 Survey Area (OCW)	034	C	7/19/2019	20:55	565939	4332471	39°08’20.14”N	74°14’13.26”W	
Phase 1 Survey Area (OCW)	034	D	7/19/2019	20:56	565941	4332478	39°08’20.36”N	74°14’13.18”W	
Phase 1 Survey Area (OCW)	035	A	7/20/2019	2:20	566064	4333882	39°09’05.87”N	74°14’07.54”W	
Phase 1 Survey Area (OCW)	035	B	7/20/2019	2:22	566068	4333886	39°09’06.00”N	74°14’07.38”W	
Phase 1 Survey Area (OCW)	035	C	7/20/2019	2:24	566073	4333896	39°09’06.32”N	74°14’07.18”W	
Phase 1 Survey Area (OCW)	035	D	7/20/2019	2:25	566074	4333901	39°09’06.51”N	74°14’07.15”W	
Phase 1 Survey Area (OCW)	036	A	7/19/2019	21:11	567046	4332752	39°08’28.94”N	74°13’27.06”W	
Phase 1 Survey Area (OCW)	036	B	7/19/2019	21:12	567042	4332757	39°08’29.10”N	74°13’27.20”W	
Phase 1 Survey Area (OCW)	036	C	7/19/2019	21:13	567038	4332759	39°08’29.20”N	74°13’27.39”W	
Phase 1 Survey Area (OCW)	036	D	7/19/2019	21:14	567043	4332773	39°08’29.63”N	74°13’27.19”W	
Phase 1 Survey Area (OCW)	037	A	7/20/2019	2:00	566884	4334539	39°09’26.96”N	74°13’33.18”W	
Phase 1 Survey Area (OCW)	037	B	7/20/2019	2:02	566886	4334544	39°09’27.11”N	74°13’33.10”W	
Phase 1 Survey Area (OCW)	037	C	7/20/2019	2:03	566892	4334552	39°09’27.37”N	74°13’32.84”W	
Phase 1 Survey Area (OCW)	037	D	7/20/2019	2:05	566894	4334556	39°09’27.51”N	74°13’32.76”W	
Phase 1 Survey Area (OCW)	038	A	7/19/2019	21:44	567827	4333446	39°08’51.25”N	74°12’54.26”W	
Phase 1 Survey Area (OCW)	038	B	7/19/2019	21:46	567832	4333449	39°08’51.33”N	74°12’54.07”W	
Phase 1 Survey Area (OCW)	038	C	7/19/2019	21:47	567831	4333456	39°08’51.58”N	74°12’54.09”W	
Phase 1 Survey Area (OCW)	038	D	7/19/2019	21:48	567838	4333463	39°08’51.79”N	74°12’53.81”W	
Phase 1 Survey Area (OCW)	039	A	7/19/2019	22:01	568418	4334576	39°09’27.73”N	74°12’29.25”W	
Phase 1 Survey Area (OCW)	039	B	7/19/2019	22:02	568419	4334582	39°09’27.92”N	74°12’29.21”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	039	C	7/19/2019	22:03	568425	4334588	39°09’28.11”N	74°12’28.96”W	
Phase 1 Survey Area (OCW)	039	D	7/19/2019	22:04	568430	4334596	39°09’28.37”N	74°12’28.76”W	
Phase 1 Survey Area (OCW)	040	A	7/20/2019	1:35	568262	4336146	39°10’18.70”N	74°12’35.18”W	
Phase 1 Survey Area (OCW)	040	B	7/20/2019	1:37	568269	4336155	39°10’18.99”N	74°12’34.86”W	
Phase 1 Survey Area (OCW)	040	C	7/20/2019	1:38	568271	4336160	39°10’19.15”N	74°12’34.81”W	
Phase 1 Survey Area (OCW)	040	D	7/20/2019	1:39	568280	4336164	39°10’19.27”N	74°12’34.41”W	
Phase 1 Survey Area (OCW)	041	A	7/20/2019	0:53	569042	4336662	39°10’35.21”N	74°12’02.46”W	
Phase 1 Survey Area (OCW)	041	B	7/20/2019	0:55	569048	4336673	39°10’35.56”N	74°12’02.23”W	
Phase 1 Survey Area (OCW)	041	C	7/20/2019	0:56	569042	4336677	39°10’35.70”N	74°12’02.47”W	
Phase 1 Survey Area (OCW)	041	D	7/20/2019	0:58	569050	4336671	39°10’35.51”N	74°12’02.13”W	
Phase 1 Survey Area (OCW)	042	A	7/19/2019	22:24	569895	4335818	39°10’07.61”N	74°11’27.23”W	
Phase 1 Survey Area (OCW)	042	B	7/19/2019	22:25	569898	4335821	39°10’07.71”N	74°11’27.10”W	
Phase 1 Survey Area (OCW)	042	C	7/19/2019	22:26	569899	4335827	39°10’07.91”N	74°11’27.08”W	
Phase 1 Survey Area (OCW)	042	D	7/19/2019	22:28	569896	4335835	39°10’08.17”N	74°11’27.20”W	
Phase 1 Survey Area (OCW)	043	A	7/20/2019	0:11	569878	4337224	39°10’53.22”N	74°11’27.45”W	
Phase 1 Survey Area (OCW)	043	B	7/20/2019	0:12	569880	4337231	39°10’53.43”N	74°11’27.33”W	
Phase 1 Survey Area (OCW)	043	C	7/20/2019	0:13	569881	4337229	39°10’53.37”N	74°11’27.30”W	
Phase 1 Survey Area (OCW)	043	D	7/20/2019	0:14	569880	4337238	39°10’53.68”N	74°11’27.33”W	
Phase 1 Survey Area (OCW)	044	A	7/19/2019	22:43	571186	4336957	39°10’44.17”N	74°10’33.01”W	
Phase 1 Survey Area (OCW)	044	B	7/19/2019	22:44	571197	4336969	39°10’44.56”N	74°10’32.55”W	
Phase 1 Survey Area (OCW)	044	C	7/19/2019	22:46	571203	4336976	39°10’44.76”N	74°10’32.29”W	
Phase 1 Survey Area (OCW)	044	D	7/19/2019	22:47	571209	4336973	39°10’44.68”N	74°10’32.05”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	045	A	7/19/2019	23:02	572385	4337306	39°10’55.12”N	74°09’42.91”W	
Phase 1 Survey Area (OCW)	045	B	7/19/2019	23:03	572391	4337316	39°10’55.46”N	74°09’42.67”W	
Phase 1 Survey Area (OCW)	045	C	7/19/2019	23:04	572393	4337323	39°10’55.67”N	74°09’42.59”W	
Phase 1 Survey Area (OCW)	045	D	7/19/2019	23:08	572395	4337299	39°10’54.89”N	74°09’42.52”W	
Phase 1 Survey Area (OCW)	046	A	7/19/2019	19:34	564651	4330733	39°07’24.11”N	74°15’07.53”W	
Phase 1 Survey Area (OCW)	046	B	7/19/2019	19:35	564653	4330747	39°07’24.55”N	74°15’07.42”W	
Phase 1 Survey Area (OCW)	046	C	7/19/2019	19:37	564655	4330751	39°07’24.70”N	74°15’07.34”W	
Phase 1 Survey Area (OCW)	046	D	7/19/2019	19:38	564652	4330745	39°07’24.51”N	74°15’07.46”W	
Phase 1 Survey Area (OCW)	047	A	7/19/2019	18:30	567052	4331152	39°07’37.05”N	74°13’27.37”W	
Phase 1 Survey Area (OCW)	047	B	7/19/2019	18:31	567053	4331160	39°07’37.30”N	74°13’27.33”W	
Phase 1 Survey Area (OCW)	047	C	7/19/2019	18:33	567052	4331165	39°07’37.47”N	74°13’27.37”W	
Phase 1 Survey Area (OCW)	047	D	7/19/2019	18:34	567050	4331166	39°07’37.50”N	74°13’27.45”W	
Phase 1 Survey Area (OCW)	048	A	7/19/2019	18:04	568791	4332348	39°08’15.37”N	74°12’14.51”W	
Phase 1 Survey Area (OCW)	048	B	7/19/2019	18:05	568790	4332351	39°08’15.45”N	74°12’14.56”W	
Phase 1 Survey Area (OCW)	048	C	7/19/2019	18:06	568792	4332355	39°08’15.57”N	74°12’14.47”W	
Phase 1 Survey Area (OCW)	048	D	7/19/2019	18:08	568788	4332354	39°08’15.55”N	74°12’14.65”W	
Phase 1 Survey Area (OCW)	049	A	7/19/2019	13:26	569835	4332786	39°08’29.26”N	74°11’30.88”W	
Phase 1 Survey Area (OCW)	049	B	7/19/2019	13:27	569839	4332788	39°08’29.34”N	74°11’30.72”W	
Phase 1 Survey Area (OCW)	049	C	7/19/2019	13:28	569841	4332790	39°08’29.41”N	74°11’30.61”W	
Phase 1 Survey Area (OCW)	049	D	7/19/2019	13:29	569841	4332793	39°08’29.50”N	74°11’30.61”W	
Phase 1 Survey Area (OCW)	050	A	7/19/2019	17:31	569767	4334405	39°09’21.81”N	74°11’33.09”W	
Phase 1 Survey Area (OCW)	050	B	7/19/2019	17:32	569764	4334412	39°09’22.02”N	74°11’33.21”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	050	C	7/19/2019	17:33	569767	4334416	39°09’22.17”N	74°11’33.09”W	
Phase 1 Survey Area (OCW)	050	D	7/19/2019	17:34	569767	4334424	39°09’22.42”N	74°11’33.09”W	
Phase 1 Survey Area (OCW)	051	A	7/19/2019	16:59	571215	4335677	39°10’02.64”N	74°10’32.30”W	
Phase 1 Survey Area (OCW)	051	B	7/19/2019	17:00	571222	4335675	39°10’02.58”N	74°10’32.02”W	
Phase 1 Survey Area (OCW)	051	C	7/19/2019	17:01	571223	4335676	39°10’02.62”N	74°10’31.95”W	
Phase 1 Survey Area (OCW)	051	D	7/19/2019	17:02	571222	4335677	39°10’02.64”N	74°10’32.01”W	
Phase 1 Survey Area (OCW)	052	A	7/19/2019	16:11	572459	4335503	39°09’56.62”N	74°09’40.54”W	
Phase 1 Survey Area (OCW)	052	B	7/19/2019	16:13	572456	4335510	39°09’56.84”N	74°09’40.65”W	
Phase 1 Survey Area (OCW)	052	C	7/19/2019	16:14	572456	4335512	39°09’56.93”N	74°09’40.65”W	
Phase 1 Survey Area (OCW)	052	D	7/19/2019	16:15	572456	4335518	39°09’57.10”N	74°09’40.65”W	
Phase 1 Survey Area (OCW)	053	A	7/19/2019	15:44	573522	4336322	39°10’22.87”N	74°08’55.90”W	
Phase 1 Survey Area (OCW)	053	B	7/19/2019	15:46	573523	4336329	39°10’23.11”N	74°08’55.87”W	
Phase 1 Survey Area (OCW)	053	C	7/19/2019	15:48	573536	4336326	39°10’23.00”N	74°08’55.34”W	
Phase 1 Survey Area (OCW)	053	D	7/19/2019	15:49	573533	4336332	39°10’23.20”N	74°08’55.46”W	
Phase 1 Survey Area (OCW)	054	A	7/19/2019	18:56	565615	4329567	39°06’46.02”N	74°14’27.77”W	
Phase 1 Survey Area (OCW)	054	B	7/19/2019	18:57	565612	4329580	39°06’46.46”N	74°14’27.90”W	
Phase 1 Survey Area (OCW)	054	C	7/19/2019	18:58	565609	4329585	39°06’46.63”N	74°14’27.99”W	
Phase 1 Survey Area (OCW)	054	D	7/19/2019	18:59	565606	4329584	39°06’46.58”N	74°14’28.15”W	
Phase 1 Survey Area (OCW)	055	A	7/19/2019	11:39	567379	4329076	39°06’29.63”N	74°13’14.49”W	
Phase 1 Survey Area (OCW)	055	B	7/19/2019	11:40	567382	4329076	39°06’29.63”N	74°13’14.38”W	
Phase 1 Survey Area (OCW)	055	C	7/19/2019	11:42	567379	4329073	39°06’29.52”N	74°13’14.52”W	
Phase 1 Survey Area (OCW)	055	D	7/19/2019	11:43	567377	4329078	39°06’29.70”N	74°13’14.60”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	056	A	7/19/2019	12:24	567885	4330196	39°07'05.81"N	74°12'53.04"W	
Phase 1 Survey Area (OCW)	056	B	7/19/2019	12:25	567889	4330196	39°07'05.80"N	74°12'52.85"W	
Phase 1 Survey Area (OCW)	056	C	7/19/2019	12:26	567892	4330199	39°07'05.89"N	74°12'52.75"W	
Phase 1 Survey Area (OCW)	056	D	7/19/2019	12:30	567891	4330195	39°07'05.79"N	74°12'52.79"W	
Phase 1 Survey Area (OCW)	057	A	7/19/2019	12:48	568694	4330856	39°07'26.99"N	74°12'19.11"W	
Phase 1 Survey Area (OCW)	057	B	7/19/2019	12:50	568694	4330857	39°07'27.04"N	74°12'19.09"W	
Phase 1 Survey Area (OCW)	057	C	7/19/2019	12:51	568697	4330857	39°07'27.01"N	74°12'18.97"W	
Phase 1 Survey Area (OCW)	057	D	7/19/2019	12:52	568701	4330859	39°07'27.10"N	74°12'18.81"W	
Phase 1 Survey Area (OCW)	058	A	7/19/2019	13:08	569626	4331634	39°07'51.97"N	74°11'40.01"W	
Phase 1 Survey Area (OCW)	058	B	7/19/2019	13:09	569628	4331639	39°07'52.12"N	74°11'39.93"W	
Phase 1 Survey Area (OCW)	058	C	7/19/2019	13:10	569629	4331646	39°07'52.34"N	74°11'39.86"W	
Phase 1 Survey Area (OCW)	058	D	7/19/2019	13:11	569628	4331649	39°07'52.45"N	74°11'39.92"W	
Phase 1 Survey Area (OCW)	059	A	7/19/2019	8:00	571008	4331542	39°07'48.56"N	74°10'42.50"W	
Phase 1 Survey Area (OCW)	059	B	7/19/2019	8:02	571009	4331544	39°07'48.64"N	74°10'42.42"W	
Phase 1 Survey Area (OCW)	059	C	7/19/2019	8:04	571013	4331544	39°07'48.63"N	74°10'42.26"W	
Phase 1 Survey Area (OCW)	059	D	7/19/2019	8:05	571014	4331548	39°07'48.76"N	74°10'42.22"W	
Phase 1 Survey Area (OCW)	060	A	7/19/2019	7:07	571243	4332534	39°08'20.68"N	74°10'32.31"W	
Phase 1 Survey Area (OCW)	060	B	7/19/2019	7:09	571243	4332538	39°08'20.82"N	74°10'32.33"W	
Phase 1 Survey Area (OCW)	060	C	7/19/2019	7:10	571230	4332533	39°08'20.66"N	74°10'32.85"W	
Phase 1 Survey Area (OCW)	060	D	7/19/2019	7:12	571229	4332541	39°08'20.91"N	74°10'32.89"W	
Phase 1 Survey Area (OCW)	061	A	7/19/2019	14:34	571452	4334074	39°09'10.56"N	74°10'23.01"W	
Phase 1 Survey Area (OCW)	061	B	7/19/2019	14:35	571451	4334067	39°09'10.34"N	74°10'23.08"W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	061	C	7/19/2019	14:36	571455	4334062	39°09’10.18”N	74°10’22.91”W	
Phase 1 Survey Area (OCW)	061	D	7/19/2019	14:38	571453	4334070	39°09’10.45”N	74°10’23.00”W	
Phase 1 Survey Area (OCW)	062	A	7/19/2019	6:46	572481	4332758	39°08’27.57”N	74°09’40.68”W	
Phase 1 Survey Area (OCW)	062	B	7/19/2019	6:48	572475	4332760	39°08’27.63”N	74°09’40.92”W	
Phase 1 Survey Area (OCW)	062	C	7/19/2019	6:50	572474	4332768	39°08’27.91”N	74°09’40.94”W	
Phase 1 Survey Area (OCW)	062	D	7/19/2019	6:52	572470	4332773	39°08’28.07”N	74°09’41.13”W	
Phase 1 Survey Area (OCW)	063	A	7/19/2019	14:53	572721	4333868	39°09’03.50”N	74°09’30.23”W	
Phase 1 Survey Area (OCW)	063	B	7/19/2019	14:54	572722	4333862	39°09’03.33”N	74°09’30.21”W	
Phase 1 Survey Area (OCW)	063	C	7/19/2019	14:55	572719	4333868	39°09’03.53”N	74°09’30.31”W	
Phase 1 Survey Area (OCW)	063	D	7/19/2019	14:56	572719	4333876	39°09’03.78”N	74°09’30.32”W	
Phase 1 Survey Area (OCW)	064	A	7/19/2019	6:24	573573	4332878	39°08’31.15”N	74°08’55.15”W	
Phase 1 Survey Area (OCW)	064	B	7/19/2019	6:26	573578	4332889	39°08’31.50”N	74°08’54.94”W	
Phase 1 Survey Area (OCW)	064	C	7/19/2019	6:28	573587	4332891	39°08’31.57”N	74°08’54.56”W	
Phase 1 Survey Area (OCW)	064	D	7/19/2019	6:29	573591	4332893	39°08’31.61”N	74°08’54.36”W	
Phase 1 Survey Area (OCW)	065	A	7/19/2019	5:40	574342	4334393	39°09’20.05”N	74°08’22.49”W	
Phase 1 Survey Area (OCW)	065	B	7/19/2019	5:42	574350	4334392	39°09’20.03”N	74°08’22.17”W	
Phase 1 Survey Area (OCW)	065	C	7/19/2019	5:43	574349	4334395	39°09’20.12”N	74°08’22.21”W	
Phase 1 Survey Area (OCW)	065	D	7/19/2019	5:45	574345	4334396	39°09’20.14”N	74°08’22.37”W	
Phase 1 Survey Area (OCW)	066	A	7/19/2019	15:21	574501	4335106	39°09’43.12”N	74°08’15.61”W	
Phase 1 Survey Area (OCW)	066	B	7/19/2019	15:22	574501	4335114	39°09’43.39”N	74°08’15.58”W	
Phase 1 Survey Area (OCW)	066	C	7/19/2019	15:23	574496	4335121	39°09’43.61”N	74°08’15.81”W	
Phase 1 Survey Area (OCW)	066	D	7/19/2019	15:25	574494	4335124	39°09’43.70”N	74°08’15.89”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	067	A	7/19/2019	4:36	576020	4333827	39°09’01.17”N	74°07’12.81”W	
Phase 1 Survey Area (OCW)	067	B	7/19/2019	4:37	576019	4333817	39°09’00.86”N	74°07’12.88”W	
Phase 1 Survey Area (OCW)	067	C	7/19/2019	4:39	576021	4333823	39°09’01.05”N	74°07’12.80”W	
Phase 1 Survey Area (OCW)	067	D	7/19/2019	4:40	576020	4333827	39°09’01.18”N	74°07’12.85”W	
Phase 1 Survey Area (OCW)	068	A	7/19/2019	11:12	567171	4327728	39°05’45.97”N	74°13’23.63”W	
Phase 1 Survey Area (OCW)	068	B	7/19/2019	11:14	567176	4327731	39°05’46.06”N	74°13’23.43”W	
Phase 1 Survey Area (OCW)	068	C	7/19/2019	11:15	567178	4327730	39°05’46.03”N	74°13’23.33”W	
Phase 1 Survey Area (OCW)	068	D	7/19/2019	11:17	567175	4327738	39°05’46.26”N	74°13’23.47”W	
Phase 1 Survey Area (OCW)	069	A	7/19/2019	1:04	568226	4326448	39°05’04.13”N	74°12’40.19”W	
Phase 1 Survey Area (OCW)	069	B	7/19/2019	1:06	568233	4326446	39°05’04.07”N	74°12’39.89”W	
Phase 1 Survey Area (OCW)	069	C	7/19/2019	1:13	568221	4326431	39°05’03.59”N	74°12’40.39”W	
Phase 1 Survey Area (OCW)	069	D	7/19/2019	1:15	568233	4326424	39°05’03.35”N	74°12’39.88”W	
Phase 1 Survey Area (OCW)	070	A	7/19/2019	10:08	568827	4329059	39°06’28.66”N	74°12’14.20”W	
Phase 1 Survey Area (OCW)	070	B	7/19/2019	10:09	568828	4329064	39°06’28.82”N	74°12’14.16”W	
Phase 1 Survey Area (OCW)	070	C	7/19/2019	10:14	568834	4329045	39°06’28.20”N	74°12’13.93”W	
Phase 1 Survey Area (OCW)	070	D	7/19/2019	10:15	568836	4329048	39°06’28.32”N	74°12’13.85”W	
Phase 1 Survey Area (OCW)	071	A	7/19/2019	1:34	569545	4328070	39°05’56.39”N	74°11’44.69”W	
Phase 1 Survey Area (OCW)	071	B	7/19/2019	1:35	569555	4328065	39°05’56.21”N	74°11’44.26”W	
Phase 1 Survey Area (OCW)	071	C	7/19/2019	1:37	569548	4328064	39°05’56.20”N	74°11’44.55”W	
Phase 1 Survey Area (OCW)	071	D	7/19/2019	1:40	569552	4328079	39°05’56.67”N	74°11’44.39”W	
Phase 1 Survey Area (OCW)	072	A	7/19/2019	9:28	569708	4329808	39°06’52.70”N	74°11’37.27”W	
Phase 1 Survey Area (OCW)	072	B	7/19/2019	9:35	569704	4329800	39°06’52.45”N	74°11’37.43”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	072	C	7/19/2019						No fix taken; Took 'E' picture
Phase 1 Survey Area (OCW)	072	D	7/19/2019	9:40	569730	4329801	39°06’52.48”N	74°11’36.36”W	
Phase 1 Survey Area (OCW)	072	E	7/19/2019	9:42	569730	4329799	39°06’52.39”N	74°11’36.34”W	
Phase 1 Survey Area (OCW)	073	A	7/19/2019	1:56	570400	4328900	39°06’23.06”N	74°11’08.78”W	
Phase 1 Survey Area (OCW)	073	B	7/19/2019	1:58	570401	4328896	39°06’22.91”N	74°11’08.74”W	
Phase 1 Survey Area (OCW)	073	C	7/19/2019	2:00	570400	4328898	39°06’23.00”N	74°11’08.80”W	
Phase 1 Survey Area (OCW)	073	D	7/19/2019	2:01	570408	4328903	39°06’23.14”N	74°11’08.44”W	
Phase 1 Survey Area (OCW)	074	A	7/19/2019	8:28	570349	4330624	39°07’18.98”N	74°11’10.29”W	
Phase 1 Survey Area (OCW)	074	B	7/19/2019	8:29	570346	4330623	39°07’18.96”N	74°11’10.37”W	
Phase 1 Survey Area (OCW)	074	C	7/19/2019	8:31	570345	4330618	39°07’18.80”N	74°11’10.43”W	
Phase 1 Survey Area (OCW)	074	D	7/19/2019						No fix taken; 3 pictures is acceptable
Phase 1 Survey Area (OCW)	075	A	7/19/2019	2:22	572224	4329970	39°06’57.22”N	74°09’52.43”W	
Phase 1 Survey Area (OCW)	075	B	7/19/2019	2:23	572222	4329969	39°06’57.20”N	74°09’52.52”W	
Phase 1 Survey Area (OCW)	075	C	7/19/2019	2:25	572226	4329971	39°06’57.25”N	74°09’52.34”W	
Phase 1 Survey Area (OCW)	075	D	7/19/2019	2:27	572232	4329969	39°06’57.17”N	74°09’52.13”W	
Phase 1 Survey Area (OCW)	076	A	7/19/2019	3:04	572488	4331133	39°07’34.88”N	74°09’41.02”W	
Phase 1 Survey Area (OCW)	076	B	7/19/2019	3:06	572488	4331130	39°07’34.76”N	74°09’41.02”W	
Phase 1 Survey Area (OCW)	076	C	7/19/2019	3:08	572493	4331134	39°07’34.91”N	74°09’40.80”W	
Phase 1 Survey Area (OCW)	076	D	7/19/2019	3:09	572496	4331134	39°07’34.88”N	74°09’40.66”W	
Phase 1 Survey Area (OCW)	077	A	7/19/2019	3:24	573414	4331685	39°07’52.50”N	74°09’02.22”W	
Phase 1 Survey Area (OCW)	077	B	7/19/2019	3:26	573414	4331684	39°07’52.46”N	74°09’02.24”W	
Phase 1 Survey Area (OCW)	077	C	7/19/2019	3:28	573414	4331686	39°07’52.52”N	74°09’02.21”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	077	D	7/19/2019	3:29	573415	4331680	39°07’52.32”N	74°09’02.19”W	
Phase 1 Survey Area (OCW)	078	A	7/19/2019	4:12	575119	4332402	39°08’15.24”N	74°07’50.94”W	
Phase 1 Survey Area (OCW)	078	B	7/19/2019	4:14	575125	4332401	39°08’15.19”N	74°07’50.69”W	
Phase 1 Survey Area (OCW)	078	C	7/19/2019	4:15	575121	4332407	39°08’15.38”N	74°07’50.86”W	
Phase 1 Survey Area (OCW)	078	D	7/19/2019	4:17	575122	4332407	39°08’15.41”N	74°07’50.82”W	
Phase 1 Survey Area (OCW)	079	A	7/18/2019	23:41	569656	4324656	39°04’05.60”N	74°11’41.33”W	
Phase 1 Survey Area (OCW)	079	B	7/18/2019	23:43	569658	4324662	39°04’05.79”N	74°11’41.23”W	
Phase 1 Survey Area (OCW)	079	C	7/18/2019	23:44	569659	4324663	39°04’05.83”N	74°11’41.18”W	
Phase 1 Survey Area (OCW)	079	D	7/18/2019	23:45	569659	4324659	39°04’05.72”N	74°11’41.22”W	
Phase 1 Survey Area (OCW)	079	E	7/19/2019	0:32	569648	4324667	39°04’05.98”N	74°11’41.67”W	
Phase 1 Survey Area (OCW)	079	F	7/19/2019	0:34	569655	4324671	39°04’06.09”N	74°11’41.34”W	
Phase 1 Survey Area (OCW)	079	G	7/19/2019	0:36	569655	4324670	39°04’06.05”N	74°11’41.37”W	
Phase 1 Survey Area (OCW)	079	H	7/19/2019	0:38	569659	4324663	39°04’05.82”N	74°11’41.20”W	
Phase 1 Survey Area (OCW)	080	A	7/18/2019	21:20	569743	4326472	39°05’04.48”N	74°11’37.02”W	
Phase 1 Survey Area (OCW)	080	B	7/18/2019	21:21	569755	4326476	39°05’04.61”N	74°11’36.54”W	
Phase 1 Survey Area (OCW)	080	C	7/18/2019	21:22	569752	4326484	39°05’04.86”N	74°11’36.64”W	
Phase 1 Survey Area (OCW)	080	D	7/18/2019	21:30	569741	4326459	39°05’04.07”N	74°11’37.13”W	
Phase 1 Survey Area (OCW)	081	A	7/18/2019	21:02	570461	4327084	39°05’24.14”N	74°11’06.95”W	
Phase 1 Survey Area (OCW)	081	B	7/18/2019	21:03	570460	4327089	39°05’24.29”N	74°11’06.95”W	
Phase 1 Survey Area (OCW)	081	C	7/18/2019	21:04	570465	4327094	39°05’24.46”N	74°11’06.75”W	
Phase 1 Survey Area (OCW)	081	D	7/18/2019	21:05	570464	4327109	39°05’24.93”N	74°11’06.78”W	
Phase 1 Survey Area (OCW)	082	A	7/18/2019	20:12	571354	4326122	39°04’52.66”N	74°10’30.11”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	082	B	7/18/2019	20:13	571369	4326120	39°04’52.59”N	74°10’29.49”W	
Phase 1 Survey Area (OCW)	082	C	7/18/2019	20:15	571370	4326115	39°04’52.44”N	74°10’29.47”W	
Phase 1 Survey Area (OCW)	082	D	7/18/2019	20:16	571371	4326126	39°04’52.78”N	74°10’29.41”W	
Phase 1 Survey Area (OCW)	083	A	7/18/2019	19:51	571306	4327850	39°05’48.73”N	74°10’31.48”W	
Phase 1 Survey Area (OCW)	083	B	7/18/2019	19:53	571302	4327846	39°05’48.59”N	74°10’31.64”W	
Phase 1 Survey Area (OCW)	083	C	7/18/2019	19:54	571301	4327844	39°05’48.53”N	74°10’31.66”W	
Phase 1 Survey Area (OCW)	083	D	7/18/2019	19:55	571307	4327848	39°05’48.65”N	74°10’31.43”W	
Phase 1 Survey Area (OCW)	084	A	7/18/2019	19:18	572204	4326888	39°05’17.26”N	74°09’54.45”W	
Phase 1 Survey Area (OCW)	084	B	7/18/2019	19:19	572198	4326886	39°05’17.18”N	74°09’54.72”W	
Phase 1 Survey Area (OCW)	084	C	7/18/2019	19:21	572196	4326882	39°05’17.06”N	74°09’54.78”W	
Phase 1 Survey Area (OCW)	084	D	7/18/2019	19:22	572195	4326889	39°05’17.29”N	74°09’54.85”W	
Phase 1 Survey Area (OCW)	085	A	7/18/2019	18:43	572176	4328559	39°06’11.48”N	74°09’54.99”W	
Phase 1 Survey Area (OCW)	085	B	7/18/2019	18:44	572189	4328568	39°06’11.75”N	74°09’54.43”W	
Phase 1 Survey Area (OCW)	085	C	7/18/2019	18:52	572184	4328533	39°06’10.64”N	74°09’54.66”W	
Phase 1 Survey Area (OCW)	085	D	7/18/2019	18:53	572174	4328535	39°06’10.69”N	74°09’55.06”W	
Phase 1 Survey Area (OCW)	086	A	7/18/2019	18:19	573357	4327790	39°05’46.17”N	74°09’06.10”W	
Phase 1 Survey Area (OCW)	086	B	7/18/2019	18:20	573356	4327791	39°05’46.19”N	74°09’06.15”W	
Phase 1 Survey Area (OCW)	086	C	7/18/2019	18:21	573357	4327798	39°05’46.42”N	74°09’06.10”W	
Phase 1 Survey Area (OCW)	086	D	7/18/2019	18:23	573358	4327800	39°05’46.50”N	74°09’06.06”W	
Phase 1 Survey Area (OCW)	087	A	7/18/2019	17:29	573515	4329747	39°06’49.61”N	74°08’58.77”W	
Phase 1 Survey Area (OCW)	087	B	7/18/2019	17:40	573519	4329735	39°06’49.20”N	74°08’58.60”W	
Phase 1 Survey Area (OCW)	087	C	7/18/2019	17:41	573520	4329744	39°06’49.50”N	74°08’58.57”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	087	D	7/18/2019	17:52	573535	4329727	39°06’48.94”N	74°08’57.94”W	
Phase 1 Survey Area (OCW)	088	A	7/18/2019	16:09	574441	4328896	39°06’21.73”N	74°08’20.56”W	
Phase 1 Survey Area (OCW)	088	B	7/18/2019	16:10	574442	4328892	39°06’21.57”N	74°08’20.52”W	
Phase 1 Survey Area (OCW)	088	C	7/18/2019	16:11	574445	4328895	39°06’21.67”N	74°08’20.40”W	
Phase 1 Survey Area (OCW)	088	D	7/18/2019	16:13	574433	4328902	39°06’21.92”N	74°08’20.88”W	
Phase 1 Survey Area (OCW)	089	A	7/18/2019	15:25	574333	4330723	39°07’21.00”N	74°08’24.33”W	
Phase 1 Survey Area (OCW)	089	B	7/18/2019	15:27	574339	4330716	39°07’20.77”N	74°08’24.10”W	
Phase 1 Survey Area (OCW)	089	C	7/18/2019	15:28	574345	4330713	39°07’20.69”N	74°08’23.84”W	
Phase 1 Survey Area (OCW)	089	D	7/18/2019	15:29	574346	4330713	39°07’20.67”N	74°08’23.79”W	
Phase 1 Survey Area (OCW)	090	A	7/18/2019	14:49	575242	4329753	39°06’49.27”N	74°07’46.88”W	
Phase 1 Survey Area (OCW)	090	B	7/18/2019	14:50	575233	4329756	39°06’49.37”N	74°07’47.25”W	
Phase 1 Survey Area (OCW)	090	C	7/18/2019	14:51	575229	4329757	39°06’49.41”N	74°07’47.42”W	
Phase 1 Survey Area (OCW)	090	D	7/18/2019	14:52	575226	4329759	39°06’49.47”N	74°07’47.52”W	
Phase 1 Survey Area (OCW)	091	A	7/18/2019	14:13	576264	4330653	39°07’18.13”N	74°07’03.93”W	
Phase 1 Survey Area (OCW)	091	B	7/18/2019	14:14	576255	4330661	39°07’18.40”N	74°07’04.32”W	
Phase 1 Survey Area (OCW)	091	C	7/18/2019	14:15	576252	4330660	39°07’18.37”N	74°07’04.44”W	
Phase 1 Survey Area (OCW)	091	D	7/18/2019	14:17	576250	4330662	39°07’18.42”N	74°07’04.51”W	
Phase 1 Survey Area (OCW)	092	A	7/18/2019	13:53	576971	4331329	39°07’39.83”N	74°06’34.22”W	
Phase 1 Survey Area (OCW)	092	B	7/18/2019	13:54	576968	4331333	39°07’39.98”N	74°06’34.35”W	
Phase 1 Survey Area (OCW)	092	C	7/18/2019	13:55	576968	4331334	39°07’40.00”N	74°06’34.37”W	
Phase 1 Survey Area (OCW)	092	D	7/18/2019	13:56	576962	4331338	39°07’40.13”N	74°06’34.59”W	
Phase 1 Survey Area (OCW)	093	A	7/18/2019	13:09	577405	4332423	39°08’15.19”N	74°06’15.69”W	No Depth Sensor

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Phase 1 Survey Area (OCW)	093	B	7/18/2019	13:10	577408	4332421	39°08’15.13”N	74°06’15.57”W	
Phase 1 Survey Area (OCW)	093	C	7/18/2019	13:11	577407	4332421	39°08’15.13”N	74°06’15.61”W	
Phase 1 Survey Area (OCW)	093	D	7/18/2019	13:13	577402	4332428	39°08’15.34”N	74°06’15.81”W	
B.L. England Export Cable	201	A	7/20/2019	17:31	560142	4336094	39°10’19.17”N	74°18’13.57”W	
B.L. England Export Cable	201	B	7/20/2019	17:32	560143	4336100	39°10’19.38”N	74°18’13.51”W	
B.L. England Export Cable	201	C	7/20/2019	17:33	560147	4336108	39°10’19.63”N	74°18’13.34”W	
B.L. England Export Cable	201	D	7/20/2019	17:34	560149	4336112	39°10’19.75”N	74°18’13.26”W	
B.L. England Export Cable	202	A	7/20/2019	17:56	558249	4336113	39°10’20.27”N	74°19’32.46”W	
B.L. England Export Cable	202	B	7/20/2019	17:58	558246	4336119	39°10’20.44”N	74°19’32.59”W	
B.L. England Export Cable	202	C	7/20/2019	17:59	558245	4336131	39°10’20.86”N	74°19’32.62”W	
B.L. England Export Cable	202	D	7/20/2019	18:00	558246	4336139	39°10’21.10”N	74°19’32.56”W	
B.L. England Export Cable	203	A	7/20/2019	18:39	556439	4336452	39°10’31.70”N	74°20’47.76”W	
B.L. England Export Cable	203	B	7/20/2019	18:41	556444	4336456	39°10’31.80”N	74°20’47.58”W	
B.L. England Export Cable	203	C	7/20/2019	18:42	556445	4336461	39°10’31.96”N	74°20’47.53”W	
B.L. England Export Cable	203	D	7/20/2019	18:43	556444	4336460	39°10’31.96”N	74°20’47.56”W	
B.L. England Export Cable	204	A	7/20/2019	19:01	554872	4337496	39°11’05.91”N	74°21’52.78”W	
B.L. England Export Cable	204	B	7/20/2019	19:02	554875	4337505	39°11’06.20”N	74°21’52.65”W	
B.L. England Export Cable	204	C	7/20/2019	19:03	554876	4337516	39°11’06.57”N	74°21’52.60”W	
B.L. England Export Cable	204	D	7/20/2019	19:05	554876	4337519	39°11’06.65”N	74°21’52.59”W	
B.L. England Export Cable	205	A	7/20/2019	19:24	553297	4338555	39°11’40.61”N	74°22’58.11”W	
B.L. England Export Cable	205	B	7/20/2019	19:25	553302	4338559	39°11’40.74”N	74°22’57.89”W	
B.L. England Export Cable	205	C	7/20/2019	19:27	553309	4338570	39°11’41.10”N	74°22’57.60”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
B.L. England Export Cable	205	D	7/20/2019	19:28	553309	4338579	39°11'41.40"N	74°22'57.59"W	
B.L. England Export Cable	206	A	7/20/2019	20:06	551619	4339431	39°12'09.39"N	74°24'07.81"W	
B.L. England Export Cable	206	B	7/20/2019	20:08	551619	4339441	39°12'09.72"N	74°24'07.83"W	
B.L. England Export Cable	206	C	7/20/2019	20:09	551624	4339440	39°12'09.70"N	74°24'07.62"W	
B.L. England Export Cable	206	D	7/20/2019	20:10	551625	4339449	39°12'09.99"N	74°24'07.58"W	
B.L. England Export Cable	207	A	7/20/2019	20:34	549885	4340229	39°12'35.65"N	74°25'19.92"W	
B.L. England Export Cable	207	B	7/20/2019	20:35	549890	4340229	39°12'35.66"N	74°25'19.70"W	
B.L. England Export Cable	207	C	7/20/2019	20:36	549891	4340235	39°12'35.84"N	74°25'19.65"W	
B.L. England Export Cable	207	D	7/20/2019	20:37	549887	4340239	39°12'35.96"N	74°25'19.84"W	
B.L. England Export Cable	208	A	7/20/2019	20:56	548158	4341032	39°13'02.05"N	74°26'31.71"W	
B.L. England Export Cable	208	B	7/20/2019	20:57	548157	4341033	39°13'02.07"N	74°26'31.76"W	
B.L. England Export Cable	208	C	7/20/2019	20:58	548159	4341032	39°13'02.03"N	74°26'31.67"W	
B.L. England Export Cable	208	D	7/20/2019	20:59	548162	4341036	39°13'02.16"N	74°26'31.55"W	
B.L. England Export Cable	209	A	7/20/2019	21:28	546445	4341806	39°13'27.50"N	74°27'42.95"W	
B.L. England Export Cable	209	B	7/20/2019	21:29	546449	4341809	39°13'27.58"N	74°27'42.78"W	
B.L. England Export Cable	209	C	7/20/2019	21:30	546453	4341819	39°13'27.91"N	74°27'42.60"W	
B.L. England Export Cable	209	D	7/20/2019	21:32	546451	4341828	39°13'28.18"N	74°27'42.71"W	
B.L. England Export Cable	210	A	7/20/2019	21:52	544712	4342608	39°13'53.82"N	74°28'55.02"W	
B.L. England Export Cable	210	B	7/20/2019	21:53	544713	4342604	39°13'53.70"N	74°28'55.01"W	
B.L. England Export Cable	210	C	7/20/2019	21:54	544718	4342605	39°13'53.72"N	74°28'54.79"W	
B.L. England Export Cable	210	D	7/20/2019	21:55	544725	4342610	39°13'53.90"N	74°28'54.50"W	
B.L. England Export Cable	211	A	7/20/2019	22:15	542981	4343395	39°14'19.68"N	74°30'07.07"W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
B.L. England Export Cable	211	B	7/20/2019	22:16	542983	4343399	39°14’19.82”N	74°30’06.98”W	
B.L. England Export Cable	211	C	7/20/2019	22:17	542991	4343404	39°14’19.95”N	74°30’06.63”W	
B.L. England Export Cable	211	D	7/20/2019	22:18	542993	4343405	39°14’20.01”N	74°30’06.54”W	
Oyster Creek Export Cable	301	A	7/20/2019	16:02	566358	4340794	39°12’50.01”N	74°13’52.88”W	
Oyster Creek Export Cable	301	B	7/20/2019	16:03	566364	4340798	39°12’50.13”N	74°13’52.63”W	
Oyster Creek Export Cable	301	C	7/20/2019	16:04	566370	4340804	39°12’50.33”N	74°13’52.36”W	
Oyster Creek Export Cable	301	D	7/20/2019	16:05	566367	4340807	39°12’50.41”N	74°13’52.49”W	
Oyster Creek Export Cable	302	A	7/21/2019	0:49	565381	4341973	39°13’28.51”N	74°14’33.21”W	
Oyster Creek Export Cable	302	B	7/21/2019	0:50	565387	4341980	39°13’28.75”N	74°14’32.97”W	
Oyster Creek Export Cable	302	C	7/21/2019	0:52	565391	4341994	39°13’29.19”N	74°14’32.77”W	
Oyster Creek Export Cable	302	D	7/21/2019	0:53	565392	4342003	39°13’29.48”N	74°14’32.73”W	
Oyster Creek Export Cable	303	A	7/21/2019	1:14	564408	4343188	39°14’08.17”N	74°15’13.34”W	
Oyster Creek Export Cable	303	B	7/21/2019	1:15	564408	4343184	39°14’08.07”N	74°15’13.36”W	
Oyster Creek Export Cable	303	C	7/21/2019	1:16	564410	4343191	39°14’08.29”N	74°15’13.28”W	
Oyster Creek Export Cable	303	D	7/21/2019	1:17	564412	4343196	39°14’08.45”N	74°15’13.17”W	
Oyster Creek Export Cable	304	A	7/21/2019	1:35	563417	4344370	39°14’46.79”N	74°15’54.27”W	
Oyster Creek Export Cable	304	B	7/21/2019	1:38	563416	4344378	39°14’47.06”N	74°15’54.33”W	
Oyster Creek Export Cable	304	C	7/21/2019	1:40	563420	4344378	39°14’47.04”N	74°15’54.15”W	
Oyster Creek Export Cable	304	D	7/21/2019	1:41	563425	4344373	39°14’46.88”N	74°15’53.96”W	
Oyster Creek Export Cable	305	A	7/21/2019	2:26	562485	4345615	39°15’27.41”N	74°16’32.77”W	
Oyster Creek Export Cable	305	B	7/21/2019	2:27	562486	4345614	39°15’27.37”N	74°16’32.70”W	
Oyster Creek Export Cable	305	C	7/21/2019	2:28	562493	4345617	39°15’27.46”N	74°16’32.41”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	305	D	7/21/2019	2:30	562496	4345622	39°15’27.64”N	74°16’32.30”W	
Oyster Creek Export Cable	306	A	7/21/2019	3:12	562018	4347070	39°16’14.74”N	74°16’51.74”W	
Oyster Creek Export Cable	306	B	7/21/2019	3:13	562021	4347071	39°16’14.75”N	74°16’51.63”W	
Oyster Creek Export Cable	306	C	7/21/2019	3:14	562026	4347070	39°16’14.72”N	74°16’51.44”W	
Oyster Creek Export Cable	306	D	7/21/2019	3:15	562030	4347070	39°16’14.73”N	74°16’51.24”W	
Oyster Creek Export Cable	307	A	7/21/2019	3:33	561839	4349194	39°17’23.67”N	74°16’58.53”W	
Oyster Creek Export Cable	307	B	7/21/2019	3:34	561839	4349201	39°17’23.89”N	74°16’58.51”W	
Oyster Creek Export Cable	307	C	7/21/2019	3:35	561841	4349205	39°17’24.03”N	74°16’58.45”W	
Oyster Creek Export Cable	307	D	7/21/2019	3:37	561846	4349211	39°17’24.23”N	74°16’58.22”W	
Oyster Creek Export Cable	308	A	7/21/2019	3:53	562229	4350996	39°18’22.02”N	74°16’41.64”W	
Oyster Creek Export Cable	308	B	7/21/2019	3:55	562238	4351007	39°18’22.39”N	74°16’41.26”W	
Oyster Creek Export Cable	308	C	7/21/2019	3:56	562239	4351014	39°18’22.60”N	74°16’41.22”W	
Oyster Creek Export Cable	308	D	7/21/2019	3:57	562239	4351022	39°18’22.85”N	74°16’41.21”W	
Oyster Creek Export Cable	309	A	7/21/2019	4:44	563054	4352710	39°19’17.39”N	74°16’06.62”W	
Oyster Creek Export Cable	309	B	7/21/2019	4:46	563060	4352714	39°19’17.52”N	74°16’06.35”W	
Oyster Creek Export Cable	309	C	7/21/2019	4:47	563064	4352722	39°19’17.79”N	74°16’06.22”W	
Oyster Creek Export Cable	309	D	7/21/2019	4:48	563063	4352729	39°19’18.03”N	74°16’06.26”W	
Oyster Creek Export Cable	310	A	7/21/2019	5:04	564248	4354191	39°20’05.12”N	74°15’16.24”W	
Oyster Creek Export Cable	310	B	7/21/2019	5:05	564254	4354185	39°20’04.94”N	74°15’16.00”W	
Oyster Creek Export Cable	310	C	7/21/2019	5:06	564260	4354182	39°20’04.83”N	74°15’15.74”W	
Oyster Creek Export Cable	310	D	7/21/2019	5:07	564268	4354180	39°20’04.77”N	74°15’15.42”W	
Oyster Creek Export Cable	311	A	7/21/2019	5:28	565476	4355629	39°20’51.45”N	74°14’24.47”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	311	B	7/21/2019	5:30	565486	4355629	39°20’51.42”N	74°14’24.05”W	
Oyster Creek Export Cable	311	C	7/21/2019	5:31	565490	4355628	39°20’51.42”N	74°14’23.89”W	
Oyster Creek Export Cable	311	D	7/21/2019	5:33	565495	4355640	39°20’51.78”N	74°14’23.67”W	
Oyster Creek Export Cable	312	A	7/21/2019	5:48	566717	4357076	39°21’38.04”N	74°13’32.08”W	
Oyster Creek Export Cable	312	B	7/21/2019	5:49	566718	4357081	39°21’38.18”N	74°13’32.07”W	
Oyster Creek Export Cable	312	C	7/21/2019	5:51	566724	4357083	39°21’38.25”N	74°13’31.80”W	
Oyster Creek Export Cable	312	D	7/21/2019	5:53	566736	4357085	39°21’38.32”N	74°13’31.30”W	
Oyster Creek Export Cable	313	A	7/21/2019	6:07	567657	4358708	39°22’30.70”N	74°12’52.21”W	
Oyster Creek Export Cable	313	B	7/21/2019	6:08	567660	4358711	39°22’30.78”N	74°12’52.08”W	
Oyster Creek Export Cable	313	C	7/21/2019	6:10	567665	4358714	39°22’30.91”N	74°12’51.87”W	
Oyster Creek Export Cable	313	D	7/21/2019	6:11	567669	4358722	39°22’31.17”N	74°12’51.70”W	
Oyster Creek Export Cable	314	A	7/21/2019	6:54	568519	4360406	39°23’25.53”N	74°12’15.59”W	
Oyster Creek Export Cable	314	B	7/21/2019	6:55	568518	4360410	39°23’25.67”N	74°12’15.61”W	
Oyster Creek Export Cable	314	C	7/21/2019	6:56	568517	4360412	39°23’25.73”N	74°12’15.64”W	
Oyster Creek Export Cable	314	D	7/21/2019	6:57	568521	4360416	39°23’25.85”N	74°12’15.47”W	
Oyster Creek Export Cable	315	A	7/21/2019	7:12	569286	4362143	39°24’21.66”N	74°11’42.87”W	
Oyster Creek Export Cable	315	B	7/21/2019	7:13	569295	4362136	39°24’21.43”N	74°11’42.47”W	
Oyster Creek Export Cable	315	C	7/21/2019	7:15	569303	4362137	39°24’21.45”N	74°11’42.16”W	
Oyster Creek Export Cable	315	D	7/21/2019	7:17	569307	4362145	39°24’21.72”N	74°11’41.99”W	
Oyster Creek Export Cable	316	A	7/21/2019	7:31	570006	4363897	39°25’18.34”N	74°11’12.11”W	
Oyster Creek Export Cable	316	B	7/21/2019	7:32	570009	4363900	39°25’18.45”N	74°11’11.97”W	
Oyster Creek Export Cable	316	C	7/21/2019	7:34	570014	4363907	39°25’18.67”N	74°11’11.77”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	316	D	7/21/2019	7:35	570014	4363912	39°25’18.81”N	74°11’11.76”W	
Oyster Creek Export Cable	317	A	7/21/2019	7:53	570749	4365651	39°26’15.03”N	74°10’40.35”W	
Oyster Creek Export Cable	317	B	7/21/2019	7:55	570752	4365653	39°26’15.09”N	74°10’40.23”W	
Oyster Creek Export Cable	317	C	7/21/2019	7:56	570753	4365658	39°26’15.23”N	74°10’40.18”W	
Oyster Creek Export Cable	317	D	7/21/2019	7:57	570754	4365658	39°26’15.22”N	74°10’40.14”W	
Oyster Creek Export Cable	318	A	7/21/2019	8:18	571569	4367364	39°27’10.32”N	74°10’05.38”W	
Oyster Creek Export Cable	318	B	7/21/2019	8:19	571570	4367367	39°27’10.41”N	74°10’05.35”W	
Oyster Creek Export Cable	318	C	7/21/2019	8:20	571571	4367368	39°27’10.45”N	74°10’05.33”W	
Oyster Creek Export Cable	318	D	7/21/2019	8:21	571575	4367366	39°27’10.39”N	74°10’05.14”W	
Oyster Creek Export Cable	319	A	7/21/2019	9:00	572707	4368767	39°27’55.49”N	74°09’17.25”W	
Oyster Creek Export Cable	319	B	7/21/2019	9:01	572706	4368772	39°27’55.67”N	74°09’17.29”W	
Oyster Creek Export Cable	319	C	7/21/2019	9:02	572709	4368776	39°27’55.77”N	74°09’17.15”W	
Oyster Creek Export Cable	319	D	7/21/2019	9:03	572709	4368778	39°27’55.84”N	74°09’17.13”W	
Oyster Creek Export Cable	320	A	7/21/2019	9:31	573782	4370115	39°28’38.88”N	74°08’31.72”W	
Oyster Creek Export Cable	320	B	7/21/2019	9:32	573783	4370119	39°28’39.02”N	74°08’31.65”W	
Oyster Creek Export Cable	320	C	7/21/2019	9:34	573789	4370128	39°28’39.29”N	74°08’31.40”W	
Oyster Creek Export Cable	320	D	7/21/2019	9:35	573794	4370136	39°28’39.57”N	74°08’31.21”W	
Oyster Creek Export Cable	321	A	7/21/2019	9:52	575536	4370893	39°29’03.56”N	74°07’17.99”W	
Oyster Creek Export Cable	321	B	7/21/2019	9:53	575535	4370892	39°29’03.53”N	74°07’18.04”W	
Oyster Creek Export Cable	321	C	7/21/2019	9:54	575532	4370897	39°29’03.70”N	74°07’18.15”W	
Oyster Creek Export Cable	321	D	7/21/2019	9:56	575533	4370896	39°29’03.66”N	74°07’18.12”W	
Oyster Creek Export Cable	322	A	7/21/2019	10:15	577016	4371939	39°29’37.02”N	74°06’15.61”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	322	B	7/21/2019	10:16	577015	4371943	39°29'37.15"N	74°06'15.64"W	
Oyster Creek Export Cable	322	C	7/21/2019	10:17	577018	4371946	39°29'37.25"N	74°06'15.54"W	
Oyster Creek Export Cable	322	D	7/21/2019	10:18	577016	4371950	39°29'37.39"N	74°06'15.61"W	
Oyster Creek Export Cable	323	A	7/21/2019	10:35	577781	4373655	39°30'32.45"N	74°05'42.85"W	
Oyster Creek Export Cable	323	B	7/21/2019	10:37	577779	4373665	39°30'32.74"N	74°05'42.93"W	
Oyster Creek Export Cable	323	C	7/21/2019	10:38	577778	4373668	39°30'32.92"N	74°05'42.96"W	
Oyster Creek Export Cable	323	D	7/21/2019	10:39	577777	4373670	39°30'32.93"N	74°05'43.02"W	
Oyster Creek Export Cable	324	A	7/21/2019	11:38	578276	4375504	39°31'32.25"N	74°05'21.34"W	
Oyster Creek Export Cable	324	B	7/21/2019	11:40	578275	4375510	39°31'32.45"N	74°05'21.40"W	
Oyster Creek Export Cable	324	C	7/21/2019	11:41	578273	4375517	39°31'32.66"N	74°05'21.49"W	
Oyster Creek Export Cable	324	D	7/21/2019	11:42	578269	4375518	39°31'32.70"N	74°05'21.65"W	
Oyster Creek Export Cable	325	A	7/21/2019	12:18	578786	4377339	39°32'31.60"N	74°04'59.20"W	
Oyster Creek Export Cable	325	B	7/21/2019	12:20	578785	4377344	39°32'31.75"N	74°04'59.26"W	
Oyster Creek Export Cable	325	C	7/21/2019	12:21	578785	4377343	39°32'31.73"N	74°04'59.25"W	
Oyster Creek Export Cable	325	D	7/21/2019	12:22	578787	4377342	39°32'31.67"N	74°04'59.15"W	
Oyster Creek Export Cable	326	A	7/21/2019	12:36	579093	4378518	39°33'09.74"N	74°04'45.85"W	
Oyster Creek Export Cable	326	B	7/21/2019	12:37	579096	4378522	39°33'09.87"N	74°04'45.72"W	
Oyster Creek Export Cable	326	C	7/21/2019	12:38	579095	4378525	39°33'09.94"N	74°04'45.75"W	
Oyster Creek Export Cable	326	D	7/21/2019	12:39	579093	4378532	39°33'10.16"N	74°04'45.82"W	
Oyster Creek Export Cable	327	A	7/21/2019	12:53	579959	4378765	39°33'17.43"N	74°04'09.44"W	
Oyster Creek Export Cable	327	B	7/21/2019	12:54	579961	4378771	39°33'17.65"N	74°04'09.35"W	
Oyster Creek Export Cable	327	C	7/21/2019	12:55	579960	4378777	39°33'17.83"N	74°04'09.41"W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	327	D	7/21/2019	12:56	579970	4378777	39°33’17.82”N	74°04’09.00”W	
Oyster Creek Export Cable	328	A	7/21/2019	13:15	579176	4380356	39°34’09.31”N	74°04’41.59”W	
Oyster Creek Export Cable	328	B	7/21/2019	13:16	579177	4380361	39°34’09.47”N	74°04’41.53”W	
Oyster Creek Export Cable	328	C	7/21/2019	13:17	579178	4380362	39°34’09.51”N	74°04’41.50”W	
Oyster Creek Export Cable	328	D	7/21/2019	13:18	579178	4380364	39°34’09.55”N	74°04’41.48”W	
Oyster Creek Export Cable	329	A	7/21/2019	13:53	579756	4382126	39°35’06.52”N	74°04’16.50”W	
Oyster Creek Export Cable	329	B	7/21/2019	13:54	579758	4382132	39°35’06.71”N	74°04’16.43”W	
Oyster Creek Export Cable	329	C	7/21/2019	13:55	579759	4382136	39°35’06.83”N	74°04’16.38”W	
Oyster Creek Export Cable	329	D	7/21/2019	13:57	579762	4382144	39°35’07.11”N	74°04’16.26”W	
Oyster Creek Export Cable	330	A	7/21/2019	14:14	580546	4383847	39°36’02.08”N	74°03’42.64”W	
Oyster Creek Export Cable	330	B	7/21/2019	14:16	580547	4383853	39°36’02.29”N	74°03’42.61”W	
Oyster Creek Export Cable	330	C	7/21/2019	14:17	580552	4383859	39°36’02.47”N	74°03’42.37”W	
Oyster Creek Export Cable	330	D	7/21/2019	14:18	580552	4383864	39°36’02.62”N	74°03’42.39”W	
Oyster Creek Export Cable	331	A	7/21/2019	14:30	580720	4384543	39°36’24.60”N	74°03’35.06”W	
Oyster Creek Export Cable	331	B	7/21/2019	14:31	580716	4384549	39°36’24.78”N	74°03’35.20”W	
Oyster Creek Export Cable	331	C	7/21/2019	14:32	580720	4384557	39°36’25.05”N	74°03’35.04”W	
Oyster Creek Export Cable	331	D	7/21/2019	14:34	580728	4384563	39°36’25.23”N	74°03’34.69”W	
Oyster Creek Export Cable	332	A	7/21/2019	14:49	580351	4385728	39°37’03.14”N	74°03’49.98”W	
Oyster Creek Export Cable	332	B	7/21/2019	14:51	580358	4385735	39°37’03.36”N	74°03’49.71”W	
Oyster Creek Export Cable	332	C	7/21/2019	14:52	580361	4385742	39°37’03.59”N	74°03’49.57”W	
Oyster Creek Export Cable	332	D	7/21/2019	14:53	580370	4385755	39°37’04.00”N	74°03’49.20”W	
Oyster Creek Export Cable	333	A	7/21/2019	15:10	581199	4386393	39°37’24.42”N	74°03’14.16”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	333	B	7/21/2019	15:11	581195	4386395	39°37’24.49”N	74°03’14.30”W	
Oyster Creek Export Cable	333	C	7/21/2019	15:12	581203	4386396	39°37’24.52”N	74°03’13.98”W	
Oyster Creek Export Cable	333	D	7/21/2019	15:13	581205	4386401	39°37’24.69”N	74°03’13.90”W	
Oyster Creek Export Cable	334	A	7/21/2019	15:59	581893	4388153	39°38’21.26”N	74°02’44.24”W	
Oyster Creek Export Cable	334	B	7/21/2019	16:00	581895	4388160	39°38’21.51”N	74°02’44.15”W	
Oyster Creek Export Cable	334	C	7/21/2019	16:01	581895	4388166	39°38’21.68”N	74°02’44.15”W	
Oyster Creek Export Cable	334	D	7/21/2019	16:02	581893	4388170	39°38’21.82”N	74°02’44.24”W	
Oyster Creek Export Cable	335	A	7/21/2019	17:15	582793	4389847	39°39’15.91”N	74°02’05.72”W	
Oyster Creek Export Cable	335	B	7/21/2019	17:16	582798	4389848	39°39’15.92”N	74°02’05.51”W	
Oyster Creek Export Cable	335	C	7/21/2019	17:17	582795	4389848	39°39’15.94”N	74°02’05.64”W	
Oyster Creek Export Cable	335	D	7/21/2019	17:18	582798	4389848	39°39’15.94”N	74°02’05.53”W	
Oyster Creek Export Cable	336	A	7/21/2019	15:35	579982	4387593	39°38’03.75”N	74°04’04.65”W	
Oyster Creek Export Cable	336	B	7/21/2019	15:37	579978	4387596	39°38’03.86”N	74°04’04.83”W	
Oyster Creek Export Cable	336	C	7/21/2019	15:38	579974	4387600	39°38’03.98”N	74°04’04.99”W	
Oyster Creek Export Cable	336	D	7/21/2019	15:39	579971	4387605	39°38’04.16”N	74°04’05.12”W	
Oyster Creek Export Cable	337	A	7/21/2019	16:30	580267	4389369	39°39’01.28”N	74°03’51.93”W	
Oyster Creek Export Cable	337	B	7/21/2019	16:31	580272	4389377	39°39’01.53”N	74°03’51.72”W	
Oyster Creek Export Cable	337	C	7/21/2019	16:32	580273	4389374	39°39’01.43”N	74°03’51.66”W	
Oyster Creek Export Cable	337	D	7/21/2019	16:34	580270	4389376	39°39’01.50”N	74°03’51.78”W	
Oyster Creek Export Cable	338	A	7/21/2019	16:57	581937	4390268	39°39’29.85”N	74°02’41.48”W	
Oyster Creek Export Cable	338	B	7/21/2019	16:58	581934	4390270	39°39’29.93”N	74°02’41.57”W	
Oyster Creek Export Cable	338	C	7/21/2019	16:59	581942	4390271	39°39’29.94”N	74°02’41.25”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	338	D	7/21/2019	17:01	581943	4390280	39°39’30.23”N	74°02’41.19”W	
Oyster Creek Export Cable	339	A	7/21/2019	17:38	583556	4391249	39°40’01.10”N	74°01’33.08”W	
Oyster Creek Export Cable	339	B	7/21/2019	17:39	583557	4391255	39°40’01.31”N	74°01’33.04”W	
Oyster Creek Export Cable	339	C	7/21/2019	17:41	583559	4391261	39°40’01.48”N	74°01’32.97”W	
Oyster Creek Export Cable	339	D	7/21/2019	17:42	583557	4391264	39°40’01.60”N	74°01’33.02”W	
Oyster Creek Export Cable	340	A	7/21/2019	18:01	584403	4392865	39°40’53.23”N	74°00’56.80”W	
Oyster Creek Export Cable	340	B	7/21/2019	18:02	584409	4392878	39°40’53.64”N	74°00’56.54”W	
Oyster Creek Export Cable	340	C	7/21/2019	18:03	584414	4392883	39°40’53.79”N	74°00’56.34”W	
Oyster Creek Export Cable	340	D	7/21/2019	18:05	584416	4392894	39°40’54.15”N	74°00’56.24”W	
Oyster Creek Export Cable	341	A	7/21/2019	18:21	584551	4394766	39°41’54.82”N	74°00’49.70”W	
Oyster Creek Export Cable	341	B	7/21/2019	18:22	584551	4394773	39°41’55.03”N	74°00’49.71”W	
Oyster Creek Export Cable	341	C	7/21/2019	18:24	584553	4394777	39°41’55.18”N	74°00’49.60”W	
Oyster Creek Export Cable	341	D	7/21/2019	18:25	584559	4394783	39°41’55.37”N	74°00’49.37”W	
Oyster Creek Export Cable	342	A	7/21/2019	18:49	584612	4396664	39°42’56.35”N	74°00’46.27”W	
Oyster Creek Export Cable	342	B	7/21/2019	18:50	584611	4396668	39°42’56.48”N	74°00’46.29”W	
Oyster Creek Export Cable	342	C	7/21/2019	18:51	584616	4396673	39°42’56.63”N	74°00’46.10”W	
Oyster Creek Export Cable	342	D	7/21/2019	18:52	584621	4396681	39°42’56.91”N	74°00’45.88”W	
Oyster Creek Export Cable	343	A	7/21/2019	19:08	585134	4398492	39°43’55.46”N	74°00’23.50”W	
Oyster Creek Export Cable	343	B	7/21/2019	19:09	585137	4398500	39°43’55.71”N	74°00’23.36”W	
Oyster Creek Export Cable	343	C	7/21/2019	19:11	585137	4398505	39°43’55.86”N	74°00’23.37”W	
Oyster Creek Export Cable	343	D	7/21/2019	19:12	585141	4398505	39°43’55.88”N	74°00’23.18”W	
Oyster Creek Export Cable	344	A	7/21/2019	19:28	585121	4400383	39°44’56.79”N	74°00’23.18”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	344	B	7/21/2019	19:29	585124	4400388	39°44’56.93”N	74°00’23.04”W	
Oyster Creek Export Cable	344	C	7/21/2019	19:31	585124	4400393	39°44’57.11”N	74°00’23.01”W	
Oyster Creek Export Cable	344	D	7/21/2019	19:32	585125	4400394	39°44’57.13”N	74°00’23.00”W	
Oyster Creek Export Cable	345	A	7/21/2019	19:52	585043	4402274	39°45’58.13”N	74°00’25.54”W	
Oyster Creek Export Cable	345	B	7/21/2019	19:53	585043	4402281	39°45’58.37”N	74°00’25.54”W	
Oyster Creek Export Cable	345	C	7/21/2019	19:54	585049	4402285	39°45’58.50”N	74°00’25.30”W	
Oyster Creek Export Cable	345	D	7/21/2019	19:56	585049	4402292	39°45’58.72”N	74°00’25.30”W	
Oyster Creek Export Cable	346	A	7/21/2019	20:13	584324	4403938	39°46’52.35”N	74°00’54.99”W	
Oyster Creek Export Cable	346	B	7/21/2019	20:14	584332	4403943	39°46’52.53”N	74°00’54.68”W	
Oyster Creek Export Cable	346	C	7/21/2019	20:15	584331	4403946	39°46’52.61”N	74°00’54.69”W	
Oyster Creek Export Cable	346	D	7/21/2019	20:16	584334	4403952	39°46’52.80”N	74°00’54.56”W	
Oyster Creek Export Cable	347	A	7/21/2019	20:43	584499	4405831	39°47’53.68”N	74°00’46.79”W	
Oyster Creek Export Cable	347	B	7/21/2019	20:44	584500	4405835	39°47’53.83”N	74°00’46.72”W	
Oyster Creek Export Cable	347	C	7/21/2019	20:45	584506	4405838	39°47’53.92”N	74°00’46.47”W	
Oyster Creek Export Cable	347	D	7/21/2019	20:46	584509	4405842	39°47’54.05”N	74°00’46.34”W	
Oyster Creek Export Cable	348	A	7/21/2019	21:02	584583	4407720	39°48’54.94”N	74°00’42.38”W	
Oyster Creek Export Cable	348	B	7/21/2019	21:03	584586	4407722	39°48’54.98”N	74°00’42.25”W	
Oyster Creek Export Cable	348	C	7/21/2019	21:04	584586	4407728	39°48’55.17”N	74°00’42.23”W	
Oyster Creek Export Cable	348	D	7/21/2019	21:05	584595	4407732	39°48’55.31”N	74°00’41.83”W	
Oyster Creek Export Cable	349	A	7/21/2019	21:22	583443	4409229	39°49’44.27”N	74°01’29.60”W	
Oyster Creek Export Cable	349	B	7/21/2019	21:23	583452	4409232	39°49’44.38”N	74°01’29.22”W	
Oyster Creek Export Cable	349	C	7/21/2019	21:24	583459	4409240	39°49’44.63”N	74°01’28.93”W	

Location	StationID	Replicate	Date	Time	X_UTM_18N_m	Y_UTM_18N_m	Latitude_NAD83	Longitude_NAD83	Comments
Oyster Creek Export Cable	349	D	7/21/2019	21:25	583458	4409239	39°49’44.59”N	74°01’28.97”W	
Oyster Creek Export Cable	350	A	7/21/2019	21:43	581806	4410124	39°50’13.86”N	74°02’38.08”W	
Oyster Creek Export Cable	350	B	7/21/2019	21:44	581810	4410123	39°50’13.84”N	74°02’37.91”W	
Oyster Creek Export Cable	350	C	7/21/2019	21:45	581817	4410118	39°50’13.67”N	74°02’37.60”W	
Oyster Creek Export Cable	350	D	7/21/2019	21:47	581818	4410111	39°50’13.45”N	74°02’37.55”W	
Reference	401	A	7/21/2019	2:48	560479	4345786	39°15’33.47”N	74°17’56.40”W	
Reference	401	B	7/21/2019	2:49	560483	4345781	39°15’33.32”N	74°17’56.24”W	
Reference	401	C	7/21/2019	2:52	560480	4345797	39°15’33.83”N	74°17’56.35”W	
Reference	401	D	7/21/2019	2:53	560478	4345802	39°15’34.00”N	74°17’56.42”W	
Reference	402	A	7/21/2019	0:12	558841	4343313	39°14’13.66”N	74°19’05.52”W	
Reference	402	B	7/21/2019	0:13	558845	4343316	39°14’13.76”N	74°19’05.34”W	
Reference	402	C	7/21/2019	0:14	558845	4343327	39°14’14.10”N	74°19’05.34”W	
Reference	402	D	7/21/2019	0:15	558851	4343329	39°14’14.17”N	74°19’05.11”W	
Reference	403	A	7/20/2019	23:46	558837	4340054	39°12’27.94”N	74°19’06.72”W	
Reference	403	B	7/20/2019	23:47	558842	4340063	39°12’28.24”N	74°19’06.50”W	
Reference	403	C	7/20/2019	23:48	558850	4340066	39°12’28.33”N	74°19’06.17”W	
Reference	403	D	7/20/2019	23:50	558853	4340072	39°12’28.53”N	74°19’06.06”W	

APPENDIX B

SPI/PV Field Log

Note:

FC = Frame Count

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
093	SPI_PV	A	7/18/2019	13:09:40	419	17	5	
093	SPI_PV	B	7/18/2019	13:10:55	420	17	5	
093	SPI_PV	C	7/18/2019	13:12:04	421	17	5	
093	SPI_PV	D	7/18/2019	13:13:17	422	17	5	FC 425
092	SPI_PV	A	7/18/2019	13:53:16	426	17	5	
092	SPI_PV	B	7/18/2019	13:54:32	427	17	5	
092	SPI_PV	C	7/18/2019	13:55:47	428	17	5	
092	SPI_PV	D	7/18/2019	13:56:55	429	17	5	FC 432
091	SPI_PV	A	7/18/2019	14:13:45	433	17	5	
091	SPI_PV	B	7/18/2019	14:14:56	434	17	5	
091	SPI_PV	C	7/18/2019	14:16:13	435	17	5	
091	SPI_PV	D	7/18/2019	14:17:27	436	17	5	FC 438
090	SPI_PV	A	7/18/2019	14:49:45	439	17	5	
090	SPI_PV	B	7/18/2019	14:50:55	440	17	5	
090	SPI_PV	C	7/18/2019	14:52:03	441	17	5	
090	SPI_PV	D	7/18/2019	14:53:14	442	17	5	FC 444
089	SPI_PV	A	7/18/2019	15:26:12	445	17	5	
089	SPI_PV	B	7/18/2019	15:27:27	446	17	5	
089	SPI_PV	C	7/18/2019	15:28:35	447	17	5	
089	SPI_PV	D	7/18/2019	15:29:41	448	17	5	FC 449; Download
088	SPI_PV	A	7/18/2019	16:09:43	450	17	5	
088	SPI_PV	B	7/18/2019	16:10:53	451	17	5	
088	SPI_PV	C	7/18/2019	16:12:03	452	17	5	
088	SPI_PV	D	7/18/2019	16:13:54	453	17	5	FC 456
087	SPI_PV	A	7/18/2019	17:29:21	457	17	5	
087	SPI_PV	B	7/18/2019	17:40:16	458	17	5	
087	SPI_PV	C	7/18/2019	17:41:30	459	17	5	
087	SPI_PV	D	7/18/2019	17:52:16	460	17	5	FC 463
086	SPI_PV	A	7/18/2019	18:19:40	464	17	5	
086	SPI_PV	B	7/18/2019	18:20:52	465	17	5	
086	SPI_PV	C	7/18/2019	18:22:01	466	17	5	
086	SPI_PV	D	7/18/2019	18:23:12	467	17	5	FC 469
085	SPI_PV	A	7/18/2019	18:43:49	470	17	5	
085	SPI_PV	B	7/18/2019	18:45:00	471	17	5	
085	SPI_PV	C	7/18/2019	18:52:37	472	17	5	
085	SPI_PV	D	7/18/2019	18:53:43	473	17	5	FC 476
084	SPI_PV	A	7/18/2019	19:18:55	477	17	5	
084	SPI_PV	B	7/18/2019	19:19:55	478	17	5	
084	SPI_PV	C	7/18/2019	19:21:13	479	17	5	
084	SPI_PV	D	7/18/2019	19:22:34	480	17	5	FC 481; Download
083	SPI_PV	A	7/18/2019	19:52:04	482	17	5	
083	SPI_PV	B	7/18/2019	19:53:13	483	17	5	
083	SPI_PV	C	7/18/2019	19:54:22	484	17	5	
083	SPI_PV	D	7/18/2019	19:55:35	485	17	5	FC 487

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
082	SPI_PV	A	7/18/2019	20:12:50	488	17	5	
082	SPI_PV	B	7/18/2019	20:14:05	489	17	5	
082	SPI_PV	C	7/18/2019	20:15:18	490	17	5	
082	SPI_PV	D	7/18/2019	20:16:25	491	17	5	FC 492
081	SPI_PV	A	7/18/2019	21:02:23	493	17	5	
081	SPI_PV	B	7/18/2019	21:03:35	494	17	5	
081	SPI_PV	C	7/18/2019	21:04:44	495	17	5	
081	SPI_PV	D	7/18/2019	21:05:51	496	17	5	FC 497
080	SPI_PV	A	7/18/2019	21:20:20	498	17	5	
080	SPI_PV	B	7/18/2019	21:21:33	499	17	5	
080	SPI_PV	C	7/18/2019	21:22:46	500	17	5	
080	SPI_PV	D	7/18/2019	21:30:35	501	17	5	FC 502; (21:45) Down for weather
079	SPI_PV	A	7/18/2019	23:42:03	503	17	5	
079	SPI_PV	B	7/18/2019	23:43:27	504	17	5	
079	SPI_PV	C	7/18/2019	23:44:48	505	17	5	No PV
079	SPI_PV	D	7/18/2019	23:45:56	506	17	5	No PV rep D; redo. FC 508; Download. Shift change. Lost trigger ball -- replaced.
079	SPI_PV	E	7/19/2019	0:32:50	509	17	5	
079	SPI_PV	F	7/19/2019	0:34:38	510	17	5	
079	SPI_PV	G	7/19/2019	0:36:27	511	17	5	
079	SPI_PV	H	7/19/2019	0:38:12	512	17	5	FC 512
069	SPI_PV	A	7/19/2019	1:04:15	513	17	5	
069	SPI_PV	B	7/19/2019	1:06:24	514	17	5	
069	SPI_PV	C	7/19/2019	1:13:29	515	17	5	
069	SPI_PV	D	7/19/2019	1:14:54	516	17	5	FC 516
071	SPI_PV	A	7/19/2019	1:34:21	517	17	5	
071	SPI_PV	B	7/19/2019	1:35:53	518	17	5	
071	SPI_PV	C	7/19/2019	1:37:50	519	17	5	
071	SPI_PV	D	7/19/2019	1:39:56	520	17	5	FC 522
073	SPI_PV	A	7/19/2019	1:56:44	523	17	5	
073	SPI_PV	B	7/19/2019	1:58:20	524	17	5	
073	SPI_PV	C	7/19/2019	2:00:11	525	17	5	
073	SPI_PV	D	7/19/2019	2:01:43	526	17	5	FC 526
075	SPI_PV	A	7/19/2019	2:22:08	527	17	5	
075	SPI_PV	B	7/19/2019	2:23:48	528	17	5	
075	SPI_PV	C	7/19/2019	2:25:36	529	17	5	
075	SPI_PV	D	7/19/2019	2:27:31	530	17	5	FC 530; Download.
076	SPI_PV	A	7/19/2019	3:04:35	531	17	5	
076	SPI_PV	B	7/19/2019	3:06:16	532	17	5	
076	SPI_PV	C	7/19/2019	3:08:00	533	17	5	
076	SPI_PV	D	7/19/2019	3:09:23	534	17	5	FC 535
077	SPI_PV	A	7/19/2019	3:24:37	536	17	5	
077	SPI_PV	B	7/19/2019	3:26:06	537	17	5	
077	SPI_PV	C	7/19/2019	3:28:02	538	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
077	SPI_PV	D	7/19/2019	3:29:40	539	17	5	FC 541
078	SPI_PV	A	7/19/2019	4:12:12	542	17	5	
078	SPI_PV	B	7/19/2019	4:14:14	543	17	5	
078	SPI_PV	C	7/19/2019	4:15:44	544	17	5	
078	SPI_PV	D	7/19/2019	4:17:03	545	17	5	FC 546
067	SPI_PV	A	7/19/2019	4:36:05	547	17	5	
067	SPI_PV	B	7/19/2019	4:37:44	548	17	5	
067	SPI_PV	C	7/19/2019	4:39:26	549	17	5	
067	SPI_PV	D	7/19/2019	4:40:52	550	17	5	FC 553
065	SPI_PV	A	7/19/2019	5:40:18	554	17	5	
065	SPI_PV	B	7/19/2019	5:42:13	555	17	5	
065	SPI_PV	C	7/19/2019	5:43:42	556	17	5	
065	SPI_PV	D	7/19/2019	5:45:18	557	17	5	FC 558; Download
064	SPI_PV	A	7/19/2019	6:24:50	559	17	5	
064	SPI_PV	B	7/19/2019	6:26:56	560	17	5	
064	SPI_PV	C	7/19/2019	6:28:31	561	17	5	
064	SPI_PV	D	7/19/2019	6:29:52	562	17	5	FC 564
062	SPI_PV	A	7/19/2019	6:46:46	565	17	5	
062	SPI_PV	B	7/19/2019	6:48:24	566	17	5	
062	SPI_PV	C	7/19/2019	6:50:22	567	17	5	
062	SPI_PV	D	7/19/2019	6:52:03	568	17	5	FC 569 (deck shot)
060	SPI_PV	A	7/19/2019	7:07:17	570	17	5	
060	SPI_PV	B	7/19/2019	7:08:55	571	17	5	
060	SPI_PV	C	7/19/2019	7:10:30	572	17	5	
060	SPI_PV	D	7/19/2019	7:12:05	573	17	5	FC 574
059	SPI_PV	A	7/19/2019	8:00:00	575	17	5	
059	SPI_PV	B	7/19/2019	8:02:25	576	17	5	
059	SPI_PV	C	7/19/2019	8:03:58	577	17	5	
059	SPI_PV	D	7/19/2019	8:05:32	578	17	5	FC580
074	SPI_PV	A	7/19/2019	8:28:20	579	17	5	
074	SPI_PV	B	7/19/2019	8:29:42	580	17	5	
074	SPI_PV	C	7/19/2019	8:31:40	581	17	5	
074	SPI_PV	D	7/19/2019	8:37:37		17	5	FC 586; Download. No nav fix for rep D
072	SPI_PV	A	7/19/2019	9:28:15	587	17	5	
072	SPI_PV	B	7/19/2019	9:35:06	588	17	5	
072	SPI_PV	C	7/19/2019	9:37:28		17	5	No nav fix for rep C
072	SPI_PV	D	7/19/2019	9:40:21	590	17	5	
072	SPI_PV	E	7/19/2019	9:41:42	591	17	5	FC 597
070	SPI_PV	A	7/19/2019	10:08:28	598	17	5	
070	SPI_PV	B	7/19/2019	10:09:45	599	17	5	
070	SPI_PV	C	7/19/2019	10:14:07	600	17	5	
070	SPI_PV	D	7/19/2019	10:15:33	601	17	5	FC 604
068	SPI_PV	A	7/19/2019	11:12:50	605	17	5	
068	SPI_PV	B	7/19/2019	11:14:02	606	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
068	SPI_PV	C	7/19/2019	11:15:28	607	17	5	
068	SPI_PV	D	7/19/2019	11:17:02	608	17	5	FC 609
055	SPI_PV	A	7/19/2019	11:39:25	610	17	5	
055	SPI_PV	B	7/19/2019	11:40:46	611	17	5	
055	SPI_PV	C	7/19/2019	11:42:16	612	17	5	
055	SPI_PV	D	7/19/2019	11:43:35	613	17	5	FC 614. Strobe Bottle change. Shift Change
056	SPI_PV	A	7/19/2019	12:24:37	615	17	5	
056	SPI_PV	B	7/19/2019	12:25:41	616	17	5	
056	SPI_PV	C	7/19/2019	12:26:54	617	17	5	
056	SPI_PV	D	7/19/2019	12:31:59	618	17	5	FC 620; Download.
057	SPI_PV	A	7/19/2019	12:49:03	621	17	5	
057	SPI_PV	B	7/19/2019	12:50:18	622	17	5	
057	SPI_PV	C	7/19/2019	12:51:34	623	17	5	
057	SPI_PV	D	7/19/2019	12:52:52	624	17	5	FC 624
058	SPI_PV	A	7/19/2019	13:08:16	625	17	5	
058	SPI_PV	B	7/19/2019	13:09:34	626	17	5	
058	SPI_PV	C	7/19/2019	13:10:53	627	17	5	
058	SPI_PV	D	7/19/2019	13:12:03	628	17	5	FC 628
049	SPI_PV	A	7/19/2019	13:26:26	629	17	5	
049	SPI_PV	B	7/19/2019	13:27:47	630	17	5	
049	SPI_PV	C	7/19/2019	13:28:57	631	17	5	
049	SPI_PV	D	7/19/2019	13:30:11	632	17	5	FC 632
061	SPI_PV	A	7/19/2019	14:34:38	633	17	5	
061	SPI_PV	B	7/19/2019	14:35:48	634	17	5	
061	SPI_PV	C	7/19/2019	14:36:54	635	17	5	
061	SPI_PV	D	7/19/2019	14:38:13	636	17	5	FC 638. No PV rep D
063	SPI_PV	A	7/19/2019	14:53:33	639	17	5	
063	SPI_PV	B	7/19/2019	14:54:43	640	17	5	
063	SPI_PV	C	7/19/2019	14:55:54	641	17	5	
063	SPI_PV	D	7/19/2019	14:57:10	642	17	5	FC 642; Download
066	SPI_PV	A	7/19/2019	15:21:25	643	17	5	
066	SPI_PV	B	7/19/2019	15:22:40	644	17	5	
066	SPI_PV	C	7/19/2019	15:23:56	645	17	5	
066	SPI_PV	D	7/19/2019	15:25:11	646	17	5	FC 648
053	SPI_PV	A	7/19/2019	15:45:02	649	17	5	
053	SPI_PV	B	7/19/2019	15:46:15	650	17	5	
053	SPI_PV	C	7/19/2019	15:48:58	651	17	5	
053	SPI_PV	D	7/19/2019	15:50:10	652	17	5	FC 653
052	SPI_PV	A	7/19/2019	16:12:02	654	17	5	
052	SPI_PV	B	7/19/2019	16:13:18	655	17	5	
052	SPI_PV	C	7/19/2019	16:14:37	656	17	5	
052	SPI_PV	D	7/19/2019	16:15:49	657	17	5	FC 658
051	SPI_PV	A	7/19/2019	16:59:17	659	17	5	
051	SPI_PV	B	7/19/2019	17:00:37	660	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
051	SPI_PV	C	7/19/2019	17:01:50	661	17	5	
051	SPI_PV	D	7/19/2019	17:03:10	662	17	5	FC 663
050	SPI_PV	A	7/19/2019	17:31:20	664	17	5	
050	SPI_PV	B	7/19/2019	17:32:35	665	17	5	
050	SPI_PV	C	7/19/2019	17:33:47	666	17	5	
050	SPI_PV	D	7/19/2019	17:35:02	667	17	5	FC 667; Download
048	SPI_PV	A	7/19/2019	18:04:39	668	17	5	
048	SPI_PV	B	7/19/2019	18:05:51	669	17	5	
048	SPI_PV	C	7/19/2019	18:07:01	670	17	5	
048	SPI_PV	D	7/19/2019	18:08:26	671	17	5	FC 671
047	SPI_PV	A	7/19/2019	18:30:41	672	17	5	
047	SPI_PV	B	7/19/2019	18:31:52	673	17	5	
047	SPI_PV	C	7/19/2019	18:33:13	674	17	5	
047	SPI_PV	D	7/19/2019	18:34:44	675	17	5	FC 675
054	SPI_PV	A	7/19/2019	18:56:25	676	17	5	
054	SPI_PV	B	7/19/2019	18:57:39	677	17	5	
054	SPI_PV	C	7/19/2019	18:58:53	678	17	5	
054	SPI_PV	D	7/19/2019	19:00:06	679	17	5	FC 680
046	SPI_PV	A	7/19/2019	19:34:50	681	17	5	
046	SPI_PV	B	7/19/2019	19:36:03	682	17	5	
046	SPI_PV	C	7/19/2019	19:37:13	683	17	5	
046	SPI_PV	D	7/19/2019	19:38:29	684	17	5	FC 685
032	SPI_PV	A	7/19/2019	19:51:57	686	17	5	
032	SPI_PV	B	7/19/2019	19:53:10	687	17	5	
032	SPI_PV	C	7/19/2019	19:54:24	688	17	5	
032	SPI_PV	D	7/19/2019	19:55:45	689	17	5	FC 690; Download
033	SPI_PV	A	7/19/2019	20:11:36	691	17	5	
033	SPI_PV	B	7/19/2019	20:12:52	692	17	5	
033	SPI_PV	C	7/19/2019	20:14:05	693	17	5	
033	SPI_PV	D	7/19/2019	20:15:24	694	17	5	FC 694
034	SPI_PV	A	7/19/2019	20:53:13	695	17	5	
034	SPI_PV	B	7/19/2019	20:54:30	696	17	5	
034	SPI_PV	C	7/19/2019	20:55:45	697	17	5	
034	SPI_PV	D	7/19/2019	20:57:01	698	17	5	FC 699
036	SPI_PV	A	7/19/2019	21:11:22	700	17	5	
036	SPI_PV	B	7/19/2019	21:12:35	701	17	5	
036	SPI_PV	C	7/19/2019	21:13:48	702	17	5	
036	SPI_PV	D	7/19/2019	21:15:02	703	17	5	FC 703
038	SPI_PV	A	7/19/2019	21:44:57	704	17	5	
038	SPI_PV	B	7/19/2019	21:46:10	705	17	5	
038	SPI_PV	C	7/19/2019	21:47:25	706	17	5	
038	SPI_PV	D	7/19/2019	21:48:36	707	17	5	FC 707
039	SPI_PV	A	7/19/2019	22:01:20	708	17	5	
039	SPI_PV	B	7/19/2019	22:02:35	709	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
039	SPI_PV	C	7/19/2019	22:03:47	710	17	5	
039	SPI_PV	D	7/19/2019	22:05:00	711	17	5	FC 712; Download
042	SPI_PV	A	7/19/2019	22:24:45	713	17	5	
042	SPI_PV	B	7/19/2019	22:25:51	714	17	5	
042	SPI_PV	C	7/19/2019	22:27:03	715	17	5	
042	SPI_PV	D	7/19/2019	22:28:21	716	17	5	FC 718
044	SPI_PV	A	7/19/2019	22:43:53	719	17	5	
044	SPI_PV	B	7/19/2019	22:45:10	720	17	5	
044	SPI_PV	C	7/19/2019	22:46:20	721	17	5	
044	SPI_PV	D	7/19/2019	22:47:31	722	17	5	FC 724
045	SPI_PV	A	7/19/2019	23:02:12	725	17	5	
045	SPI_PV	B	7/19/2019	23:03:24	726	17	5	
045	SPI_PV	C	7/19/2019	23:04:40	727	17	5	
045	SPI_PV	D	7/19/2019	23:08:48	728	17	5	FC 728
031	SPI_PV	A	7/19/2019	23:47:44	729	17	5	
031	SPI_PV	B	7/19/2019	23:48:58	730	17	5	
031	SPI_PV	C	7/19/2019	23:50:10	731	17	5	
031	SPI_PV	D	7/19/2019	23:51:25	732	17	5	FC 733
043	SPI_PV	A	7/20/2019	0:10:52	734	17	5	
043	SPI_PV	B	7/20/2019	0:12:02	735	17	5	
043	SPI_PV	C	7/20/2019	0:13:10	736	17	5	
043	SPI_PV	D	7/20/2019	0:14:22	737	17	5	FC 738
041	SPI_PV	A	7/20/2019	0:53:15	739	17	5	
041	SPI_PV	B	7/20/2019	0:55:04	740	17	5	
041	SPI_PV	C	7/20/2019	0:56:26	741	17	5	
041	SPI_PV	D	7/20/2019	0:58:08	742	17	5	FC 743
040	SPI_PV	A	7/20/2019	1:35:18	744	17	5	
040	SPI_PV	B	7/20/2019	1:37:02	745	17	5	
040	SPI_PV	C	7/20/2019	1:38:16	746	17	5	
040	SPI_PV	D	7/20/2019	1:39:52	747	17	5	FC 748
037	SPI_PV	A	7/20/2019	2:00:21	749	17	5	
037	SPI_PV	B	7/20/2019	2:02:16	750	17	5	
037	SPI_PV	C	7/20/2019	2:03:45	751	17	5	
037	SPI_PV	D	7/20/2019	2:05:32	752	17	5	FC 753
035	SPI_PV	A	7/20/2019	2:20:18	754	17	5	
035	SPI_PV	B	7/20/2019	2:21:56	755	17	5	
035	SPI_PV	C	7/20/2019	2:23:58	756	17	5	
035	SPI_PV	D	7/20/2019	2:25:31	757	17	5	FC 758
022	SPI_PV	A	7/20/2019	2:44:58	759	17	5	
022	SPI_PV	B	7/20/2019	2:46:46	760	17	5	
022	SPI_PV	C	7/20/2019	2:48:48	761	17	5	
022	SPI_PV	D	7/20/2019	2:50:42	762	17	5	FC 763; Download
023	SPI_PV	A	7/20/2019	3:19:34	764	17	5	
023	SPI_PV	B	7/20/2019	3:20:51	765	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
023	SPI_PV	C	7/20/2019	3:22:22	766	17	5	
023	SPI_PV	D	7/20/2019	3:23:30	767	17	5	FC 769
024	SPI_PV	A	7/20/2019	3:38:20	770	17	5	
024	SPI_PV	B	7/20/2019	3:39:47		17	5	
024	SPI_PV	C	7/20/2019	3:41:04	772	17	5	
024	SPI_PV	D	7/20/2019	3:42:35	773	17	5	FC 774
025	SPI_PV	A	7/20/2019	3:56:00	775	17	5	
025	SPI_PV	B	7/20/2019	3:57:08	776	17	5	
025	SPI_PV	C	7/20/2019	3:58:18		17	5	
025	SPI_PV	D	7/20/2019	3:59:36	778	17	5	FC 779
026	SPI_PV	A	7/20/2019	4:36:56	780	17	5	
026	SPI_PV	B	7/20/2019	4:38:25	781	17	5	
026	SPI_PV	C	7/20/2019	4:40:00	782	17	5	
026	SPI_PV	D	7/20/2019	4:42:03	783	17	5	FC 784
027	SPI_PV	A	7/20/2019	4:54:04	785	17	5	
027	SPI_PV	B	7/20/2019	4:55:15	786	17	5	
027	SPI_PV	C	7/20/2019	4:56:35	787	17	5	
027	SPI_PV	D	7/20/2019	4:57:50	788	17	5	FC 788; Download
028	SPI_PV	A	7/20/2019	5:33:44	789	17	5	
028	SPI_PV	B	7/20/2019	5:34:52	790	17	5	
028	SPI_PV	C	7/20/2019	5:36:06	791	17	5	
028	SPI_PV	D	7/20/2019	5:37:36	792	17	5	FC 792
029	SPI_PV	A	7/20/2019	5:48:14	793	17	5	
029	SPI_PV	B	7/20/2019	5:49:25	794	17	5	
029	SPI_PV	C	7/20/2019	5:50:32	795	17	5	
029	SPI_PV	D	7/20/2019	5:51:42	796	17	5	FC 796
030	SPI_PV	A	7/20/2019	6:10:40	797	17	5	
030	SPI_PV	B	7/20/2019	6:11:47	798	17	5	
030	SPI_PV	C	7/20/2019	6:13:05	799	17	5	
030	SPI_PV	D	7/20/2019	6:14:17	800	17	5	FC 801
021	SPI_PV	A	7/20/2019	6:27:50	802	17	5	
021	SPI_PV	B	7/20/2019	6:29:18	803	17	5	
021	SPI_PV	C	7/20/2019	6:30:33	804	17	5	
021	SPI_PV	D	7/20/2019	6:31:45	805	17	5	FC 806
020	SPI_PV	A	7/20/2019	7:10:02	807	17	5	
020	SPI_PV	B	7/20/2019	7:11:11	808	17	5	
020	SPI_PV	C	7/20/2019	7:12:28	809	17	5	
020	SPI_PV	D	7/20/2019	7:13:44	810	17	5	FC 810; Download. SPI Images have PV metadata
019	SPI_PV	A	7/20/2019	7:51:05	811	17	5	
019	SPI_PV	B	7/20/2019	7:52:18	812	17	5	
019	SPI_PV	C	7/20/2019	7:53:37	813	17	5	
019	SPI_PV	D	7/20/2019	7:54:57	814	17	5	FC 814
017	SPI_PV	A	7/20/2019	8:15:25	815	17	5	
017	SPI_PV	B	7/20/2019	8:16:44	816	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
017	SPI_PV	C	7/20/2019	8:18:00	817	17	5	
017	SPI_PV	D	7/20/2019	8:19:31	818	17	5	FC 818
016	SPI_PV	A	7/20/2019	8:47:25	819	17	5	
016	SPI_PV	B	7/20/2019	8:48:41	820	17	5	
016	SPI_PV	C	7/20/2019	8:49:56	821	17	5	
016	SPI_PV	D	7/20/2019	8:51:12	822	17	5	FC 822
014	SPI_PV	A	7/20/2019	9:08:06	823	17	5	
014	SPI_PV	B	7/20/2019	9:09:45	824	17	5	
014	SPI_PV	C	7/20/2019	9:10:54	825	17	5	
014	SPI_PV	D	7/20/2019	9:11:57	826	17	5	FC 826
013	SPI_PV	A	7/20/2019	9:28:07	827	17	5	
013	SPI_PV	B	7/20/2019	9:29:18	828	17	5	
013	SPI_PV	C	7/20/2019	9:30:52	829	17	5	
013	SPI_PV	D	7/20/2019	9:32:00	830	17	5	FC 830
012	SPI_PV	A	7/20/2019	10:03:36	831	17	5	
012	SPI_PV	B	7/20/2019	10:04:47	832	17	5	
012	SPI_PV	C	7/20/2019	10:06:00	833	17	5	
012	SPI_PV	D	7/20/2019	10:07:30	834	17	5	FC 834
011	SPI_PV	A	7/20/2019	10:42:41	835	17	5	
011	SPI_PV	B	7/20/2019	10:43:53	836	17	5	
011	SPI_PV	C	7/20/2019	10:45:24	837	17	5	
011	SPI_PV	D	7/20/2019	10:46:35	838	17	5	FC 838
001	SPI_PV	A	7/20/2019	11:03:35	839	17	5	
001	SPI_PV	B	7/20/2019	11:04:57	840	17	5	
001	SPI_PV	C	7/20/2019	11:06:26	841	17	5	
001	SPI_PV	D	7/20/2019	11:07:54	842	17	5	FC 842
002	SPI_PV	A	7/20/2019	11:37:08	843	17	5	
002	SPI_PV	B	7/20/2019	11:38:29	844	17	5	
002	SPI_PV	C	7/20/2019	11:39:54	845	17	5	
002	SPI_PV	D	7/20/2019	11:41:26	846	17	5	FC 848. Shift change. Strobe Bottle change
003	SPI_PV	A	7/20/2019	12:21:01	849	17	5	
003	SPI_PV	B	7/20/2019	12:22:15	850	17	5	
003	SPI_PV	C	7/20/2019	12:23:35	851	17	5	
003	SPI_PV	D	7/20/2019	12:24:53	852	17	5	FC 853; Download
004	SPI_PV	A	7/20/2019	13:03:21	854	17	5	
004	SPI_PV	B	7/20/2019	13:04:35	855	17	5	
004	SPI_PV	C	7/20/2019	13:05:49	856	17	5	
004	SPI_PV	D	7/20/2019	13:07:02	857	17	5	FC 858
005	SPI_PV	A	7/20/2019	13:21:50	859	17	5	
005	SPI_PV	B	7/20/2019	13:23:03	860	17	5	
005	SPI_PV	C	7/20/2019	13:24:13	861	17	5	
005	SPI_PV	D	7/20/2019	13:25:31	862	17	5	FC 863
006	SPI_PV	A	7/20/2019	14:01:33	864	17	5	
006	SPI_PV	B	7/20/2019	14:02:42	865	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
006	SPI_PV	C	7/20/2019	14:03:50	866	17	5	
006	SPI_PV	D	7/20/2019	14:05:03	867	17	5	FC 867
007	SPI_PV	A	7/20/2019	14:20:37	868	17	5	
007	SPI_PV	B	7/20/2019	14:21:49	869	17	5	
007	SPI_PV	C	7/20/2019	14:22:59	870	17	5	
007	SPI_PV	D	7/20/2019	14:24:11	871	17	5	FC 873
008	SPI_PV	A	7/20/2019	14:37:30	874	17	5	
008	SPI_PV	B	7/20/2019	14:38:50	875	17	5	
008	SPI_PV	C	7/20/2019	14:39:59	876	17	5	
008	SPI_PV	D	7/20/2019	14:41:14	877	17	5	FC 878: Download
010	SPI_PV	A	7/20/2019	15:24:15	879	17	5	
010	SPI_PV	B	7/20/2019	15:25:32	880	17	5	
010	SPI_PV	C	7/20/2019	15:26:46	881	17	5	
010	SPI_PV	D	7/20/2019	15:27:55	882	17	5	FC 883
009	SPI_PV	A	7/20/2019	15:44:23	884	17	5	
009	SPI_PV	B	7/20/2019	15:45:35	885	17	5	
009	SPI_PV	C	7/20/2019	15:46:42	886	17	5	
009	SPI_PV	D	7/20/2019	15:47:56	887	17	5	FC 890
301	SPI_PV	A	7/20/2019	16:02:32	891	17	5	
301	SPI_PV	B	7/20/2019	16:03:45	892	17	5	
301	SPI_PV	C	7/20/2019	16:04:55	893	17	5	
301	SPI_PV	D	7/20/2019	16:06:09	894	17	5	FC 896
018	SPI_PV	A	7/20/2019	16:26:04	897	17	5	
018	SPI_PV	B	7/20/2019	16:27:12	898	17	5	
018	SPI_PV	C	7/20/2019	16:28:21	899	17	5	
018	SPI_PV	D	7/20/2019	16:29:34	900	17	5	FC 901
015	SPI_PV	A	7/20/2019	16:48:57	902	17	5	
015	SPI_PV	B	7/20/2019	16:50:08	903	17	5	
015	SPI_PV	C	7/20/2019	16:51:20	904	17	5	
015	SPI_PV	D	7/20/2019	16:52:29	905	17	5	FC 905; Download; Backup
201	SPI_PV	A	7/20/2019	17:31:20	906	17	5	
201	SPI_PV	B	7/20/2019	17:32:37	907	17	5	
201	SPI_PV	C	7/20/2019	17:33:53	908	17	5	
201	SPI_PV	D	7/20/2019	17:35:05	909	17	5	FC 910
202	SPI_PV	A	7/20/2019	17:56:51	911	17	5	
202	SPI_PV	B	7/20/2019	17:58:00	912	17	5	
202	SPI_PV	C	7/20/2019	17:59:03	913	17	5	
202	SPI_PV	D	7/20/2019	18:00:13	914	17	5	FC 916
203	SPI_PV	A	7/20/2019	18:40:04	917	17	5	
203	SPI_PV	B	7/20/2019	18:41:17	918	17	5	
203	SPI_PV	C	7/20/2019	18:42:35	919	17	5	
203	SPI_PV	D	7/20/2019	18:43:47	920	17	5	FC 920
204	SPI_PV	A	7/20/2019	19:01:41	921	17	5	
204	SPI_PV	B	7/20/2019	19:02:49	922	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
204	SPI_PV	C	7/20/2019	19:03:57	923	17	5	
204	SPI_PV	D	7/20/2019	19:05:12	924	17	5	FC 925
205	SPI_PV	A	7/20/2019	19:25:00	926	17	5	
205	SPI_PV	B	7/20/2019	19:26:10	927	17	5	
205	SPI_PV	C	7/20/2019	19:27:17	928	17	5	
205	SPI_PV	D	7/20/2019	19:28:31	929	17	5	FC 930; Download
206	SPI_PV	A	7/20/2019	20:07:06	931	17	5	
206	SPI_PV	B	7/20/2019	20:08:18	932	17	5	
206	SPI_PV	C	7/20/2019	20:09:32	933	17	5	
206	SPI_PV	D	7/20/2019	20:10:43	934	17	5	FC 934
207	SPI_PV	A	7/20/2019	20:34:14	935	17	5	
207	SPI_PV	B	7/20/2019	20:35:25	936	17	5	
207	SPI_PV	C	7/20/2019	20:36:39	937	17	5	
207	SPI_PV	D	7/20/2019	20:37:56	938	17	5	FC 938
208	SPI_PV	A	7/20/2019	20:56:40	939	17	5	
208	SPI_PV	B	7/20/2019	20:57:55	940	17	5	
208	SPI_PV	C	7/20/2019	20:59:03	941	17	5	
208	SPI_PV	D	7/20/2019	21:00:11	942	17	5	FC 943
209	SPI_PV	A	7/20/2019	21:28:32	944	17	5	
209	SPI_PV	B	7/20/2019	21:29:45	945	17	5	
209	SPI_PV	C	7/20/2019	21:31:00	946	17	5	
209	SPI_PV	D	7/20/2019	21:32:17	947	17	5	FC 947
210	SPI_PV	A	7/20/2019	21:52:32	948	17	5	
210	SPI_PV	B	7/20/2019	21:53:45	949	17	5	
210	SPI_PV	C	7/20/2019	21:54:55	950	17	5	
210	SPI_PV	D	7/20/2019	21:56:05	951	17	5	FC 954
211	SPI_PV	A	7/20/2019	22:15:21	955	17	5	
211	SPI_PV	B	7/20/2019	22:16:35	956	17	5	
211	SPI_PV	C	7/20/2019	22:17:53	957	17	5	
211	SPI_PV	D	7/20/2019	22:19:09	958	17	5	FC 958; Download.
403	SPI_PV	A	7/20/2019	23:46:20	959	17	5	
403	SPI_PV	B	7/20/2019	23:47:29	960	17	5	
403	SPI_PV	C	7/20/2019	23:48:47	961	17	5	
403	SPI_PV	D	7/20/2019	23:50:15	962	17	5	FC 964. Shift change.
402	SPI_PV	A	7/21/2019	0:12:30	965	17	5	
402	SPI_PV	B	7/21/2019	0:13:40	966	17	5	
402	SPI_PV	C	7/21/2019	0:14:50	967	17	5	
402	SPI_PV	D	7/21/2019	0:15:47	968	17	5	FC 968
302	SPI_PV	A	7/21/2019	0:49:24	969	17	5	
302	SPI_PV	B	7/21/2019	0:50:32	970	17	5	
302	SPI_PV	C	7/21/2019	0:51:56	971	17	5	
302	SPI_PV	D	7/21/2019	0:53:08	972	17	5	FC 972 - Hard Bottom?
303	SPI_PV	A	7/21/2019	1:14:00	973	17	5	
303	SPI_PV	B	7/21/2019	1:15:26	974	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
303	SPI_PV	C	7/21/2019	1:16:33	975	17	5	
303	SPI_PV	D	7/21/2019	1:17:44	976	17	5	FC 977
304	SPI_PV	A	7/21/2019	1:34:54	978	17	5	
304	SPI_PV	B	7/21/2019	1:38:54	979	17	5	
304	SPI_PV	C	7/21/2019	1:40:00	980	17	5	
304	SPI_PV	D	7/21/2019	1:41:03	981	17	5	FC 982 - Download, PV Images have SPI metadata
305	SPI_PV	A	7/21/2019	2:26:44	983	17	5	
305	SPI_PV	B	7/21/2019	2:27:46	984	17	5	
305	SPI_PV	C	7/21/2019	2:28:44	985	17	5	
305	SPI_PV	D	7/21/2019	2:30:00	986	17	5	FC 987
401	SPI_PV	A	7/21/2019	2:48:12	988	17	5	
401	SPI_PV	B	7/21/2019	2:49:17	989	17	5	
401	SPI_PV	C	7/21/2019	2:52:10	990	17	5	
401	SPI_PV	D	7/21/2019	2:53:26	991	17	5	FC 992
306	SPI_PV	A	7/21/2019	3:12:32	993	17	5	
306	SPI_PV	B	7/21/2019	3:13:36	994	17	5	
306	SPI_PV	C	7/21/2019	3:14:38	995	17	5	
306	SPI_PV	D	7/21/2019	3:15:50	996	17	5	FC 996
307	SPI_PV	A	7/21/2019	3:33:30	997	17	5	
307	SPI_PV	B	7/21/2019	3:34:42	998	17	5	
307	SPI_PV	C	7/21/2019	3:35:54	999	17	5	
307	SPI_PV	D	7/21/2019	3:37:15	000	17	5	FC 000
308	SPI_PV	A	7/21/2019	3:53:30	001	17	5	
308	SPI_PV	B	7/21/2019	3:55:24	002	17	5	
308	SPI_PV	C	7/21/2019	3:56:29	003	17	5	
308	SPI_PV	D	7/21/2019	3:57:45	004	17	5	FC 004 - Download
309	SPI_PV	A	7/21/2019	4:44:54	005	17	5	
309	SPI_PV	B	7/21/2019	4:46:00	006	17	5	
309	SPI_PV	C	7/21/2019	4:47:18	007	17	5	
309	SPI_PV	D	7/21/2019	4:48:28	008	17	5	FC 009
310	SPI_PV	A	7/21/2019	5:04:18	010	17	5	
310	SPI_PV	B	7/21/2019	5:05:20	011	17	5	
310	SPI_PV	C	7/21/2019	5:06:34	012	17	5	
310	SPI_PV	D	7/21/2019	5:07:50	013	17	5	FC 013
311	SPI_PV	A	7/21/2019	5:28:50	014	17	5	
311	SPI_PV	B	7/21/2019	5:30:09	015	17	5	
311	SPI_PV	C	7/21/2019	5:31:33	016	17	5	
311	SPI_PV	D	7/21/2019	5:33:08	017	17	5	FC 018
312	SPI_PV	A	7/21/2019	5:48:48	019	17	5	
312	SPI_PV	B	7/21/2019	5:49:56	020	17	5	
312	SPI_PV	C	7/21/2019	5:51:18	021	17	5	
312	SPI_PV	D	7/21/2019	5:52:44	022	17	5	FC 022
313	SPI_PV	A	7/21/2019	6:07:38	023	17	5	
313	SPI_PV	B	7/21/2019	6:08:52	024	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
313	SPI_PV	C	7/21/2019	6:10:02	025	17	5	
313	SPI_PV	D	7/21/2019	6:11:31	026	17	5	FC 026. Download
314	SPI_PV	A	7/21/2019	6:53:57	027	17	5	
314	SPI_PV	B	7/21/2019	6:55:07	028	17	5	
314	SPI_PV	C	7/21/2019	6:56:26	029	17	5	
314	SPI_PV	D	7/21/2019	6:57:44	030	17	5	FC 031
315	SPI_PV	A	7/21/2019	7:12:30	032	17	5	
315	SPI_PV	B	7/21/2019	7:13:55	033	17	5	
315	SPI_PV	C	7/21/2019	7:15:26	034	17	5	
315	SPI_PV	D	7/21/2019	7:16:59	035	17	5	FC 035
316	SPI_PV	A	7/21/2019	7:31:46	036	17	5	
316	SPI_PV	B	7/21/2019	7:32:52	037	17	5	
316	SPI_PV	C	7/21/2019	7:34:05	038	17	5	
316	SPI_PV	D	7/21/2019	7:35:10	039	17	5	FC 039
317	SPI_PV	A	7/21/2019	7:53:40	040	17	5	
317	SPI_PV	B	7/21/2019	7:54:56	041	17	5	
317	SPI_PV	C	7/21/2019	7:56:25	042	17	5	
317	SPI_PV	D	7/21/2019	7:57:52	043	17	5	FC 043
318	SPI_PV	A	7/21/2019	8:18:18	044	17	5	
318	SPI_PV	B	7/21/2019	8:19:26	045	17	5	
318	SPI_PV	C	7/21/2019	8:20:38	046	17	5	
318	SPI_PV	D	7/21/2019	8:21:49	047	17	5	FC 048; Download.
319	SPI_PV	A	7/21/2019	9:00:22	049	17	5	
319	SPI_PV	B	7/21/2019	9:01:30	050	17	5	
319	SPI_PV	C	7/21/2019	9:02:36	051	17	5	
319	SPI_PV	D	7/21/2019	9:03:54	052	17	5	FC 053
320	SPI_PV	A	7/21/2019	9:31:28	054	17	5	
320	SPI_PV	B	7/21/2019	9:32:43	055	17	5	
320	SPI_PV	C	7/21/2019	9:34:03	056	17	5	
320	SPI_PV	D	7/21/2019	9:35:25	057	17	5	FC 057
321	SPI_PV	A	7/21/2019	9:52:18	058	17	5	
321	SPI_PV	B	7/21/2019	9:53:30	059	17	5	
321	SPI_PV	C	7/21/2019	9:54:46	060	17	5	
321	SPI_PV	D	7/21/2019	9:56:00	061	17	5	FC 061
322	SPI_PV	A	7/21/2019	10:15:15	062	17	5	
322	SPI_PV	B	7/21/2019	10:16:31	063	17	5	
322	SPI_PV	C	7/21/2019	10:17:42	064	17	5	
322	SPI_PV	D	7/21/2019	10:18:42	065	17	5	FC 066
323	SPI_PV	A	7/21/2019	10:36:00	067	17	5	
323	SPI_PV	B	7/21/2019	10:37:08	068	17	5	
323	SPI_PV	C	7/21/2019	10:38:14	069	17	5	
323	SPI_PV	D	7/21/2019	10:39:21	070	17	5	FC 070; Download
324	SPI_PV	A	7/21/2019	11:38:40	071	17	5	
324	SPI_PV	B	7/21/2019	11:40:04	072	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
324	SPI_PV	C	7/21/2019	11:41:17	073	17	5	
324	SPI_PV	D	7/21/2019	11:42:44	074	17	5	FC 074; Strobe battery change; Shift change
325	SPI_PV	A	7/21/2019	12:19:03	075	17	5	
325	SPI_PV	B	7/21/2019	12:20:11	076	17	5	
325	SPI_PV	C	7/21/2019	12:21:19	077	17	5	
325	SPI_PV	D	7/21/2019	12:22:29	078	17	5	FC 079
326	SPI_PV	A	7/21/2019	12:36:31	080	17	5	
326	SPI_PV	B	7/21/2019	12:37:43	081	17	5	
326	SPI_PV	C	7/21/2019	12:38:53	082	17	5	
326	SPI_PV	D	7/21/2019	12:40:05	083	17	5	FC 084
327	SPI_PV	A	7/21/2019	12:53:13	085	17	5	
327	SPI_PV	B	7/21/2019	12:54:24	086	17	5	
327	SPI_PV	C	7/21/2019	12:55:42	087	17	5	
327	SPI_PV	D	7/21/2019	12:56:51	088	17	5	FC 090
328	SPI_PV	A	7/21/2019	13:15:29	091	17	5	
328	SPI_PV	B	7/21/2019	13:16:38	092	17	5	
328	SPI_PV	C	7/21/2019	13:17:46	093	17	5	
328	SPI_PV	D	7/21/2019	13:18:57	094	17	5	FC 094; Download
329	SPI_PV	A	7/21/2019	13:53:34	095	17	5	
329	SPI_PV	B	7/21/2019	13:54:42	096	17	5	
329	SPI_PV	C	7/21/2019	13:55:57	097	17	5	
329	SPI_PV	D	7/21/2019	13:57:10	098	17	5	FC 098
330	SPI_PV	A	7/21/2019	14:15:00	099	17	5	
330	SPI_PV	B	7/21/2019	14:16:12	100	17	5	
330	SPI_PV	C	7/21/2019	14:17:19	101	17	5	
330	SPI_PV	D	7/21/2019	14:18:31	102	17	5	FC 102
331	SPI_PV	A	7/21/2019	14:30:42	103	17	5	
331	SPI_PV	B	7/21/2019	14:31:52	104	17	5	
331	SPI_PV	C	7/21/2019	14:33:04	105	17	5	
331	SPI_PV	D	7/21/2019	14:34:21	106	17	5	FC 106
332	SPI_PV	A	7/21/2019	14:50:08	107	17	5	
332	SPI_PV	B	7/21/2019	14:51:33	108	17	5	
332	SPI_PV	C	7/21/2019	14:52:50	109	17	5	
332	SPI_PV	D	7/21/2019	14:54:01	110	17	5	FC 110
333	SPI_PV	A	7/21/2019	15:10:25	111	17	5	
333	SPI_PV	B	7/21/2019	15:11:36	112	17	5	
333	SPI_PV	C	7/21/2019	15:12:48	113	17	5	
333	SPI_PV	D	7/21/2019	15:13:59	114	17	5	FC 114; Download
336	SPI_PV	A	7/21/2019	15:36:05	115	17	5	
336	SPI_PV	B	7/21/2019	15:37:13	116	17	5	
336	SPI_PV	C	7/21/2019	15:38:19	117	17	5	
336	SPI_PV	D	7/21/2019	15:39:33	118	17	5	FC 118
334	SPI_PV	A	7/21/2019	15:59:07	119	17	5	
334	SPI_PV	B	7/21/2019	16:00:18	120	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
334	SPI_PV	C	7/21/2019	16:01:27	121	17	5	
334	SPI_PV	D	7/21/2019	16:02:34	122	17	5	FC 122
337	SPI_PV	A	7/21/2019	16:30:37	123	17	5	
337	SPI_PV	B	7/21/2019	16:31:42	124	17	5	
337	SPI_PV	C	7/21/2019	16:32:55	125	17	5	
337	SPI_PV	D	7/21/2019	16:34:04	126	17	5	FC 127
338	SPI_PV	A	7/21/2019	16:57:31	128	17	5	
338	SPI_PV	B	7/21/2019	16:58:42	129	17	5	
338	SPI_PV	C	7/21/2019	16:59:53	130	17	5	
338	SPI_PV	D	7/21/2019	17:01:08	131	17	5	FC 131
335	SPI_PV	A	7/21/2019	17:15:40	132	17	5	
335	SPI_PV	B	7/21/2019	17:16:48	133	17	5	
335	SPI_PV	C	7/21/2019	17:17:57	134	17	5	
335	SPI_PV	D	7/21/2019	17:19:03	135	17	5	FC 136; Download
339	SPI_PV	A	7/21/2019	17:38:53	137	17	5	
339	SPI_PV	B	7/21/2019	17:40:02	138	17	5	
339	SPI_PV	C	7/21/2019	17:41:12	139	17	5	
339	SPI_PV	D	7/21/2019	17:42:25	140	17	5	FC 140
340	SPI_PV	A	7/21/2019	18:01:35	141	17	5	
340	SPI_PV	B	7/21/2019	18:02:47	142	17	5	
340	SPI_PV	C	7/21/2019	18:03:57	143	17	5	
340	SPI_PV	D	7/21/2019	18:05:14	144	17	5	FC 145
341	SPI_PV	A	7/21/2019	18:21:48	146	17	5	
341	SPI_PV	B	7/21/2019	18:22:58	147	17	5	
341	SPI_PV	C	7/21/2019	18:24:09	148	17	5	
341	SPI_PV	D	7/21/2019	18:25:38	149	17	5	FC 149
342	SPI_PV	A	7/21/2019	18:49:14	150	17	5	
342	SPI_PV	B	7/21/2019	18:50:25	151	17	5	
342	SPI_PV	C	7/21/2019	18:51:31	152	17	5	
342	SPI_PV	D	7/21/2019	18:52:48	153	17	5	FC 153
343	SPI_PV	A	7/21/2019	19:08:46	154	17	5	
343	SPI_PV	B	7/21/2019	19:10:03	155	17	5	
343	SPI_PV	C	7/21/2019	19:11:12	156	17	5	
343	SPI_PV	D	7/21/2019	19:12:22	157	17	5	FC 157
344	SPI_PV	A	7/21/2019	19:28:45	158	17	5	
344	SPI_PV	B	7/21/2019	19:29:56	159	17	5	
344	SPI_PV	C	7/21/2019	19:31:07	160	17	5	
344	SPI_PV	D	7/21/2019	19:32:16	161	17	5	FC 161; Download
345	SPI_PV	A	7/21/2019	19:52:42	162	17	5	
345	SPI_PV	B	7/21/2019	19:53:55	163	17	5	
345	SPI_PV	C	7/21/2019	19:55:02	164	17	5	
345	SPI_PV	D	7/21/2019	19:56:09	165	17	5	FC 165
346	SPI_PV	A	7/21/2019	20:13:26	166	17	5	
346	SPI_PV	B	7/21/2019	20:14:35	167	17	5	

StationID	SampleType	Replicate	Date	Time	Frame	SPI Stop Collar Setting (in)	SPI Weights Per Side	Comments
346	SPI_PV	C	7/21/2019	20:15:45	168	17	5	
346	SPI_PV	D	7/21/2019	20:16:56	169	17	5	FC 169
347	SPI_PV	A	7/21/2019	20:43:32	170	17	5	
347	SPI_PV	B	7/21/2019	20:44:40	171	17	5	
347	SPI_PV	C	7/21/2019	20:45:50	172	17	5	
347	SPI_PV	D	7/21/2019	20:46:58	173	17	5	FC 173
348	SPI_PV	A	7/21/2019	21:02:38	174	17	5	
348	SPI_PV	B	7/21/2019	21:03:45	175	17	5	
348	SPI_PV	C	7/21/2019	21:04:57	176	17	5	
348	SPI_PV	D	7/21/2019	21:06:07	177	17	5	FC 178
349	SPI_PV	A	7/21/2019	21:22:19	179	17	5	
349	SPI_PV	B	7/21/2019	21:23:31	180	17	5	
349	SPI_PV	C	7/21/2019	21:24:41	181	17	5	
349	SPI_PV	D	7/21/2019	21:25:53	182	17	5	FC 183
350	SPI_PV	A	7/21/2019	21:43:30	184	17	5	
350	SPI_PV	B	7/21/2019	21:44:43	185	17	5	
350	SPI_PV	C	7/21/2019	21:46:00	186	17	5	
350	SPI_PV	D	7/21/2019	21:47:14	187	17	5	FC 188; Download

APPENDIX C

Sediment Profile Image Analysis Results

Notes:

IND=Indeterminate

Grain Size: “/” indicates layer of one phi size range over another.

Successional Stage: “on” indicates one Stage is found on top of another Stage (i.e., 1 on 3); “->” indicates one Stage is progressing to another Stage (i.e., 2 -> 3).

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?
Phase 1 Survey Area (OCW)	001	A	7/20/2019	11:03:45	17	5	14.47	3 to 2	>4	2	>4 to 2	3.89	2.93	5.74	No
Phase 1 Survey Area (OCW)	001	B	7/20/2019	11:05:12	17	5	14.47	3 to 2	>4	0	>4 to 0	4.62	2.98	6.21	No
Phase 1 Survey Area (OCW)	001	C	7/20/2019	11:06:40	17	5	14.47	3 to 2	>4	1	>4 to 1	5.16	4.29	6.26	No
Phase 1 Survey Area (OCW)	002	A	7/20/2019	11:37:23	17	5	14.47	3 to 2	>4	0	>4 to 0	4.69	4.20	5.03	No
Phase 1 Survey Area (OCW)	002	B	7/20/2019	11:38:42	17	5	14.47	3 to 2	>4	1	>4 to 1	3.55	3.22	3.83	No
Phase 1 Survey Area (OCW)	002	C	7/20/2019	11:40:10	17	5	14.47	3 to 2	>4	0	>4 to 0	4.53	4.19	4.91	No
Phase 1 Survey Area (OCW)	003	A	7/20/2019	12:21:02	17	5	14.47	3 to 2	>4	0	>4 to 0	5.22	4.14	6.82	No
Phase 1 Survey Area (OCW)	003	B	7/20/2019	12:22:16	17	5	14.47	3 to 2	>4	0	>4 to 0	5.82	4.69	6.84	No
Phase 1 Survey Area (OCW)	003	C	7/20/2019	12:23:36	17	5	14.47	3 to 2	>4	0	>4 to 0	5.94	4.83	6.34	No
Phase 1 Survey Area (OCW)	004	A	7/20/2019	13:03:22	17	5	14.47	3 to 2	>4	0	>4 to 0	6.23	5.72	6.78	No
Phase 1 Survey Area (OCW)	004	B	7/20/2019	13:04:37	17	5	14.47	3 to 2	>4	0	>4 to 0	4.05	3.60	4.47	No
Phase 1 Survey Area (OCW)	004	C	7/20/2019	13:05:51	17	5	14.47	2 to 1	>4	0	>4 to 0	5.02	4.31	5.56	No
Phase 1 Survey Area (OCW)	005	A	7/20/2019	13:21:50	17	5	14.47	3 to 2	>4	0	>4 to 0	4.99	4.23	5.54	No
Phase 1 Survey Area (OCW)	005	B	7/20/2019	13:23:04	17	5	14.47	3 to 2	>4	-1	>4 to -1	5.32	4.99	5.67	No
Phase 1 Survey Area (OCW)	005	C	7/20/2019	13:24:13	17	5	14.47	3 to 2	>4	0	>4 to 0	5.74	4.96	6.14	No
Phase 1 Survey Area (OCW)	006	A	7/20/2019	14:01:34	17	5	14.47	3 to 2	>4	0	>4 to 0	6.31	5.87	6.78	No
Phase 1 Survey Area (OCW)	006	B	7/20/2019	14:02:43	17	5	14.47	3 to 2	>4	0	>4 to 0	4.87	4.42	5.78	No
Phase 1 Survey Area (OCW)	006	C	7/20/2019	14:03:52	17	5	14.47	3 to 2	>4	0	>4 to 0	6.04	5.54	6.28	No
Phase 1 Survey Area (OCW)	007	A	7/20/2019	14:20:36	17	5	14.47	1 to 0	>4	-2	>4 to -2	5.54	5.31	5.77	No
Phase 1 Survey Area (OCW)	007	B	7/20/2019	14:21:50	17	5	14.47	1 to 0	>4	-3	>4 to -3	5.39	4.94	5.84	No
Phase 1 Survey Area (OCW)	007	C	7/20/2019	14:23:01	17	5	14.47	1 to 0	>4	-2	>4 to -2	6.24	5.80	6.37	No
Phase 1 Survey Area (OCW)	008	A	7/20/2019	14:37:31	17	5	14.47	1 to 0	>4	-3	>4 to -3	3.86	3.48	4.17	No
Phase 1 Survey Area (OCW)	008	B	7/20/2019	14:38:51	17	5	14.47	2 to 1	>4	-3	>4 to -3	3.10	2.71	3.52	No
Phase 1 Survey Area (OCW)	008	C	7/20/2019	14:40:01	17	5	14.47	1 to 0	>4	-3	>4 to -3	3.68	3.36	3.88	No
Phase 1 Survey Area (OCW)	009	A	7/20/2019	15:44:23	17	5	14.47	2 to 1	>4	0	>4 to 0	5.97	4.91	6.87	No
Phase 1 Survey Area (OCW)	009	B	7/20/2019	15:45:36	17	5	14.47	2 to 1	>4	0	>4 to 0	6.28	5.31	7.15	No
Phase 1 Survey Area (OCW)	009	C	7/20/2019	15:46:43	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.47	5.12	5.72	No
Phase 1 Survey Area (OCW)	010	A	7/20/2019	15:24:17	17	5	14.47	2 to 1	>4	0	>4 to 0	4.60	4.18	5.01	No
Phase 1 Survey Area (OCW)	010	B	7/20/2019	15:25:33	17	5	14.47	2 to 1	>4	-1	>4 to -1	6.65	6.26	6.84	No
Phase 1 Survey Area (OCW)	010	C	7/20/2019	15:26:47	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.31	4.79	5.83	No
Phase 1 Survey Area (OCW)	011	A	7/20/2019	10:42:55	17	5	14.47	3 to 2	>4	0	>4 to 0	4.38	3.73	4.61	No
Phase 1 Survey Area (OCW)	011	B	7/20/2019	10:44:07	17	5	14.47	3 to 2	>4	0	>4 to 0	4.39	3.94	4.63	No
Phase 1 Survey Area (OCW)	011	C	7/20/2019	10:45:39	17	5	14.47	3 to 2	>4	0	>4 to 0	4.62	3.78	4.93	No
Phase 1 Survey Area (OCW)	012	A	7/20/2019	10:03:49	17	5	14.47	3 to 2	>4	0	>4 to 0	5.00	4.63	5.52	No
Phase 1 Survey Area (OCW)	012	B	7/20/2019	10:05:01	17	5	14.47	3 to 2	>4	0	>4 to 0	3.74	3.40	4.31	No
Phase 1 Survey Area (OCW)	012	C	7/20/2019	10:06:14	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.80	3.84	5.87	No
Phase 1 Survey Area (OCW)	013	A	7/20/2019	9:28:16	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.64	4.98	6.06	No

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?
Phase 1 Survey Area (OCW)	013	B	7/20/2019	9:29:33	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.10	4.44	6.27	No
Phase 1 Survey Area (OCW)	013	C	7/20/2019	9:31:06	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.70	4.36	5.01	No
Phase 1 Survey Area (OCW)	014	A	7/20/2019	9:08:22	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.43	5.01	6.07	No
Phase 1 Survey Area (OCW)	014	B	7/20/2019	9:09:59	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.59	5.12	6.01	No
Phase 1 Survey Area (OCW)	014	C	7/20/2019	9:11:07	17	5	14.47	2 to 1	>4	-2	>4 to -2	6.52	5.71	7.23	No
Phase 1 Survey Area (OCW)	015	A	7/20/2019	16:48:57	17	5	14.47	0 to -1	>4	-3	>4 to -3	3.81	3.28	4.60	No
Phase 1 Survey Area (OCW)	015	B	7/20/2019	16:50:10	17	5	14.47	3 to 2	>4	-1	>4 to -1	5.36	4.51	5.89	No
Phase 1 Survey Area (OCW)	015	C	7/20/2019	16:51:22	17	5	14.47	2 to 1	>4	0	>4 to 0	4.58	4.33	5.04	No
Phase 1 Survey Area (OCW)	016	A	7/20/2019	8:47:36	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	6.23	5.58	7.55	No
Phase 1 Survey Area (OCW)	016	B	7/20/2019	8:48:54	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	5.82	4.99	6.34	No
Phase 1 Survey Area (OCW)	016	C	7/20/2019	8:50:11	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3	5.95	5.53	6.25	No
Phase 1 Survey Area (OCW)	017	A	7/20/2019	8:15:36	17	5	14.47	1 to 0	>4	-2	>4 to -2	6.75	6.04	7.29	No
Phase 1 Survey Area (OCW)	017	B	7/20/2019	8:16:58	17	5	14.47	1 to 0	>4	-2	>4 to -2	5.76	5.56	6.19	No
Phase 1 Survey Area (OCW)	017	C	7/20/2019	8:18:15	17	5	14.47	1 to 0	>4	-3	>4 to -3	4.43	3.84	4.95	No
Phase 1 Survey Area (OCW)	018	A	7/20/2019	16:26:05	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	6.16	5.89	6.76	No
Phase 1 Survey Area (OCW)	018	B	7/20/2019	16:27:13	17	5	14.47	1 to 0	>4	-1	>4 to -1	5.23	4.85	5.57	No
Phase 1 Survey Area (OCW)	018	C	7/20/2019	16:28:23	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	4.77	4.50	4.95	No
Phase 1 Survey Area (OCW)	019	A	7/20/2019	7:51:20	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.95	5.47	6.42	No
Phase 1 Survey Area (OCW)	019	B	7/20/2019	7:52:30	17	5	14.47	2 to 1	>4	-2	>4 to -2	6.24	5.95	6.49	No
Phase 1 Survey Area (OCW)	019	C	7/20/2019	7:53:50	17	5	14.47	2 to 1	>4	-1	>4 to -1	6.20	5.86	6.30	No
Phase 1 Survey Area (OCW)	020	B	7/20/2019	7:11:26	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	6.11	5.94	6.24	No
Phase 1 Survey Area (OCW)	020	C	7/20/2019	7:12:43	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.22	4.61	5.84	No
Phase 1 Survey Area (OCW)	020	D	7/20/2019	7:13:59	17	5	14.47	2 to 1	>4	-1	>4 to -1	6.13	5.77	6.39	No
Phase 1 Survey Area (OCW)	021	A	7/20/2019	6:28:04	17	5	14.47	3 to 2/>4	>4	-2	>4 to -2	12.40	11.53	13.01	No
Phase 1 Survey Area (OCW)	021	B	7/20/2019	6:29:33	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.84	4.61	5.08	No
Phase 1 Survey Area (OCW)	021	C	7/20/2019	6:30:48	17	5	14.47	3 to 2/>4	>4	-2	>4 to -2	11.89	11.65	12.05	No
Phase 1 Survey Area (OCW)	022	A	7/20/2019	2:45:05	17	5	14.47	1 to 0	>4	-2	>4 to -2	4.63	3.96	5.17	No
Phase 1 Survey Area (OCW)	022	C	7/20/2019	2:49:01	17	5	14.47	1 to 0	>4	-2	>4 to -2	5.48	4.64	6.14	No
Phase 1 Survey Area (OCW)	022	D	7/20/2019	2:50:56	17	5	14.47	1 to 0	>4	-2	>4 to -2	4.85	3.46	5.80	No
Phase 1 Survey Area (OCW)	023	A	7/20/2019	3:19:47	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4	4.48	3.95	4.86	No
Phase 1 Survey Area (OCW)	023	B	7/20/2019	3:21:02	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4	5.26	4.67	5.94	No
Phase 1 Survey Area (OCW)	023	C	7/20/2019	3:22:36	17	5	14.47	-2 to -3/1 to 0	>4	-3	>4 to -3	5.32	5.07	5.67	No
Phase 1 Survey Area (OCW)	024	A	7/20/2019	3:38:33	17	5	14.47	3 to 2	>4	-1	>4 to -1	6.56	6.28	6.76	No
Phase 1 Survey Area (OCW)	024	B	7/20/2019	3:40:01	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.00	3.19	4.44	No
Phase 1 Survey Area (OCW)	024	C	7/20/2019	3:41:18	17	5	14.47	3 to 2	>4	-1	>4 to -1	4.83	4.36	5.41	No
Phase 1 Survey Area (OCW)	025	A	7/20/2019	3:56:11	17	5	14.47	3 to 2	>4	-1	>4 to -1	5.50	5.01	5.89	No
Phase 1 Survey Area (OCW)	025	B	7/20/2019	3:57:22	17	5	14.47	3 to 2/4 to 3	>4	-3	>4 to -3	4.37	3.71	4.94	No
Phase 1 Survey Area (OCW)	025	D	7/20/2019	3:59:51	17	5	14.47	3 to 2	>4	-1	>4 to -1	3.66	3.10	4.62	No
Phase 1 Survey Area (OCW)	026	B	7/20/2019	4:38:40	17	5	14.47	2 to 1	>4	-2	>4 to -2	4.19	3.50	4.78	No
Phase 1 Survey Area (OCW)	026	C	7/20/2019	4:40:14	17	5	14.47	2 to 1	>4	-2	>4 to -2	6.08	5.68	6.32	No
Phase 1 Survey Area (OCW)	026	D	7/20/2019	4:42:18	17	5	14.47	2 to 1	>4	-2	>4 to -2	4.36	4.04	4.77	No

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?
Phase 1 Survey Area (OCW)	027	A	7/20/2019	4:54:19	17	5	14.47	1 to 0	>4	-1	>4 to -1	5.19	4.57	5.57	No
Phase 1 Survey Area (OCW)	027	B	7/20/2019	4:55:26	17	5	14.47	1 to 0	>4	0	>4 to 0	5.32	4.15	5.80	No
Phase 1 Survey Area (OCW)	027	C	7/20/2019	4:56:50	17	5	14.47	1 to 0	>4	-1	>4 to -1	6.11	5.44	6.66	No
Phase 1 Survey Area (OCW)	028	A	7/20/2019	5:33:55	17	5	14.47	1 to 0/2 to 1	>4	0	>4 to 0	5.27	5.05	5.62	No
Phase 1 Survey Area (OCW)	028	B	7/20/2019	5:35:06	17	5	14.47	1 to 0/2 to 1	>4	0	>4 to 0	5.92	5.32	6.35	No
Phase 1 Survey Area (OCW)	028	C	7/20/2019	5:36:18	17	5	14.47	2 to 1	>4	0	>4 to 0	4.55	4.00	5.16	No
Phase 1 Survey Area (OCW)	029	A	7/20/2019	5:48:26	17	5	14.47	2 to 1	>4	0	>4 to 0	5.99	5.68	6.41	No
Phase 1 Survey Area (OCW)	029	B	7/20/2019	5:49:39	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.75	3.97	5.31	No
Phase 1 Survey Area (OCW)	029	C	7/20/2019	5:50:43	17	5	14.47	2 to 1	>4	0	>4 to 0	5.35	5.10	5.56	No
Phase 1 Survey Area (OCW)	030	A	7/20/2019	6:10:55	17	5	14.47	2 to 1	>4	0	>4 to 0	6.13	5.65	6.44	No
Phase 1 Survey Area (OCW)	030	B	7/20/2019	6:12:00	17	5	14.47	2 to 1	>4	0	>4 to 0	5.41	4.99	5.83	No
Phase 1 Survey Area (OCW)	030	C	7/20/2019	6:13:18	17	5	14.47	2 to 1	>4	0	>4 to 0	5.06	4.61	5.30	No
Phase 1 Survey Area (OCW)	031	A	7/19/2019	23:47:43	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.61	4.93	6.28	No
Phase 1 Survey Area (OCW)	031	B	7/19/2019	23:48:56	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.54	5.16	5.72	No
Phase 1 Survey Area (OCW)	031	C	7/19/2019	23:50:09	17	5	14.47	2 to 1	>4	-2	>4 to -2	6.21	5.49	6.89	No
Phase 1 Survey Area (OCW)	032	A	7/19/2019	19:51:56	17	5	14.47	3 to 2	>4	0	>4 to 0	3.77	2.87	4.34	No
Phase 1 Survey Area (OCW)	032	B	7/19/2019	19:53:10	17	5	14.47	3 to 2	>4	0	>4 to 0	3.94	3.50	4.41	No
Phase 1 Survey Area (OCW)	032	C	7/19/2019	19:54:23	17	5	14.47	3 to 2	>4	-1	>4 to -1	4.36	4.12	4.47	No
Phase 1 Survey Area (OCW)	033	A	7/19/2019	20:11:35	17	5	14.47	3 to 2	>4	2	>4 to 2	3.79	3.47	4.01	No
Phase 1 Survey Area (OCW)	033	B	7/19/2019	20:12:51	17	5	14.47	3 to 2	>4	1	>4 to 1	3.08	2.82	3.29	No
Phase 1 Survey Area (OCW)	033	C	7/19/2019	20:14:05	17	5	14.47	3 to 2/>4	>4	2	>4 to 2	9.65	8.91	9.90	No
Phase 1 Survey Area (OCW)	034	A	7/19/2019	20:53:10	17	5	14.47	3 to 2	>4	0	>4 to 0	1.21	0.64	2.28	No
Phase 1 Survey Area (OCW)	034	B	7/19/2019	20:54:29	17	5	14.47	3 to 2	>4	-1	>4 to -1	3.92	3.39	4.37	No
Phase 1 Survey Area (OCW)	034	C	7/19/2019	20:55:44	17	5	14.47	3 to 2	>4	0	>4 to 0	4.95	4.04	6.22	No
Phase 1 Survey Area (OCW)	035	B	7/20/2019	2:22:10	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.17	3.62	4.93	No
Phase 1 Survey Area (OCW)	035	C	7/20/2019	2:24:12	17	5	14.47	3 to 2	>4	0	>4 to 0	5.79	4.86	6.32	No
Phase 1 Survey Area (OCW)	035	D	7/20/2019	2:25:44	17	5	14.47	3 to 2	>4	-1	>4 to -1	5.77	4.83	6.13	No
Phase 1 Survey Area (OCW)	036	A	7/19/2019	21:11:20	17	5	14.47	2 to 1	>4	0	>4 to 0	5.78	5.47	6.07	No
Phase 1 Survey Area (OCW)	036	B	7/19/2019	21:12:34	17	5	14.47	2 to 1	>4	0	>4 to 0	5.84	5.30	6.28	No
Phase 1 Survey Area (OCW)	036	C	7/19/2019	21:13:47	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.08	4.70	5.60	No
Phase 1 Survey Area (OCW)	037	A	7/20/2019	2:00:36	17	5	14.47	3 to 2	>4	2	>4 to 2	3.58	3.33	3.89	No
Phase 1 Survey Area (OCW)	037	B	7/20/2019	2:02:27	17	5	14.47	3 to 2	>4	1	>4 to 1	3.95	3.55	4.30	No
Phase 1 Survey Area (OCW)	037	C	7/20/2019	2:03:59	17	5	14.47	3 to 2	>4	1	>4 to 1	4.55	4.35	4.70	No
Phase 1 Survey Area (OCW)	038	A	7/19/2019	21:44:56	17	5	14.47	2 to 1	>4	0	>4 to 0	6.42	6.05	6.85	No
Phase 1 Survey Area (OCW)	038	B	7/19/2019	21:46:10	17	5	14.47	2 to 1	>4	0	>4 to 0	5.37	4.72	6.14	No
Phase 1 Survey Area (OCW)	038	C	7/19/2019	21:47:24	17	5	14.47	2 to 1	>4	0	>4 to 0	4.87	4.38	5.22	No
Phase 1 Survey Area (OCW)	039	B	7/19/2019	22:02:34	17	5	14.47	2 to 1	>4	-1	>4 to -1	3.89	3.46	4.58	No

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Phase 1 Survey Area (OCW)	039	C	7/19/2019	22:03:46	17	5	14.47	2 to 1	>4	0	>4 to 0	4.07	3.62	4.31	No
Phase 1 Survey Area (OCW)	039	D	7/19/2019	22:04:59	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.13	4.86	5.58	No
Phase 1 Survey Area (OCW)	040	A	7/20/2019	1:35:30	17	5	14.47	3 to 2	>4	0	>4 to 0	5.36	5.17	5.60	No
Phase 1 Survey Area (OCW)	040	B	7/20/2019	1:37:16	17	5	14.47	3 to 2	>4	1	>4 to 1	4.46	4.13	4.61	No
Phase 1 Survey Area (OCW)	040	C	7/20/2019	1:38:30	17	5	14.47	3 to 2	>4	2	>4 to 2	4.43	3.98	4.77	No
Phase 1 Survey Area (OCW)	041	A	7/20/2019	0:53:23	17	5	14.47	2 to 1	>4	0	>4 to 0	6.45	5.72	6.86	No
Phase 1 Survey Area (OCW)	041	B	7/20/2019	0:55:15	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.95	4.18	5.55	No
Phase 1 Survey Area (OCW)	041	C	7/20/2019	0:56:39	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.84	5.41	6.43	No
Phase 1 Survey Area (OCW)	042	A	7/19/2019	22:24:41	17	5	14.47	3 to 2	>4	2	>4 to 2	4.53	4.10	5.11	No
Phase 1 Survey Area (OCW)	042	B	7/19/2019	22:25:50	17	5	14.47	3 to 2	>4	1	>4 to 1	6.03	5.39	6.78	No
Phase 1 Survey Area (OCW)	042	C	7/19/2019	22:27:02	17	5	14.47	3 to 2	>4	2	>4 to 2	3.64	3.00	4.06	No
Phase 1 Survey Area (OCW)	043	A	7/20/2019	0:11:07	17	5	14.47	3 to 2	>4	1	>4 to 1	5.87	5.25	6.32	No
Phase 1 Survey Area (OCW)	043	B	7/20/2019	0:12:16	17	5	14.47	3 to 2	>4	2	>4 to 2	4.65	4.35	4.84	No
Phase 1 Survey Area (OCW)	043	D	7/20/2019	0:14:36	17	5	14.47	3 to 2	>4	1	>4 to 1	4.71	4.38	5.33	No
Phase 1 Survey Area (OCW)	044	A	7/19/2019	22:43:51	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.49	4.67	6.53	No
Phase 1 Survey Area (OCW)	044	B	7/19/2019	22:45:09	17	5	14.47	2 to 1	>4	0	>4 to 0	5.77	5.45	6.03	No
Phase 1 Survey Area (OCW)	044	C	7/19/2019	22:46:19	17	5	14.47	2 to 1	>4	0	>4 to 0	5.10	4.77	5.54	No
Phase 1 Survey Area (OCW)	045	A	7/19/2019	23:02:11	17	5	14.47	1 to 0	>4	0	>4 to 0	5.69	5.59	5.83	No
Phase 1 Survey Area (OCW)	045	B	7/19/2019	23:03:23	17	5	14.47	1 to 0	>4	0	>4 to 0	6.70	5.78	7.30	No
Phase 1 Survey Area (OCW)	045	C	7/19/2019	23:04:40	17	5	14.47	1 to 0	>4	-1	>4 to -1	6.54	6.02	6.93	No
Phase 1 Survey Area (OCW)	046	B	7/19/2019	19:36:02	17	5	14.47	3 to 2	>4	2	>4 to 2	4.08	3.93	4.27	No
Phase 1 Survey Area (OCW)	046	C	7/19/2019	19:37:13	17	5	14.47	3 to 2	>4	2	>4 to 2	3.46	3.28	3.59	No
Phase 1 Survey Area (OCW)	046	D	7/19/2019	19:38:28	17	5	14.47	3 to 2	>4	2	>4 to 2	3.72	3.50	3.98	No
Phase 1 Survey Area (OCW)	047	B	7/19/2019	18:31:50	17	5	14.47	3 to 2	>4	2	>4 to 2	3.65	3.32	3.74	No
Phase 1 Survey Area (OCW)	047	C	7/19/2019	18:33:12	17	5	14.47	3 to 2	>4	1	>4 to 1	4.36	3.89	4.75	No
Phase 1 Survey Area (OCW)	047	D	7/19/2019	18:34:43	17	5	14.47	3 to 2	>4	1	>4 to 1	3.12	2.97	3.28	No
Phase 1 Survey Area (OCW)	048	A	7/19/2019	18:04:37	17	5	14.47	3 to 2	>4	1	>4 to 1	4.28	3.88	4.53	No
Phase 1 Survey Area (OCW)	048	B	7/19/2019	18:05:50	17	5	14.47	3 to 2	>4	1	>4 to 1	4.78	4.60	5.00	No
Phase 1 Survey Area (OCW)	048	C	7/19/2019	18:07:00	17	5	14.47	3 to 2	>4	0	>4 to 0	4.97	4.66	5.24	No

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Phase 1 Survey Area (OCW)	049	A	7/19/2019	13:26:26	17	5	14.47	3 to 2	>4	2	>4 to 2	4.58	4.37	4.89	No
Phase 1 Survey Area (OCW)	049	B	7/19/2019	13:27:47	17	5	14.47	3 to 2	>4	2	>4 to 2	4.42	4.10	4.61	No
Phase 1 Survey Area (OCW)	049	C	7/19/2019	13:28:57	17	5	14.47	3 to 2	>4	2	>4 to 2	4.75	4.02	5.28	No
Phase 1 Survey Area (OCW)	050	A	7/19/2019	17:31:19	17	5	14.47	2 to 1	>4	0	>4 to 0	7.87	7.75	8.33	No
Phase 1 Survey Area (OCW)	050	B	7/19/2019	17:32:33	17	5	14.47	2 to 1	>4	0	>4 to 0	5.39	4.44	6.09	No
Phase 1 Survey Area (OCW)	050	C	7/19/2019	17:33:46	17	5	14.47	2 to 1	>4	0	>4 to 0	5.09	4.74	5.35	No
Phase 1 Survey Area (OCW)	051	A	7/19/2019	16:59:15	17	5	14.47	2 to 1	>4	0	>4 to 0	5.59	4.90	5.87	No
Phase 1 Survey Area (OCW)	051	B	7/19/2019	17:00:35	17	5	14.47	2 to 1	>4	1	>4 to 1	5.27	4.50	5.83	No
Phase 1 Survey Area (OCW)	051	C	7/19/2019	17:01:50	17	5	14.47	2 to 1	>4	1	>4 to 1	4.79	3.82	5.33	No
Phase 1 Survey Area (OCW)	052	A	7/19/2019	16:12:01	17	5	14.47	3 to 2	>4	1	>4 to 1	6.34	6.09	6.71	No
Phase 1 Survey Area (OCW)	052	B	7/19/2019	16:13:17	17	5	14.47	3 to 2	>4	1	>4 to 1	4.65	4.41	4.87	No
Phase 1 Survey Area (OCW)	052	C	7/19/2019	16:14:37	17	5	14.47	3 to 2	>4	1	>4 to 1	5.31	4.98	5.54	No
Phase 1 Survey Area (OCW)	053	A	7/19/2019	15:45:00	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.68	5.09	5.97	No
Phase 1 Survey Area (OCW)	053	B	7/19/2019	15:46:14	17	5	14.47	2 to 1	>4	0	>4 to 0	5.00	4.80	5.21	No
Phase 1 Survey Area (OCW)	053	C	7/19/2019	15:48:56	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.08	4.91	5.26	No
Phase 1 Survey Area (OCW)	054	A	7/19/2019	18:56:24	17	5	14.47	3 to 2	>4	0	>4 to 0	3.53	3.26	3.80	No
Phase 1 Survey Area (OCW)	054	B	7/19/2019	18:57:38	17	5	14.47	3 to 2	>4	0	>4 to 0	3.36	2.78	4.09	No
Phase 1 Survey Area (OCW)	054	C	7/19/2019	18:58:52	17	5	14.47	3 to 2	>4	0	>4 to 0	4.21	3.95	4.35	No
Phase 1 Survey Area (OCW)	055	A	7/19/2019	11:39:38	17	5	14.47	3 to 2	>4	0	>4 to 0	7.60	6.35	8.42	No
Phase 1 Survey Area (OCW)	055	B	7/19/2019	11:41:01	17	5	14.47	3 to 2	>4	0	>4 to 0	3.92	3.56	4.07	No
Phase 1 Survey Area (OCW)	055	C	7/19/2019	11:42:30	17	5	14.47	3 to 2	>4	0	>4 to 0	3.66	2.32	4.15	No
Phase 1 Survey Area (OCW)	056	A	7/19/2019	12:24:36	17	5	14.47	2 to 1	>4	0	>4 to 0	6.06	5.15	6.70	No
Phase 1 Survey Area (OCW)	056	B	7/19/2019	12:25:40	17	5	14.47	2 to 1	>4	-1	>4 to -1	6.28	5.91	6.73	No
Phase 1 Survey Area (OCW)	056	C	7/19/2019	12:26:53	17	5	14.47	2 to 1	>4	0	>4 to 0	4.92	4.50	5.39	No
Phase 1 Survey Area (OCW)	057	B	7/19/2019	12:50:17	17	5	14.47	3 to 2	>4	1	>4 to 1	4.04	3.86	4.31	No
Phase 1 Survey Area (OCW)	057	C	7/19/2019	12:51:33	17	5	14.47	3 to 2	>4	0	>4 to 0	4.16	3.95	4.46	No
Phase 1 Survey Area (OCW)	057	D	7/19/2019	12:52:51	17	5	14.47	3 to 2	>4	0	>4 to 0	4.54	4.12	5.05	No
Phase 1 Survey Area (OCW)	058	A	7/19/2019	13:08:15	17	5	14.47	3 to 2	>4	0	>4 to 0	3.47	3.11	3.72	No
Phase 1 Survey Area (OCW)	058	B	7/19/2019	13:09:33	17	5	14.47	3 to 2	>4	1	>4 to 1	3.34	3.01	3.64	No
Phase 1 Survey Area (OCW)	058	C	7/19/2019	13:10:53	17	5	14.47	3 to 2	>4	0	>4 to 0	2.82	1.90	3.23	No

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?
Phase 1 Survey Area (OCW)	059	A	7/19/2019	8:01:03	17	5	14.47	3 to 2	>4	0	>4 to 0	4.57	4.16	4.98	No
Phase 1 Survey Area (OCW)	059	B	7/19/2019	8:02:39	17	5	14.47	3 to 2	>4	1	>4 to 1	5.02	4.51	5.40	No
Phase 1 Survey Area (OCW)	059	C	7/19/2019	8:04:13	17	5	14.47	3 to 2	>4	-1	>4 to -1	4.40	4.12	4.73	No
Phase 1 Survey Area (OCW)	060	A	7/19/2019	7:07:31	17	5	14.47	-3 to -4/1 to 0	>4	-4	>4 to -4	3.50	2.68	4.46	No
Phase 1 Survey Area (OCW)	060	B	7/19/2019	7:09:10	17	5	14.47	-3 to -4/1 to 0	>4	-5	>4 to -5	3.50	2.05	3.99	No
Phase 1 Survey Area (OCW)	060	C	7/19/2019	7:10:45	17	5	14.47	1 to 0	>4	-4	>4 to -4	1.64	1.46	1.79	No
Phase 1 Survey Area (OCW)	061	A	7/19/2019	14:34:37	17	5	14.47	3 to 2	>4	-1	>4 to -1	4.88	3.54	5.95	No
Phase 1 Survey Area (OCW)	061	B	7/19/2019	14:35:47	17	5	14.47	3 to 2	>4	1	>4 to 1	5.09	4.55	5.28	No
Phase 1 Survey Area (OCW)	061	C	7/19/2019	14:36:53	17	5	14.47	3 to 2	>4	0	>4 to 0	6.63	5.71	6.93	No
Phase 1 Survey Area (OCW)	062	A	7/19/2019	6:46:58	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.51	4.24	4.78	No
Phase 1 Survey Area (OCW)	062	B	7/19/2019	6:48:38	17	5	14.47	3 to 2	>4	-4	>4 to -4	3.47	2.99	3.89	No
Phase 1 Survey Area (OCW)	062	C	7/19/2019	6:50:37	17	5	14.47	3 to 2	>4	-3	>4 to -3	1.94	1.78	2.16	No
Phase 1 Survey Area (OCW)	063	A	7/19/2019	14:53:31	17	5	14.47	3 to 2	>4	-2	>4 to -2	3.49	2.87	3.93	No
Phase 1 Survey Area (OCW)	063	B	7/19/2019	14:54:43	17	5	14.47	3 to 2	>4	0	>4 to 0	6.43	5.07	8.01	No
Phase 1 Survey Area (OCW)	063	C	7/19/2019	14:55:53	17	5	14.47	3 to 2	>4	0	>4 to 0	3.49	3.01	4.05	No
Phase 1 Survey Area (OCW)	064	A	7/19/2019	6:25:06	17	5	14.47	3 to 2	>4	0	>4 to 0	3.29	2.99	3.73	No
Phase 1 Survey Area (OCW)	064	B	7/19/2019	6:27:10	17	5	14.47	3 to 2	>4	-1	>4 to -1	3.44	3.24	3.60	No
Phase 1 Survey Area (OCW)	064	C	7/19/2019	6:28:45	17	5	14.47	3 to 2	>4	-1	>4 to -1	3.76	2.58	4.45	No
Phase 1 Survey Area (OCW)	065	A	7/19/2019	5:40:28	17	5	14.47	2 to 1	>4	-2	>4 to -2	3.05	2.42	3.35	No
Phase 1 Survey Area (OCW)	065	C	7/19/2019	5:43:57	17	5	14.47	1 to 0	>4	-1	>4 to -1	6.04	5.05	6.74	No
Phase 1 Survey Area (OCW)	065	D	7/19/2019	5:45:33	17	5	14.47	1 to 0	>4	-4	>4 to -4	4.20	3.55	4.64	No
Phase 1 Survey Area (OCW)	066	A	7/19/2019	15:21:24	17	5	14.47	3 to 2	>4	0	>4 to 0	4.33	3.23	5.08	No
Phase 1 Survey Area (OCW)	066	B	7/19/2019	15:22:39	17	5	14.47	3 to 2	>4	1	>4 to 1	4.19	3.78	4.52	No
Phase 1 Survey Area (OCW)	066	C	7/19/2019	15:23:56	17	5	14.47	3 to 2	>4	-1	>4 to -1	6.89	6.59	7.26	No
Phase 1 Survey Area (OCW)	067	A	7/19/2019	4:36:20	17	5	14.47	3 to 2	>4	0	>4 to 0	4.66	4.13	5.03	No

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Phase 1 Survey Area (OCW)	067	B	7/19/2019	4:37:59	17	5	14.47	3 to 2	>4	0	>4 to 0	4.11	3.70	4.62	No
Phase 1 Survey Area (OCW)	067	C	7/19/2019	4:39:41	17	5	14.47	3 to 2	>4	1	>4 to 1	2.65	1.77	3.71	No
Phase 1 Survey Area (OCW)	068	A	7/19/2019	11:13:03	17	5	14.47	3 to 2	>4	1	>4 to 1	4.36	4.02	4.76	No
Phase 1 Survey Area (OCW)	068	B	7/19/2019	11:14:15	17	5	14.47	3 to 2	>4	0	>4 to 0	2.12	1.47	2.68	No
Phase 1 Survey Area (OCW)	068	C	7/19/2019	11:15:42	17	5	14.47	3 to 2	>4	1	>4 to 1	2.98	0.30	5.53	No
Phase 1 Survey Area (OCW)	069	A	7/19/2019	1:04:28	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.69	5.20	6.51	No
Phase 1 Survey Area (OCW)	069	B	7/19/2019	1:06:38	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.89	5.67	6.15	No
Phase 1 Survey Area (OCW)	069	C	7/19/2019	1:13:43	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.22	3.56	4.63	No
Phase 1 Survey Area (OCW)	070	A	7/19/2019	10:08:41	17	5	14.47	3 to 2	>4	-1	>4 to -1	6.75	4.24	8.35	No
Phase 1 Survey Area (OCW)	070	B	7/19/2019	10:09:58	17	5	14.47	3 to 2	>4	-2	>4 to -2	3.84	3.47	4.15	No
Phase 1 Survey Area (OCW)	070	C	7/19/2019	10:14:21	17	5	14.47	3 to 2	>4	0	>4 to 0	3.13	2.57	3.55	No
Phase 1 Survey Area (OCW)	071	A	7/19/2019	1:34:36	17	5	14.47	3 to 2	>4	0	>4 to 0	4.13	3.87	4.49	No
Phase 1 Survey Area (OCW)	071	B	7/19/2019	1:36:04	17	5	14.47	3 to 2	>4	0	>4 to 0	2.72	2.50	3.07	No
Phase 1 Survey Area (OCW)	071	C	7/19/2019	1:38:05	17	5	14.47	3 to 2	>4	1	>4 to 1	3.62	2.92	4.39	No
Phase 1 Survey Area (OCW)	072	B	7/19/2019	9:35:20	17	5	14.47	3 to 2	>4	1	>4 to 1	4.02	3.78	4.35	No
Phase 1 Survey Area (OCW)	072	D	7/19/2019	9:40:35	17	5	14.47	3 to 2	>4	0	>4 to 0	6.14	4.62	7.13	No
Phase 1 Survey Area (OCW)	072	E	7/19/2019	9:41:56	17	5	14.47	3 to 2	>4	0	>4 to 0	3.35	3.02	3.71	No
Phase 1 Survey Area (OCW)	073	A	7/19/2019	1:56:57	17	5	14.47	3 to 2	>4	0	>4 to 0	3.88	3.33	4.24	No
Phase 1 Survey Area (OCW)	073	B	7/19/2019	1:58:34	17	5	14.47	3 to 2	>4	0	>4 to 0	6.46	4.57	7.87	No
Phase 1 Survey Area (OCW)	073	C	7/19/2019	2:00:24	17	5	14.47	3 to 2	>4	0	>4 to 0	3.67	3.36	3.92	No
Phase 1 Survey Area (OCW)	074	A	7/19/2019	8:28:33	17	5	14.47	3 to 2	>4	0	>4 to 0	6.38	5.50	7.08	No

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Phase 1 Survey Area (OCW)	074	B	7/19/2019	8:29:55	17	5	14.47	3 to 2	>4	0	>4 to 0	4.37	4.00	4.62	No
Phase 1 Survey Area (OCW)	074	C	7/19/2019	8:31:55	17	5	14.47	3 to 2	>4	-1	>4 to -1	3.75	3.18	4.18	No
Phase 1 Survey Area (OCW)	075	B	7/19/2019	2:24:03	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.70	4.13	5.15	No
Phase 1 Survey Area (OCW)	075	C	7/19/2019	2:25:51	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.78	5.03	6.06	No
Phase 1 Survey Area (OCW)	075	D	7/19/2019	2:27:46	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.75	5.22	6.21	No
Phase 1 Survey Area (OCW)	076	A	7/19/2019	3:04:48	17	5	14.47	1 to 0	>4	-3	>4 to -3	4.18	4.07	4.38	No
Phase 1 Survey Area (OCW)	076	B	7/19/2019	3:06:30	17	5	14.47	1 to 0	>4	-3	>4 to -3	3.93	3.71	4.14	No
Phase 1 Survey Area (OCW)	076	C	7/19/2019	3:08:14	17	5	14.47	1 to 0	>4	-3	>4 to -3	3.53	3.04	4.03	No
Phase 1 Survey Area (OCW)	077	A	7/19/2019	3:24:52	17	5	14.47	3 to 2	>4	0	>4 to 0	4.59	4.21	4.75	No
Phase 1 Survey Area (OCW)	077	B	7/19/2019	3:26:21	17	5	14.47	3 to 2	>4	0	>4 to 0	3.92	3.54	4.31	No
Phase 1 Survey Area (OCW)	077	C	7/19/2019	3:28:17	17	5	14.47	3 to 2	>4	0	>4 to 0	2.82	2.43	3.07	No
Phase 1 Survey Area (OCW)	078	A	7/19/2019	4:12:25	17	5	14.47	3 to 2	>4	0	>4 to 0	3.90	3.57	4.24	No
Phase 1 Survey Area (OCW)	078	B	7/19/2019	4:14:28	17	5	14.47	3 to 2	>4	0	>4 to 0	3.59	3.09	3.73	No
Phase 1 Survey Area (OCW)	078	C	7/19/2019	4:15:56	17	5	14.47	3 to 2	>4	1	>4 to 1	3.86	3.65	4.13	No
Phase 1 Survey Area (OCW)	079	E	7/19/2019	0:33:06	17	5	14.47	3 to 2	>4	0	>4 to 0	3.80	3.12	4.53	No
Phase 1 Survey Area (OCW)	079	F	7/19/2019	0:34:53	17	5	14.47	3 to 2	>4	2	>4 to 2	3.29	2.62	4.37	No
Phase 1 Survey Area (OCW)	079	G	7/19/2019	0:36:42	17	5	14.47	3 to 2	>4	1	>4 to 1	5.03	4.35	5.71	No
Phase 1 Survey Area (OCW)	080	A	7/18/2019	21:20:19	17	5	14.47	3 to 2	>4	2	>4 to 2	3.32	2.71	3.83	No
Phase 1 Survey Area (OCW)	080	B	7/18/2019	21:21:33	17	5	14.47	3 to 2	>4	1	>4 to 1	3.64	3.31	4.04	No
Phase 1 Survey Area (OCW)	080	C	7/18/2019	21:22:45	17	5	14.47	3 to 2	>4	1	>4 to 1	3.31	2.90	3.81	No
Phase 1 Survey Area (OCW)	081	A	7/18/2019	21:02:22	17	5	14.47	2 to 1	>4	1	>4 to 1	5.49	5.17	5.89	No
Phase 1 Survey Area (OCW)	081	B	7/18/2019	21:03:33	17	5	14.47	2 to 1	>4	1	>4 to 1	5.79	5.26	6.14	No
Phase 1 Survey Area (OCW)	081	C	7/18/2019	21:04:44	17	5	14.47	2 to 1	>4	1	>4 to 1	4.80	3.86	5.47	No
Phase 1 Survey Area (OCW)	082	A	7/18/2019	20:12:49	17	5	14.47	3 to 2	>4	0	>4 to 0	3.87	3.62	4.08	No
Phase 1 Survey Area (OCW)	082	B	7/18/2019	20:14:05	17	5	14.47	3 to 2	>4	1	>4 to 1	3.91	3.00	4.59	No

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Phase 1 Survey Area (OCW)	082	C	7/18/2019	20:15:17	17	5	14.47	3 to 2	>4	2	>4 to 2	3.42	2.77	3.92	No
Phase 1 Survey Area (OCW)	083	A	7/18/2019	19:52:04	17	5	14.47	3 to 2	>4	1	>4 to 1	5.27	4.40	6.07	No
Phase 1 Survey Area (OCW)	083	B	7/18/2019	19:53:14	17	5	14.47	3 to 2	>4	1	>4 to 1	4.41	3.58	4.91	No
Phase 1 Survey Area (OCW)	083	C	7/18/2019	19:54:21	17	5	14.47	3 to 2	>4	1	>4 to 1	5.60	5.02	6.11	No
Phase 1 Survey Area (OCW)	084	A	7/18/2019	19:18:55	17	5	14.47	3 to 2	>4	1	>4 to 1	3.57	2.78	4.01	No
Phase 1 Survey Area (OCW)	084	B	7/18/2019	19:19:54	17	5	14.47	3 to 2	>4	1	>4 to 1	3.08	2.41	3.59	No
Phase 1 Survey Area (OCW)	084	C	7/18/2019	19:21:13	17	5	14.47	3 to 2	>4	2	>4 to 2	3.66	3.41	3.91	No
Phase 1 Survey Area (OCW)	085	B	7/18/2019	18:44:55	17	5	14.47	4 to 3	>4	-3	>4 to -3	2.24	1.61	3.22	No
Phase 1 Survey Area (OCW)	085	C	7/18/2019	18:52:37	17	5	14.47	4 to 3	>4	-1	>4 to -1	3.28	3.10	3.47	No
Phase 1 Survey Area (OCW)	085	D	7/18/2019	18:53:42	17	5	14.47	1 to 0	>4	-1	>4 to -1	4.46	3.95	4.71	No
Phase 1 Survey Area (OCW)	086	A	7/18/2019	18:19:40	17	5	14.47	3 to 2	>4	1	>4 to 1	4.63	4.12	5.09	No
Phase 1 Survey Area (OCW)	086	B	7/18/2019	18:20:52	17	5	14.47	3 to 2	>4	1	>4 to 1	4.70	4.40	5.26	No
Phase 1 Survey Area (OCW)	086	C	7/18/2019	18:22:01	17	5	14.47	3 to 2	>4	1	>4 to 1	4.21	3.70	4.73	No
Phase 1 Survey Area (OCW)	087	A	7/18/2019	17:29:20	17	5	14.47	3 to 2	>4	0	>4 to 0	3.67	3.41	3.89	No
Phase 1 Survey Area (OCW)	087	B	7/18/2019	17:40:16	17	5	14.47	3 to 2	>4	1	>4 to 1	3.82	3.57	4.09	No
Phase 1 Survey Area (OCW)	087	C	7/18/2019	17:41:29	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.74	4.53	5.02	No
Phase 1 Survey Area (OCW)	088	A	7/18/2019	16:09:44	17	5	14.47	3 to 2	>4	1	>4 to 1	4.69	4.35	5.13	No
Phase 1 Survey Area (OCW)	088	B	7/18/2019	16:10:53	17	5	14.47	3 to 2	>4	0	>4 to 0	3.50	3.13	3.84	No
Phase 1 Survey Area (OCW)	088	C	7/18/2019	16:12:02	17	5	14.47	3 to 2	>4	2	>4 to 2	4.56	4.12	5.01	No
Phase 1 Survey Area (OCW)	089	A	7/18/2019	15:26:11	17	5	14.47	3 to 2	>4	1	>4 to 1	3.96	3.67	4.25	No
Phase 1 Survey Area (OCW)	089	B	7/18/2019	15:27:28	17	5	14.47	3 to 2	>4	1	>4 to 1	3.44	3.01	3.68	No

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Phase 1 Survey Area (OCW)	089	C	7/18/2019	15:28:34	17	5	14.47	3 to 2	>4	2	>4 to 2	3.32	2.98	3.74	No
Phase 1 Survey Area (OCW)	090	A	7/18/2019	14:49:44	17	5	14.47	3 to 2	>4	1	>4 to 1	4.57	4.10	4.74	No
Phase 1 Survey Area (OCW)	090	B	7/18/2019	14:50:55	17	5	14.47	3 to 2	>4	2	>4 to 2	4.96	4.30	5.31	No
Phase 1 Survey Area (OCW)	090	C	7/18/2019	14:52:03	17	5	14.47	3 to 2	>4	2	>4 to 2	4.02	3.67	4.39	No
Phase 1 Survey Area (OCW)	091	A	7/18/2019	14:13:44	17	5	14.47	4 to 3	>4	-5	>4 to -5	4.17	3.93	4.44	No
Phase 1 Survey Area (OCW)	091	B	7/18/2019	14:14:56	17	5	14.47	4 to 3	>4	-3	>4 to -3	3.80	3.28	4.52	No
Phase 1 Survey Area (OCW)	091	C	7/18/2019	14:16:12	17	5	14.47	4 to 3	>4	-3	>4 to -3	4.35	2.98	4.64	No
Phase 1 Survey Area (OCW)	092	A	7/18/2019	13:53:15	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3	3.86	2.96	4.46	No
Phase 1 Survey Area (OCW)	092	B	7/18/2019	13:54:31	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2	5.02	4.22	5.77	No
Phase 1 Survey Area (OCW)	092	C	7/18/2019	13:55:46	17	5	14.47	1 to 0	>4	-2	>4 to -2	3.49	2.17	4.44	No
Phase 1 Survey Area (OCW)	093	A	7/18/2019	13:09:39	17	5	14.47	3 to 2	>4	1	>4 to 1	4.89	4.66	5.18	No
Phase 1 Survey Area (OCW)	093	B	7/18/2019	13:10:55	17	5	14.47	3 to 2	>4	2	>4 to 2	3.04	2.32	3.49	No
Phase 1 Survey Area (OCW)	093	C	7/18/2019	13:12:03	17	5	14.47	3 to 2	>4	1	>4 to 1	3.66	2.89	4.21	No
B.L. England Export Cable	201	A	7/20/2019	17:31:21	17	5	14.47	2 to 1	>4	0	>4 to 0	5.67	5.23	6.07	No
B.L. England Export Cable	201	B	7/20/2019	17:32:38	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.62	4.10	5.02	No
B.L. England Export Cable	201	C	7/20/2019	17:33:54	17	5	14.47	2 to 1	>4	0	>4 to 0	4.48	3.50	5.13	No
B.L. England Export Cable	202	A	7/20/2019	17:56:52	17	5	14.47	2 to 1	>4	0	>4 to 0	4.21	3.46	4.74	No
B.L. England Export Cable	202	B	7/20/2019	17:58:02	17	5	14.47	2 to 1	>4	0	>4 to 0	3.88	3.55	4.55	No
B.L. England Export Cable	202	C	7/20/2019	17:59:05	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.10	3.94	5.53	No
B.L. England Export Cable	203	A	7/20/2019	18:40:05	17	5	14.47	3 to 2	>4	2	>4 to 2	4.14	3.69	4.49	No
B.L. England Export Cable	203	B	7/20/2019	18:41:18	17	5	14.47	3 to 2	>4	1	>4 to 1	3.28	3.03	3.51	No
B.L. England Export Cable	203	C	7/20/2019	18:42:35	17	5	14.47	3 to 2	>4	2	>4 to 2	3.75	3.50	4.07	No
B.L. England Export Cable	204	A	7/20/2019	19:01:42	17	5	14.47	3 to 2	>4	2	>4 to 2	4.16	4.04	4.29	No
B.L. England Export Cable	204	B	7/20/2019	19:02:50	17	5	14.47	3 to 2	>4	1	>4 to 1	3.89	3.52	4.11	No
B.L. England Export Cable	204	C	7/20/2019	19:03:59	17	5	14.47	3 to 2	>4	2	>4 to 2	3.53	2.60	3.85	No
B.L. England Export Cable	205	A	7/20/2019	19:25:02	17	5	14.47	3 to 2	>4	2	>4 to 2	3.89	3.49	4.11	No
B.L. England Export Cable	205	B	7/20/2019	19:26:11	17	5	14.47	3 to 2	>4	2	>4 to 2	3.94	3.70	4.19	No
B.L. England Export Cable	205	C	7/20/2019	19:27:19	17	5	14.47	3 to 2	>4	1	>4 to 1	3.76	3.10	4.31	No
B.L. England Export Cable	206	A	7/20/2019	20:07:07	17	5	14.47	3 to 2	>4	1	>4 to 1	3.38	3.00	3.67	No
B.L. England Export Cable	206	B	7/20/2019	20:08:19	17	5	14.47	3 to 2	>4	2	>4 to 2	2.89	2.51	3.19	No
B.L. England Export Cable	206	C	7/20/2019	20:09:33	17	5	14.47	3 to 2	>4	2	>4 to 2	3.96	3.66	4.28	No
B.L. England Export Cable	207	B	7/20/2019	20:35:27	17	5	14.47	3 to 2	>4	2	>4 to 2	3.74	3.48	4.16	No

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B.L. England Export Cable	207	C	7/20/2019	20:36:40	17	5	14.47	3 to 2	>4	2	>4 to 2	3.46	2.42	3.91	No
B.L. England Export Cable	207	D	7/20/2019	20:37:57	17	5	14.47	3 to 2	>4	2	>4 to 2	3.32	3.04	3.73	No
B.L. England Export Cable	208	A	7/20/2019	20:56:41	17	5	14.47	3 to 2	>4	2	>4 to 2	4.21	3.84	4.49	No
B.L. England Export Cable	208	B	7/20/2019	20:57:56	17	5	14.47	3 to 2	>4	2	>4 to 2	3.77	3.58	4.04	No
B.L. England Export Cable	208	C	7/20/2019	20:59:03	17	5	14.47	3 to 2	>4	2	>4 to 2	3.63	3.33	3.82	No
B.L. England Export Cable	209	A	7/20/2019	21:28:32	17	5	14.47	3 to 2	>4	2	>4 to 2	3.76	3.48	4.26	No
B.L. England Export Cable	209	B	7/20/2019	21:29:47	17	5	14.47	3 to 2	>4	0	>4 to 0	4.21	3.75	4.64	No
B.L. England Export Cable	209	C	7/20/2019	21:31:00	17	5	14.47	3 to 2	>4	2	>4 to 2	3.81	3.32	4.70	No
B.L. England Export Cable	210	B	7/20/2019	21:53:46	17	5	14.47	3 to 2	>4	1	>4 to 1	4.66	4.17	5.07	No
B.L. England Export Cable	210	C	7/20/2019	21:54:56	17	5	14.47	3 to 2	>4	1	>4 to 1	4.01	3.47	4.84	No
B.L. England Export Cable	210	D	7/20/2019	21:56:06	17	5	14.47	3 to 2	>4	1	>4 to 1	4.09	3.84	4.24	No
B.L. England Export Cable	211	A	7/20/2019	22:15:22	17	5	14.47	3 to 2	>4	2	>4 to 2	3.86	3.40	4.26	No
B.L. England Export Cable	211	B	7/20/2019	22:16:35	17	5	14.47	3 to 2	>4	2	>4 to 2	4.79	3.76	5.37	No
B.L. England Export Cable	211	C	7/20/2019	22:17:54	17	5	14.47	3 to 2	>4	2	>4 to 2	4.12	3.80	4.38	No
Oyster Creek Export Cable	301	A	7/20/2019	16:02:32	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.97	5.55	6.70	No
Oyster Creek Export Cable	301	B	7/20/2019	16:03:46	17	5	14.47	2 to 1	>4	-3	>4 to -3	5.59	5.11	5.87	No
Oyster Creek Export Cable	301	C	7/20/2019	16:04:56	17	5	14.47	2 to 1	>4	-2	>4 to -2	4.80	4.62	5.12	No
Oyster Creek Export Cable	302	A	7/21/2019	0:49:39	17	5	14.47	1 to 0	>4	-3	>4 to -3	5.92	4.56	6.37	No
Oyster Creek Export Cable	302	B	7/21/2019	0:50:47	17	5	14.47	-3 to -4/1 to 0	>4	-4	>4 to -4	5.14	4.86	5.34	No
Oyster Creek Export Cable	302	C	7/21/2019	0:52:10	17	5	14.47	-3 to -4/1 to 0	>4	-4	>4 to -4	4.15	3.92	4.42	No
Oyster Creek Export Cable	303	A	7/21/2019	1:14:14	17	5	14.47	3 to 2	>4	-1	>4 to -1	4.85	4.65	4.99	No
Oyster Creek Export Cable	303	B	7/21/2019	1:15:41	17	5	14.47	3 to 2	>4	-1	>4 to -1	5.95	5.66	6.19	No
Oyster Creek Export Cable	303	C	7/21/2019	1:16:48	17	5	14.47	3 to 2	>4	-1	>4 to -1	5.29	4.97	6.06	No
Oyster Creek Export Cable	304	A	7/21/2019	1:35:08	17	5	14.47	3 to 2	>4	-3	>4 to -3	4.56	4.38	4.76	No
Oyster Creek Export Cable	304	B	7/21/2019	1:39:10	17	5	14.47	3 to 2	>4	1	>4 to 1	5.21	5.01	5.35	No
Oyster Creek Export Cable	304	C	7/21/2019	1:40:13	17	5	14.47	3 to 2	>4	0	>4 to 0	4.65	4.07	5.00	No
Oyster Creek Export Cable	305	A	7/21/2019	2:26:58	17	5	14.47	3 to 2	>4	0	>4 to 0	4.33	3.96	4.80	No
Oyster Creek Export Cable	305	B	7/21/2019	2:28:00	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.60	4.39	4.84	No
Oyster Creek Export Cable	305	C	7/21/2019	2:28:59	17	5	14.47	3 to 2	>4	1	>4 to 1	3.92	3.81	4.04	No
Oyster Creek Export Cable	306	A	7/21/2019	3:12:45	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.73	5.17	6.18	No
Oyster Creek Export Cable	306	B	7/21/2019	3:13:49	17	5	14.47	2 to 1	>4	-2	>4 to -2	4.03	3.75	4.31	No
Oyster Creek Export Cable	306	C	7/21/2019	3:14:52	17	5	14.47	2 to 1	>4	-3	>4 to -3	4.57	4.31	4.83	No
Oyster Creek Export Cable	307	A	7/21/2019	3:33:45	17	5	14.47	1 to 0	>4	-2	>4 to -2	7.12	6.74	7.45	No
Oyster Creek Export Cable	307	B	7/21/2019	3:34:56	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.80	4.38	5.24	No

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Oyster Creek Export Cable	307	C	7/21/2019	3:36:07	17	5	14.47	2 to 1	>4	-2	>4 to -2	4.75	4.33	6.04	No
Oyster Creek Export Cable	308	A	7/21/2019	3:53:43	17	5	14.47	>4/3 to 2	>4	-1	>4 to -1	3.66	3.08	4.16	No
Oyster Creek Export Cable	308	B	7/21/2019	3:55:38	17	5	14.47	3 to 2	>4	-2	>4 to -2	5.04	4.59	5.41	No
Oyster Creek Export Cable	308	C	7/21/2019	3:56:43	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.90	4.46	5.54	No
Oyster Creek Export Cable	309	A	7/21/2019	4:45:05	17	5	14.47	2 to 1	>4	-2	>4 to -2	4.67	4.40	4.90	No
Oyster Creek Export Cable	309	B	7/21/2019	4:46:12	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.70	4.20	5.36	No
Oyster Creek Export Cable	309	C	7/21/2019	4:47:32	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.49	4.82	5.82	No
Oyster Creek Export Cable	310	A	7/21/2019	5:04:29	17	5	14.47	1 to 0	>4	-1	>4 to -1	5.16	5.01	5.50	No
Oyster Creek Export Cable	310	B	7/21/2019	5:05:35	17	5	14.47	1 to 0/2 to 1	>4	-4	>4 to -4	5.48	4.84	5.91	No
Oyster Creek Export Cable	310	C	7/21/2019	5:06:47	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	6.47	6.38	6.68	No
Oyster Creek Export Cable	311	A	7/21/2019	5:29:05	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	4.59	4.29	4.79	No
Oyster Creek Export Cable	311	B	7/21/2019	5:30:24	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	4.01	3.59	4.29	No
Oyster Creek Export Cable	311	C	7/21/2019	5:31:47	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	5.96	5.65	6.21	No
Oyster Creek Export Cable	312	A	7/21/2019	5:49:02	17	5	14.47	2 to 1	>4	0	>4 to 0	4.06	3.88	4.35	No
Oyster Creek Export Cable	312	B	7/21/2019	5:50:09	17	5	14.47	2 to 1	>4	-1	>4 to -1	3.80	3.15	4.23	No
Oyster Creek Export Cable	312	C	7/21/2019	5:51:31	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.72	5.37	5.96	No
Oyster Creek Export Cable	313	A	7/21/2019	6:07:51	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3	5.36	4.53	6.17	No
Oyster Creek Export Cable	313	B	7/21/2019	6:09:06	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	4.54	4.27	4.75	No
Oyster Creek Export Cable	313	C	7/21/2019	6:10:16	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	5.57	5.13	5.94	No
Oyster Creek Export Cable	314	A	7/21/2019	6:54:09	17	5	14.47	2 to 1/3 to 2	>4	-1	>4 to -1	6.57	5.24	7.24	No
Oyster Creek Export Cable	314	B	7/21/2019	6:55:22	17	5	14.47	2 to 1/3 to 2	>4	0	>4 to 0	5.61	5.11	6.24	No
Oyster Creek Export Cable	314	C	7/21/2019	6:56:41	17	5	14.47	2 to 1/3 to 2	>4	-1	>4 to -1	5.88	4.73	6.44	No
Oyster Creek Export Cable	315	A	7/21/2019	7:12:41	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.40	5.17	5.52	No
Oyster Creek Export Cable	315	B	7/21/2019	7:14:09	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.82	4.48	5.28	No
Oyster Creek Export Cable	315	C	7/21/2019	7:15:40	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	5.58	4.97	5.80	No
Oyster Creek Export Cable	316	A	7/21/2019	7:31:57	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	5.50	4.22	6.28	No
Oyster Creek Export Cable	316	B	7/21/2019	7:33:06	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	5.77	5.32	6.06	No
Oyster Creek Export Cable	316	C	7/21/2019	7:34:20	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.83	4.24	5.27	No
Oyster Creek Export Cable	317	A	7/21/2019	7:53:55	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.36	4.00	4.67	No
Oyster Creek Export Cable	317	B	7/21/2019	7:55:11	17	5	14.47	2 to 1	>4	-1	>4 to -1	6.26	5.38	6.63	No
Oyster Creek Export Cable	317	C	7/21/2019	7:56:40	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	4.81	3.23	5.89	No
Oyster Creek Export Cable	318	B	7/21/2019	8:19:40	17	5	14.47	1 to 0	>4	-3	>4 to -3	3.81	3.40	4.74	No
Oyster Creek Export Cable	318	C	7/21/2019	8:20:54	17	5	14.47	1 to 0	>4	-3	>4 to -3	5.19	3.88	5.93	No
Oyster Creek Export Cable	318	D	7/21/2019	8:22:03	17	5	14.47	1 to 0	>4	-2	>4 to -2	4.89	3.67	5.54	No
Oyster Creek Export Cable	319	A	7/21/2019	9:00:37	17	5	14.47	2 to 1	>4	-1	>4 to -1	4.43	3.73	4.88	No
Oyster Creek Export Cable	319	C	7/21/2019	9:02:49	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3	4.38	3.54	5.15	No
Oyster Creek Export Cable	319	D	7/21/2019	9:04:07	17	5	14.47	2 to 1	>4	-3	>4 to -3	4.58	4.05	5.01	No
Oyster Creek Export Cable	320	A	7/21/2019	9:31:39	17	5	14.47	1 to 0	>4	-1	>4 to -1	6.45	4.76	7.58	No
Oyster Creek Export Cable	320	B	7/21/2019	9:32:57	17	5	14.47	1 to 0	>4	-3	>4 to -3	4.60	4.14	4.93	No
Oyster Creek Export Cable	320	C	7/21/2019	9:34:16	17	5	14.47	1 to 0	>4	-1	>4 to -1	4.71	3.90	5.90	No
Oyster Creek Export Cable	321	A	7/21/2019	9:52:32	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	6.53	5.32	7.04	No
Oyster Creek Export Cable	321	B	7/21/2019	9:53:45	17	5	14.47	2 to 1	>4	-2	>4 to -2	4.45	2.61	6.36	No
Oyster Creek Export Cable	321	C	7/21/2019	9:55:01	17	5	14.47	1 to 0	>4	-2	>4 to -2	4.49	4.14	4.71	No
Oyster Creek Export Cable	322	A	7/21/2019	10:15:25	17	5	14.47	1 to 0	>4	-1	>4 to -1	6.53	5.10	7.40	No

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Oyster Creek Export Cable	322	B	7/21/2019	10:16:45	17	5	14.47	1 to 0	>4	-2	>4 to -2	3.74	3.18	4.21	No
Oyster Creek Export Cable	322	C	7/21/2019	10:17:56	17	5	14.47	2 to 1	>4	-2	>4 to -2	5.29	4.64	6.24	No
Oyster Creek Export Cable	323	A	7/21/2019	10:36:12	17	5	14.47	0 to -1	>4	-1	>4 to -1	5.59	4.46	6.91	No
Oyster Creek Export Cable	323	B	7/21/2019	10:37:22	17	5	14.47	0 to -1	>4	-2	>4 to -2	7.65	6.98	8.01	No
Oyster Creek Export Cable	323	C	7/21/2019	10:38:28	17	5	14.47	0 to -1	>4	-3	>4 to -3	5.08	4.79	5.64	No
Oyster Creek Export Cable	324	A	7/21/2019	11:38:55	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3	5.75	5.32	6.20	No
Oyster Creek Export Cable	324	B	7/21/2019	11:40:15	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2	5.39	4.98	5.76	No
Oyster Creek Export Cable	324	C	7/21/2019	11:41:31	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2	5.77	5.41	5.99	No
Oyster Creek Export Cable	325	A	7/21/2019	12:19:09	17	5	14.47	-2 to -3/0 to -1	>4	-4	>4 to -4	4.44	3.97	5.03	No
Oyster Creek Export Cable	325	B	7/21/2019	12:20:18	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2	6.22	4.58	7.58	No
Oyster Creek Export Cable	325	C	7/21/2019	12:21:26	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2	5.91	4.92	6.59	No
Oyster Creek Export Cable	326	A	7/21/2019	12:36:37	17	5	14.47	0 to -1	>4	-3	>4 to -3	3.52	2.25	5.10	No
Oyster Creek Export Cable	326	B	7/21/2019	12:37:50	17	5	14.47	0 to -1	>4	-3	>4 to -3	5.77	4.43	7.20	No
Oyster Creek Export Cable	326	C	7/21/2019	12:39:00	17	5	14.47	-2 to -3/0 to -1	>4	-4	>4 to -4	2.25	1.92	2.68	No
Oyster Creek Export Cable	327	A	7/21/2019	12:53:20	17	5	14.47	0 to -1	>4	-3	>4 to -3	4.73	3.97	5.29	No
Oyster Creek Export Cable	327	B	7/21/2019	12:54:30	17	5	14.47	0 to -1	>4	-2	>4 to -2	4.66	3.72	6.01	No
Oyster Creek Export Cable	327	C	7/21/2019	12:55:49	17	5	14.47	0 to -1	>4	-1	>4 to -1	4.69	4.16	5.32	No
Oyster Creek Export Cable	328	A	7/21/2019	13:15:35	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2	7.41	5.50	8.17	No
Oyster Creek Export Cable	328	B	7/21/2019	13:16:45	17	5	14.47	0 to -1	>4	-3	>4 to -3	3.35	3.00	4.11	No
Oyster Creek Export Cable	328	C	7/21/2019	13:17:53	17	5	14.47	0 to -1/1 to 0	>4	-1	>4 to -1	5.54	4.75	6.60	No
Oyster Creek Export Cable	329	A	7/21/2019	13:53:41	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	5.77	5.35	6.07	No
Oyster Creek Export Cable	329	B	7/21/2019	13:54:48	17	5	14.47	1 to 0	>4	-2	>4 to -2	5.02	4.54	5.41	No
Oyster Creek Export Cable	329	C	7/21/2019	13:55:58	17	5	14.47	1 to 0	>4	-1	>4 to -1	5.25	4.56	5.91	No
Oyster Creek Export Cable	330	A	7/21/2019	14:15:07	17	5	14.47	-1 to -2	>4	-3	>4 to -3	3.92	3.59	4.63	No
Oyster Creek Export Cable	330	B	7/21/2019	14:16:18	17	5	14.47	-1 to -2	>4	-3	>4 to -3	3.99	3.63	4.41	No
Oyster Creek Export Cable	330	D	7/21/2019	14:18:37	17	5	14.47	-1 to -2	>4	-3	>4 to -3	3.98	3.73	4.56	No
Oyster Creek Export Cable	331	A	7/21/2019	14:30:49	17	5	14.47	1 to 0	>4	-3	>4 to -3	5.00	4.83	5.30	No
Oyster Creek Export Cable	331	B	7/21/2019	14:31:59	17	5	14.47	1 to 0	>4	-3	>4 to -3	4.22	3.19	5.23	No
Oyster Creek Export Cable	331	C	7/21/2019	14:33:11	17	5	14.47	1 to 0	>4	-3	>4 to -3	5.31	4.28	6.31	No
Oyster Creek Export Cable	332	A	7/21/2019	14:50:13	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	4.62	4.25	5.25	No
Oyster Creek Export Cable	332	B	7/21/2019	14:51:40	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	4.22	2.67	4.88	No
Oyster Creek Export Cable	332	C	7/21/2019	14:52:53	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	6.32	5.07	7.08	No
Oyster Creek Export Cable	333	A	7/21/2019	15:10:31	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	5.16	3.84	6.13	No
Oyster Creek Export Cable	333	B	7/21/2019	15:11:43	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	5.16	4.67	5.71	No
Oyster Creek Export Cable	333	C	7/21/2019	15:12:54	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	4.30	2.85	5.40	No
Oyster Creek Export Cable	334	A	7/21/2019	15:59:14	17	5	14.47	0 to -1	>4	-2	>4 to -2	5.79	4.61	6.54	No

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?
Oyster Creek Export Cable	334	B	7/21/2019	16:00:25	17	5	14.47	0 to -1	>4	-3	>4 to -3	5.13	4.87	5.49	No
Oyster Creek Export Cable	334	D	7/21/2019	16:02:40	17	5	14.47	0 to -1	>4	-2	>4 to -2	5.01	4.24	5.96	No
Oyster Creek Export Cable	335	A	7/21/2019	17:15:46	17	5	14.47	1 to 0	>4	-4	>4 to -4	4.90	4.03	5.26	No
Oyster Creek Export Cable	335	B	7/21/2019	17:16:55	17	5	14.47	1 to 0	>4	-4	>4 to -4	4.99	3.36	6.06	No
Oyster Creek Export Cable	335	D	7/21/2019	17:19:10	17	5	14.47	1 to 0	>4	-3	>4 to -3	4.83	3.28	5.71	No
Oyster Creek Export Cable	336	A	7/21/2019	15:36:12	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3	5.28	4.29	6.15	No
Oyster Creek Export Cable	336	B	7/21/2019	15:37:20	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3	4.30	3.72	4.82	No
Oyster Creek Export Cable	336	C	7/21/2019	15:38:25	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3	5.52	5.03	6.02	No
Oyster Creek Export Cable	337	A	7/21/2019	16:30:44	17	5	14.47	-1 to -2/1 to 0	>4	-3	>4 to -3	5.56	5.00	5.78	No
Oyster Creek Export Cable	337	B	7/21/2019	16:31:48	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4	3.49	2.91	4.89	No
Oyster Creek Export Cable	337	C	7/21/2019	16:33:02	17	5	14.47	-1 to -2/1 to 0	>4	-4	>4 to -4	4.85	2.81	6.60	No
Oyster Creek Export Cable	338	A	7/21/2019	16:57:38	17	5	14.47	2 to 1	>4	-2	>4 to -2	6.92	5.73	7.35	No
Oyster Creek Export Cable	338	B	7/21/2019	16:58:48	17	5	14.47	2 to 1	>4	0	>4 to 0	4.72	3.95	5.46	No
Oyster Creek Export Cable	338	C	7/21/2019	17:00:00	17	5	14.47	2 to 1	>4	-1	>4 to -1	5.17	4.43	5.73	No
Oyster Creek Export Cable	339	A	7/21/2019	17:38:59	17	5	14.47	0 to -1	>4	-3	>4 to -3	2.35	0.29	4.12	No
Oyster Creek Export Cable	339	B	7/21/2019	17:40:09	17	5	14.47	0 to -1	>4	-3	>4 to -3	1.70	1.12	3.11	No
Oyster Creek Export Cable	339	C	7/21/2019	17:41:19	17	5	14.47	0 to -1	>4	-2	>4 to -2	6.67	5.90	7.71	No
Oyster Creek Export Cable	340	A	7/21/2019	18:01:41	17	5	14.47	1 to 0/2 to 1	>4	-1	>4 to -1	4.88	3.68	5.63	No
Oyster Creek Export Cable	340	B	7/21/2019	18:02:54	17	5	14.47	1 to 0/2 to 1	>4	-2	>4 to -2	4.16	3.76	4.43	No
Oyster Creek Export Cable	340	C	7/21/2019	18:04:04	17	5	14.47	2 to 1	>4	-2	>4 to -2	4.02	3.51	4.36	No
Oyster Creek Export Cable	341	B	7/21/2019	18:23:04	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3	5.43	4.98	5.82	No
Oyster Creek Export Cable	341	C	7/21/2019	18:24:16	17	5	14.47	0 to -1/1 to 0	>4	-2	>4 to -2	3.97	2.75	4.50	No
Oyster Creek Export Cable	341	D	7/21/2019	18:25:35	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3	5.97	5.57	6.31	No
Oyster Creek Export Cable	342	A	7/21/2019	18:49:20	17	5	14.47	3 to 2	>4	-2	>4 to -2	3.06	2.76	3.36	No
Oyster Creek Export Cable	342	B	7/21/2019	18:50:30	17	5	14.47	3 to 2	>4	-1	>4 to -1	4.01	2.73	5.87	No
Oyster Creek Export Cable	342	C	7/21/2019	18:51:37	17	5	14.47	3 to 2	>4	-2	>4 to -2	4.23	3.00	4.89	No
Oyster Creek Export Cable	343	A	7/21/2019	19:08:52	17	5	14.47	2 to 1	>4	-3	>4 to -3	4.19	3.67	5.04	No
Oyster Creek Export Cable	343	B	7/21/2019	19:10:10	17	5	14.47	2 to 1	>4	-4	>4 to -4	3.92	2.54	4.54	No
Oyster Creek Export Cable	343	C	7/21/2019	19:11:18	17	5	14.47	1 to 0/2 to 1	>4	-3	>4 to -3	4.03	3.29	5.07	No
Oyster Creek Export Cable	344	A	7/21/2019	19:28:51	17	5	14.47	-1 to -2/1 to 0	>4	-3	>4 to -3	5.10	4.56	5.72	No
Oyster Creek Export Cable	344	B	7/21/2019	19:30:03	17	5	14.47	-1 to -2/1 to 0	>4	-4	>4 to -4	5.26	4.53	5.90	No
Oyster Creek Export Cable	344	D	7/21/2019	19:32:23	17	5	14.47	-1 to -2/1 to 0	>4	-3	>4 to -3	4.60	3.49	5.24	No

Area	StationID	Replicate	Date	Time	Stop Collar Setting (in)	# of Weights (per side)	Image Width (cm)	Grain Size Major Mode (phi)	Grain Size Minimum (phi)	Grain Size Maximum (phi)	Grain Size Range (phi)	Penetration Mean (cm)	Penetration Minimum (cm)	Penetration Maximum (cm)	Over-penetration?
Oyster Creek Export Cable	345	A	7/21/2019	19:52:48	17	5	14.47	0 to -1	>4	-2	>4 to -2	4.65	4.12	5.13	No
Oyster Creek Export Cable	345	B	7/21/2019	19:54:02	17	5	14.47	0 to -1	>4	-3	>4 to -3	4.55	4.22	4.97	No
Oyster Creek Export Cable	345	C	7/21/2019	19:55:10	17	5	14.47	0 to -1	>4	-3	>4 to -3	4.31	3.78	4.99	No
Oyster Creek Export Cable	346	A	7/21/2019	20:13:33	17	5	14.47	-1 to -2/2 to 1	>4	-3	>4 to -3	3.66	3.19	4.09	No
Oyster Creek Export Cable	346	B	7/21/2019	20:14:42	17	5	14.47	-1 to -2/2 to 1	>4	-2	>4 to -2	3.99	3.18	4.65	No
Oyster Creek Export Cable	346	C	7/21/2019	20:15:52	17	5	14.47	-1 to -2/2 to 1	>4	-2	>4 to -2	3.98	2.87	5.08	No
Oyster Creek Export Cable	347	A	7/21/2019	20:43:39	17	5	14.47	-1 to -2/1 to 0	>4	-3	>4 to -3	5.08	3.58	5.56	No
Oyster Creek Export Cable	347	B	7/21/2019	20:44:47	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3	4.19	3.21	4.85	No
Oyster Creek Export Cable	347	C	7/21/2019	20:45:54	17	5	14.47	-1 to -2/1 to 0	>4	-4	>4 to -4	3.92	2.87	5.03	No
Oyster Creek Export Cable	348	A	7/21/2019	21:02:45	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3	3.38	3.01	3.84	No
Oyster Creek Export Cable	348	B	7/21/2019	21:03:51	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3	4.60	3.48	5.04	No
Oyster Creek Export Cable	348	C	7/21/2019	21:05:05	17	5	14.47	0 to -1/1 to 0	>4	-3	>4 to -3	4.78	4.05	5.22	No
Oyster Creek Export Cable	349	A	7/21/2019	21:22:22	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4	3.59	2.94	4.36	No
Oyster Creek Export Cable	349	B	7/21/2019	21:23:38	17	5	14.47	-2 to -3/1 to 0	>4	-4	>4 to -4	3.82	3.52	4.26	No
Oyster Creek Export Cable	349	C	7/21/2019	21:24:48	17	5	14.47	-2 to -3/1 to 0	>4	-3	>4 to -3	4.96	4.38	5.49	No
Oyster Creek Export Cable	350	A	7/21/2019	21:43:35	17	5	14.47	1 to 0	>4	-3	>4 to -3	3.69	3.03	4.73	No
Oyster Creek Export Cable	350	B	7/21/2019	21:44:49	17	5	14.47	1 to 0	>4	-3	>4 to -3	3.36	2.74	3.72	No
Oyster Creek Export Cable	350	C	7/21/2019	21:46:08	17	5	14.47	1 to 0	>4	-2	>4 to -2	4.71	3.90	5.39	No
Reference	401	A	7/21/2019	2:48:27	17	5	14.47	3 to 2	>4	2	>4 to 2	4.58	4.15	4.71	No
Reference	401	B	7/21/2019	2:49:32	17	5	14.47	3 to 2	>4	2	>4 to 2	4.59	4.23	4.85	No
Reference	401	C	7/21/2019	2:52:25	17	5	14.47	3 to 2	>4	2	>4 to 2	3.97	3.71	4.21	No
Reference	402	A	7/21/2019	0:12:45	17	5	14.47	3 to 2	>4	2	>4 to 2	3.61	3.36	3.91	No
Reference	402	B	7/21/2019	0:13:55	17	5	14.47	3 to 2	>4	2	>4 to 2	4.48	0.40	5.20	No
Reference	402	C	7/21/2019	0:15:06	17	5	14.47	3 to 2	>4	1	>4 to 1	3.42	3.05	3.70	No
Reference	403	A	7/20/2019	23:46:20	17	5	14.47	2 to 1	>4	0	>4 to 0	5.00	4.15	6.43	No
Reference	403	B	7/20/2019	23:47:29	17	5	14.47	2 to 1	>4	0	>4 to 0	5.09	4.62	5.36	No
Reference	403	C	7/20/2019	23:48:48	17	5	14.47	2 to 1	>4	0	>4 to 0	4.71	4.29	5.14	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Phase 1 Survey Area (OCW)	001	A	2.82	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	001	B	3.22	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	001	C	1.97	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	002	A	0.83	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	002	B	0.61	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	002	C	0.72	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	003	A	2.68	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	003	B	2.15	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	003	C	1.52	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	004	A	1.06	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	004	B	0.87	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	004	C	1.25	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	005	A	1.31	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	005	B	0.68	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	005	C	1.18	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	006	A	0.91	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	006	B	1.35	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	006	C	0.74	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	007	A	0.46	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	007	B	0.91	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	007	C	0.57	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	008	A	0.70	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	008	B	0.81	IND	No	No	No	Low	No	No	None	None	No	None	No	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	008	C	0.52	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	009	A	1.96	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	009	B	1.84	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	009	C	0.59	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	010	A	0.83	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	010	B	0.58	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	010	C	1.04	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	011	A	0.88	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Phase 1 Survey Area (OCW)	011	B	0.69	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Phase 1 Survey Area (OCW)	011	C	1.15	IND	No	No	No	Low	No	No	None	None	No	None	IND	Sand Dollar	No
Phase 1 Survey Area (OCW)	012	A	0.89	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	012	B	0.91	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	012	C	2.03	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	013	A	1.08	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Phase 1 Survey Area (OCW)	013	B	1.82	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	013	C	0.64	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	014	A	1.06	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	014	B	0.89	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	014	C	1.52	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	015	A	1.32	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	015	B	1.38	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	015	C	0.71	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	016	A	1.98	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	016	B	1.35	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	016	C	0.72	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	017	A	1.25	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Phase 1 Survey Area (OCW)	017	B	0.63	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	017	C	1.12	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	018	A	0.87	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	018	B	0.72	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	018	C	0.45	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	019	A	0.95	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	019	B	0.55	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	019	C	0.45	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	020	B	0.30	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	020	C	1.23	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	020	D	0.62	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	021	A	1.48	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	021	B	0.47	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	021	C	0.39	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	022	A	1.21	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	022	C	1.51	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	022	D	2.35	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	023	A	0.92	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	023	B	1.27	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
Phase 1 Survey Area (OCW)	023	C	0.60	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	024	A	0.48	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	024	B	1.24	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	024	C	1.05	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	025	A	0.88	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Phase 1 Survey Area (OCW)	025	B	1.23	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	025	D	1.52	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	026	B	1.29	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	026	C	0.63	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	026	D	0.74	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Phase 1 Survey Area (OCW)	027	A	1.00	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Phase 1 Survey Area (OCW)	027	B	1.65	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Phase 1 Survey Area (OCW)	027	C	1.22	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	028	A	0.56	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	028	B	1.03	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	028	C	1.16	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Phase 1 Survey Area (OCW)	029	A	0.73	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	029	B	1.35	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	029	C	0.46	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	030	A	0.79	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	030	B	0.84	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	030	C	0.69	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	031	A	1.36	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	031	B	0.56	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	031	C	1.39	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No
Phase 1 Survey Area (OCW)	032	A	1.47	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	032	B	0.90	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	032	C	0.35	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	033	A	0.54	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	033	B	0.47	IND	No	No	No	Low	No	No	None	None	No	None	IND	Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	033	C	0.99	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	034	A	1.64	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	034	B	0.98	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	034	C	2.18	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	035	B	1.31	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	035	C	1.46	1.84	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	035	D	1.30	1.90	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	036	A	0.60	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	036	B	0.99	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	036	C	0.90	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	037	A	0.56	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	037	B	0.75	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	037	C	0.35	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	038	A	0.79	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Phase 1 Survey Area (OCW)	038	B	1.42	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod	No
Phase 1 Survey Area (OCW)	038	C	0.84	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	039	B	1.13	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Phase 1 Survey Area (OCW)	039	C	0.69	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	039	D	0.73	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	040	A	0.43	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	040	B	0.48	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	040	C	0.79	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	041	A	1.13	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	041	B	1.37	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	041	C	1.02	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	042	A	1.01	3.36	Yes	No	No	Low	No	No	None	None	No	None	Yes	Jonah Crab	No
Phase 1 Survey Area (OCW)	042	B	1.39	4.06	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
Phase 1 Survey Area (OCW)	042	C	1.06	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	043	A	1.07	2.59	No	No	No	Low	No	No	None	None	No	None	IND	Hermit Crab	No
Phase 1 Survey Area (OCW)	043	B	0.49	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	043	D	0.94	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	044	A	1.87	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	044	B	0.58	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	044	C	0.77	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	045	A	0.24	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	045	B	1.52	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	045	C	0.91	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Phase 1 Survey Area (OCW)	046	B	0.34	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	046	C	0.32	IND	No	No	No	Low	No	No	None	None	No	None	IND	Sand Dollar	No
Phase 1 Survey Area (OCW)	046	D	0.48	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	047	B	0.42	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	047	C	0.87	IND	No	No	No	Low	No	No	None	Sea Scallop	No	None	Yes	Sand Dollar, Sea Scallop	No
Phase 1 Survey Area (OCW)	047	D	0.31	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	048	A	0.64	3.81	Yes	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	048	B	0.39	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	048	C	0.59	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Phase 1 Survey Area (OCW)	049	A	0.51	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	049	B	0.51	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	049	C	1.25	2.81	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	050	A	0.58	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	050	B	1.64	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	050	C	0.61	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No
Phase 1 Survey Area (OCW)	051	A	0.97	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	051	B	1.32	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod	No
Phase 1 Survey Area (OCW)	051	C	1.51	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod	No
Phase 1 Survey Area (OCW)	052	A	0.62	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	052	B	0.46	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod	No
Phase 1 Survey Area (OCW)	052	C	0.55	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	053	A	0.88	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	053	B	0.42	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	053	C	0.36	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	054	A	0.54	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	054	B	1.31	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	054	C	0.40	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	055	A	2.07	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	055	B	0.51	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	055	C	1.84	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	056	A	1.55	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	056	B	0.83	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	056	C	0.89	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	057	B	0.45	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	057	C	0.52	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	057	D	0.93	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	058	A	0.60	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
Phase 1 Survey Area (OCW)	058	B	0.63	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	058	C	1.33	IND	No	No	No	Low	No	No	None	None	No	None	IND	Podocerid Amphipoda, Sand Dollar	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Phase 1 Survey Area (OCW)	059	A	0.82	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	059	B	0.89	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	059	C	0.61	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	060	A	1.78	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	060	B	1.94	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	060	C	0.33	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	061	A	2.41	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	061	B	0.73	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	061	C	1.22	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	062	A	0.54	1.96	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	062	B	0.90	1.14	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
Phase 1 Survey Area (OCW)	062	C	0.38	1.40	Yes	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	063	A	1.06	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	063	B	2.94	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	063	C	1.04	1.87	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	064	A	0.74	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	064	B	0.36	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	064	C	1.88	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	065	A	0.93	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	065	C	1.69	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	065	D	1.10	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Phase 1 Survey Area (OCW)	066	A	1.86	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	066	B	0.75	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	066	C	0.67	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	067	A	0.90	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No

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Phase 1 Survey Area (OCW)	067	B	0.92	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	067	C	1.94	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	068	A	0.74	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	068	B	1.22	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	068	C	5.22	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	069	A	1.31	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	069	B	0.47	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
Phase 1 Survey Area (OCW)	069	C	1.07	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	070	A	4.11	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	070	B	0.69	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	070	C	0.99	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	071	A	0.62	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	071	B	0.57	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	071	C	1.46	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	072	B	0.57	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	072	D	2.51	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	072	E	0.68	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	073	A	0.91	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	073	B	3.30	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	073	C	0.56	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	074	A	1.58	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No

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Phase 1 Survey Area (OCW)	074	B	0.62	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	074	C	0.99	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	075	B	1.02	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	075	C	1.03	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	075	D	0.98	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Phase 1 Survey Area (OCW)	076	A	0.31	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Phase 1 Survey Area (OCW)	076	B	0.43	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab, Jonah Crab	No
Phase 1 Survey Area (OCW)	076	C	0.99	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	077	A	0.53	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Jonah Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	077	B	0.77	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Hermit Crab, Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	077	C	0.64	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod	No
Phase 1 Survey Area (OCW)	078	A	0.66	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	078	B	0.65	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	078	C	0.48	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	079	E	1.40	0.60	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	079	F	1.75	1.12	No	No	No	Medium	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	079	G	1.36	1.52	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	080	A	1.11	IND	No	No	No	Low	No	No	None	None	No	None	No	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	080	B	0.73	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Phase 1 Survey Area (OCW)	080	C	0.91	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	081	A	0.72	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	081	B	0.88	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod	No
Phase 1 Survey Area (OCW)	081	C	1.61	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	082	A	0.46	2.65	No	No	No	Medium	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	082	B	1.59	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Phase 1 Survey Area (OCW)	082	C	1.15	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	083	A	1.66	2.60	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
Phase 1 Survey Area (OCW)	083	B	1.32	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	083	C	1.09	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	084	A	1.22	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	084	B	1.17	IND	No	No	No	Low	No	No	None	None	No	None	No	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	084	C	0.50	IND	No	No	No	Low	No	No	None	None	No	None	No	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	085	B	1.61	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Bivalve	IND
Phase 1 Survey Area (OCW)	085	C	0.37	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	IND
Phase 1 Survey Area (OCW)	085	D	0.76	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Podocerid Amphipoda	IND
Phase 1 Survey Area (OCW)	086	A	0.96	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	086	B	0.86	2.18	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Phase 1 Survey Area (OCW)	086	C	1.03	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	087	A	0.48	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	087	B	0.52	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	087	C	0.49	2.79	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Hermit Crab, Sand Dollar	No
Phase 1 Survey Area (OCW)	088	A	0.78	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	088	B	0.70	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Sand Dollar	No
Phase 1 Survey Area (OCW)	088	C	0.88	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	089	A	0.59	IND	No	No	No	Low	No	No	None	None	No	None	No	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	089	B	0.67	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod, Podocerid Amphipoda, Sand Dollar	No

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Phase 1 Survey Area (OCW)	089	C	0.76	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda, Sand Dollar	No
Phase 1 Survey Area (OCW)	090	A	0.64	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Phase 1 Survey Area (OCW)	090	B	1.00	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	090	C	0.72	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	091	A	0.51	2.39	No	No	No	Medium	No	No	None	None	No	None	Yes	Hydroid, Sponge	IND
Phase 1 Survey Area (OCW)	091	B	1.23	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
Phase 1 Survey Area (OCW)	091	C	1.66	1.13	No	No	No	Medium	No	No	None	None	No	None	Yes	Boring Sponge	Yes
Phase 1 Survey Area (OCW)	092	A	1.50	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Phase 1 Survey Area (OCW)	092	B	1.55	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	092	C	2.27	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Phase 1 Survey Area (OCW)	093	A	0.52	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	093	B	1.16	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod, Podocerid Amphipoda	No
Phase 1 Survey Area (OCW)	093	C	1.32	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
B.L. England Export Cable	201	A	0.84	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
B.L. England Export Cable	201	B	0.92	IND	No	No	No	Low	No	No	None	None	No	None	IND	Sand Dollar	No
B.L. England Export Cable	201	C	1.63	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	202	A	1.28	1.55	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	202	B	1.00	1.42	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	202	C	1.59	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	203	A	0.80	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	203	B	0.48	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
B.L. England Export Cable	203	C	0.57	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	204	A	0.25	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	204	B	0.59	IND	No	No	No	Low	No	No	None	None	No	None	No	Crab	No
B.L. England Export Cable	204	C	1.25	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	205	A	0.63	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	205	B	0.50	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	205	C	1.21	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	206	A	0.68	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	206	B	0.68	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	206	C	0.61	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	207	B	0.68	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No

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B.L. England Export Cable	207	C	1.49	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
B.L. England Export Cable	207	D	0.69	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
B.L. England Export Cable	208	A	0.64	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	208	B	0.45	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	208	C	0.49	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
B.L. England Export Cable	209	A	0.79	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
B.L. England Export Cable	209	B	0.89	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No
B.L. England Export Cable	209	C	1.38	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
B.L. England Export Cable	210	B	0.90	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
B.L. England Export Cable	210	C	1.37	1.27	No	No	No	Medium	No	No	None	None	No	None	Yes	None	No
B.L. England Export Cable	210	D	0.40	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
B.L. England Export Cable	211	A	0.86	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
B.L. England Export Cable	211	B	1.61	2.58	No	No	No	Medium	No	No	None	None	No	None	Yes	Slipper Shell Clam	No
B.L. England Export Cable	211	C	0.58	1.54	No	No	No	Medium	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	301	A	1.16	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	301	B	0.76	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	301	C	0.50	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	302	A	1.81	1.34	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	302	B	0.47	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	302	C	0.50	1.87	No	No	No	Low	No	No	None	None	No	None	No	Unidentified Clam, Bryozoa, Hermit Crab	No
Oyster Creek Export Cable	303	A	0.34	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Oyster Creek Export Cable	303	B	0.54	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Oyster Creek Export Cable	303	C	1.10	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	304	A	0.38	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	304	B	0.34	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	304	C	0.93	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	305	A	0.84	0.83	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Oyster Creek Export Cable	305	B	0.46	1.87	No	No	No	Medium	No	No	None	None	No	None	Yes	Gastropod, Hermit Crab, Sand Dollar	No
Oyster Creek Export Cable	305	C	0.23	1.93	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	306	A	1.01	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	306	B	0.56	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	306	C	0.52	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	307	A	0.71	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	307	B	0.86	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No

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Oyster Creek Export Cable	307	C	1.71	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No
Oyster Creek Export Cable	308	A	1.08	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	308	B	0.82	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	308	C	1.07	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	309	A	0.51	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Oyster Creek Export Cable	309	B	1.16	IND	No	No	No	Low	No	No	None	None	No	None	No	Unidentified Organism	No
Oyster Creek Export Cable	309	C	1.00	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	310	A	0.49	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	310	B	1.07	IND	No	No	No	Low	No	No	None	None	No	None	No	None	Yes
Oyster Creek Export Cable	310	C	0.30	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	311	A	0.50	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	311	B	0.71	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	311	C	0.56	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	312	A	0.48	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	312	B	1.08	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	312	C	0.59	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Oyster Creek Export Cable	313	A	1.64	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	313	B	0.48	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Oyster Creek Export Cable	313	C	0.82	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	314	A	2.00	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Oyster Creek Export Cable	314	B	1.13	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Oyster Creek Export Cable	314	C	1.71	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	315	A	0.35	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Bryozoa	No
Oyster Creek Export Cable	315	B	0.79	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	315	C	0.83	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Sand Dollar	No
Oyster Creek Export Cable	316	A	2.06	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	316	B	0.74	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Oyster Creek Export Cable	316	C	1.04	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	317	A	0.67	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	317	B	1.25	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	317	C	2.66	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	318	B	1.34	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	318	C	2.05	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	318	D	1.87	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	319	A	1.16	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	319	C	1.61	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	319	D	0.97	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	320	A	2.82	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	320	B	0.79	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	320	C	2.00	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	321	A	1.72	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	321	B	3.76	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	321	C	0.57	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	322	A	2.31	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No

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Oyster Creek Export Cable	322	B	1.03	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	322	C	1.60	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	323	A	2.44	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	323	B	1.03	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	323	C	0.86	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	324	A	0.88	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	324	B	0.77	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	324	C	0.58	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	325	A	1.05	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	325	B	3.00	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	325	C	1.67	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	326	A	2.85	IND	No	No	No	None	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	326	B	2.77	IND	No	No	No	None	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	326	C	0.76	IND	No	No	No	None	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	327	A	1.32	IND	No	No	No	None	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	327	B	2.29	IND	No	No	No	None	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	327	C	1.15	IND	No	No	No	Low	No	No	None	None	No	None	No	Sand Dollar	No
Oyster Creek Export Cable	328	A	2.67	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	328	B	1.12	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	328	C	1.84	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	329	A	0.72	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab	No
Oyster Creek Export Cable	329	B	0.87	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	329	C	1.35	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	330	A	1.03	IND	No	No	No	None	No	No	None	None	No	None	No	Hermit Crab, Tunicates	No
Oyster Creek Export Cable	330	B	0.78	IND	No	No	No	None	No	No	None	None	No	None	No	Hermit Crab, Tunicates	No
Oyster Creek Export Cable	330	D	0.83	IND	No	No	No	None	No	No	None	None	No	None	No	Gastropod, Tunicates	No
Oyster Creek Export Cable	331	A	0.47	IND	No	No	No	Low	No	No	None	None	No	None	No	Clam	No
Oyster Creek Export Cable	331	B	2.04	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	331	C	2.02	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	332	A	1.00	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	332	B	2.21	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Oyster Creek Export Cable	332	C	2.02	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	333	A	2.29	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	333	B	1.04	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	333	C	2.56	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	334	A	1.93	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Oyster Creek Export Cable	334	B	0.62	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	334	D	1.72	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No
Oyster Creek Export Cable	335	A	1.23	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	335	B	2.69	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	335	D	2.43	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Oyster Creek Export Cable	336	A	1.86	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	336	B	1.10	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	336	C	0.99	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	337	A	0.78	IND	No	No	No	Low	No	No	None	None	No	None	No	None	IND
Oyster Creek Export Cable	337	B	1.98	IND	No	No	No	Low	No	No	None	None	No	None	No	Bryozoa	No
Oyster Creek Export Cable	337	C	3.79	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	338	A	1.61	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	338	B	1.51	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Gastropod	No
Oyster Creek Export Cable	338	C	1.31	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	339	A	3.83	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Podocerid Amphipoda	No
Oyster Creek Export Cable	339	B	2.00	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Hermit Crab, Podocerid Amphipoda	No
Oyster Creek Export Cable	339	C	1.81	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Podocerid Amphipoda	No
Oyster Creek Export Cable	340	A	1.95	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	340	B	0.67	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	340	C	0.85	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	341	B	0.85	IND	No	No	No	Low	No	No	None	None	No	None	Yes	Clam	No
Oyster Creek Export Cable	341	C	1.75	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	341	D	0.74	IND	No	No	No	Low	No	No	None	None	No	None	IND	None	No
Oyster Creek Export Cable	342	A	0.60	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	Yes
Oyster Creek Export Cable	342	B	3.14	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	342	C	1.89	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	343	A	1.37	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	343	B	2.00	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	343	C	1.78	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	344	A	1.17	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	344	B	1.37	IND	No	No	No	Low	No	No	None	None	No	None	No	Bryozoa	No
Oyster Creek Export Cable	344	D	1.75	IND	No	No	No	Low	No	No	None	None	No	None	No	Bryozoa, Hermit Crab	No

Area	StationID	Replicate	Boundary Roughness (cm)	aRPD Mean (cm)	aRPD > Pen	Methane Present?	Low DO Present?	Sediment Oxygen Demand	Beggiatoa Present?	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern	Invasive Taxa Present?	Type of Invasive Taxa	Tubes Present?	Epifauna	Voids Present?
Oyster Creek Export Cable	345	A	1.01	IND	No	No	No	None	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	345	B	0.75	IND	No	No	No	None	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	345	C	1.21	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Oyster Creek Export Cable	346	A	0.90	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	346	B	1.48	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Oyster Creek Export Cable	346	C	2.21	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	347	A	1.98	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	347	B	1.63	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	347	C	2.15	IND	No	No	No	None	No	No	None	None	No	None	Yes	Gastropod	No
Oyster Creek Export Cable	348	A	0.84	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Oyster Creek Export Cable	348	B	1.57	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Oyster Creek Export Cable	348	C	1.17	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab	No
Oyster Creek Export Cable	349	A	1.41	IND	No	No	No	Low	No	No	None	None	No	None	No	Hydroid	No
Oyster Creek Export Cable	349	B	0.74	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	349	C	1.10	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	350	A	1.70	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	350	B	0.99	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Oyster Creek Export Cable	350	C	1.50	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Reference	401	A	0.57	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No
Reference	401	B	0.62	IND	No	No	No	Low	No	No	None	None	No	None	IND	Gastropod, Sand Dollar	No
Reference	401	C	0.50	IND	No	No	No	Low	No	No	None	None	No	None	IND	Hermit Crab	No
Reference	402	A	0.55	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No
Reference	402	B	4.80	IND	No	No	No	Low	No	No	None	None	No	None	No	Gastropod	No
Reference	402	C	0.65	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No
Reference	403	A	2.28	IND	No	No	No	Low	No	No	None	None	No	None	No	Hermit Crab, Gastropod	No
Reference	403	B	0.74	IND	No	No	No	Low	No	No	None	None	No	None	No	None	No
Reference	403	C	0.85	IND	No	No	No	Low	No	No	None	None	No	None	Yes	None	No

Area	StationID	Replicate	Successional Stage	Comment
Phase 1 Survey Area (OCW)	001	A	2	Pale brown fine sand with gray sand mixed in. Ripples and streaks of gray sand at the sediment surface. Ambient light in the water column. Stage 2 tubes at the SWI and in farfield.
Phase 1 Survey Area (OCW)	001	B	2	Pale brown fine sand. Large ripple at the sediment surface. Ambient light in the water column. Stage 2 tube in the midfield on the left slope of the ripple in front of a sand dollar.
Phase 1 Survey Area (OCW)	001	C	2	Pale brown fine sand. Ripples at the sediment surface. Ambient light in the water column. Stage 2 tubes in the farfield, with sand dollars at right. Fauna intersected by the camera at SWI, left.
Phase 1 Survey Area (OCW)	002	A	IND	Pale brown fine sand with a thin layer of brown sand at the SWI. Sand dollars and possible fecal deposits at the sediment surface.
Phase 1 Survey Area (OCW)	002	B	IND	Pale brown fine sand with a thin layer of brown sand at the SWI. Sand dollars and possible fecal deposits at the sediment surface, one sand dollar intersected by camera.
Phase 1 Survey Area (OCW)	002	C	IND	Pale brown fine sand with a thin layer of brown sand at the SWI. Sand dollars and possible fecal deposits at the sediment surface. Hermit crab in the farfield. Small patches of gray sand under the SWI.
Phase 1 Survey Area (OCW)	003	A	2	Homogeneous pale brown fine sand with ripples at the surface. Ambient light in the water column. Stage 2 tube at SWI, left near a sand dollar. Clumps of sand at the SWI.
Phase 1 Survey Area (OCW)	003	B	IND	Homogeneous pale brown fine sand with ripples at the surface. Ambient light in the water column. Sand dollar in the farfield.
Phase 1 Survey Area (OCW)	003	C	2	Homogeneous pale brown fine sand with ripples at the surface. Ambient light in the water column. Clump of sand in the midfield, center.
Phase 1 Survey Area (OCW)	004	A	2	Pale brown fine sand. Sand dollar in the farfield. Clumps of sand in the nearfield. Ambient light in the water column.
Phase 1 Survey Area (OCW)	004	B	IND	Pale brown fine sand. Sand dollar in the farfield. Ambient light in the water column.
Phase 1 Survey Area (OCW)	004	C	2	Pale brown medium sand. Clumps of sand in the nearfield. Ambient light in the water column.
Phase 1 Survey Area (OCW)	005	A	IND	Pale brown fine sand. Ambient light in the water column.
Phase 1 Survey Area (OCW)	005	B	2	Pale brown fine sand. Ambient light in the water column. Stage 2 tubes at SWI at right, sand clumps at SWI.
Phase 1 Survey Area (OCW)	005	C	2	Pale brown fine sand. Ambient light in the water column. Stage 2 tubes at SWI at right, sand clump at center.
Phase 1 Survey Area (OCW)	006	A	2	Pale brown fine sand. Stage 2 tube at SWI at left, small cnidarian or mucous at center, and sand dollar at right. Possible worm or burrow structure near max. penetration, left. Ambient light in the water column.
Phase 1 Survey Area (OCW)	006	B	2	Pale brown fine sand. Stage 2 tubes in midfield surrounded by sand clumps. Small sand dollars at SWI. Ambient light in the water column.
Phase 1 Survey Area (OCW)	006	C	2	Pale brown fine sand. Stage 2 tubes in the farfield. Sand clumps in the midfield. Ambient light in the water column.
Phase 1 Survey Area (OCW)	007	A	2	Pale brown coarse sand with larger grains mixed in. Stage 2 tube in farfield at right. Possible burrows in the upper cms of sand. Open spaces in sand likely due to dragdown. Patches of reduced fines at left.
Phase 1 Survey Area (OCW)	007	B	2	Pale brown coarse sand with larger grains mixed in. Burrow, ~2cm deep at far right. Shell or gastropod in farfield at right.
Phase 1 Survey Area (OCW)	007	C	IND	Pale brown coarse sand with larger grains mixed in. Pebbles or shells in the farfield. Possible burrows in the upper cms of sand. Patches of reduced sand at left.
Phase 1 Survey Area (OCW)	008	A	IND	Pale brown coarse sand with larger grains at SWI. Possible small tubes in farfield at right, possible burrow at SWI, center-right. Burrows in PV.
Phase 1 Survey Area (OCW)	008	B	2 -> 3	Pale brown medium sand. Fecal stack of podocerid amphipod in farfield at right. Open spaces in sand at right are likely due to dragdown. Burrows in PV.
Phase 1 Survey Area (OCW)	008	C	2 -> 3	Pale brown coarse sand with larger grains at SWI. Burrows at least 3cm deep in sand, extending to max. penetration. Two worms at bottom right corner. Burrows in PV.
Phase 1 Survey Area (OCW)	009	A	2	Pale brown medium sand. Sand clumps at the SWI.
Phase 1 Survey Area (OCW)	009	B	2	Pale brown medium sand. Sand clumps at the SWI. Stage 2 tubes in farfield at right.
Phase 1 Survey Area (OCW)	009	C	2	Pale brown medium sand. Sand clumps at the SWI. Stage 2 tube at SWI, left.
Phase 1 Survey Area (OCW)	010	A	2	Pale brown medium sand. Stage 2 tube at far left.
Phase 1 Survey Area (OCW)	010	B	IND	Pale brown medium sand. Sand dollar intersected by camera. Gastropod in farfield (visible in PV).
Phase 1 Survey Area (OCW)	010	C	2	Pale brown medium sand. Sand clumps in farfield at right.
Phase 1 Survey Area (OCW)	011	A	2	Pale brown fine sand. Fecal deposits at the SWI. Burrows in PV.
Phase 1 Survey Area (OCW)	011	B	IND	Pale brown fine sand. Fecal deposits at the SWI.
Phase 1 Survey Area (OCW)	011	C	IND	Pale brown fine sand. Fecal deposits at the SWI. Sand dollar between ripples.
Phase 1 Survey Area (OCW)	012	A	IND	Pale brown fine sand with gray sand mixed in, and ripples at the SWI.
Phase 1 Survey Area (OCW)	012	B	2	Pale brown fine sand with gray sand mixed in, and ripples at the SWI. Sand clump at SWI, center-left.
Phase 1 Survey Area (OCW)	012	C	IND	Pale brown fine sand with gray sand mixed in, and ripples at the SWI.
Phase 1 Survey Area (OCW)	013	A	2	Pale brown medium sand. Fecal deposits, sand clumps, and iridescent bivalve shells at SWI. Red gastropod at center (also visible in PV).

Area	StationID	Replicate	Successional Stage	Comment
Phase 1 Survey Area (OCW)	013	B	IND	Pale brown medium sand.
Phase 1 Survey Area (OCW)	013	C	IND	Pale brown medium sand. Stage 2 tubes in the nearfield.
Phase 1 Survey Area (OCW)	014	A	2	Pale brown medium sand with some larger grains mixed in. Sand clumps at the SWI.
Phase 1 Survey Area (OCW)	014	B	2	Pale brown medium sand. Stage 2 tube in midfield at center. Iridescent bivalve shell at SWI.
Phase 1 Survey Area (OCW)	014	C	2	Pale brown medium sand. Sand clump in farfield, center-right.
Phase 1 Survey Area (OCW)	015	A	2	Pale brown very coarse sand with larger grains at the SWI. Large sand clumps at the SWI.
Phase 1 Survey Area (OCW)	015	B	2	Pale brown fine sand. Sand clump at SWI, center.
Phase 1 Survey Area (OCW)	015	C	2	Pale brown medium sand. Burrows in the upper cms of sediment.
Phase 1 Survey Area (OCW)	016	A	IND	Pale brown medium sand mixed with coarse sand. Sand dollars at SWI.
Phase 1 Survey Area (OCW)	016	B	2	Pale brown medium sand mixed with coarse sand. Sand dollars at SWI. Stage 2 tube at center in farfield.
Phase 1 Survey Area (OCW)	016	C	IND	Pale brown medium sand mixed with coarse sand. Sand dollars at SWI.
Phase 1 Survey Area (OCW)	017	A	IND	Pale brown coarse sand. Possible stage 2 tube at left.
Phase 1 Survey Area (OCW)	017	B	2	Pale brown coarse sand. Burrow, ~2cm deep at left. Orange ribbed bivalve shell at SWI, center.
Phase 1 Survey Area (OCW)	017	C	2	Pale brown coarse sand. Sand clumps in nearfield, left.
Phase 1 Survey Area (OCW)	018	A	2	Pale brown medium sand mixed with coarse sand. Stage 2 tubes in the farfield, fecal deposits in the nearfield.
Phase 1 Survey Area (OCW)	018	B	2	Pale brown coarse sand. Stage 2 tubes at the SWI. Sand clumps in the farfield.
Phase 1 Survey Area (OCW)	018	C	2	Pale brown medium sand mixed with coarse sand. Stage 2 tubes in the farfield. Small sand dollar in the midfield at right.
Phase 1 Survey Area (OCW)	019	A	IND	Pale brown medium sand. Sand dollars cover the SWI.
Phase 1 Survey Area (OCW)	019	B	IND	Pale brown medium sand. Sand dollars cover the SWI.
Phase 1 Survey Area (OCW)	019	C	IND	Pale brown medium sand. Sand dollars cover the SWI.
Phase 1 Survey Area (OCW)	020	B	IND	Pale brown medium sand mixed with coarse sand. Sand dollars cover the SWI.
Phase 1 Survey Area (OCW)	020	C	IND	Pale brown medium sand. Sand dollars cover the SWI. Small patch of reduced fines at left.
Phase 1 Survey Area (OCW)	020	D	IND	Pale brown medium sand. Sand dollars cover the SWI.
Phase 1 Survey Area (OCW)	021	A	2	Homogeneous pale brown fine sand over dark gray silt-clay. Stage 2 tubes at the SWI.
Phase 1 Survey Area (OCW)	021	B	2	Pale brown fine sand with a layer of brown at the SWI. Stage 2 tubes in the nearfield. Burrows in the upper cms of sediment.
Phase 1 Survey Area (OCW)	021	C	2 on 3	Homogeneous pale brown fine sand over dark gray silt-clay. Stage 2 tubes at the SWI. Burrows at the grain size horizon. Worm at max penetration.
Phase 1 Survey Area (OCW)	022	A	2	Pale brown coarse sand. Sand clumps in the midfield. Shells at the SWI.
Phase 1 Survey Area (OCW)	022	C	2 -> 3	Pale brown coarse sand. Sand clumps in the midfield. Shells at the SWI. Burrows in PV.
Phase 1 Survey Area (OCW)	022	D	2	Pale brown coarse sand. Stage 2 tube in nearfield at right. Sand clumps in the midfield. Shells at the SWI.
Phase 1 Survey Area (OCW)	023	A	2 -> 3	Pale brown fine pebble over coarse sand. Small burrows at SWI at center. Possible fecal deposits behind dark pebble at center. Burrows in PV.
Phase 1 Survey Area (OCW)	023	B	2	Pale brown fine pebble over coarse sand. Stage 2 tubes at SWI at left. Large sand clumps in midfield. Red worm ~3cm deep at left.
Phase 1 Survey Area (OCW)	023	C	2	Pale brown fine pebble over coarse sand. Stage 2 tube in front of shell at SWI, left. Fecal deposits at SWI at right. White ribbed bivalve shell in farfield at left. Dark patches of sand in bottom right corner.
Phase 1 Survey Area (OCW)	024	A	2	Pale brown fine sand with a thin layer of brown at SWI. Stage 2 tubes and fecal deposits at SWI.
Phase 1 Survey Area (OCW)	024	B	2	Pale brown fine sand with a thin layer of brown at SWI. Stage 2 tubes and fecal deposits at SWI. Shell pieces at SWI.
Phase 1 Survey Area (OCW)	024	C	2	Pale brown fine sand with a thin layer of brown at SWI. Stage 2 tubes and fecal deposits at SWI. Faint burrows in the upper cms of sand. Collapsed fecal stack of podocerid amphipod in midfield at right.
Phase 1 Survey Area (OCW)	025	A	2	Pale gray fine sand. Tubes and fecal deposits at SWI. Saturated patches in sand are burrow cross-sections. Burrows in PV.
Phase 1 Survey Area (OCW)	025	B	2 -> 3	Pale gray fine sand over very fine sand. SWI is covered by stage 2 tubes and fecal deposits. Fecal stack of podocerid amphipod in farfield at right. Small worms in the upper cms of sand, larger worm ~3cm deep at left in a saturated burrow. Burrows in PV.
Phase 1 Survey Area (OCW)	025	D	2 -> 3	Pale gray fine sand. Fecal deposits at the SWI. Large stage 2 tube in nearfield at center-right. Fecal stack and podocerid amphipod in farfield. Burrows in PV.
Phase 1 Survey Area (OCW)	026	B	2	Pale brown medium sand with a thin layer of brown at SWI. Sand clumps at the SWI. Stage 2 tubes in farfield.
Phase 1 Survey Area (OCW)	026	C	2	Pale brown medium sand with a thin layer of brown at SWI. Sand clumps and fecal deposit at SWI. Gastropod in farfield at center, sand dollar at right. Faint burrow , ~3cm deep at center-right.
Phase 1 Survey Area (OCW)	026	D	2	Pale brown medium sand with a thin layer of brown at SWI. Stage 2 tubes and fecal deposits at SWI. Sand dollar at left.

Area	StationID	Replicate	Successional Stage	Comment
Phase 1 Survey Area (OCW)	027	A	2	Homogeneous pale brown coarse sand. Fecal deposits and sand clumps at the SWI. Possible stage 2 tubes in the farfield at center. Possible burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	027	B	IND	Homogeneous pale brown coarse sand. Possible tube in farfield, fecal deposit in farfield at center. Possible burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	027	C	IND	Homogeneous pale brown coarse sand. Possible burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	028	A	IND	Pale brown coarse sand over medium sand.
Phase 1 Survey Area (OCW)	028	B	2	Pale brown coarse sand over medium sand. Sand clumps in midfield. Gastropod and sand dollar at SWI at right.
Phase 1 Survey Area (OCW)	028	C	2	Pale brown medium sand. Hermit crab and possible tubes in the farfield. Large sand clumps in midfield.
Phase 1 Survey Area (OCW)	029	A	IND	Pale brown medium sand.
Phase 1 Survey Area (OCW)	029	B	2	Pale brown medium sand. Stage 2 tube in farfield at right. Sand clump at SWI.
Phase 1 Survey Area (OCW)	029	C	2	Pale brown medium sand. Large tube and large sand clumps in farfield.
Phase 1 Survey Area (OCW)	030	A	2	Pale brown medium sand. Stage 2 tubes at SWI, sand clump in farfield at right, sand dollar at left.
Phase 1 Survey Area (OCW)	030	B	2	Pale brown medium sand. Sand clumps at SWI. Stage 2 tube in midfield at left. Sand dollar in farfield.
Phase 1 Survey Area (OCW)	030	C	2	Pale brown medium sand. Sand clumps and small tubes in midfield at left.
Phase 1 Survey Area (OCW)	031	A	2	Pale brown medium sand. Large surf clam shell in farfield. Large sand clumps at SWI, with sand dollar at right.
Phase 1 Survey Area (OCW)	031	B	2	Pale brown medium sand. Sand clumps in midfield, stage 2 tube at center. Large sand clumps at SWI.
Phase 1 Survey Area (OCW)	031	C	IND	Pale brown medium sand. Gastropod in farfield and another in nearfield at right. Burrow at center.
Phase 1 Survey Area (OCW)	032	A	IND	Homogeneous pale gray fine sand. Sand dollars at surface.
Phase 1 Survey Area (OCW)	032	B	IND	Homogeneous pale gray fine sand.
Phase 1 Survey Area (OCW)	032	C	IND	Homogeneous pale gray fine sand. Sand dollar at surface.
Phase 1 Survey Area (OCW)	033	A	2	Pale gray fine sand. Sand dollars at SWI at left, tube at center, and fecal stack at right.
Phase 1 Survey Area (OCW)	033	B	IND	Pale gray fine sand. Tube or mucous in midfield at left, hermit crab and sand dollars at center, possible tubes in farfield at right.
Phase 1 Survey Area (OCW)	033	C	1 -> 2	Pale gray fine sand over dark gray silt-clay. Dips in the grain size horizon may be burrows. Stage 1 tubes at SWI. Sand dollar in farfield.
Phase 1 Survey Area (OCW)	034	A	IND	Pale gray fine sand.
Phase 1 Survey Area (OCW)	034	B	2	Pale gray fine sand with a thin layer of brown at SWI. Stage 2 tube in nearfield at center. Burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	034	C	2 -> 3	Pale gray fine sand with a thin layer of brown at SWI. Irregular clumps of sand at the SWI. Stage 2 tubes cover the SWI, mostly in the farfield. Burrows and worms in the upper cms of sand. Burrows in PV.
Phase 1 Survey Area (OCW)	035	B	IND	Homogeneous pale gray medium sand. Oyster shell piece at the SWI.
Phase 1 Survey Area (OCW)	035	C	2 -> 3	Pale gray fine sand over dark gray fine sand. Stage 2 tubes cover the SWI. Fecal stack of podocerid amphipod in the farfield. Burrows and worms in the upper cms of sand, some extending to max. penetration. Burrows in PV.
Phase 1 Survey Area (OCW)	035	D	2 -> 3	Pale gray fine sand over dark gray fine sand. Stage 2 tubes cover the SWI. Fecal stack of podocerid amphipod in the farfield with hermit crab at center. Burrows in PV.
Phase 1 Survey Area (OCW)	036	A	2	Pale brown medium sand. Sand clumps in the farfield.
Phase 1 Survey Area (OCW)	036	B	IND	Pale brown medium sand.
Phase 1 Survey Area (OCW)	036	C	IND	Pale brown medium sand with some larger grains at the SWI.
Phase 1 Survey Area (OCW)	037	A	IND	Pale brown fine sand with a thin layer of brown at SWI. Sand dollar in the nearfield at left. Fecal deposits at SWI at right. Skate egg case under sand dollar. Small, faint burrows in the upper cms of sand. Burrows in PV.
Phase 1 Survey Area (OCW)	037	B	2	Pale brown fine sand with a thin layer of brown at SWI. Sand dollar in the farfield. Gastropod in the nearfield at right. Small, faint burrows in the upper cms of sand. Burrows in PV.
Phase 1 Survey Area (OCW)	037	C	2	Pale brown fine sand with a thin layer of brown at SWI. Collapsed shell-coated tube in the nearfield with fecal deposits. Blurry pink spots in the farfield may be fauna.
Phase 1 Survey Area (OCW)	038	A	2	Pale brown medium sand. Tubes or fecal deposits at the SWI, left. Long worm extending down diagonally from the SWI at center.
Phase 1 Survey Area (OCW)	038	B	2	Pale brown medium sand. Sand clumps cover the SWI. Gastropods in near- and farfield at right. Small tubes at SWI, center, above a ~3cm burrow.
Phase 1 Survey Area (OCW)	038	C	2	Pale brown medium sand. Sand clump in the farfield at right. Small dark patch in the sand near max. penetration.
Phase 1 Survey Area (OCW)	039	B	2	Pale brown medium sand. Fecal deposits at the SWI. Hermit crab at SWI at left. Possible burrow in sand under the hermit crab.

Area	StationID	Replicate	Successional Stage	Comment
Phase 1 Survey Area (OCW)	039	C	2	Pale brown medium sand. Fecal deposits at the SWI. With sand clump at left. Red fauna just under the SWI at left. Sand dollar in the farfield.
Phase 1 Survey Area (OCW)	039	D	2	Pale brown medium sand. Fecal deposits at the SWI. Sand dollar in the farfield. Tubes in mid-field at right.
Phase 1 Survey Area (OCW)	040	A	2	Pale brown fine sand. Fecal deposits and sand dollars at the SWI. Stage 2 tube at center-left in front of sand dollar.
Phase 1 Survey Area (OCW)	040	B	2	Pale brown fine sand. Fecal deposits and sand dollars at the SWI. Stage 2 tube in the nearfield at right. Hermit crab in the farfield at left. Burrow extending to max. penetration at left.
Phase 1 Survey Area (OCW)	040	C	2	Pale brown fine sand. Fecal deposits and sand dollars at the SWI. Small tubes at the SWI at center.
Phase 1 Survey Area (OCW)	041	A	2	Pale brown medium sand. Patch of dark sand at the bottom left corner. Gray fecal deposits at the SWI. Orange deposits at the SWI and orange burrow structure, 1cm deep at right.
Phase 1 Survey Area (OCW)	041	B	2	Pale brown medium sand. Patches of very dark silt-clay at max. penetration. Gray fecal deposits at the SWI.
Phase 1 Survey Area (OCW)	041	C	2	Pale brown medium sand. Orange deposits at the SWI. Sand clumps in the farfield. Gastropod appendage or fecal stack in the farfield.
Phase 1 Survey Area (OCW)	042	A	2 -> 3	Pale brown fine sand. Sand clumps and stage 2 tubes cover the SWI. Large Jonah crab at center. Saturated orange burrows in the upper cms of sediment. Burrows in PV.
Phase 1 Survey Area (OCW)	042	B	2 -> 3	Pale brown fine sand. Large stage 2 tubes and sand clumps covering the SWI. Orange saturated burrows in the upper cms of sand, with worms at center and bottom right corner. Orange deposits at the SWI. Pink hermit crab w/o a shell in nearfield. Burrows in PV.
Phase 1 Survey Area (OCW)	042	C	2	Pale brown fine sand. Stage 2 tube at SWI, far left, and fecal stack of podocerid amphipod at far right.
Phase 1 Survey Area (OCW)	043	A	2 -> 3	Pale brown fine sand over gray fine sand. Shells and hermit crab at SWI. Possible tubes in the farfield. Worms beneath aRPD near max. penetration.
Phase 1 Survey Area (OCW)	043	B	2	Pale brown fine sand. Small patches of dark sand near max. penetration. Burrows and worms in the upper cms of sand. Fecal deposits at the SWI.
Phase 1 Survey Area (OCW)	043	D	IND	Pale brown fine sand. Sand dollars in the nearfield, hermit crab in the farfield.
Phase 1 Survey Area (OCW)	044	A	2	Pale brown medium sand. Sand dollars at the SWI. Tubes in the farfield in front of sand dollar at center. Sand clumps in nearfield.
Phase 1 Survey Area (OCW)	044	B	2	Pale brown medium sand. Stage 2 tubes in the farfield. Possible sand clump at SWI at right.
Phase 1 Survey Area (OCW)	044	C	2	Pale brown medium sand. Sand dollars at the SWI. Tubes underneath sand dollar at left. Larger tubes or sand clumps in the midfield at right.
Phase 1 Survey Area (OCW)	045	A	2	Pale brown coarse sand. Large sand clumps, gastropod, sand dollar, and hermit crab at the SWI.
Phase 1 Survey Area (OCW)	045	B	2	Pale brown coarse sand. Sand clumps, sand dollar, and hermit crabs at the SWI. Gastropod in the farfield.
Phase 1 Survey Area (OCW)	045	C	2	Pale brown coarse sand. Sand clumps, fecal deposits, and one fecal stack in the nearfield.
Phase 1 Survey Area (OCW)	046	B	2	Pale brown fine sand. Fecal deposits cover the SWI. Faint burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	046	C	IND	Pale brown fine sand. Sand dollars at the SWI. Possible tube at SWI at left, and possible sand clump at right edge. Patches of dark sand ~2cm deep.
Phase 1 Survey Area (OCW)	046	D	IND	Pale brown fine sand. Possible fecal deposits at the SWI. Mark on the surface at left.
Phase 1 Survey Area (OCW)	047	B	2	Pale brown fine sand. Fecal deposits at the SWI. Shell-coated tubes in the midfield at right. Sand dollars at left.
Phase 1 Survey Area (OCW)	047	C	2	Pale brown fine sand. Fecal deposits at the SWI. Tube at SWI with a worm underneath. Small scallop swimming in the water column. Sand dollar in the farfield at right.
Phase 1 Survey Area (OCW)	047	D	2	Pale brown fine sand. Sand dollars, shell-coated tubes at the SWI.
Phase 1 Survey Area (OCW)	048	A	2	Pale brown fine sand over gray fine sand. Patch of gray fines above aRPD at right. Sand dollars and hermit crabs at the SWI. Shell coated tubes in the farfield.
Phase 1 Survey Area (OCW)	048	B	2	Pale brown fine sand. Sand dollars at the SWI. Stage 2 tube at center and in suspension.
Phase 1 Survey Area (OCW)	048	C	2	Pale brown fine sand. Patch of gray sand at center. Sand dollar at the SWI at right. Shell-coated tube at center with burrow underneath extending nearly to max. penetration. Fecal stack and podocerid amphipod at left.

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Phase 1 Survey Area (OCW)	049	A	2	Brown-gray fine sand. Stage 2 tubes cover the SWI. Fecal stack and podocerid amphipod in the farfield at left. Small hermit crab at center.
Phase 1 Survey Area (OCW)	049	B	2	Brown-gray fine sand. Stage 2 tubes with visible fauna cover the SWI. Fecal stack of podocerid amphipod at center. Sand dollars at SWI. Fauna in sand ~1cm deep at left.
Phase 1 Survey Area (OCW)	049	C	2	Brown-gray fine sand over gray fine sand. Stage 2 tubes at the SWI and in the farfield. Fecal stack of podocerid amphipod attached to tubes in the farfield.
Phase 1 Survey Area (OCW)	050	A	IND	Pale brown medium sand. Indistinct sand clump at the SWI. Sand dollars at the SWI.
Phase 1 Survey Area (OCW)	050	B	2	Pale brown medium sand. Tube in nearfield at left.
Phase 1 Survey Area (OCW)	050	C	2	Pale brown medium sand. Gastropod at right, sand clumps at SWI and in farfield.
Phase 1 Survey Area (OCW)	051	A	2	Pale brown medium sand with a thin layer of brown at the SWI. Stage 2 tube at SWI at left. Small sand clumps at the SWI. Many small tubes in suspension.
Phase 1 Survey Area (OCW)	051	B	2	Pale brown medium sand. Stage 2 tube at the SWI at right. Sand clump at center. Gastropod in farfield at left. Many small tubes in suspension.
Phase 1 Survey Area (OCW)	051	C	2	Pale brown medium sand. Gastropod and sand clump at SWI, center. Many small tubes in suspension.
Phase 1 Survey Area (OCW)	052	A	2	Pale brown fine sand. Fecal deposits at the SWI. Burrow, ~3cm deep at center. Small tubes in suspension.
Phase 1 Survey Area (OCW)	052	B	2	Pale brown fine sand. Sand clumps in the midfield with a gastropod at center. Small tubes in suspension.
Phase 1 Survey Area (OCW)	052	C	1 -> 2	Pale brown fine sand. Sand dollars in the farfield. Small tubes in suspension.
Phase 1 Survey Area (OCW)	053	A	IND	Pale brown medium sand. Sand dollars at the SWI. Gastropod in farfield at right.
Phase 1 Survey Area (OCW)	053	B	IND	Pale brown medium sand. Sand dollars at the SWI.
Phase 1 Survey Area (OCW)	053	C	IND	Pale brown medium sand. Sand dollars at the SWI.
Phase 1 Survey Area (OCW)	054	A	IND	Pale gray fine sand. Possible collapsed tube or fecal deposit at SWI at right.
Phase 1 Survey Area (OCW)	054	B	IND	Pale gray fine sand. Possible fecal deposits at the SWI. Sand dollar at right.
Phase 1 Survey Area (OCW)	054	C	IND	Pale gray fine sand. Possible fecal deposits at the SWI.
Phase 1 Survey Area (OCW)	055	A	2	Pale gray fine sand. Large collapsed tubes and smaller tubes at the SWI. Sand dollar at left. Gastropod at right.
Phase 1 Survey Area (OCW)	055	B	2	Pale gray fine sand. Collapsed tubes with fecal stack of podocerid amphipod at the SWI. One longer fecal stack in the farfield.
Phase 1 Survey Area (OCW)	055	C	2	Pale gray fine sand. Sand dollars and a gastropod at the SWI. Collapsed tubes at right.
Phase 1 Survey Area (OCW)	056	A	2	Pale brown medium sand. Sand dollars in the farfield. Tube in nearfield at left. Infauna ~2cm under SWI at right.
Phase 1 Survey Area (OCW)	056	B	2	Pale brown medium sand. Sand dollars in the farfield. Tube in nearfield at right.
Phase 1 Survey Area (OCW)	056	C	2	Pale brown medium sand. Sand clumps in the midfield, with a sand dollar at right. Fecal deposits at the SWI and a stage 2 tube in the midfield at center.
Phase 1 Survey Area (OCW)	057	B	IND	Pale brown fine sand. Sand dollars at the SWI.
Phase 1 Survey Area (OCW)	057	C	2	Pale brown fine sand. Sand dollar in the farfield at center, small hermit crab at SWI at right, and a stage 2 tube at the SWI at left.
Phase 1 Survey Area (OCW)	057	D	IND	Pale brown fine sand. Sand dollar and gastropod at the SWI at center.
Phase 1 Survey Area (OCW)	058	A	2	Pale gray fine sand. Stage 2 tubes at the SWI. Hermit crab at right. Possible burrows in the upper cms of sand, and red infauna in the bottom left corner.
Phase 1 Survey Area (OCW)	058	B	2	Pale gray fine sand. Stage 2 tube in the farfield, center. Tubes or fecal deposits at the SWI, center. Sand dollars in the farfield.
Phase 1 Survey Area (OCW)	058	C	2 -> 3	Pale gray fine sand. Collapsed tube or fecal deposit in the nearfield, center-left. Fecal stack of podocerid amphipod and sand dollar in the farfield. Burrow ~1cm deep at center-left. Reduced mounds of sand in PV.

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Phase 1 Survey Area (OCW)	059	A	2	Pale brown fine sand. Gastropod, sand dollar, and fecal stack of podocerid amphipod in the farfield. Fecal deposits at the SWI.
Phase 1 Survey Area (OCW)	059	B	1 -> 2	Pale brown fine sand. Stage 1 tubes at SWI, center. Possible larger tubes / sand clumps in the farfield to the right.
Phase 1 Survey Area (OCW)	059	C	IND	Pale brown fine sand. Gastropod and sand dollar at the SWI.
Phase 1 Survey Area (OCW)	060	A	2	Gray medium pebble over pale gray coarse sand. Shells and sand clumps at the SWI.
Phase 1 Survey Area (OCW)	060	B	2	Gray medium pebble over pale gray coarse sand. Sand clumps at the SWI. Surf clam shell at center. Saturated streaks in sand at bottom-right corner. Small tubes in the ff to the right of the surf clam shell.
Phase 1 Survey Area (OCW)	060	C	2 -> 3	Pale gray coarse sand. Gray mud clasts at SWI. Collapsed tubes cover the SWI. Shell pieces at the SWI. Burrows in PV.
Phase 1 Survey Area (OCW)	061	A	IND	Pale gray fine sand over gray fine sand. A large pile of sand spans the SWI, with sand dollars at the surface.
Phase 1 Survey Area (OCW)	061	B	2	Pale gray fine sand over gray fine sand. Large stage 2 tubes in the farfield.
Phase 1 Survey Area (OCW)	061	C	2 -> 3	Pale gray fine sand over gray fine sand. Stage 2 tubes at the SWI and the nearfield. fecal stack and podocerid amphipod in the nearfield, with gastropod at right. Orange saturated streaks in the sand extend to max. penetration. Worm at bottom-right corner. Sand dollar in the farfield.
Phase 1 Survey Area (OCW)	062	A	2 -> 3	Pale gray fine sand over gray fine sand. Stage 2 tubes, fecal stack and podocerid amphipod, and sand clumps at the SWI. Possible hermit crab in the farfield. Possible burrows in the upper cms of sand. Burrows in PV.
Phase 1 Survey Area (OCW)	062	B	2 -> 3	Pale gray fine sand over gray fine sand. Stage 2 tubes and fecal deposits at the SWI. Prominent tubes at center (light colored) and behind pebble (dark colored). Hermit crab at right. One orange saturated streak extends to max. penetration. Burrows in PV.
Phase 1 Survey Area (OCW)	062	C	2 -> 3	Pale gray fine sand over gray fine sand. Stage 2 tubes and fecal stack of podocerid amphipod at SWI, center. Shell or fauna ~1cm below SWI at left. Burrows in PV.
Phase 1 Survey Area (OCW)	063	A	2	Pale gray fine sand. Large stage 2 tubes and fecal stacks of podocerid amphipods cover the SWI. One sand clump at SWI, center.
Phase 1 Survey Area (OCW)	063	B	2 -> 3	Pale gray fine sand. Large stage 2 tubes and fecal stacks of podocerid amphipods cover the SWI. Worm near max. penetration at right. Small Jonah crab carapace at SWI, right.
Phase 1 Survey Area (OCW)	063	C	2	Pale gray fine sand over gray fine sand. Large stage 2 tubes in the farfield.
Phase 1 Survey Area (OCW)	064	A	2	Pale brown fine sand. Stage 2 tubes and fecal stacks of podocerid amphipods cover the SWI.
Phase 1 Survey Area (OCW)	064	B	2	Pale brown fine sand. Stage 2 tube at the SWI, left of sand dollar. More stage 2 tubes and sand dollars in the farfield.
Phase 1 Survey Area (OCW)	064	C	2	Pale brown fine sand. Stage 2 tubes and sand dollar in the farfield. Depression in sand at SWI, right, with a tube on its slope. Dark streak of sand below the SWI at left.
Phase 1 Survey Area (OCW)	065	A	IND	Pale brown medium sand. Shell pieces cover the SWI. Sand dollar test at the SWI.
Phase 1 Survey Area (OCW)	065	C	IND	Pale brown coarse sand. Shell pieces at the SWI.
Phase 1 Survey Area (OCW)	065	D	2	Pale brown coarse sand. Shell pieces cover the SWI. Sand clumps and a hermit crab on a sand dollar test at the SWI.
Phase 1 Survey Area (OCW)	066	A	2	Pale brown fine sand. Patches of gray fine sand at max. penetration. Large stage 2 tubes cover the SWI. Fecal stack of podocerid amphipod attached to the tubes. Gastropods and sand dollars at the SWI, center. Orange fauna below the SWI at center. Worm near max. penetration below the orange fauna.
Phase 1 Survey Area (OCW)	066	B	2	Pale brown fine sand. Patches of gray fine sand at max. penetration. Large stage 2 tubes, sand dollars, and fecal stack of podocerid amphipod cover the SWI.
Phase 1 Survey Area (OCW)	066	C	2 -> 3	Pale brown fine sand. Large patch of gray fine sand at max. penetration. Large stage 2 tubes and fecal stack of podocerid amphipod in the farfield, left. Worm at left edge may extend to max. penetration.
Phase 1 Survey Area (OCW)	067	A	2	Pale gray fine sand. Large stage 2 tubes at the SWI. Sand dollars and fecal stack of podocerid amphipod in the farfield.

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Phase 1 Survey Area (OCW)	067	B	2	Pale gray fine sand. Sand dollars, stage 2 tubes, and fecal stack of podocerid amphipod at the SWI. Saturated patches below the SWI may indicate burrowing.
Phase 1 Survey Area (OCW)	067	C	2	Pale gray fine sand. High boundary roughness. Stage 2 tube, fecal stack of podocerid amphipod, and sand dollar in the farfield at right.
Phase 1 Survey Area (OCW)	068	A	2	Pale brown fine sand. Large stage 2 tubes and fecal stack of podocerid amphipod cover the SWI. Sand dollar at center. Dark streak in sand at right edge.
Phase 1 Survey Area (OCW)	068	B	2	Pale brown fine sand. Stage 2 tubes and fecal stack of podocerid amphipod at SWI. Orange fauna below a tube at right.
Phase 1 Survey Area (OCW)	068	C	2	Pale brown fine sand. Stage 2 tubes and fecal stack of podocerid amphipod at SWI. A large ripple spans the SWI. Sand dollar in nearfield at left.
Phase 1 Survey Area (OCW)	069	A	2	Pale brown medium sand. Collapsed tubes cover the SWI in the nearfield, standing stage 2 tubes and fecal stack of podocerid amphipod in the farfield. Orange saturated streaks extend to max. penetration.
Phase 1 Survey Area (OCW)	069	B	2 -> 3	Brown medium sand. Collapsed stage 2 tubes cover the SWI. Hermit crab at the SWI, right edge. Dark patches of sand at max. penetration. Burrows in PV.
Phase 1 Survey Area (OCW)	069	C	2 -> 3	Pale brown fine sand. Stage 2 tubes and fecal stack of podocerid amphipod at SWI. Orange saturated streaks and burrows extend to max. penetration. Worm at bottom-right corner. Burrows in PV.
Phase 1 Survey Area (OCW)	070	A	2	Pale gray fine sand. Stage 2 tube and fecal stack of podocerid amphipod to the right of a sand dollar in the farfield at left.
Phase 1 Survey Area (OCW)	070	B	2 -> 3	Pale gray fine sand. Fecal deposits and sand dollars at the SWI. Stage 2 tube in the farfield at left next to a large sand dollar. Fecal stack of podocerid amphipod in the farfield. Burrows in PV.
Phase 1 Survey Area (OCW)	070	C	2	Pale gray fine sand. Sand dollar at left with shell-coated tube adjacent. A skate egg case on top of the sand dollar is covered with small pale eggs of a different species. Sand dollar test at SWI, right.
Phase 1 Survey Area (OCW)	071	A	2	Pale gray fine sand. Stage 2 tubes at the SWI and in the farfield. Sand dollar and fecal stack of podocerid amphipod in the farfield. Brown saturated streak near max. penetration.
Phase 1 Survey Area (OCW)	071	B	2	Pale gray fine sand. Large stage 2 tubes and large sand clumps at the SWI. Fecal stack of podocerid amphipod at the SWI.
Phase 1 Survey Area (OCW)	071	C	2	Pale gray fine sand. Large stage 2 tubes and fecal stack of podocerid amphipod at the SWI. Sand dollars in the farfield. Burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	072	B	2 -> 3	Pale gray fine sand. Stage 2 tubes and fecal stack and podocerid amphipod in the nearfield. Larger tubes and sand dollar in the farfield. Burrows in PV.
Phase 1 Survey Area (OCW)	072	D	IND	Pale gray fine sand. A large pile of sand spans the SWI, with sand dollars at the surface. Burrows in PV.
Phase 1 Survey Area (OCW)	072	E	2	Pale gray fine sand. Stage 2 tubes and fecal stack of podocerid amphipod at right. Large sand and shell-coated tube at left. Dark patches in sand at bottom right.
Phase 1 Survey Area (OCW)	073	A	2	Pale gray fine sand. Stage 2 tubes and sand dollars at the SWI. Worm near the SWI at left.
Phase 1 Survey Area (OCW)	073	B	2	Pale gray fine sand. Stage 2 tubes, fecal stack of podocerid amphipod, and sand dollars in the farfield. Two polychaetes near the SWI at center. Sand dollar dragged down at center. Dark patch in sand at bottom-right corner.
Phase 1 Survey Area (OCW)	073	C	2	Pale gray fine sand. Stage 2 tubes and sand dollars at the SWI. Possible burrow at right.
Phase 1 Survey Area (OCW)	074	A	2 -> 3	Pale gray fine sand. Sand dollars at the SWI. Stage 2 tube in the farfield at center. Saturated streaks extend to max. penetration. Burrows in PV.

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Phase 1 Survey Area (OCW)	074	B	2	Pale gray fine sand. Gastropod and shell-coated tube in the midfield at center. Sand dollars at surface.
Phase 1 Survey Area (OCW)	074	C	2	Pale gray fine sand. Stage 2 tube at the SWI at right next to a gastropod. Sand dollars at surface. Fecal stack of podocerid amphipod, fecal deposits, and another gastropod in the farfield.
Phase 1 Survey Area (OCW)	075	B	2	Pale brown medium sand. Sand clumps at the SWI.
Phase 1 Survey Area (OCW)	075	C	2	Pale brown medium sand. Tubes and fecal deposits at the SWI.
Phase 1 Survey Area (OCW)	075	D	2	Pale brown medium sand. Sand clumps and a large shell coated tube at the SWI.
Phase 1 Survey Area (OCW)	076	A	2	Pale brown coarse sand. Shell pieces cover the SWI. Hermit crab in the farfield at center. Sand clumps in nearfield at center.
Phase 1 Survey Area (OCW)	076	B	IND	Pale brown coarse sand. Shell pieces cover the SWI. Small Jonah crab on shell at SWI at right. Hermit crab on shell at SWI, right edge.
Phase 1 Survey Area (OCW)	076	C	2	Pale brown coarse sand. Shell pieces cover the SWI. Sand clumps at the SWI at center.
Phase 1 Survey Area (OCW)	077	A	2	Pale brown fine sand. Collapsed stage 2 tubes at the SWI. Hermit crab at right, and small Jonah crab at center-left in the nearfield. Sand dollar in the farfield. Burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	077	B	2	Pale brown fine sand. Stage 2 tube in the nearfield at left, and other tubes in the farfield. Fecal stack of podocerid amphipod in the farfield at left, hermit crab at center, and gastropod in the farfield at right. Faint pocket of darker sand below the SWI at left.
Phase 1 Survey Area (OCW)	077	C	2	Pale brown fine sand. Stage 2 tubes and gastropods at the SWI. Jonah crab carapace in the nearfield at center.
Phase 1 Survey Area (OCW)	078	A	2	Pale brown fine sand. Sand dollars cover the sediment surface. Stage 2 tubes in the nearfield. Fecal stack and podocerid amphipod in the nearfield. Burrows in the upper cms of sand. Infauna~1cm deep at right.
Phase 1 Survey Area (OCW)	078	B	2	Pale brown fine sand. Stage 2 tubes in the farfield. Fecal stack and podocerid amphipod in the farfield. Sand dollars on the surface. Worm at max. penetration under the sand dollar at left.
Phase 1 Survey Area (OCW)	078	C	2	Pale brown fine sand. Stage 2 tubes, fecal stack of podocerid amphipod in the nearfield. Sand dollars in the farfield.
Phase 1 Survey Area (OCW)	079	E	2	Pale brown fine sand. Stage 2 tube at the SWI. Sand dollars at the surface. Orange streaks and worm below the SWI at right.
Phase 1 Survey Area (OCW)	079	F	2	Pale brown fine sand over gray fine sand. Stage 2 tube in the nearfield, left. Fecal stack of podocerid amphipod attached to tube. Sand dollars at the surface.
Phase 1 Survey Area (OCW)	079	G	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes in the farfield. Sand dollars at the surface. Brown streak below the SWI at right.
Phase 1 Survey Area (OCW)	080	A	2	Pale brown fine sand. Sand clump in the farfield at right. Sand dollars at the surface.
Phase 1 Survey Area (OCW)	080	B	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Fecal stack of podocerid amphipod and hermit crab in nearfield at left.
Phase 1 Survey Area (OCW)	080	C	IND	Pale brown fine sand. Sand dollars at the surface. Sand clumps or shells in the farfield.
Phase 1 Survey Area (OCW)	081	A	2	Pale brown medium sand. Sand clump at the SWI, center. Gastropod and sand dollar in the farfield.
Phase 1 Survey Area (OCW)	081	B	2	Pale brown medium sand. Stage 2 tube at the SWI, center. Smaller tubes to the right. Worm 1cm deep below the larger tube. Sand clumps and a gastropod in the nearfield at left.
Phase 1 Survey Area (OCW)	081	C	2	Pale brown medium sand. Sand clumps at the SWI.
Phase 1 Survey Area (OCW)	082	A	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes in the farfield. Fecal stack of podocerid amphipod attached to tube. Sand dollars at the surface. Burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	082	B	2	Pale brown fine sand. Stage 2 tubes at the SWI, with a larger tube in the farfield.

Area	StationID	Replicate	Successional Stage	Comment
Phase 1 Survey Area (OCW)	082	C	2	Pale brown fine sand. Stage 2 tube in the nearfield at right. Fecal stack of podocerid amphipod attached to tube. Gastropod and sand dollars at right. Worm near max. penetration at right.
Phase 1 Survey Area (OCW)	083	A	2	Pale brown fine sand. Stage 2 tubes at the SWI, right. Sand clump in the nearfield at center. Hermit crab in the farfield at right.
Phase 1 Survey Area (OCW)	083	B	2	Pale brown fine sand. Gastropods and sand dollars at the surface. Stage 2 tubes in midground at left.
Phase 1 Survey Area (OCW)	083	C	2	Pale brown fine sand. Small tubes at the SWI. Sand clump in the nearfield at right. Sand dollars at the surface. Gastropod or tube in the farfield at left.
Phase 1 Survey Area (OCW)	084	A	2	Pale brown fine sand. Stage 2 tubes in the midfield at right. Shell buried in sand near max. penetration.
Phase 1 Survey Area (OCW)	084	B	2	Pale brown fine sand. Collapsed fecal stack of podocerid amphipod at SWI. Sand dollars at the surface.
Phase 1 Survey Area (OCW)	084	C	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Fecal stack of podocerid amphipod in the farfield at left. Sand dollars at the surface.
Phase 1 Survey Area (OCW)	085	B	2	Pale brown very fine sand. Stage 2 tubes and shell pieces cover the SWI. Large shell at left covered in brown growth. Bivalve siphon in front of the shell. Worms near max. penetration at left. Open spaces in sand may be due to dragdown.
Phase 1 Survey Area (OCW)	085	C	2	Pale brown very fine sand. Collapsed stage 2 tubes cover the SWI. White bivalve shell at the SWI. Patches of silt-clay and worms in the upper cms of sand. Open spaces in sand may be due to dragdown.
Phase 1 Survey Area (OCW)	085	D	2	Pale brown coarse sand with fines mixed in. Collapsed stage 2 tubes cover the SWI. Fecal stack of podocerid amphipod in midfield at right. Worms near max. penetration. Hermit crab at SWI. Open spaces in sand may be due to dragdown.
Phase 1 Survey Area (OCW)	086	A	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tube in the nearfield, center-left. Sand dollars at the surface. Hermit crabs in the farfield at left.
Phase 1 Survey Area (OCW)	086	B	IND	Pale brown fine sand. Thin layer of brown sand at the SWI. Sand dollars at the surface.
Phase 1 Survey Area (OCW)	086	C	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Gastropods, hermit crabs, and sand dollars at the surface. Small sand clump in the nearfield to the right of a small gastropod.
Phase 1 Survey Area (OCW)	087	A	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes cover the SWI. Fecal stack of podocerid amphipod attached to tube at left. Worm 1cm below SWI at right.
Phase 1 Survey Area (OCW)	087	B	2	Pale brown fine sand. Stage 2 tubes in the nearfield at center. Fecal stack of podocerid amphipod attached to tube at center. Sand dollars at the surface.
Phase 1 Survey Area (OCW)	087	C	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes at the SWI, right. Black streak in sand at bottom left corner. Gastropod and hermit crab at right. Sand dollars at the surface. Possible fecal stacks in the farfield.
Phase 1 Survey Area (OCW)	088	A	1 -> 2	Pale brown fine sand. Fecal deposits at surface. Possible gastropod at right edge. Small tubes in background.
Phase 1 Survey Area (OCW)	088	B	2	Pale brown fine sand. Stage 2 tube and sand clump in the midfield. Sand dollar at the SWI. Gastropod in the farfield at left. Shallow burrow at the SWI at left.
Phase 1 Survey Area (OCW)	088	C	2	Pale brown fine sand. Stage 2 tube in the midfield at right. Sand clumps in the nearfield. Sand dollar in the midfield at center. Brownish-Red benthic algae visible at SWI
Phase 1 Survey Area (OCW)	089	A	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Fecal stack of podocerid amphipod in the midfield at center. Sand dollars at the surface. Burrows in the upper cms of sand.
Phase 1 Survey Area (OCW)	089	B	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Fecal stack and podocerid amphipods at right edge. Sand dollars at the surface. Gastropod in the midfield at right. Worm at max. penetration at center. Clear, needle-like plankton in the water column at center.

Area	StationID	Replicate	Successional Stage	Comment
Phase 1 Survey Area (OCW)	089	C	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes in midfield, center. Fecal stack of podocerid amphipod in the midfield and farfield. Sand dollars at the surface. Faint burrow at right extends to max. penetration.
Phase 1 Survey Area (OCW)	090	A	2	Pale brown fine sand over pale brown-gray fine sand. Stage 2 tubes at the SWI. Sand dollars in the farfield.
Phase 1 Survey Area (OCW)	090	B	2	Pale brown fine sand over pale brown-gray fine sand. Stage 2 tube at the SWI, center. Collapsed fecal stack of podocerid amphipod at the SWI, left. Shells and hermit crabs in the midfield. Egg case in the midfield at right.
Phase 1 Survey Area (OCW)	090	C	2	Pale brown fine sand over pale brown-gray fine sand. Collapsed stage 2 tubes cover the SWI in the farfield. Fecal stack of podocerid amphipod in the nearfield, right. Hermit crab in the farfield, center.
Phase 1 Survey Area (OCW)	091	A	2	Pale brown very fine sand over gray very fine sand. Pebbles at the SWI. Stage 2 tubes in the farfield at left. Large orange sponge at center with brown branching growth attached. Streaks of oxic sediment extend below the aRPD. Open spaces in sediment may be due to dragdown.
Phase 1 Survey Area (OCW)	091	B	2	Pale gray very fine sand with a pocket of pale gray silt-clay at bottom right corner. Gray mud clasts at the SWI. Collapsed stage 2 tubes cover the SWI. Worms and burrows near max. penetration. Hermit crab at the SWI, right.
Phase 1 Survey Area (OCW)	091	C	2 -> 3	Pale brown very fine sand over gray very fine sand. Pebbles and shells at the SWI. Small tubes at the SWI. Burrows in the upper cms of sediment. Long saturated streaks and a large burrow at right extend to max. penetration. Boring fauna inside shell at SWI. Void at mid-depths at left. Burrows in PV.
Phase 1 Survey Area (OCW)	092	A	IND	Brown very coarse sand over coarse sand with shell pieces covering the SWI. Hermit crab in midfield, center.
Phase 1 Survey Area (OCW)	092	B	IND	Brown very coarse sand over coarse sand with shell pieces covering the SWI. Sand clumps at the SWI.
Phase 1 Survey Area (OCW)	092	C	IND	Brown coarse sand with some larger grains mixed in, and shell pieces at the SWI. Sand clumps at the SWI.
Phase 1 Survey Area (OCW)	093	A	2	Pale brown fine sand over pale brown-gray fine sand. Stage 2 tubes at the SWI. Fecal stack of podocerid amphipod in the farfield. Irregular image distortion at left.
Phase 1 Survey Area (OCW)	093	B	2	Pale gray fine sand. Stage 2 tubes at the SWI, right. Fecal stack of podocerid amphipod attached to tube at right. Gastropod at left edge.
Phase 1 Survey Area (OCW)	093	C	2	Pale gray fine sand. Stage 2 tubes at the SWI. Sand dollar in midfield, center.
B.L. England Export Cable	201	A	2	Pale brown medium sand. Thin layer of brown sand at the SWI. Tubes at the SWI. Sand clumps in the nearfield at left. Hermit crabs at SWI, right.
B.L. England Export Cable	201	B	2	Pale brown medium sand. Tubes or fecal deposits at the SWI, right. Sand clumps in the farfield at center. Sand dollar in the farfield at left.
B.L. England Export Cable	201	C	2	Pale brown medium sand. Sand clumps at the surface.
B.L. England Export Cable	202	A	IND	Pale brown medium sand. Thin layer of brown sand at the SWI. Shells at the SWI.
B.L. England Export Cable	202	B	IND	Pale brown medium sand. Shells at the SWI. Clear, needle-like plankton in the water column at right.
B.L. England Export Cable	202	C	IND	Pale brown medium sand. Thin layer of brown sand at the SWI. Shells at the SWI.
B.L. England Export Cable	203	A	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Shallow burrow at left just below SWI.
B.L. England Export Cable	203	B	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tube in nearfield, left. Worms in the upper cms of sand.
B.L. England Export Cable	203	C	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Burrow extending 3cm deep at left. Razor clam shell at SWI.
B.L. England Export Cable	204	A	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Worms in the upper cms of sand. Shell fragments and fecal deposits at the SWI.
B.L. England Export Cable	204	B	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Crab intersected by camera at SWI. Stage 2 tubes at SWI.
B.L. England Export Cable	204	C	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Shell fragments at the SWI. Stage 2 tubes at SWI.
B.L. England Export Cable	205	A	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Burrow extending to max penetration at right. Hermit crab at SWI at right.
B.L. England Export Cable	205	B	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Burrow extending 3cm deep at right.
B.L. England Export Cable	205	C	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Depression in sand at the SWI. Shallow oxidized burrow just right of center. Small tubes at SWI.
B.L. England Export Cable	206	A	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Fecal deposits at the SWI and faint burrows in the upper cms of sand.
B.L. England Export Cable	206	B	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Saturated burrow extending 3 cm deep at right.
B.L. England Export Cable	206	C	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Worm in burrow 2 cm deep at right.
B.L. England Export Cable	207	B	1 -> 2	Pale gray fine sand. Thin layer of brown sand at the SWI. Possible burrows in the upper cms of sand. Small tubes at SWI.

Area	StationID	Replicate	Successional Stage	Comment
B.L. England Export Cable	207	C	2	Pale gray fine sand. Stage 2 tube at midfield at right. Ripples at SWI.
B.L. England Export Cable	207	D	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Hermit crab in midfield at center. Tubes at SWI, shallow burrows beneath SWI.
B.L. England Export Cable	208	A	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Burrows in the upper cms of sand.
B.L. England Export Cable	208	B	IND	Pale gray fine sand. Thin layer of brown sand at the SWI.
B.L. England Export Cable	208	C	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Stage 2 tube at SWI, left. Burrows in the upper cms of sand.
B.L. England Export Cable	209	A	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Stage 2 tube in nearfield, right. Shell fragments in the farfield, likely part of a circular pile visible in PV.
B.L. England Export Cable	209	B	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Burrows and small worms in the upper cms of sand. Possible gastropod in farfield at left.
B.L. England Export Cable	209	C	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Shells at the SWI. Burrows in the upper cms of sand.
B.L. England Export Cable	210	B	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes at the SWI. Burrows in the upper cms of sand.
B.L. England Export Cable	210	C	2	Pale gray fine sand over dark gray fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes in the midfield, right. Burrows and worms in the upper cms of sand.
B.L. England Export Cable	210	D	2	Pale gray fine sand. Thin layer of brown sand at the SWI. Stage 2 tube at SWI, left next to a small surf clam shell. Moon snail egg case in the farfield. Faint burrows in the upper cms of sand.
B.L. England Export Cable	211	A	2	Pale gray fine sand over dark gray fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes at the SWI. Burrows in the upper cms of sand.
B.L. England Export Cable	211	B	2	Pale gray fine sand over dark gray fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes in the farfield. Small surf clam shell at the SWI. Group of slipper shells in the midfield, center.
B.L. England Export Cable	211	C	2	Pale gray fine sand over dark gray fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes in the farfield. Fecal deposits at the SWI.
Oyster Creek Export Cable	301	A	2	Pale brown medium sand. Tubes in farfield.
Oyster Creek Export Cable	301	B	IND	Pale brown medium sand.
Oyster Creek Export Cable	301	C	IND	Pale brown medium sand.
Oyster Creek Export Cable	302	A	2 -> 3	Pale brown coarse sand with larger grains mixed in. Worms in the upper cms of sand, with some worms and saturated burrows extending below penetration.
Oyster Creek Export Cable	302	B	2 -> 3	Pale brown medium pebble over coarse sand. Worm in burrow lower right.
Oyster Creek Export Cable	302	C	2 -> 3	Pale brown medium pebble over coarse sand. Patch of brown-gray fines at left. Worms in the upper cms of sand, with some worms and saturated burrows extending below penetration. Hermit crab at SWI, center, to the right of an orange bryozoan colony on a pebble. Ark clam at SWI, right edge.
Oyster Creek Export Cable	303	A	1 -> 2	Pale brown fine sand. Small tubes in the farfield.
Oyster Creek Export Cable	303	B	1 -> 2	Pale brown fine sand. Small tubes in the midfield, left.
Oyster Creek Export Cable	303	C	1 -> 2	Pale brown fine sand. Small tubes at SWI.
Oyster Creek Export Cable	304	A	1 -> 2	Pale brown fine sand. Thin layer of brown sand at the SWI. Black bivalve shell at the SWI. Sand dollar in farfield. Burrows and small worms in the upper cms of sand. Small tubes at SWI.
Oyster Creek Export Cable	304	B	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Black bivalve shell in the nearfield, left. Sand dollar at right. Small tubes at SWI, shallow burrow visible at left.
Oyster Creek Export Cable	304	C	1 -> 2	Pale brown fine sand. Thin layer of brown sand at the SWI. Small surf clam shell at the SWI. Sand clump at SWI, right. Sand dollar in the midfield, center. Small tubes at SWI.
Oyster Creek Export Cable	305	A	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tubes in the nearfield, right.
Oyster Creek Export Cable	305	B	2	Pale brown fine sand. Patch of dark gray fine sand at mid-depths. Thin layer of brown sand at the SWI. Stage 2 tube at the SWI, center-right in front of sand dollar. Sand dollars at the surface. Gastropod in midfield at center, hermit crab to the right of the gastropod in the nearfield.
Oyster Creek Export Cable	305	C	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Sand dollars at the surface. Stage 2 tubes at SWI.
Oyster Creek Export Cable	306	A	1 -> 2	Pale brown medium sand. Small tubes at the SWI.
Oyster Creek Export Cable	306	B	1 -> 2	Pale brown medium sand. Small tubes at the SWI, right.
Oyster Creek Export Cable	306	C	1 -> 2	Pale brown medium sand. Small tubes at the SWI.
Oyster Creek Export Cable	307	A	IND	Pale brown coarse sand.
Oyster Creek Export Cable	307	B	1 -> 2	Pale brown medium sand. Small tubes at SWI.

Area	StationID	Replicate	Successional Stage	Comment
Oyster Creek Export Cable	307	C	1 -> 2	Pale brown medium sand. Brown fines/detritus at SWI. Gastropod partially buried in sand at right. Small tubes at SWI.
Oyster Creek Export Cable	308	A	2	Brown very fine sand over pale brown medium sand. Stage 2 tubes in the midfield at right.
Oyster Creek Export Cable	308	B	2	Pale brown fine sand. Thin layer of brown sand at the SWI. Stage 2 tube at SWI, right.
Oyster Creek Export Cable	308	C	2 -> 3	Pale brown fine sand. Thin layer of brown sand at the SWI. Tubes at SWI, left. Worm at max. penetration.
Oyster Creek Export Cable	309	A	2	Pale brown medium sand. Hermit crab and sand clumps at SWI. Ripple in sand in farfield.
Oyster Creek Export Cable	309	B	2	Pale brown medium sand. Stage 2 tubes at the SWI.
Oyster Creek Export Cable	309	C	2	Pale brown medium sand. Stage 2 tube at the SWI, center. Sand clumps at the SWI. Streak of black just under SWI at right. Possible burrows at mid-depths, center.
Oyster Creek Export Cable	310	A	2	Pale brown coarse sand. Thin layer of brown sand at the SWI. Brown fines/detritus cover the SWI. Sand clumps at right. Sand dollar at left edge. Stage 2 tubes at SWI.
Oyster Creek Export Cable	310	B	2 on 3	Pale brown coarse sand mixed with medium sand. Thin layer of brown sand at the SWI. Fecal deposits at SWI. Void at bottom left corner with reduced sediment around it.
Oyster Creek Export Cable	310	C	2	Pale brown coarse sand over medium sand. Stage 2 tubes at SWI.
Oyster Creek Export Cable	311	A	2	Pale brown coarse sand mixed with medium sand. Stage 2 tube at SWI, left. Large shell piece in farfield.
Oyster Creek Export Cable	311	B	2	Pale brown coarse sand mixed with medium sand. Stage 2 tube at SWI.
Oyster Creek Export Cable	311	C	IND	Pale brown coarse sand mixed with medium sand. Thin layer of brown sand at the SWI. Possible burrows extending to max. penetration.
Oyster Creek Export Cable	312	A	2	Pale gray medium sand. Stage 2 tubes in the farfield.
Oyster Creek Export Cable	312	B	2	Pale gray medium sand. Thin layer of brown sand at the SWI. Stage 2 tubes at SWI; larger tubes at left, smaller tubes at center.
Oyster Creek Export Cable	312	C	2	Pale gray medium sand. Thin layer of brown sand at the SWI. Small tubes at the SWI. Sand dollar at SWI.
Oyster Creek Export Cable	313	A	IND	Pale brown coarse sand mixed with medium sand. Sand clumps in the midfield at right. Slipper shells and a pink shell in the midfield, center-left.
Oyster Creek Export Cable	313	B	IND	Pale brown coarse sand mixed with medium sand. Hermit crab in farfield at right.
Oyster Creek Export Cable	313	C	1 -> 2	Pale brown coarse sand mixed with medium sand. Small tubes at the SWI, center.
Oyster Creek Export Cable	314	A	2	Pale brown medium sand over fine sand. Thin layer of brown sand at the SWI. Stage 2 tube at the SWI, left, in front of a sand dollar.
Oyster Creek Export Cable	314	B	2	Pale brown medium sand over fine sand. Large shell-coated tube in midfield, left. Sand dollar in the farfield at center.
Oyster Creek Export Cable	314	C	2	Pale brown medium sand over fine sand. Stage 2 tubes at the SWI, center.
Oyster Creek Export Cable	315	A	2	Pale brown medium sand. Some brown fines/detritus at the SWI. Large shell-coated tube in midfield, left, behind a skate egg case covered with a bryozoan colony. Fecal pellets at SWI.
Oyster Creek Export Cable	315	B	IND	Pale brown medium sand. Ripples in sand at the SWI.
Oyster Creek Export Cable	315	C	2	Pale brown coarse sand medium sand. Some brown fines/detritus at the SWI. Sand dollars and a stage 2 tube in the farfield.
Oyster Creek Export Cable	316	A	IND	Pale brown coarse sand mixed with medium sand. Sand clumps in the nearfield, right.
Oyster Creek Export Cable	316	B	2	Pale brown coarse sand mixed with medium sand. Fecal deposit or tube in the farfield.
Oyster Creek Export Cable	316	C	IND	Pale brown coarse sand medium sand. Large sand clump in midfield, center. Sand dollar in farfield, right.
Oyster Creek Export Cable	317	A	IND	Pale brown medium sand. Sand dollars at the surface.
Oyster Creek Export Cable	317	B	IND	Pale brown medium sand. Sand dollars at the surface.
Oyster Creek Export Cable	317	C	2	Pale brown coarse sand mixed with medium sand. Sand clumps in the nearfield, right. Sand dollars in the farfield.
Oyster Creek Export Cable	318	B	2	Pale brown coarse sand. Stage 2 tube near right edge.
Oyster Creek Export Cable	318	C	IND	Pale brown coarse sand.
Oyster Creek Export Cable	318	D	IND	Pale brown coarse sand. Brown branching growth attached to a shell in the farfield.
Oyster Creek Export Cable	319	A	2	Pale brown medium sand. Stage 2 tubes at the SWI.
Oyster Creek Export Cable	319	C	2	Pale brown coarse sand mixed with medium sand. Fecal deposits at the SWI, center.
Oyster Creek Export Cable	319	D	2	Pale brown medium sand. Stage 2 tube in the midfield , center. Moon snail egg case in the farfield, left.
Oyster Creek Export Cable	320	A	IND	Pale brown coarse sand.
Oyster Creek Export Cable	320	B	2	Pale brown coarse sand. Stage 2 tubes in the farfield.
Oyster Creek Export Cable	320	C	IND	Pale brown coarse sand. Large shell piece and sand dollars in the farfield.
Oyster Creek Export Cable	321	A	IND	Pale brown coarse sand mixed with medium sand. Sand dollar in the farfield.
Oyster Creek Export Cable	321	B	IND	Pale brown medium sand. Ripple in the sand spans the SWI.
Oyster Creek Export Cable	321	C	IND	Pale brown coarse sand.
Oyster Creek Export Cable	322	A	IND	Pale brown coarse sand.

Area	StationID	Replicate	Successional Stage	Comment
Oyster Creek Export Cable	322	B	2	Pale brown coarse sand. Small tubes in the nearfield at right. Possible gastropod in the farfield.
Oyster Creek Export Cable	322	C	2	Pale brown medium sand. Stage 2 tubes at right at SWI.
Oyster Creek Export Cable	323	A	1 -> 2	Brown very coarse sand. Small fecal deposits at SWI, center. Small tubes or mucous at SWI.
Oyster Creek Export Cable	323	B	2	Brown very coarse sand. Stage 2 tubes at the SWI, center.
Oyster Creek Export Cable	323	C	2	Brown very coarse sand. Stage 2 tubes at the SWI, center.
Oyster Creek Export Cable	324	A	IND	Brown very coarse sand over pale brown coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	324	B	IND	Brown very coarse sand over pale brown coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	324	C	IND	Brown very coarse sand over pale brown coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	325	A	IND	Orange-brown fine pebble over brown very coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	325	B	IND	Brown very coarse sand over pale brown coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	325	C	IND	Brown very coarse sand over pale brown coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	326	A	IND	Brown very coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	326	B	2 -> 3	Brown very coarse sand. Medium-sized red and brown worms throughout the sediment column. Sand dollars at the surface.
Oyster Creek Export Cable	326	C	IND	Orange-brown fine pebble over brown very coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	327	A	IND	Brown very coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	327	B	IND	Brown very coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	327	C	IND	Brown very coarse sand. Sand dollars at the surface.
Oyster Creek Export Cable	328	A	2	Brown very coarse sand over pale brown coarse sand. Stage 2 tube in the farfield at center. Possible burrow at center.
Oyster Creek Export Cable	328	B	IND	Brown very coarse sand. Sand clump at SWI, right.
Oyster Creek Export Cable	328	C	IND	Pale brown very coarse sand mixed with coarse sand. Sand clump at SWI, left.
Oyster Creek Export Cable	329	A	2	Brown coarse sand over pale brown medium sand. Stage 2 tubes and sand clumps in the midfield. Hermit crab at left.
Oyster Creek Export Cable	329	B	2	Pale brown coarse sand. Sand clumps at the SWI. Possible fauna swimming just above the sediment surface in midfield at center. Stage 2 tubes in background.
Oyster Creek Export Cable	329	C	IND	Pale brown coarse sand.
Oyster Creek Export Cable	330	A	IND	Orange-brown very fine pebble. Brown, round tunicates cover the sediment surface. Hermit crab at right edge.
Oyster Creek Export Cable	330	B	IND	Orange-brown very fine pebble. Brown, round tunicates cover the sediment surface. Hermit crabs at left.
Oyster Creek Export Cable	330	D	IND	Orange-brown very fine pebble. Brown, round tunicates at the sediment surface. Moon snail egg case in the farfield. Gastropod on the egg case.
Oyster Creek Export Cable	331	A	2	Pale brown coarse sand. Worms in the upper cms of sand, one worm extending past max. penetration at center. Clam buried a couple of cm below SWI at center.
Oyster Creek Export Cable	331	B	2	Pale brown coarse sand. Stage 2 tubes at the SWI.
Oyster Creek Export Cable	331	C	2 -> 3	Pale brown coarse sand. Stage 2 tubes at SWI. Worm at bottom right extending past max. penetration.
Oyster Creek Export Cable	332	A	2	Pale brown coarse sand over medium sand. Stage 2 tubes at the SWI.
Oyster Creek Export Cable	332	B	1 -> 2	Pale brown coarse sand over medium sand. Small tubes covered in EPS at the SWI. Shell piece at right.
Oyster Creek Export Cable	332	C	IND	Pale brown coarse sand over medium sand.
Oyster Creek Export Cable	333	A	2	Pale brown coarse sand over medium sand. Stage 2 tube at SWI, left.
Oyster Creek Export Cable	333	B	2	Pale brown coarse sand over medium sand. Large shell-coated tube in midfield, left.
Oyster Creek Export Cable	333	C	IND	Pale brown coarse sand over medium sand. Shell piece at SWI.
Oyster Creek Export Cable	334	A	2	Brown very coarse sand. Stage 2 tube at SWI, right.

Area	StationID	Replicate	Successional Stage	Comment
Oyster Creek Export Cable	334	B	IND	Brown very coarse sand.
Oyster Creek Export Cable	334	D	2	Brown very coarse sand. Gastropod in the farfield at left. Red worms throughout the sediment column.
Oyster Creek Export Cable	335	A	2 -> 3	Pale brown coarse sand with larger grains mixed in. Stage 2 tube at SWI, right. Worm near max. penetration at right.
Oyster Creek Export Cable	335	B	IND	Pale brown coarse sand with larger grains mixed in.
Oyster Creek Export Cable	335	D	2	Pale brown coarse sand with larger grains mixed in. Stage 2 tube in farfield at center.
Oyster Creek Export Cable	336	A	2	Pale brown coarse sand over medium sand with larger grains mixed in. Stage 2 tubes at the SWI.
Oyster Creek Export Cable	336	B	2	Pale brown coarse sand over medium sand with larger grains mixed in. Stage 2 tubes at SWI.
Oyster Creek Export Cable	336	C	2	Pale brown coarse sand over medium sand with larger grains mixed in. Stage 2 tubes at the SWI. Burrows in the upper cms of sand.
Oyster Creek Export Cable	337	A	2	Pale brown coarse sand mixed with very fine pebble. Stage 2 tubes at the SWI. Open space in sand at bottom left may be due to dragdown.
Oyster Creek Export Cable	337	B	IND	Pale brown coarse sand mixed with fine pebble. Slipper shell in midfield at left, bryozoan colony on pebble in nearfield at right.
Oyster Creek Export Cable	337	C	IND	Pale brown coarse sand mixed with very fine pebble. Open spaces in sand at bottom left may be due to dragdown.
Oyster Creek Export Cable	338	A	1 -> 2	Pale brown medium sand. Small tubes at the SWI, right.
Oyster Creek Export Cable	338	B	2	Pale brown medium sand. Diopatra shell tube in the midfield, center. Smaller tube to the right in the nearfield. Gastropod at SWI, left. Tube with EPS in the farfield.
Oyster Creek Export Cable	338	C	IND	Pale brown medium sand.
Oyster Creek Export Cable	339	A	2	Orange-brown very coarse sand with larger grains mixed in. Stage 2 tubes cover the SWI. Fecal stacks of podocerid amphipods attached to tubes. Hermit crabs at the SWI, center. Possible gastropod on tubes in the farfield at right.
Oyster Creek Export Cable	339	B	2	Orange-brown very coarse sand with larger grains mixed in. Large stage 2 tubes cover the SWI. Fecal stacks of podocerid amphipods attached to tubes.
Oyster Creek Export Cable	339	C	2 -> 3	Orange-brown very coarse sand Large stage 2 tubes cover the SWI. Fecal stacks and podocerid amphipods attached to tubes. Worms throughout the sediment column. Clear-white debris at the SWI at left.
Oyster Creek Export Cable	340	A	2	Pale brown coarse sand over medium sand. Stage 2 tube in the farfield at right. Fecal stack of podocerid amphipod in the midfield at center-right. Fecal deposits at the SWI, center.
Oyster Creek Export Cable	340	B	IND	Pale brown coarse sand over medium sand. Sand clumps and shell pieces in the midfield at left.
Oyster Creek Export Cable	340	C	1 -> 2	Pale brown medium sand. Thin layer of brown sand at the SWI. Small tubes in the nearfield at left.
Oyster Creek Export Cable	341	B	2	Pale brown very coarse sand mixed with coarse sand. One patch of brown fines/detritus at SWI, right. Stage 2 tubes at the SWI. Clam at SWI at left.
Oyster Creek Export Cable	341	C	2	Pale brown very coarse sand mixed with coarse sand. Stage 2 tubes at SWI.
Oyster Creek Export Cable	341	D	IND	Pale brown very coarse sand mixed with coarse sand. Tube or gastropod appendage at left.
Oyster Creek Export Cable	342	A	2	Pale gray fine sand. Stage 2 tubes at the SWI. Dragdown void artifacts in sediment column.
Oyster Creek Export Cable	342	B	2 -> 3	Pale gray fine sand. Stage 2 tubes at the SWI. Burrows with worms extending ~4 cm deep at center.
Oyster Creek Export Cable	342	C	2	Pale gray fine sand. Stage 2 tubes at the SWI. Burrows in the upper cms of sand.
Oyster Creek Export Cable	343	A	IND	Pale brown medium sand with larger grains mixed in, and pebbles at the SWI.
Oyster Creek Export Cable	343	B	2	Pale brown medium sand with larger grains mixed in, and pebbles at the SWI. Large shell coated tube in the farfield. Saturated streak in the sand below SWI at center.
Oyster Creek Export Cable	343	C	2	Pale brown medium sand mixed with coarse sand and pebbles at the SWI. Stage 2 tubes in the farfield at left. Fecal deposit at the SWI, right.
Oyster Creek Export Cable	344	A	2	Orange-gray very fine pebble over coarse sand. Stage 2 tubes at the SWI. Large surf clam shell in the farfield.
Oyster Creek Export Cable	344	B	2	Orange-gray very fine pebble over coarse sand. Red worms near max. penetration. Group of slipper shells at right. Bryozoan colonies and hydroids on pebbles and slipper shells.
Oyster Creek Export Cable	344	D	2 -> 3	Orange-gray very fine pebble over coarse sand. Sand clump and hermit crab at the SWI, center. Large shell covered in bryozoans in the farfield. Worm at max. Penetration at right.

Area	StationID	Replicate	Successional Stage	Comment
Oyster Creek Export Cable	345	A	1 -> 2	Brown very coarse sand. Small tubes at the SWI.
Oyster Creek Export Cable	345	B	1 -> 2	Brown very coarse sand. Small tubes in the nearfield at left. Shell pieces in the farfield.
Oyster Creek Export Cable	345	C	1 -> 2	Brown very coarse sand. Small tubes in the nearfield at right. Hermit crabs in the farfield.
Oyster Creek Export Cable	346	A	2	Pale brown medium sand mixed with very fine pebble. Stage 2 tubes at the SWI.
Oyster Creek Export Cable	346	B	2 -> 3	Pale brown medium sand mixed with very fine pebble. Orange saturated burrow extending to max. penetration. Hermit crab in the midfield.
Oyster Creek Export Cable	346	C	2 -> 3	Pale brown medium sand mixed with very fine pebble. Large sand clump at SWI, center. Saturated burrows throughout sediment column.
Oyster Creek Export Cable	347	A	2	Orange-brown coarse sand mixed with very fine pebble. Pocket of dark fines at bottom left. Red worms below the SWI and on the surface at left.
Oyster Creek Export Cable	347	B	2	Orange-brown very coarse sand mixed with coarse sand. Large shell coated tube at the SWI. Red worms at max. penetration at center.
Oyster Creek Export Cable	347	C	2	Orange-brown coarse sand mixed with very fine pebble. Possible tube at the SWI, right. Gastropod in the farfield at right. Red worms below the SWI and on the surface at center.
Oyster Creek Export Cable	348	A	2	Pale brown very coarse sand mixed with coarse sand. Diopatra shell tube in the nearfield. Unidentified fauna at the SWI at right.
Oyster Creek Export Cable	348	B	IND	Pale brown very coarse sand mixed with coarse sand. Hermit crabs at the SWI. Clear swimming fauna above the SWI at center.
Oyster Creek Export Cable	348	C	IND	Pale brown very coarse sand mixed with coarse sand. Hermit crab in the farfield. Shell piece in the farfield at right.
Oyster Creek Export Cable	349	A	IND	Orange fine pebble over pale brown coarse sand. Hydroids in the farfield.
Oyster Creek Export Cable	349	B	IND	Orange fine pebble over pale brown coarse sand. Shells at the SWI.
Oyster Creek Export Cable	349	C	IND	Orange fine pebble over pale brown coarse sand. Open spaces in sand likely due to dragdown.
Oyster Creek Export Cable	350	A	IND	Pale brown coarse sand with larger grains mixed in, and pebbles at the SWI.
Oyster Creek Export Cable	350	B	IND	Pale brown coarse sand with larger grains mixed in, and pebbles at the SWI. EPS at the SWI, center.
Oyster Creek Export Cable	350	C	IND	Pale brown coarse sand with larger grains mixed in, and pebbles at the SWI.
Reference	401	A	2	Pale brown fine sand over pale brown-gray fine sand. Dark streak in sand at left. Gastropod in farfield. Stage 2 tubes in farfield at right and left.
Reference	401	B	2	Pale brown fine sand over pale brown-gray fine sand. Tubes or fecal deposits in the midfield. Sand dollar at SWI, gastropod in farfield at left.
Reference	401	C	2	Pale brown fine sand over pale brown-gray fine sand. Tubes or fecal deposits in the midfield. Saturated burrows extending to max. penetration at left. Hermit crab in farfield.
Reference	402	A	2	Pale brown fine sand over pale brown-gray fine sand. Gastropod in the farfield. Stage 2 structures at SWI.
Reference	402	B	2	Pale brown fine sand over pale brown-gray fine sand. Burrows and worms in the upper cms of sand. Gastropod at the SWI.
Reference	402	C	2	Pale brown fine sand over pale brown-gray fine sand. Small shell coated tube at SWI, left. Pink worm emerging from tube at SWI in the midfield at right.
Reference	403	A	1 -> 2	Pale brown medium sand. Large hermit crab in midfield at right (crab is visible in PV). Gastropod to the left of hermit crab. Bivalve shell in farfield. Small tubes at SWI.
Reference	403	B	IND	Pale brown medium sand.
Reference	403	C	1 -> 2	Pale brown medium sand. Small tube in the farfield at right. Burrows in the upper cms of sand.

APPENDIX D

Plan View Image Analysis Results

Notes:

IND=Indeterminate

Bedform Size Measurement: "-" indicates variable is not measured for the replicate.

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	001	A	7/20/2019	11:03:27	78.35	52.24	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	12.41	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	001	B	7/20/2019	11:04:54	75.99	50.66	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	19.63	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	001	C	7/20/2019	11:06:22	77.61	51.74	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	12.94	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	002	A	7/20/2019	11:37:05	76.36	50.91	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	002	B	7/20/2019	11:38:23	77.96	51.97	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	002	C	7/20/2019	11:39:52	76.43	50.96	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	003	A	7/20/2019	12:20:44	79.55	53.03	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	10.61	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	003	B	7/20/2019	12:21:59	75.58	50.39	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	9.45	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	003	C	7/20/2019	12:23:17	78.99	52.66	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	13.16	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	004	A	7/20/2019	13:03:05	78.91	52.60	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	004	B	7/20/2019	13:04:19	83.16	55.44	0.46	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	004	C	7/20/2019	13:05:33	81.89	54.59	0.45	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	005	A	7/20/2019	13:21:32	77.00	51.33	0.40	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	7.70	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	005	B	7/20/2019	13:22:46	78.31	52.21	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	005	C	7/20/2019	13:23:55	78.35	52.24	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	006	A	7/20/2019	14:01:16	79.84	53.22	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	006	B	7/20/2019	14:02:25	83.16	55.44	0.46	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	006	C	7/20/2019	14:03:34	77.08	51.38	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	007	A	7/20/2019	14:20:18	76.58	51.06	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	6.38	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	007	B	7/20/2019	14:21:32	79.67	53.12	0.42	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	6.64	No	None	-	Sparse large shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	007	C	7/20/2019	14:22:41	81.80	54.54	0.45	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.09	No	None	-	Sparse large shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	008	A	7/20/2019	14:37:14	75.44	50.29	0.38	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	2.51	No	None	-	Sparse large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	008	B	7/20/2019	14:38:33	82.67	55.11	0.46	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.44	No	None	-	Sparse shell fragments, Squid egg casing	Worm Reef Biota
Phase 1 Survey Area (OCW)	008	C	7/20/2019	14:39:43	79.19	52.79	0.42	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	2.64	No	None	-	Sparse shell fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	009	A	7/20/2019	15:44:05	79.80	53.20	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	009	B	7/20/2019	15:45:19	78.83	52.55	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	009	C	7/20/2019	15:46:26	80.08	53.39	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	010	A	7/20/2019	15:23:59	78.27	52.18	0.41	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	3.26	No	None	-	None	Inferred Fauna
Phase 1 Survey Area (OCW)	010	B	7/20/2019	15:25:14	80.41	53.61	0.43	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	2.01	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	010	C	7/20/2019	15:26:30	74.96	49.98	0.37	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	5.00	No	None	-	Small shell or sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	011	A	7/20/2019	10:42:37	82.89	55.26	0.46	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	011	B	7/20/2019	10:43:49	82.54	55.03	0.45	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	011	C	7/20/2019	10:45:20	84.14	56.09	0.47	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	012	A	7/20/2019	10:03:31	77.23	51.49	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	16.09	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	012	B	7/20/2019	10:04:44	76.77	51.18	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	8.32	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	012	C	7/20/2019	10:05:56	76.13	50.76	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	6.98	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	013	A	7/20/2019	9:27:58	75.73	50.49	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	013	B	7/20/2019	9:29:13	79.43	52.95	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	013	C	7/20/2019	9:30:48	80.50	53.66	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments and shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	014	A	7/20/2019	9:08:04	78.55	52.37	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	9.16	Small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	014	B	7/20/2019	9:09:41	76.25	50.83	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	7.62	Small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	014	C	7/20/2019	9:10:49	79.88	53.25	0.43	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	3.33	No	Ripples	8.65	Small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	015	A	7/20/2019	16:48:40	75.25	50.17	0.38	No	Sand with Mobile Gravel and Shell Hash	Gravel Mixes	Sandy Gravel	3.14	No	None	-	High cover of large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	015	B	7/20/2019	16:49:51	85.06	56.71	0.48	No	Sand with Mobile Gravel and Shell Hash	Gravel Mixes	Sandy Gravel	3.54	No	None	-	High cover of small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	015	C	7/20/2019	16:51:04	78.35	52.24	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	016	A	7/20/2019	8:47:17	77.23	51.49	0.40	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	2.57	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	016	B	7/20/2019	8:48:36	76.96	51.31	0.39	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	1.92	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	016	C	7/20/2019	8:49:53	78.04	52.03	0.41	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	1.95	No	Ripples	7.80	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	017	A	7/20/2019	8:15:19	77.84	51.90	0.40	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.24	No	Ripples	6.49	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	017	B	7/20/2019	8:16:41	73.69	49.13	0.36	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.68	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	017	C	7/20/2019	8:17:58	72.19	48.13	0.35	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.61	No	Ripples	8.42	Sparse shell fragments	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	018	A	7/20/2019	16:25:47	78.00	52.00	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	018	B	7/20/2019	16:26:53	75.07	50.05	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	018	C	7/20/2019	16:28:05	77.50	51.66	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	019	A	7/20/2019	7:51:03	76.02	50.68	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	019	B	7/20/2019	7:52:12	78.51	52.34	0.41	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	1.96	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	019	C	7/20/2019	7:53:32	79.15	52.77	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	020	B	7/20/2019	7:11:08	82.98	55.32	0.46	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	2.77	No	None	-	Sparse shell and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	020	C	7/20/2019	7:12:25	78.67	52.45	0.41	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.93	No	None	-	Sparse shell and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	020	D	7/20/2019	7:13:40	80.83	53.89	0.44	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	4.72	No	None	-	Sparse shell and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	021	A	7/20/2019	6:27:46	78.79	52.53	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	021	B	7/20/2019	6:29:14	80.50	53.66	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	021	C	7/20/2019	6:30:27	80.91	53.94	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	022	A	7/20/2019	2:44:48	78.31	52.21	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	High cover of shell fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	022	C	7/20/2019	2:48:42	82.76	55.17	0.46	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	High cover of shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	022	D	7/20/2019	2:50:36	79.35	52.90	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Small shell and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	023	A	7/20/2019	3:19:29	78.79	52.53	0.41	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	3.94	No	None	-	None	Worm Reef Biota
Phase 1 Survey Area (OCW)	023	B	7/20/2019	3:20:45	70.52	47.02	0.33	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	5.29	No	None	-	Large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	023	C	7/20/2019	3:22:18	79.92	53.28	0.43	No	Sand with Mobile Gravel	Gravel	Granule	4.00	No	None	-	Sparse shell fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	024	A	7/20/2019	3:38:13	76.02	50.68	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	024	B	7/20/2019	3:39:43	75.95	50.63	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	024	C	7/20/2019	3:40:59	79.92	53.28	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	025	A	7/20/2019	3:55:53	81.17	54.11	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	025	B	7/20/2019	3:57:04	75.51	50.34	0.38	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	10.07	No	None	-	Shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	025	D	7/20/2019	3:59:33	70.91	47.27	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	026	B	7/20/2019	4:38:19	78.63	52.42	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	026	C	7/20/2019	4:39:57	70.72	47.14	0.33	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	026	D	7/20/2019	4:41:59	79.67	53.12	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	027	A	7/20/2019	4:54:00	79.88	53.25	0.43	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	2.00	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	027	B	7/20/2019	4:55:08	79.75	53.17	0.42	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	1.99	No	None	-	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	027	C	7/20/2019	4:56:32	76.96	51.31	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	10.90	None	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	028	A	7/20/2019	5:33:36	79.31	52.87	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	028	B	7/20/2019	5:34:49	76.47	50.98	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	028	C	7/20/2019	5:35:59	80.00	53.33	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	029	A	7/20/2019	5:48:08	74.86	49.90	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	5.93	Shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	029	B	7/20/2019	5:49:19	80.58	53.72	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	6.04	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	029	C	7/20/2019	5:50:25	78.95	52.63	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	8.55	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	030	A	7/20/2019	6:10:37	78.08	52.05	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	030	B	7/20/2019	6:11:42	78.71	52.47	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	7.21	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	030	C	7/20/2019	6:12:59	81.55	54.36	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	7.48	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	031	A	7/19/2019	23:47:25	76.17	50.78	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	031	B	7/19/2019	23:48:39	79.55	53.03	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	031	C	7/19/2019	23:49:48	80.16	53.44	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	032	A	7/19/2019	19:51:38	76.66	51.11	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	032	B	7/19/2019	19:52:52	78.04	52.03	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	032	C	7/19/2019	19:54:06	75.40	50.27	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	033	A	7/19/2019	20:11:17	68.72	45.81	0.31	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	033	B	7/19/2019	20:12:34	72.93	48.62	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	033	C	7/19/2019	20:13:46	79.67	53.12	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	034	A	7/19/2019	20:52:52	80.12	53.42	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	034	B	7/19/2019	20:54:12	78.75	52.50	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	11.02	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	034	C	7/19/2019	20:55:26	75.47	50.31	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	035	B	7/20/2019	2:21:52	75.95	50.63	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	035	C	7/20/2019	2:23:51	75.80	50.53	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	035	D	7/20/2019	2:25:26	79.07	52.71	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	036	A	7/19/2019	21:11:01	77.50	51.66	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	036	B	7/19/2019	21:12:14	80.66	53.77	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	44.36	Sparse shell hash and shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	036	C	7/19/2019	21:13:26	83.07	55.38	0.46	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	41.53	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	037	A	7/20/2019	2:00:18	74.57	49.71	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	037	B	7/20/2019	2:02:09	77.96	51.97	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	037	C	7/20/2019	2:03:41	76.58	51.06	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	038	A	7/19/2019	21:44:38	77.08	51.38	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	038	B	7/19/2019	21:45:50	80.41	53.61	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	038	C	7/19/2019	21:47:06	81.80	54.54	0.45	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	9.54	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	039	B	7/19/2019	22:02:16	79.39	52.93	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	039	C	7/19/2019	22:03:28	74.04	49.36	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	039	D	7/19/2019	22:04:41	81.42	54.28	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	040	A	7/20/2019	1:35:12	75.95	50.63	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	040	B	7/20/2019	1:36:59	74.07	49.38	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	040	C	7/20/2019	1:38:12	77.00	51.33	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash, Squid egg casing	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	041	A	7/20/2019	0:53:05	77.57	51.72	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	041	B	7/20/2019	0:54:56	80.54	53.69	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	041	C	7/20/2019	0:56:21	72.29	48.19	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	042	A	7/19/2019	22:24:23	70.72	47.14	0.33	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Worm Reef Biota
Phase 1 Survey Area (OCW)	042	B	7/19/2019	22:25:32	75.88	50.58	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Worm Reef Biota
Phase 1 Survey Area (OCW)	042	C	7/19/2019	22:26:44	79.43	52.95	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	043	A	7/20/2019	0:10:50	70.14	46.76	0.33	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and sparse shell fragments and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	043	B	7/20/2019	0:11:58	77.11	51.41	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and very sparse sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	043	D	7/20/2019	0:14:19	71.72	47.82	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	044	A	7/19/2019	22:43:34	71.89	47.93	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	044	B	7/19/2019	22:44:48	80.50	53.66	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	044	C	7/19/2019	22:46:02	75.76	50.51	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	045	A	7/19/2019	23:01:54	70.75	47.17	0.33	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	045	B	7/19/2019	23:03:04	79.51	53.01	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	045	C	7/19/2019	23:04:21	81.12	54.08	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	046	B	7/19/2019	19:35:44	75.18	50.12	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	046	C	7/19/2019	19:36:54	78.43	52.29	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	046	D	7/19/2019	19:38:10	77.88	51.92	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	047	B	7/19/2019	18:31:33	70.62	47.08	0.33	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	047	C	7/19/2019	18:32:54	79.96	53.31	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	047	D	7/19/2019	18:34:25	80.54	53.69	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	048	A	7/19/2019	18:04:20	75.58	50.39	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	048	B	7/19/2019	18:05:32	71.72	47.82	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	048	C	7/19/2019	18:06:42	77.42	51.61	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	049	A	7/19/2019	13:26:08	75.14	50.10	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	049	B	7/19/2019	13:27:28	76.92	51.28	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	049	C	7/19/2019	13:28:39	74.00	49.34	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	050	A	7/19/2019	17:31:01	76.58	51.06	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	050	B	7/19/2019	17:32:12	78.87	52.58	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	050	C	7/19/2019	17:33:28	72.49	48.33	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	051	A	7/19/2019	16:58:58	73.69	49.13	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	051	B	7/19/2019	17:00:18	76.28	50.86	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	051	C	7/19/2019	17:01:32	79.11	52.74	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	052	A	7/19/2019	16:11:44	70.49	47.00	0.33	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	052	B	7/19/2019	16:12:59	78.63	52.42	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	052	C	7/19/2019	16:14:19	77.38	51.59	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	053	A	7/19/2019	15:44:43	77.88	51.92	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	053	B	7/19/2019	15:45:57	68.06	45.38	0.31	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	053	C	7/19/2019	15:48:38	74.53	49.69	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	054	A	7/19/2019	18:56:06	73.00	48.67	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	054	B	7/19/2019	18:57:21	73.07	48.71	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	054	C	7/19/2019	18:58:34	77.30	51.54	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	055	A	7/19/2019	11:39:21	72.63	48.42	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	055	B	7/19/2019	11:40:44	68.36	45.57	0.31	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	055	C	7/19/2019	11:42:13	71.40	47.60	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	056	A	7/19/2019	12:24:17	75.04	50.02	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna

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Phase 1 Survey Area (OCW)	056	B	7/19/2019	12:25:23	74.93	49.95	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	056	C	7/19/2019	12:26:32	81.29	54.19	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	057	B	7/19/2019	12:50:00	75.95	50.63	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	057	C	7/19/2019	12:51:16	76.51	51.01	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	057	D	7/19/2019	12:52:30	80.37	53.58	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	058	A	7/19/2019	13:07:58	71.66	47.77	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	058	B	7/19/2019	13:09:14	77.61	51.74	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	058	C	7/19/2019	13:10:32	75.40	50.27	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	059	A	7/19/2019	8:00:46	73.10	48.73	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	059	B	7/19/2019	8:02:22	71.53	47.68	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	059	C	7/19/2019	8:03:55	70.59	47.06	0.33	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	060	A	7/19/2019	7:07:13	78.55	52.37	0.41	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	5.89	No	None	-	Extensive shell hash and large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	060	B	7/19/2019	7:08:52	80.50	53.66	0.43	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	8.05	No	None	-	Extensive shell hash and large and small shell fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	060	C	7/19/2019	7:10:27	75.14	50.10	0.38	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.01	No	None	-	Shell hash and large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	061	A	7/19/2019	14:34:19	79.19	52.79	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	061	B	7/19/2019	14:35:30	72.29	48.19	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	061	C	7/19/2019	14:36:35	77.84	51.90	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	062	A	7/19/2019	6:46:40	74.39	49.59	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	062	B	7/19/2019	6:48:19	79.15	52.77	0.42	No	Sand with Mobile Gravel and Shell Hash	Slightly Gravelly	Slightly Gravelly Sand	6.60	No	None	-	Shell hash, large and small shell fragments, and sand dollar fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	062	C	7/19/2019	6:50:20	78.43	52.29	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	063	A	7/19/2019	14:53:13	75.14	50.10	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	063	B	7/19/2019	14:54:25	80.54	53.69	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	063	C	7/19/2019	14:55:36	69.43	46.28	0.32	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	064	A	7/19/2019	6:24:48	80.62	53.75	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	064	B	7/19/2019	6:26:52	80.00	53.33	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	064	C	7/19/2019	6:28:26	77.53	51.69	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	065	A	7/19/2019	5:40:10	77.53	51.69	0.40	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	6.46	No	None	-	Extensive shell hash, large and small shell fragments, and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	065	C	7/19/2019	5:43:38	78.99	52.66	0.42	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	8.56	No	None	-	Extensive shell hash, large and small shell fragments, and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	065	D	7/19/2019	5:45:15	79.15	52.77	0.42	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	5.94	No	None	-	Extensive shell hash and large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	066	A	7/19/2019	15:21:06	72.90	48.60	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	066	B	7/19/2019	15:22:19	77.19	51.46	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	066	C	7/19/2019	15:23:38	74.82	49.88	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	067	A	7/19/2019	4:35:59	75.00	50.00	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	067	B	7/19/2019	4:37:39	70.33	46.89	0.33	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	067	C	7/19/2019	4:39:22	79.11	52.74	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	068	A	7/19/2019	11:12:45	77.57	51.72	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	068	B	7/19/2019	11:13:58	77.38	51.59	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	068	C	7/19/2019	11:15:25	72.63	48.42	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	069	A	7/19/2019	1:04:10	70.94	47.29	0.34	No	Sand with Mobile Gravel and Shell Hash	Slightly Gravelly	Slightly Gravelly Sand	10.64	No	None	-	Shell hash and large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	069	B	7/19/2019	1:06:21	68.75	45.84	0.32	No	Sand with Mobile Gravel and Shell Hash	Slightly Gravelly	Slightly Gravelly Sand	14.32	No	None	-	Shell hash, large and small shell fragments, and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	069	C	7/19/2019	1:13:25	78.27	52.18	0.41	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	10.44	No	None	-	Very sparse shell hash and large shell fragment	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	070	A	7/19/2019	10:08:23	71.92	47.95	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	070	B	7/19/2019	10:09:40	81.38	54.25	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	070	C	7/19/2019	10:14:04	71.20	47.47	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	071	A	7/19/2019	1:34:18	80.29	53.53	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	071	B	7/19/2019	1:35:43	78.43	52.29	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	071	C	7/19/2019	1:37:46	79.31	52.87	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna

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Phase 1 Survey Area (OCW)	072	B	7/19/2019	9:35:02	74.89	49.93	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	072	D	7/19/2019	9:40:18	77.30	51.54	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	072	E	7/19/2019	9:41:39	78.16	52.10	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	073	A	7/19/2019	1:56:39	77.15	51.43	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	073	B	7/19/2019	1:58:15	79.84	53.22	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	073	C	7/19/2019	2:00:06	79.75	53.17	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	074	A	7/19/2019	8:28:14	82.32	54.88	0.45	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	074	B	7/19/2019	8:29:37	77.65	51.77	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	074	C	7/19/2019	8:31:37	73.34	48.90	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	075	B	7/19/2019	2:23:45	80.12	53.42	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Extensive shell hash	Worm Reef Biota
Phase 1 Survey Area (OCW)	075	C	7/19/2019	2:25:30	75.91	50.61	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Extensive shell hash and very sparse sand dollar fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	075	D	7/19/2019	2:27:25	82.24	54.82	0.45	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Extensive shell hash	Worm Reef Biota
Phase 1 Survey Area (OCW)	076	A	7/19/2019	3:04:27	75.25	50.17	0.38	No	Continuous Shell Hash on Sand	Sand or Finer	Sand or Finer	IND	No	None	-	Extensive shell hash and large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	076	B	7/19/2019	3:06:13	70.40	46.93	0.33	No	Continuous Shell Hash on Sand	Sand or Finer	Sand or Finer	IND	No	None	-	Extensive shell hash and large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	076	C	7/19/2019	3:07:55	79.07	52.71	0.42	No	Continuous Shell Hash on Sand	Sand or Finer	Sand or Finer	IND	No	None	-	Extensive shell hash and large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	077	A	7/19/2019	3:24:34	72.66	48.44	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	077	B	7/19/2019	3:26:03	74.89	49.93	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	077	C	7/19/2019	3:28:00	69.06	46.04	0.32	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	078	A	7/19/2019	4:12:08	78.87	52.58	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	078	B	7/19/2019	4:14:11	68.00	45.34	0.31	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	078	C	7/19/2019	4:15:39	74.64	49.76	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	079	E	7/19/2019	0:32:48	78.59	52.39	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	079	F	7/19/2019	0:34:31	76.36	50.91	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	079	G	7/19/2019	0:36:24	79.15	52.77	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	080	A	7/18/2019	21:20:01	76.77	51.18	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	080	B	7/18/2019	21:21:15	77.23	51.49	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	080	C	7/18/2019	21:22:27	77.19	51.46	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	081	A	7/18/2019	21:02:02	74.78	49.86	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	081	B	7/18/2019	21:03:13	76.17	50.78	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	081	C	7/18/2019	21:04:26	71.30	47.53	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	082	A	7/18/2019	20:12:32	71.56	47.71	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	082	B	7/18/2019	20:13:45	82.67	55.11	0.46	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	082	C	7/18/2019	20:14:58	76.21	50.81	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	083	A	7/18/2019	19:51:46	74.04	49.36	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	083	B	7/18/2019	19:52:56	72.97	48.64	0.35	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	083	C	7/18/2019	19:54:04	73.76	49.17	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	084	A	7/18/2019	19:18:37	77.69	51.79	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	084	B	7/18/2019	19:19:37	71.59	47.73	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	084	C	7/18/2019	19:20:55	80.79	53.86	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	085	B	7/18/2019	18:44:38	67.50	45.00	0.30	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	085	C	7/18/2019	18:52:19	68.63	45.75	0.31	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	085	D	7/18/2019	18:53:24	77.38	51.59	0.40	No	Continuous Shell Hash on Sand	Sand or Finer	Sand or Finer	IND	No	None	-	Extensive large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	086	A	7/18/2019	18:19:22	74.07	49.38	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	086	B	7/18/2019	18:20:31	78.55	52.37	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	086	C	7/18/2019	18:21:43	76.13	50.76	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	087	A	7/18/2019	17:29:03	69.30	46.20	0.32	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	087	B	7/18/2019	17:39:58	74.29	49.52	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	087	C	7/18/2019	17:41:12	67.44	44.96	0.30	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Phase 1 Survey Area (OCW)	088	A	7/18/2019	16:09:24	77.08	51.38	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	088	B	7/18/2019	16:10:35	74.29	49.52	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	088	C	7/18/2019	16:11:44	78.23	52.16	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	089	A	7/18/2019	15:25:54	73.03	48.69	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	089	B	7/18/2019	15:27:10	76.10	50.73	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	089	C	7/18/2019	15:28:16	78.95	52.63	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	090	A	7/18/2019	14:49:27	67.80	45.20	0.31	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	090	B	7/18/2019	14:50:38	75.40	50.27	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash, Squid egg casing	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	090	C	7/18/2019	14:51:45	76.43	50.96	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	091	A	7/18/2019	14:13:27	69.55	46.37	0.32	Yes	Sand with Mobile Gravel and Shell Hash	Gravel	Pebble	17.39	No	None	-	Extensive large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	091	B	7/18/2019	14:14:38	79.03	52.68	0.42	Yes	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	19.76	No	None	-	Shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	091	C	7/18/2019	14:15:52	70.43	46.95	0.33	Yes	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	11.74	No	None	-	Extensive large and small shell fragments	Worm Reef Biota
Phase 1 Survey Area (OCW)	092	A	7/18/2019	13:52:58	76.62	51.08	0.39	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	10.22	No	None	-	Extensive large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	092	B	7/18/2019	13:54:13	75.95	50.63	0.38	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	12.66	No	None	-	Extensive large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	092	C	7/18/2019	13:55:28	75.54	50.36	0.38	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	11.33	No	None	-	Extensive large and small shell fragments	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	093	A	7/18/2019	13:09:22	75.54	50.36	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	093	B	7/18/2019	13:10:34	73.10	48.73	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Phase 1 Survey Area (OCW)	093	C	7/18/2019	13:11:46	73.17	48.78	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	201	A	7/20/2019	17:31:03	75.29	50.19	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	201	B	7/20/2019	17:32:18	77.77	51.84	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	201	C	7/20/2019	17:33:36	78.75	52.50	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna
B.L. England Export Cable	202	A	7/20/2019	17:56:35	77.34	51.56	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash, and shell and sand dollar fragments	Soft Sediment Fauna
B.L. England Export Cable	202	B	7/20/2019	17:57:44	76.55	51.03	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	42.33	Shell hash and small shell fragments	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
B.L. England Export Cable	202	C	7/20/2019	17:58:47	75.47	50.31	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	39.89	Shell hash and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	203	A	7/20/2019	18:39:47	74.53	49.69	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	203	B	7/20/2019	18:41:00	79.96	53.31	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	203	C	7/20/2019	18:42:17	79.47	52.98	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	204	A	7/20/2019	19:01:24	79.51	53.01	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	204	B	7/20/2019	19:02:31	79.03	52.68	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
B.L. England Export Cable	204	C	7/20/2019	19:03:41	75.04	50.02	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	205	A	7/20/2019	19:24:44	76.51	51.01	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
B.L. England Export Cable	205	B	7/20/2019	19:25:53	77.84	51.90	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and large and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	205	C	7/20/2019	19:27:02	74.78	49.86	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	206	A	7/20/2019	20:06:50	75.84	50.56	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	206	B	7/20/2019	20:08:01	81.76	54.51	0.45	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and large and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	206	C	7/20/2019	20:09:15	76.73	51.16	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	207	B	7/20/2019	20:35:08	78.47	52.31	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	207	C	7/20/2019	20:36:21	78.20	52.13	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	207	D	7/20/2019	20:37:38	81.38	54.25	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	4.75	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	208	A	7/20/2019	20:56:23	73.45	48.96	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	6.00	Shell hash	Soft Sediment Fauna
B.L. England Export Cable	208	B	7/20/2019	20:57:38	78.71	52.47	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	208	C	7/20/2019	20:58:45	75.91	50.61	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	4.74	Shell hash and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	209	A	7/20/2019	21:28:14	77.61	51.74	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	4.66	Shell hash and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	209	B	7/20/2019	21:29:28	77.30	51.54	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna
B.L. England Export Cable	209	C	7/20/2019	21:30:40	76.66	51.11	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
B.L. England Export Cable	210	B	7/20/2019	21:53:28	78.23	52.16	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	5.87	Sparse shell hash	Soft Sediment Fauna
B.L. England Export Cable	210	C	7/20/2019	21:54:37	78.91	52.60	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	6.90	Sparse shell hash and shell fragments	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
B.L. England Export Cable	210	D	7/20/2019	21:55:48	80.70	53.80	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
B.L. England Export Cable	211	A	7/20/2019	22:15:04	76.89	51.26	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
B.L. England Export Cable	211	B	7/20/2019	22:16:16	79.55	53.03	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
B.L. England Export Cable	211	C	7/20/2019	22:17:33	80.04	53.36	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	301	A	7/20/2019	16:02:15	76.28	50.86	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	4.45	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	301	B	7/20/2019	16:03:28	79.23	52.82	0.42	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	5.94	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	301	C	7/20/2019	16:04:38	77.38	51.59	0.40	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	6.45	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	302	A	7/21/2019	0:49:21	77.77	51.84	0.40	No	Continuous Pebbles on Sand	Gravel	Pebble	7.13	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	302	B	7/21/2019	0:50:29	77.77	51.84	0.40	No	Continuous Pebbles on Sand	Gravel	Pebble	9.07	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	302	C	7/21/2019	0:51:51	81.55	54.36	0.44	No	Continuous Pebbles on Sand	Gravel	Pebble	16.31	No	None	-	Sparse shell hash, Squid egg casings	Soft Sediment Fauna
Oyster Creek Export Cable	303	A	7/21/2019	1:13:56	78.79	52.53	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	303	B	7/21/2019	1:15:23	80.33	53.55	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	303	C	7/21/2019	1:16:30	78.47	52.31	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	304	A	7/21/2019	1:34:48	79.15	52.77	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	304	B	7/21/2019	1:38:51	80.29	53.53	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and large shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	304	C	7/21/2019	1:39:54	77.69	51.79	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	305	A	7/21/2019	2:26:40	78.55	52.37	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	305	B	7/21/2019	2:27:42	75.99	50.66	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and sand dollar fragments	Soft Sediment Fauna
Oyster Creek Export Cable	305	C	7/21/2019	2:28:41	84.46	56.31	0.48	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and sand dollar fragments	Soft Sediment Fauna
Oyster Creek Export Cable	306	A	7/21/2019	3:12:28	75.84	50.56	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	8.85	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	306	B	7/21/2019	3:13:32	78.20	52.13	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	306	C	7/21/2019	3:14:34	78.59	52.39	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Oyster Creek Export Cable	307	A	7/21/2019	3:33:27	77.53	51.69	0.40	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	5.17	No	None	-	Shell hash, and shell and sand dollar fragments	Soft Sediment Fauna
Oyster Creek Export Cable	307	B	7/21/2019	3:34:38	80.04	53.36	0.43	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	4.00	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	307	C	7/21/2019	3:35:48	76.89	51.26	0.39	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	3.84	No	None	-	Shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	308	A	7/21/2019	3:53:25	78.59	52.39	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	308	B	7/21/2019	3:55:19	78.51	52.34	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	308	C	7/21/2019	3:56:25	75.80	50.53	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	309	A	7/21/2019	4:44:47	74.68	49.78	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	28.00	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	309	B	7/21/2019	4:45:53	80.21	53.47	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	309	C	7/21/2019	4:47:14	78.71	52.47	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	310	A	7/21/2019	5:04:11	78.35	52.24	0.41	No	Sand with Mobile Gravel and Shell Hash	Slightly Gravelly	Slightly Gravelly Sand	3.26	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	310	B	7/21/2019	5:05:17	75.99	50.66	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	310	C	7/21/2019	5:06:29	76.96	51.31	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	311	A	7/21/2019	5:28:47	76.81	51.21	0.39	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	3.84	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	311	B	7/21/2019	5:30:05	81.85	54.56	0.45	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	1.36	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	311	C	7/21/2019	5:31:29	77.08	51.38	0.40	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	2.57	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	312	A	7/21/2019	5:48:44	81.72	54.48	0.45	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	312	B	7/21/2019	5:49:51	75.04	50.02	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	312	C	7/21/2019	5:51:13	81.17	54.11	0.44	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	313	A	7/21/2019	6:07:33	78.47	52.31	0.41	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.92	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	313	B	7/21/2019	6:08:48	80.45	53.64	0.43	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.35	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	313	C	7/21/2019	6:09:57	79.23	52.82	0.42	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.30	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	314	A	7/21/2019	6:53:51	76.81	51.21	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	3.84	No	None	-	Sparse shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Oyster Creek Export Cable	314	B	7/21/2019	6:55:04	73.07	48.71	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	3.65	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	314	C	7/21/2019	6:56:23	79.15	52.77	0.42	No	Sand Sheet	Sand or Finer	Sand or Finer	3.96	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	315	A	7/21/2019	7:12:22	75.84	50.56	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	315	B	7/21/2019	7:13:50	77.23	51.49	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	315	C	7/21/2019	7:15:21	76.81	51.21	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	316	A	7/21/2019	7:31:39	76.96	51.31	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.85	No	Ripples	44.89	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	316	B	7/21/2019	7:32:48	76.51	51.01	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	5.74	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	316	C	7/21/2019	7:34:02	80.50	53.66	0.43	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	4.70	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	317	A	7/21/2019	7:53:36	76.92	51.28	0.39	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	1.92	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	317	B	7/21/2019	7:54:53	79.88	53.25	0.43	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	3.99	No	Ripples	54.58	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	317	C	7/21/2019	7:56:21	78.23	52.16	0.41	No	Sand Sheet	Slightly Gravelly	Slightly Gravelly Sand	2.61	No	Ripples	47.27	Sparse shell hash, small shell fragments, and sand dollar fragments	Soft Sediment Fauna
Oyster Creek Export Cable	318	B	7/21/2019	8:19:22	76.28	50.86	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.81	No	Ripples	50.22	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	318	C	7/21/2019	8:20:36	79.63	53.09	0.42	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.65	No	Ripples	42.47	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	318	D	7/21/2019	8:21:45	76.58	51.06	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.47	No	Ripples	8.30	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	319	A	7/21/2019	9:00:19	77.11	51.41	0.40	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.21	No	Ripples	48.84	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	319	C	7/21/2019	9:02:31	79.92	53.28	0.43	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.33	No	Ripples	37.30	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	319	D	7/21/2019	9:03:48	79.59	53.06	0.42	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.97	No	Ripples	59.69	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	320	A	7/21/2019	9:31:21	76.92	51.28	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.13	No	Ripples	50.00	Very sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	320	B	7/21/2019	9:32:39	75.65	50.44	0.38	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.41	No	Ripples	37.20	Sparse shell hash, shell fragments, and sand dollar fragments	Soft Sediment Fauna
Oyster Creek Export Cable	320	C	7/21/2019	9:33:57	77.27	51.51	0.40	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.86	No	Ripples	66.96	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	321	A	7/21/2019	9:52:14	76.96	51.31	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	2.57	No	Ripples	52.59	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	321	B	7/21/2019	9:53:27	78.35	52.24	0.41	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.92	No	Ripples	49.62	Sparse shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Oyster Creek Export Cable	321	C	7/21/2019	9:54:43	78.20	52.13	0.41	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.26	No	Ripples	47.57	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	322	A	7/21/2019	10:15:06	75.22	50.14	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	40.74	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	322	B	7/21/2019	10:16:28	76.62	51.08	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	21.59	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	322	C	7/21/2019	10:17:38	84.92	56.61	0.48	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	Ripples	44.70	Sparse shell hash and shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	323	A	7/21/2019	10:35:53	80.62	53.75	0.43	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.70	No	Ripples	62.48	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	323	B	7/21/2019	10:37:04	76.81	51.21	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.76	No	Ripples	56.33	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	323	C	7/21/2019	10:38:10	80.08	53.39	0.43	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	6.67	No	Ripples	38.71	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	324	A	7/21/2019	11:38:36	78.83	52.55	0.41	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.91	No	Ripples	60.43	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	324	B	7/21/2019	11:39:58	75.00	50.00	0.38	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.00	No	Ripples	60.00	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	324	C	7/21/2019	11:41:13	78.08	52.05	0.41	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.25	No	Ripples	59.86	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	325	A	7/21/2019	12:18:51	78.55	52.37	0.41	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.24	No	Ripples	68.08	Sparse shell hash, small shell fragments, and sand dollar fragments	Soft Sediment Fauna
Oyster Creek Export Cable	325	B	7/21/2019	12:20:00	77.23	51.49	0.40	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.50	No	Ripples	57.92	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	325	C	7/21/2019	12:21:07	83.65	55.76	0.47	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	2.79	No	Ripples	66.92	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	326	A	7/21/2019	12:36:19	72.80	48.53	0.35	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.25	No	Ripples	69.16	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	326	B	7/21/2019	12:37:31	79.19	52.79	0.42	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.96	No	Ripples	50.81	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	326	C	7/21/2019	12:38:42	78.51	52.34	0.41	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.23	No	Ripples	68.04	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	327	A	7/21/2019	12:53:02	77.65	51.77	0.40	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	1.94	No	Ripples	62.77	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	327	B	7/21/2019	12:54:12	76.06	50.71	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.80	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	327	C	7/21/2019	12:55:29	75.99	50.66	0.38	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.70	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	328	A	7/21/2019	13:15:18	76.89	51.26	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	5.13	No	Ripples	46.77	Very sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	328	B	7/21/2019	13:16:27	77.69	51.79	0.40	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.24	No	Ripples	43.38	Very sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	328	C	7/21/2019	13:17:35	76.06	50.71	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.17	No	Ripples	47.54	Very sparse shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Oyster Creek Export Cable	329	A	7/21/2019	13:53:23	74.04	49.36	0.37	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.70	No	Ripples	42.57	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	329	B	7/21/2019	13:54:31	74.18	49.45	0.37	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	2.47	No	Ripples	38.33	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	329	C	7/21/2019	13:55:40	77.19	51.46	0.40	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.22	No	Ripples	37.31	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	330	A	7/21/2019	14:14:48	77.50	51.66	0.40	Yes	Continuous Granules	Gravel	Granule	2.58	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	330	B	7/21/2019	14:16:00	79.39	52.93	0.42	Yes	Continuous Granules	Gravel	Granule	2.65	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	330	D	7/21/2019	14:18:19	77.73	51.82	0.40	Yes	Continuous Granules	Gravel	Granule	2.59	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	331	A	7/21/2019	14:30:31	76.70	51.13	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.20	No	None	-	Sparse shell hash and small shell fragments	Worm Reef Biota
Oyster Creek Export Cable	331	B	7/21/2019	14:31:41	76.92	51.28	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	1.92	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	331	C	7/21/2019	14:32:52	79.03	52.68	0.42	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	1.98	No	None	-	Shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	332	A	7/21/2019	14:49:56	76.17	50.78	0.39	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.81	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	332	B	7/21/2019	14:51:21	78.47	52.31	0.41	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.27	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	332	C	7/21/2019	14:52:35	75.29	50.19	0.38	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	3.76	No	None	-	Sparse shell hash and small shell fragments	Attached Fauna
Oyster Creek Export Cable	333	A	7/21/2019	15:10:14	71.86	47.90	0.34	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Very sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	333	B	7/21/2019	15:11:24	82.15	54.77	0.45	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	333	C	7/21/2019	15:12:36	78.87	52.58	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	334	A	7/21/2019	15:58:56	71.40	47.60	0.34	No	Continuous Granules	Gravel	Granule	2.38	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	334	B	7/21/2019	16:00:08	73.79	49.20	0.36	No	Continuous Granules	Gravel	Granule	2.46	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	334	D	7/21/2019	16:02:22	75.22	50.14	0.38	No	Continuous Granules	Gravel	Granule	1.88	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	335	A	7/21/2019	17:15:27	73.48	48.99	0.36	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.29	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	335	B	7/21/2019	17:16:36	77.73	51.82	0.40	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.18	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	335	D	7/21/2019	17:18:52	75.80	50.53	0.38	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.05	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	336	A	7/21/2019	15:35:54	72.56	48.37	0.35	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.44	No	None	-	Shell hash and shell fragments	Worm Reef Biota
Oyster Creek Export Cable	336	B	7/21/2019	15:37:02	77.46	51.64	0.40	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	5.81	No	None	-	Sparse shell hash	Worm Reef Biota

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Oyster Creek Export Cable	336	C	7/21/2019	15:38:07	80.91	53.94	0.44	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.72	No	None	-	Sparse shell hash and small shell fragments	Worm Reef Biota
Oyster Creek Export Cable	337	A	7/21/2019	16:30:26	72.46	48.30	0.35	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	7.25	No	None	-	Shell hash and small shell fragments	Worm Reef Biota
Oyster Creek Export Cable	337	B	7/21/2019	16:31:30	75.25	50.17	0.38	No	Continuous Pebbles on Sand	Gravel	Pebble	7.53	No	None	-	Sparse shell hash and small shell fragments	Worm Reef Biota
Oyster Creek Export Cable	337	C	7/21/2019	16:32:44	77.11	51.41	0.40	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.50	No	None	-	Sparse shell hash	Worm Reef Biota
Oyster Creek Export Cable	338	A	7/21/2019	16:57:20	79.92	53.28	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	338	B	7/21/2019	16:58:30	77.65	51.77	0.40	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	338	C	7/21/2019	16:59:42	78.55	52.37	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	339	A	7/21/2019	17:38:41	71.96	47.97	0.35	No	Continuous Granules	Gravel	Granule	3.00	No	None	-	Sparse shell hash, small shell fragments, Squid egg casing	Soft Sediment Fauna
Oyster Creek Export Cable	339	B	7/21/2019	17:39:50	80.95	53.97	0.44	No	Continuous Granules	Gravel	Granule	4.05	No	None	-	Sparse shell hash and small shell fragments, Squid egg casings	Soft Sediment Fauna
Oyster Creek Export Cable	339	C	7/21/2019	17:41:01	77.65	51.77	0.40	No	Continuous Granules	Gravel	Granule	1.94	No	None	-	Sparse shell hash, Squid egg casings	Soft Sediment Fauna
Oyster Creek Export Cable	340	A	7/21/2019	18:01:23	72.29	48.19	0.35	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	4.22	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	340	B	7/21/2019	18:02:35	77.46	51.64	0.40	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	2.58	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	340	C	7/21/2019	18:03:46	78.59	52.39	0.41	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	5.89	No	None	-	Sparse shell hash, small shell fragments, and sand dollar fragments	Soft Sediment Fauna
Oyster Creek Export Cable	341	B	7/21/2019	18:22:46	76.51	51.01	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	6.38	No	None	-	Shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	341	C	7/21/2019	18:23:57	76.58	51.06	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.47	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Oyster Creek Export Cable	341	D	7/21/2019	18:25:17	74.43	49.62	0.37	Yes	Sand with Mobile Gravel	Gravelly	Gravelly Sand	2.48	No	None	-	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	342	A	7/21/2019	18:49:02	75.47	50.31	0.38	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	5.66	No	None	-	Sparse shell hash, large and small shells	Worm Reef Biota
Oyster Creek Export Cable	342	B	7/21/2019	18:50:12	78.79	52.53	0.41	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	5.91	No	None	-	Sparse shell hash and small shell fragments	Worm Reef Biota
Oyster Creek Export Cable	342	C	7/21/2019	18:51:19	77.19	51.46	0.40	No	Sand with Mobile Gravel	Slightly Gravelly	Slightly Gravelly Sand	6.43	No	None	-	Sparse shell hash, large and small shell fragments	Worm Reef Biota
Oyster Creek Export Cable	343	A	7/21/2019	19:08:34	73.52	49.01	0.36	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	7.96	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	343	B	7/21/2019	19:09:51	81.33	54.22	0.44	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	7.46	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	343	C	7/21/2019	19:11:00	76.47	50.98	0.39	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	6.37	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Oyster Creek Export Cable	344	A	7/21/2019	19:28:33	75.91	50.61	0.38	No	Continuous Pebbles on Sand	Gravel	Pebble	4.43	No	None	-	Sparse shell hash and small and large shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	344	B	7/21/2019	19:29:45	78.47	52.31	0.41	No	Continuous Pebbles on Sand	Gravel	Pebble	5.89	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	344	D	7/21/2019	19:32:05	79.27	52.85	0.42	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	3.30	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	345	A	7/21/2019	19:52:30	77.77	51.84	0.40	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	4.54	No	None	-	Sparse shell hash, Squid egg casings	Soft Sediment Fauna
Oyster Creek Export Cable	345	B	7/21/2019	19:53:42	78.51	52.34	0.41	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	5.23	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	345	C	7/21/2019	19:54:52	77.57	51.72	0.40	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	6.46	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	346	A	7/21/2019	20:13:15	78.00	52.00	0.41	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.25	No	None	-	Sparse shell hash and large and small shells	Worm Reef Biota
Oyster Creek Export Cable	346	B	7/21/2019	20:14:23	79.23	52.82	0.42	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	3.96	No	None	-	Shell hash, large and small shell fragments, and sand dollar fragments	Worm Reef Biota
Oyster Creek Export Cable	346	C	7/21/2019	20:15:33	82.54	55.03	0.45	No	Sand with Mobile Gravel and Shell Hash	Slightly Gravelly	Slightly Gravelly Sand	4.13	No	None	-	Shell hash, large and small shell fragments	Worm Reef Biota
Oyster Creek Export Cable	347	A	7/21/2019	20:43:21	74.75	49.83	0.37	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	7.47	No	Ripples	52.32	Sparse shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	347	B	7/21/2019	20:44:29	76.06	50.71	0.39	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	5.70	No	Ripples	31.69	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	347	C	7/21/2019	20:45:35	77.42	51.61	0.40	No	Sand with Mobile Gravel	Gravel Mixes	Sandy Gravel	9.68	No	Ripples	38.71	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	348	A	7/21/2019	21:02:27	76.36	50.91	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	4.45	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	348	B	7/21/2019	21:03:33	72.22	48.15	0.35	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.61	No	None	-	Shell hash	Soft Sediment Fauna
Oyster Creek Export Cable	348	C	7/21/2019	21:04:46	76.06	50.71	0.39	No	Sand with Mobile Gravel	Gravelly	Gravelly Sand	3.17	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	349	A	7/21/2019	21:22:04	79.07	52.71	0.42	No	Continuous Pebbles on Sand	Gravel	Pebble	6.59	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	349	B	7/21/2019	21:23:20	72.46	48.30	0.35	No	Continuous Pebbles on Sand	Gravel	Pebble	4.23	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	349	C	7/21/2019	21:24:29	76.66	51.11	0.39	No	Continuous Pebbles on Sand	Gravel	Pebble	5.75	No	None	-	Shell hash and small shell fragments	Soft Sediment Fauna
Oyster Creek Export Cable	350	A	7/21/2019	21:43:17	IND	IND	IND	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	IND	No	None	IND	Shell hash and small shell fragments	IND

Area	StationID	Replicate	Date	Time	Image Width (cm)	Image Height (cm)	Field of View	Possible Habitat of Interest	Habitat Type	Substrate Group	Substrate Subgroup	Gravel Mode (mm)	Boulders	Bedforms	Bedform Size Measurement (cm)	Debris	Biotic Subclass
Oyster Creek Export Cable	350	B	7/21/2019	21:44:31	IND	IND	IND	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	IND	No	None	IND	Shell hash and small shell fragments	IND
Oyster Creek Export Cable	350	C	7/21/2019	21:45:49	IND	IND	IND	No	Sand with Mobile Gravel and Shell Hash	Gravelly	Gravelly Sand	IND	No	None	IND	Shell hash and small shell fragments	Soft Sediment Fauna
Reference	401	A	7/21/2019	2:48:08	76.25	50.83	0.39	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Reference	401	B	7/21/2019	2:49:14	79.92	53.28	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Reference	401	C	7/21/2019	2:52:07	75.44	50.29	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and sand dollar fragments	Soft Sediment Fauna
Reference	402	A	7/21/2019	0:12:26	75.14	50.10	0.38	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna
Reference	402	B	7/21/2019	0:13:37	74.46	49.64	0.37	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Reference	402	C	7/21/2019	0:14:47	78.67	52.45	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna
Reference	403	A	7/20/2019	23:46:02	73.76	49.17	0.36	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash and small shell fragments	Soft Sediment Fauna
Reference	403	B	7/20/2019	23:47:10	78.20	52.13	0.41	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Sparse shell hash	Soft Sediment Fauna
Reference	403	C	7/20/2019	23:48:29	79.88	53.25	0.43	No	Sand Sheet	Sand or Finer	Sand or Finer	IND	No	None	-	Shell hash	Soft Sediment Fauna

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	001	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	001	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	001	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	002	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	Yes	Yes	None
Phase 1 Survey Area (OCW)	002	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	002	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	Yes	Yes	None
Phase 1 Survey Area (OCW)	003	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	003	B	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	003	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	004	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	Bivalve
Phase 1 Survey Area (OCW)	004	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	Yes	Yes	None
Phase 1 Survey Area (OCW)	004	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Mobile Mollusks on Soft Sediments	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	005	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	005	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	005	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	006	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	006	B	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	006	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Mobile Mollusks on Soft Sediments	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	007	A	None	No	None	None	IND	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	007	B	None	No	None	None	Mobile Crustaceans on Soft Sediments	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	007	C	Worm Reef Biota	No	None	None	Small Tube-Building Fauna	Sabellariid Reef	Sparse (1 to <30%)	No	None	Yes	No	No	Sabellids
Phase 1 Survey Area (OCW)	008	A	Worm Reef Biota	No	None	None	Small Tube-Building Fauna	Sabellariid Reef	None	No	None	Yes	No	No	Sabellids
Phase 1 Survey Area (OCW)	008	B	Soft Sediment Fauna	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	No	Sabellids
Phase 1 Survey Area (OCW)	008	C	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Mobile Crustaceans on Soft Sediments	None	No	None	Yes	No	No	Sabellids
Phase 1 Survey Area (OCW)	009	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	009	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	009	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	010	A	None	No	None	None	Tracks and Trails	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	010	B	Inferred Fauna	No	None	None	Tracks and Trails	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	010	C	Inferred Fauna	No	None	None	Tracks and Trails	None	None	No	None	Yes	No	Yes	Diopatra
Phase 1 Survey Area (OCW)	011	A	Inferred Fauna	No	None	None	Tracks and Trails	Sand Dollar Bed	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	011	B	Inferred Fauna	No	None	None	Tracks and Trails	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	011	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	012	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	012	B	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	012	C	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	013	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	013	B	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	013	C	None	No	None	None	IND	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	014	A	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	014	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	014	C	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	Diopatra
Phase 1 Survey Area (OCW)	015	A	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	015	B	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	015	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Mobile Crustaceans on Soft Sediments	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	016	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	016	B	None	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	016	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	017	A	None	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	Yes	Yes	Unidentified
Phase 1 Survey Area (OCW)	017	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	017	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	018	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	018	B	Inferred Fauna	No	None	None	Tracks and Trails	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	018	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	019	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	019	B	None	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	019	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	020	B	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	020	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	020	D	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	021	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	021	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	021	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	022	A	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	022	C	Worm Reef Biota	No	None	None	Sabellariid Reef	Larger Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	022	D	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	023	A	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Mobile Crustaceans on Hard or Mixed Substrates	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	023	B	Inferred Fauna	No	None	None	Mobile Crustaceans on Soft Sediments	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	023	C	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Mobile Crustaceans on Hard or Mixed Substrates	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	024	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	024	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	024	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	Yes	Yes	Unidentified

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	025	A	Inferred Fauna	No	None	None	Sabellariid Reef	Mobile Crustaceans on Soft Sediments	None	No	None	Yes	No	Yes	Burrowing Anemone
Phase 1 Survey Area (OCW)	025	B	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	No	Burrowing Anemone
Phase 1 Survey Area (OCW)	025	D	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	026	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	026	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	026	D	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	027	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	027	B	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	IND	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	027	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	028	A	Inferred Fauna	No	None	None	Tunicate Bed	Diverse Soft Sediment Epifauna	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	028	B	Inferred Fauna	No	None	None	Tunicate Bed	Diverse Soft Sediment Epifauna	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	028	C	None	No	None	None	Tunicate Bed	Sand Dollar Bed	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	029	A	Inferred Fauna	No	None	None	Tunicate Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	029	B	Inferred Fauna	No	None	None	Tunicate Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	029	C	Inferred Fauna	No	None	None	Tunicate Bed	Mobile Crustaceans on Soft Sediments	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	030	A	Inferred Fauna	No	None	None	Tunicate Bed	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	030	B	Inferred Fauna	No	None	None	Tunicate Bed	Sand Dollar Bed	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	030	C	Inferred Fauna	No	None	None	Tunicate Bed	Sand Dollar Bed	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	031	A	None	No	None	None	Tunicate Bed	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	031	B	None	No	None	None	Tunicate Bed	Sand Dollar Bed	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	031	C	Inferred Fauna	No	None	None	Tunicate Bed	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	032	A	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	032	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	No	No	Yes	
Phase 1 Survey Area (OCW)	032	C	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	No	No	No	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	033	A	None	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	033	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	033	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	034	A	None	No	None	None	Tunicate Bed	Mobile Mollusks on Soft Sediments	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	034	B	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	034	C	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Small Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	035	B	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	035	C	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Small Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	035	D	Worm Reef Biota	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	036	A	Inferred Fauna	No	None	None	Tunicate Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	036	B	Inferred Fauna	No	None	None	Tunicate Bed	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	036	C	None	No	None	None	Tunicate Bed	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	037	A	None	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	037	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	037	C	Worm Reef Biota	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	038	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tunicate Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	038	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tunicate Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	038	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	039	B	None	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	039	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	039	D	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	040	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	040	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	040	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	041	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	041	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	041	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	042	A	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Mobile Crustaceans on Soft Sediments	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	042	B	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Mobile Crustaceans on Soft Sediments	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	042	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	043	A	None	No	None	None	Diverse Soft Sediment Epifauna	Larger Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	043	B	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	043	D	Inferred Fauna	No	None	None	Sand Dollar Bed	Mobile Crustaceans on Soft Sediments	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	044	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	044	B	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	044	C	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	045	A	None	No	None	None	Tunicate Bed	Diverse Soft Sediment Epifauna	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	045	B	None	No	None	None	Tunicate Bed	Diverse Soft Sediment Epifauna	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	045	C	Inferred Fauna	No	None	None	Tunicate Bed	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	046	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	046	C	None	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	046	D	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	Diopatra
Phase 1 Survey Area (OCW)	047	B	None	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	No	Diopatra
Phase 1 Survey Area (OCW)	047	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	Diopatra
Phase 1 Survey Area (OCW)	047	D	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	Diopatra
Phase 1 Survey Area (OCW)	048	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	Diopatra

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Phase 1 Survey Area (OCW)	048	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	Diopatra
Phase 1 Survey Area (OCW)	048	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	Diopatra
Phase 1 Survey Area (OCW)	049	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	IND
Phase 1 Survey Area (OCW)	049	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	049	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	IND
Phase 1 Survey Area (OCW)	050	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tunicate Bed	None	No	None	No	No	Yes	None
Phase 1 Survey Area (OCW)	050	B	Inferred Fauna	No	None	None	Tunicate Bed	Small Surface-Burrowing Fauna	None	No	None	Yes	Yes	Yes	IND
Phase 1 Survey Area (OCW)	050	C	Inferred Fauna	No	None	None	Tunicate Bed	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	051	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	051	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	051	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	052	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	052	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	052	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	053	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tunicate Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	053	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Tunicate Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	053	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Tunicate Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	054	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	054	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	054	C	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	055	A	Worm Reef Biota	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	055	B	Worm Reef Biota	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	055	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	056	A	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	056	B	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	056	C	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	Small Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	057	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	057	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	057	D	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	058	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	058	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	058	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	059	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	059	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	059	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	060	A	Worm Reef Biota	No	None	None	Tunicate Bed	Sabellariid Reef	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	060	B	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Tunicate Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	060	C	Worm Reef Biota	No	None	None	Larger Tube-Building Fauna	Sabellariid Reef	None	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	061	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	061	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	061	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	062	A	Worm Reef Biota	No	None	None	Larger Tube-Building Fauna	Sabellariid Reef	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	062	B	Soft Sediment Fauna	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	062	C	Worm Reef Biota	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	063	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Mobile Crustaceans on Soft Sediments	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	063	B	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	063	C	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	064	A	Worm Reef Biota	No	None	None	Larger Tube-Building Fauna	Sabellariid Reef	None	No	None	Yes	No	No	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	064	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	064	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	065	A	Worm Reef Biota	No	None	None	Mobile Crustaceans on Hard or Mixed Substrates	Sabellariid Reef	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	065	C	None	No	None	None	Diverse Soft Sediment Epifauna	Larger Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	065	D	None	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	066	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	066	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	066	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	067	A	None	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	067	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	067	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	068	A	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	068	B	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	068	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	069	A	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	069	B	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	069	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	070	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	070	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	070	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	071	A	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	071	B	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	071	C	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	No	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	072	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	072	D	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	072	E	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	073	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	073	B	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	073	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	074	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	074	B	None	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	074	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	075	B	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Larger Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	075	C	None	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	075	D	Inferred Fauna	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	076	A	None	No	None	None	IND	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	076	B	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	076	C	None	No	None	None	Small Tube-Building Fauna	Larger Tube-Building Fauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	077	A	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	077	B	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	077	C	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	078	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	078	B	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	078	C	None	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	079	E	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	079	F	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	079	G	None	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	No	None

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Phase 1 Survey Area (OCW)	080	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Mobile Crustaceans on Soft Sediments	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	080	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	080	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	081	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	081	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	081	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	082	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	082	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	082	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	083	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	083	B	None	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	083	C	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	084	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	084	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Surface-Burrowing Fauna	None	No	None	No	Yes	Yes	None
Phase 1 Survey Area (OCW)	084	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	085	B	None	No	None	None	Larger Tube-Building Fauna	Mobile Mollusks on Soft Sediments	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	085	C	None	No	None	None	Larger Tube-Building Fauna	Mobile Mollusks on Soft Sediments	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	085	D	None	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	086	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	086	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	086	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	087	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	087	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	087	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	Yes	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Phase 1 Survey Area (OCW)	088	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	088	B	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	088	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	089	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	089	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	089	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	090	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	090	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	090	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	Yes	Yes	None
Phase 1 Survey Area (OCW)	091	A	None	No	None	None	Small Tube-Building Fauna	Attached Bryozoans	Sparse (1 to <30%)	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	091	B	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Phase 1 Survey Area (OCW)	091	C	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Attached Hydroids	Sparse (1 to <30%)	No	None	Yes	Yes	No	None
Phase 1 Survey Area (OCW)	092	A	None	No	None	None	None	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	092	B	None	No	None	None	None	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	092	C	None	No	None	None	None	None	None	No	None	No	No	No	None
Phase 1 Survey Area (OCW)	093	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	093	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Phase 1 Survey Area (OCW)	093	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	201	A	None	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	201	B	None	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	No	No	Yes	None
B.L. England Export Cable	201	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	No	No	Yes	None
B.L. England Export Cable	202	A	Inferred Fauna	No	None	None	Mobile Crustaceans on Soft Sediments	None	None	No	None	No	No	Yes	None
B.L. England Export Cable	202	B	Inferred Fauna	No	None	None	None	None	None	No	None	No	No	Yes	None

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B.L. England Export Cable	202	C	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	No	No	Yes	None
B.L. England Export Cable	203	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	203	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	203	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	204	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	204	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	204	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	205	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	205	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	205	C	inferred Fauna	No	None	None	Small Tube-Building Fauna	Mobile Crustaceans on Soft Sediments	None	No	None	Yes	Yes	Yes	None
B.L. England Export Cable	206	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	206	B	inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	206	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	207	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	207	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	207	D	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	208	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	208	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Mobile Mollusks on Soft Sediments	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	208	C	inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	209	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	209	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	209	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	210	B	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	No	None
B.L. England Export Cable	210	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None

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B.L. England Export Cable	210	D	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	211	A	None	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
B.L. England Export Cable	211	B	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
B.L. England Export Cable	211	C	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	301	A	Worm Reef Biota	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	301	B	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	301	C	Worm Reef Biota	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	302	A	Worm Reef Biota	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	302	B	Worm Reef Biota	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	302	C	None	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	Trace (<1%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	303	A	Inferred Fauna	No	None	None	Tracks and Trails	Sand Dollar Bed	None	No	None	No	Yes	Yes	None
Oyster Creek Export Cable	303	B	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	303	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	304	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	304	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	304	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	305	A	None	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	305	B	None	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	305	C	None	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	306	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	306	B	Inferred Fauna	No	None	None	Tracks and Trails	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	306	C	Inferred Fauna	No	None	None	Mobile Mollusks on Soft Sediments	None	None	No	None	No	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Oyster Creek Export Cable	307	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	307	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	307	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	308	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	308	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	IND	No	Yes	None
Oyster Creek Export Cable	308	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	309	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	No	Yes	Yes	None
Oyster Creek Export Cable	309	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	309	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	310	A	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	310	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	310	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	311	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	311	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	311	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	312	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	Yes	Yes	None
Oyster Creek Export Cable	312	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	312	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	313	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	Chaetopterus
Oyster Creek Export Cable	313	B	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	Yes	No	Yes	Chaetopterus
Oyster Creek Export Cable	313	C	None	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	314	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Oyster Creek Export Cable	314	B	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	314	C	None	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	315	A	None	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	315	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	315	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	316	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	316	B	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	316	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	Chaetopterus
Oyster Creek Export Cable	317	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	317	B	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	317	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	318	B	None	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	318	C	Inferred Fauna	No	None	None	None	None	None	No	None	No	Yes	Yes	IND
Oyster Creek Export Cable	318	D	Inferred Fauna	No	None	None	Sand Dollar Bed	Attached Sponges	Sparse (1 to <30%)	No	None	No	No	Yes	None
Oyster Creek Export Cable	319	A	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	319	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	319	D	None	No	None	None	None	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	320	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	320	B	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	320	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	321	A	Inferred Fauna	No	None	None	Sand Dollar Bed	Small Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	321	B	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	No	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Oyster Creek Export Cable	321	C	Inferred Fauna	No	None	None	Sand Dollar Bed	Tracks and Trails	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	322	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	322	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	322	C	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	Small Tube-Building Fauna	Trace (<1%)	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	323	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Clam Bed	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	323	B	None	No	None	None	Small Tube-Building Fauna	Clam Bed	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	323	C	None	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	No	No	No	None
Oyster Creek Export Cable	324	A	None	No	None	None	Sand Dollar Bed	Diverse Soft Sediment Epifauna	None	No	None	No	No	No	None
Oyster Creek Export Cable	324	B	None	No	None	None	Sand Dollar Bed	Clam Bed	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	324	C	None	No	None	None	Sand Dollar Bed	Clam Bed	None	No	None	No	No	No	None
Oyster Creek Export Cable	325	A	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	325	B	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	325	C	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	326	A	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	326	B	None	No	None	None	Sand Dollar Bed	None	Trace (<1%)	No	None	No	No	No	None
Oyster Creek Export Cable	326	C	Inferred Fauna	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	327	A	Inferred Fauna	No	None	None	Sand Dollar Bed	None	Trace (<1%)	No	None	No	No	Yes	None
Oyster Creek Export Cable	327	B	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	327	C	None	No	None	None	Sand Dollar Bed	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	328	A	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	328	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	328	C	Inferred Fauna	No	None	None	None	None	None	No	None	Yes	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Oyster Creek Export Cable	329	A	None	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	329	B	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	329	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	330	A	None	No	None	None	Tunicate Bed	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	330	B	None	No	None	None	Tunicate Bed	Diverse Soft Sediment Epifauna	None	No	None	No	No	No	None
Oyster Creek Export Cable	330	D	None	No	None	None	Tunicate Bed	Diverse Soft Sediment Epifauna	None	No	None	No	No	No	None
Oyster Creek Export Cable	331	A	Soft Sediment Fauna	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	331	B	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	331	C	Worm Reef Biota	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	332	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	332	B	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	332	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	Trace (<1%)	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	333	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	333	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	333	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	334	A	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	334	B	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	334	D	None	No	None	None	Tunicate Bed	Diverse Soft Sediment Epifauna	Trace (<1%)	No	None	No	No	No	None
Oyster Creek Export Cable	335	A	Inferred Fauna	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	335	B	Inferred Fauna	No	None	None	None	None	Trace (<1%)	No	None	No	No	Yes	None
Oyster Creek Export Cable	335	D	None	No	None	None	None	None	None	No	None	No	No	No	None
Oyster Creek Export Cable	336	A	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Larger Tube-Building Fauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	336	B	Inferred Fauna	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	Yes	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Oyster Creek Export Cable	336	C	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Larger Tube-Building Fauna	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	337	A	None	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	337	B	None	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	337	C	None	No	None	None	Sabellariid Reef	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	338	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	338	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	338	C	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Tracks and Trails	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	339	A	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	339	B	None	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	339	C	None	No	None	None	Larger Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	340	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	340	B	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	340	C	None	No	None	None	Small Tube-Building Fauna	None	Trace (<1%)	No	None	Yes	Yes	No	None
Oyster Creek Export Cable	341	B	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	341	C	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	341	D	None	Yes	Squid Eggs	None	Small Tube-Building Fauna	None	Trace (<1%)	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	342	A	None	No	None	None	Sabellariid Reef	None	Trace (<1%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	342	B	Inferred Fauna	No	None	None	Sabellariid Reef	Diverse Soft Sediment Epifauna	Trace (<1%)	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	342	C	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Diverse Soft Sediment Epifauna	Trace (<1%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	343	A	None	No	None	None	Small Tube-Building Fauna	None	Trace (<1%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	343	B	None	No	None	None	Small Tube-Building Fauna	Larger Tube-Building Fauna	Trace (<1%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	343	C	None	No	None	None	Small Tube-Building Fauna	None	None	No	None	Yes	No	No	None

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Oyster Creek Export Cable	344	A	None	No	None	None	Attached Hydroids	Mobile Crustaceans on Hard or Mixed Substrates	Sparse (1 to <30%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	344	B	None	No	None	None	Small Tube-Building Fauna	Mobile Crustaceans on Hard or Mixed Substrates	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	344	D	None	No	None	None	Mobile Crustaceans on Hard or Mixed Substrates	Burrowing Anemones	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	345	A	None	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	345	B	Inferred Fauna	No	None	None	Mobile Crustaceans on Hard or Mixed Substrates	Burrowing Anemones	None	No	None	Yes	No	Yes	None
Oyster Creek Export Cable	345	C	None	No	None	None	Burrowing Anemones	Mobile Crustaceans on Hard or Mixed Substrates	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	346	A	Soft Sediment Fauna	No	None	None	Sabellariid Reef	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	346	B	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Mobile Crustaceans on Soft Sediments	Trace (<1%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	346	C	Soft Sediment Fauna	No	None	None	Sabellariid Reef	Mobile Crustaceans on Soft Sediments	Sparse (1 to <30%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	347	A	None	No	None	None	Burrowing Anemones	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	347	B	None	No	None	None	Larger Tube-Building Fauna	Burrowing Anemones	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	347	C	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	348	A	None	No	None	None	Larger Tube-Building Fauna	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	348	B	None	No	None	None	None	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	348	C	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	No	No	Yes	None
Oyster Creek Export Cable	349	A	None	No	None	None	Larger Tube-Building Fauna	None	Sparse (1 to <30%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	349	B	None	No	None	None	Larger Tube-Building Fauna	None	Sparse (1 to <30%)	No	None	Yes	No	No	None
Oyster Creek Export Cable	349	C	None	No	None	None	None	None	None	No	None	Yes	No	No	None
Oyster Creek Export Cable	350	A	IND	No	None	None	IND	IND	None	No	None	IND	IND	IND	IND

Area	StationID	Replicate	Co-occurring Biotic Subclass	Sensitive Taxa Present?	Type of Sensitive Taxa	Type of Species of Concern Observed	Biotic Group	Co-occurring Biotic Group	Percent Cover of All Attached Fauna	Invasive Taxa Present?	Type of Invasive Taxa	Tubes	Burrows	Tracks	Infauna
Oyster Creek Export Cable	350	B	IND	No	None	None	IND	IND	None	No	None	IND	No	No	None
Oyster Creek Export Cable	350	C	None	No	None	None	IND	IND	None	No	None	IND	No	No	None
Reference	401	A	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Reference	401	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	Yes	None
Reference	401	C	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Reference	402	A	None	No	None	None	Small Tube-Building Fauna	Sand Dollar Bed	None	No	None	Yes	No	No	None
Reference	402	B	Inferred Fauna	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	Yes	None
Reference	402	C	None	No	None	None	Small Tube-Building Fauna	Diverse Soft Sediment Epifauna	None	No	None	Yes	No	No	None
Reference	403	A	Inferred Fauna	No	None	None	Mobile Crustaceans on Soft Sediments	None	None	No	None	Yes	No	Yes	None
Reference	403	B	Inferred Fauna	No	None	None	Mobile Mollusks on Soft Sediments	None	None	No	None	Yes	No	Yes	None
Reference	403	C	Inferred Fauna	No	None	None	Diverse Soft Sediment Epifauna	None	None	No	None	Yes	No	Yes	None

Area	StationID	Replicate	Epifauna	Flora	Fish Type	Comments
Phase 1 Survey Area (OCW)	001	A	Sand Dollars, Snails	None	None	Pale brown sand with distinct ripples. Sand dollars, two snails, and various tubes present. Tracks present throughout.
Phase 1 Survey Area (OCW)	001	B	Sand Dollars	None	None	Pale brown sand with evenly spaced ripples. Five sand dollars and small tubes present throughout.
Phase 1 Survey Area (OCW)	001	C	Sand Dollars	None	None	Pale brown sand with evenly spaced ripples. Sand dollars with trailing tracks. Small tubes present throughout.
Phase 1 Survey Area (OCW)	002	A	Cancer Crab, Sand Dollars	None	None	Thin layer of reddish-brown microalgae over pale gray sand with numerous sand dollars present. Burrows and tracks created by sand dollars. Small cancer crab in top left.
Phase 1 Survey Area (OCW)	002	B	Sand Dollars, Snails	None	Unidentified	Thin layer of reddish-brown microalgae over pale gray sand. Sand is particularly exposed where disturbed by tracks. Several sand dollars and a few snails present. Small burrowing fish in top right.
Phase 1 Survey Area (OCW)	002	C	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over pale gray sand which is exposed where disturbed by tracks and burrows. Several sand dollars and cancer crabs present. Hermit crab atop sand dollar in bottom left.
Phase 1 Survey Area (OCW)	003	A	Hermit Crabs, Sand Dollars	None	None	Light brown sand with ripples and small deposits in troughs. Numerous sand dollars and a few hermit crabs.
Phase 1 Survey Area (OCW)	003	B	Sand Dollars	None	None	Light brown sand with ripples disturbed by sparse tracks. Numerous sand dollars.
Phase 1 Survey Area (OCW)	003	C	Hermit Crabs, Sand Dollars	None	None	Light brown sand with ripples. Slightly turbid water column. Numerous sand dollars.
Phase 1 Survey Area (OCW)	004	A	Hermit Crab, Sand Dollars	None	None	Brown sand with very slight ripples and extensive tracks. Skate egg case in center.
Phase 1 Survey Area (OCW)	004	B	Sand Dollars	None	None	Brown sand with extensive tracks throughout. Numerous sand dollars.
Phase 1 Survey Area (OCW)	004	C	Sand Dollars, Snails	None	None	Brown and light brown sand crisscrossed by tracks. Sand dollars and several small snails present.
Phase 1 Survey Area (OCW)	005	A	Sand Dollars	None	None	Brown slightly gravelly sand with sparse shell fragments. S a few sand dollars and related tracks present.
Phase 1 Survey Area (OCW)	005	B	Sand Dollars	None	None	Brown sand crossed by many tracks. Several small and large sand dollars. Lady crab shell in top left.
Phase 1 Survey Area (OCW)	005	C	Sand Dollars	None	None	Light brown sand with a few sand dollars. Fecal cast in top right. Potential track or SPI frame mark on left of image.
Phase 1 Survey Area (OCW)	006	A	Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over pale gray sand. Microalgae accumulated into trough like features. Several sand dollars and a snail.
Phase 1 Survey Area (OCW)	006	B	Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over pale gray sand. Microalgae accumulated into trough like features. Numerous sand dollars. Well defined sand dollar track in top center.
Phase 1 Survey Area (OCW)	006	C	Cancer Crab, Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over pale gray sand. Microalgae accumulated into trough like features. Several sand dollars present. Cancer crab in bottom left.
Phase 1 Survey Area (OCW)	007	A	Hermit Crab	None	None	Dark brown gravelly sand. Broad clawed hermit crab in top center.
Phase 1 Survey Area (OCW)	007	B	Hermit Crabs	None	None	Dark brown gravelly sand with small gravels throughout. Numerous hermit crabs. Several shell fragments.
Phase 1 Survey Area (OCW)	007	C	Encrusting Sponge, Hermit Crabs	None	None	Brown gravelly sand with small gravels throughout. Extensive reef building tube worm colony in top right. Two large surf clam shells with encrusting sponges attached.
Phase 1 Survey Area (OCW)	008	A	Hermit Crabs	None	None	Brown sandy gravel characterized by evenly sized small gravels. Reef building tube worm colony present. Sparse shell hash throughout.
Phase 1 Survey Area (OCW)	008	B	Cancer Crab	None	None	Dark brown slightly gravelly sand with sparse shell hash. Sabellariid reef present through full extent. Cancer crab in bottom right. Squid Egg casing in lower left corner
Phase 1 Survey Area (OCW)	008	C	Hermit Crabs, Nudibranch	None	None	Dark brown slightly gravelly sand with sparse shell hash and sand dollar fragments. Sabellariid reef present through full extent. Numerous hermit crabs on right. Nudibranch along lower edge of image.
Phase 1 Survey Area (OCW)	009	A	Sand Dollars	None	None	Thin layer of reddish-brown microalgae over light brown sand. Various tracks of different forms throughout.
Phase 1 Survey Area (OCW)	009	B	Sand Dollars	None	None	Thin layer of reddish-brown microalgae over light brown sand. Small sand clump aggregates throughout. Fecal cast in top center. Various tracks throughout.

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Phase 1 Survey Area (OCW)	009	C	Hermit Crabs, Moon Snail, Sand Dollars	None	None	Unevenly distributed thin layer of reddish-brown microalgae over light brown sand. Numerous sand dollars and a large moon snail in bottom left. Several tracks of different forms throughout.
Phase 1 Survey Area (OCW)	010	A	Hermit Crabs, Snails	None	None	Thin layer of reddish-brown microalgae over light brown slightly gravelly sand. Very few snails and hermit crabs in top and center.
Phase 1 Survey Area (OCW)	010	B	Sand Dollar, Snail	None	None	Thin layer of reddish-brown microalgae over light brown slightly gravelly sand. Several small sand clump aggregates in middle. Sand dollar at bottom center. Few tracks present. Small snail above left laser
Phase 1 Survey Area (OCW)	010	C	Crab	None	None	Light brown slightly gravelly sand with thin reddish-brown microalgae on surface in bottom left and top right. Very large track running from top left to right. Aggregations of shell hash and debris. Small crab under shell debris.
Phase 1 Survey Area (OCW)	011	A	Hermit Crab, Sand Dollars	None	None	Thin layer of reddish-brown microalgae over pale brown and gray sand. Sand dollars and a large hermit crab on right. Various types of tracks.
Phase 1 Survey Area (OCW)	011	B	Sand Dollar	None	None	Thin layer of reddish-brown microalgae over pale brown sand. A single sand dollar and very sparse tracks.
Phase 1 Survey Area (OCW)	011	C	Sand Dollars	None	Flatfish	Thin layer of reddish-brown microalgae over pale brown sand. Various tracks in top left and center. Sand dollars throughout. Small flatfish on left.
Phase 1 Survey Area (OCW)	012	A	Hermit Crab, Sand Dollar, Unidentified	None	None	Brown sand with evenly distributed ~15 cm ripples. Various tracks in both troughs and on crests. Sand dollars and a hermit crab. Unidentified organism in bottom right???.
Phase 1 Survey Area (OCW)	012	B	Hermit Crabs, Sand Dollars	None	None	Brown sand with uneven short wave ripples. Numerous sand dollars and associated tracks.
Phase 1 Survey Area (OCW)	012	C	Hermit Crab, Sand Dollars, Snails	None	None	Brown sand with even short wave ripples. Sand grain even from crest to troughs. Several sand dollars.
Phase 1 Survey Area (OCW)	013	A	Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over brown and light brown sand. Sparse shell hash throughout. Ripples faintly present at top. Several sand dollars and tracks. Crab carapace at top.
Phase 1 Survey Area (OCW)	013	B	Sand Dollars, Snails	None	None	Uneven distribution of thin layer of reddish-brown microalgae over brown sand. Sparse shell hash interspersed. Numerous fecal casts in top and center. Sand dollars and several snails. A few tracks.
Phase 1 Survey Area (OCW)	013	C	Hermit Crabs, Sand Dollars	None	None	Brown and reddish-brown sand with small accumulation of thin layer reddish-brown microalgae. Sparse shell hash throughout. Remnants of small ripples at top. A sand dollar and a few hermit crabs.
Phase 1 Survey Area (OCW)	014	A	Hermit Crabs	None	Striped Sea Robin	Brown sand with various size shell hash and fragments. Uneven ripples along left and center. Small tubes presenting as small balls in venter. Striped sea robin in bottom right.
Phase 1 Survey Area (OCW)	014	B	Hermit Crabs, Snails	None	None	Light brown sand with small ripples. Various size and color shell hash. Tubes presenting as small sand balls as well as parchment worm tubes on right. A few hermit crabs.
Phase 1 Survey Area (OCW)	014	C	None	None	None	Brown slightly gravelly sand with shell fragments and shell hash. Uneven short wave ripples present. Numerous small tubes at top and a large diopatra tube in bottom center.
Phase 1 Survey Area (OCW)	015	A	Hermit Crab, Sand Dollars	None	None	Brownish hue sandy gravel dominated by extensive shell hash and shell fragments. Several sand dollars and a hermit crab. Short tubes along edge of gravels.
Phase 1 Survey Area (OCW)	015	B	Cancer Crab, Hermit Crabs, Sand Dollars	None	None	Brownish sand with multicolored small gravels and extensive shell hash. Small amounts of thin layer reddish-brown microalgae. Numerous small tubes in top and center. A few sand dollars. Cancer crab in top right.
Phase 1 Survey Area (OCW)	015	C	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with sparse shell hash. Many sand dollars and a few snails and hermit crabs. A few tracks throughout.
Phase 1 Survey Area (OCW)	016	A	Hermit Crabs, Sand Dollars	None	None	Light brown and brown slightly gravelly sand with sparse shell hash. Several large tracks on left and bottom right. Many sand dollars and a few hermit crabs.
Phase 1 Survey Area (OCW)	016	B	Sand Dollars	None	Unidentified	Light brown slightly gravelly sand with very small gravels. Sparse shell hash evenly distributed. Numerous sand dollars throughout and an unidentified fish in bottom center.
Phase 1 Survey Area (OCW)	016	C	Sand Dollars, Snails	None	None	Light brown and brown slightly gravelly sand with sparse shell hash evenly distributed. Small short wave ripples running from top left to bottom right. Numerous sand dollars and a few tracks.
Phase 1 Survey Area (OCW)	017	A	Sand Dollars	None	None	Brown gravelly sand with small gravels throughout and a larger swath gravels in a trough in center of image. Short wave ripples in top left. Sparse shell hash throughout. Numerous sand dollars and tracks. Large infauna at image center, organism is visible but not identified.
Phase 1 Survey Area (OCW)	017	B	Sand Dollars	None	None	Brown and dark brown slightly gravelly sand with small and large shell fragments. Small sand clasts in top right. Several sand dollars and associated tracks.
Phase 1 Survey Area (OCW)	017	C	Sand Dollars	None	None	Brown slightly gravelly sand with short wave ripples running from bottom left to top right. Sparse shell hash throughout, particularly prevalent in trough along bottom. Numerous sand dollars. Several sand clasts at top of image.

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Phase 1 Survey Area (OCW)	018	A	Hermit Crab	None	None	Thin layer of reddish-brown microalgae over brown sand. Sparse shell hash, particularly prevalent along with microalgae at top of image. Numerous tracks. Single hermit crab at top center. Small tubes at ripple slope.
Phase 1 Survey Area (OCW)	018	B	Sand Dollars	None	None	Thin layer of reddish-brown microalgae over brown sand. Microalgae thickest in trough running from bottom left to top right. Sparse shell hash throughout. Several sand clasts in bottom right. A couple small sand dollars.
Phase 1 Survey Area (OCW)	018	C	Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over brown sand. Shell hash throughout. Tubes found in association with microalgae. Several sand dollars and snails. Various tracks.
Phase 1 Survey Area (OCW)	019	A	Hermit Crabs, Sand Dollars	None	None	Brown sand with small patches of reddish-brown algae and very sparse shell hash. Many sand dollars throughout. Several tracks.
Phase 1 Survey Area (OCW)	019	B	Hermit Crabs, Sand Dollars	None	None	Brown sand with a few patches of reddish-brown microalgae. Sparse shell hash throughout. Extensive sand dollar bed. Large hermit crab in whelk shell in top right.
Phase 1 Survey Area (OCW)	019	C	Sand Dollars	None	None	Brown sand with sparse shell hash distributed unevenly. Small sand clasts and fecal casts in upper right. Many sand dollars and a few sand dollar fragments.
Phase 1 Survey Area (OCW)	020	B	Anemone, Hermit Crabs, Sand Dollars	None	None	Brown slightly gravelly sand with a thin layer of reddish-brown microalgae covering top right and in troughs in lower left. Sparse shell hash and larger shell fragments throughout. Numerous sand dollars and several sand dollar fragments. Anemone and hermit crab in top center.
Phase 1 Survey Area (OCW)	020	C	Sand Dollars	None	None	Light brown slightly gravelly sand with thin layer of reddish-brown microalgae in upper right. Extensive shell hash and larger shell fragments including sand dollar fragments. Numerous sand dollars. Small tubes and diopatra tube in center.
Phase 1 Survey Area (OCW)	020	D	Cancer Crab, Sand Dollars	None	None	Light brown slightly gravelly sand with thin layer of reddish-brown microalgae. Gravel present are small pebbles. Varied shell hash, particularly prevalent in lower left. Numerous sand dollars and a cancer crab in the bottom left.
Phase 1 Survey Area (OCW)	021	A	Hermit Crabs	None	None	Brown and light brown sand covered evenly by thin layer of reddish-brown microalgae. Sparse shell hash. A few tubes and fecal casts scattered throughout. Hermit crab in bottom center.
Phase 1 Survey Area (OCW)	021	B	Hermit Crabs	None	None	Brown sand covered evenly by a thin layer of reddish-brown microalgae. Very sparse shell hash and shell fragments throughout. Disturbance tracks in top left and bottom right and a few faint tracks in the top left. Small tubes distributed throughout.
Phase 1 Survey Area (OCW)	021	C	Hermit Crabs, Sand Dollars	None	None	Brown sand covered evenly by a thin layer of reddish-brown algae. Very sparse shell hash. Small tubes and fecal casts throughout. Small burrows in bottom left. Hermit crab in center. Faint tracks through top center and right.
Phase 1 Survey Area (OCW)	022	A	Hermit Crabs, Nudibranch	None	Sea Robin	Light brown and brown sand with shell hash and larger shell fragments throughout. Extensive sabellariid worm reef along left of image. Sea robin in center and a nudibranch in center right. Faint tracks present in sand.
Phase 1 Survey Area (OCW)	022	C	Nudibranch	None	None	Light brown sand with high coverage of shell hash and shell fragments/ Large sabellariid reef along bottom of image with additional sabellariid tubes above the built up reed. Other small tubes found in sand above sabellariid reef. Nudibranch in center.
Phase 1 Survey Area (OCW)	022	D	None	None	None	Light brown sand with shell hash and larger shell fragments throughout. Small tubes potentially sabellariid in top and center. Moon snail egg casing in top left.
Phase 1 Survey Area (OCW)	023	A	Hermit Crabs, Moon Snails	None	None	Brown sandy gravel primarily composed of lighter shaded pebbles. Sparse shell hash. Extensive sabellariid reef throughout. Moon snail in bottom left. Several hermit crabs.
Phase 1 Survey Area (OCW)	023	B	Cancer Crabs, Hermit Crabs	None	None	Brown sandy gravel primarily composed of lighter shaded pebbles and small cobbles. Shell hash and larger shell fragments throughout. Hermit crabs and a cancer crab in bottom left. Large track in top center. Sand clasts along right.
Phase 1 Survey Area (OCW)	023	C	Hermit Crabs	None	Flatfish	Brown sand with high coverage of light and dark gravel granules. Sparse shell hash evenly distributed. Extensive sabellariid reef from bottom left to top right. Flatfish in top left.
Phase 1 Survey Area (OCW)	024	A	Hermit Crabs, Sand Dollars	None	None	Light brown sand with high coverage of a thin layer of reddish-brown microalgae. Very sparse shell hash. Many small tubes evenly distributed. Several sand dollars in top right.
Phase 1 Survey Area (OCW)	024	B	Hermit Crabs, Sand Dollars	None	None	Brown sand with high coverage of thin layer of reddish-brown microalgae over it. Sparse shell hash and shell fragments. Many small tubes evenly distributed throughout. Disturbed microalgae in center and center top reveal tracks.
Phase 1 Survey Area (OCW)	024	C	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand under thin lower of reddish-brown microalgae. Fine shell hash throughout. Many small tubes evenly distributed. Unidentified infauna with burrow in lower center.

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Phase 1 Survey Area (OCW)	025	A	Cancer Crab	None	None	Dark brown sand with large sabellariid tube reed throughout. Sparse shell fragments. Cancer crab in bottom left. Anemone in middle right.
Phase 1 Survey Area (OCW)	025	B	Hermit Crabs	None	None	Dark brown gravelly sand with pebbles and small cobbles. Shell hash and shell fragments throughout. Very high density of tubes. Burrowing anemone in top left.
Phase 1 Survey Area (OCW)	025	D	Hermit Crabs	None	Flatfish	Brown sand with very sparse shell hash. Several mud clasts of reduced gray material in bottom right. Both sabellariid tubes and small other tubes throughout. Flatfish in top right.
Phase 1 Survey Area (OCW)	026	B	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with unevenly distributed thin layer of reddish-brown microalgae over it. Shell hash throughout. Many tubes present, may or may not be early formation of sabellariid reef. Several sand dollars.
Phase 1 Survey Area (OCW)	026	C	Cancer Crab, Hermit Crabs, Sand Dollars, Snails	None	Flatfish	Light brown sand with unevenly distributed thin layer of reddish-brown microalgae over it. Sparse shell hash. Numerous sand dollars and tubes throughout. Cancer crab in bottom right and flatfish in top left.
Phase 1 Survey Area (OCW)	026	D	Sand Dollars, Snails	None	None	Unevenly distributed thin layer of reddish-brown microalgae over light brown sand. Sparse shell hash. Numerous sand dollars and tubes throughout. Several snail in top center.
Phase 1 Survey Area (OCW)	027	A	Cancer Crab, Sand Dollars	None	None	Light brown sand with thin layer of reddish-brown microalgae in two distinct troughs. Several sand dollars. Cancer crab in top center. Large track running from bottom left to top right.
Phase 1 Survey Area (OCW)	027	B	Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. A couple sand dollars and a single snail. Biotic group not determined due to lack of visible biotic communities.
Phase 1 Survey Area (OCW)	027	C	Sand Dollars	None	None	Light brown sand with irregular ripples. Very sparse shell hash. A couple sand dollars in lower left.
Phase 1 Survey Area (OCW)	028	A	Nudibranch, Sand Dollars, Snails, Tunicates	None	None	Light brown sand with very sparse shell hash. Many small tunicates. Nudibranch below sand dollar in middle right. Large track in bottom right.
Phase 1 Survey Area (OCW)	028	B	Sand Dollars, Tunicates	None	None	Light brown sand with very sparse shell hash. Tunicate bed throughout. Diopatra in lower right. Several sand dollars.
Phase 1 Survey Area (OCW)	028	C	Sand Dollars, Tunicates	None	None	Light brown sand with shell hash and shell fragments throughout. Several sand dollars. Small sections of tunicate beds along top.
Phase 1 Survey Area (OCW)	029	A	Sand Dollars, Tunicates	None	None	Light brown sand with both short form and irregular ripples. Fine shell hash throughout. Tunicate bed along trough in bottom. Several tracks present along top.
Phase 1 Survey Area (OCW)	029	B	Sand Dollars, Tunicates	None	None	Light brown sand with irregular ripples. Fine shell hash throughout. Small tunicate beds through middle. Diopatra tube in top left. Tracks along right. Potential found wedding ring in center (likely a shell fragment).
Phase 1 Survey Area (OCW)	029	C	Hermit Crabs, Sand Dollars, Tunicates	None	None	Light brown sand with irregular ripples. Fine shell hash throughout. Tunicate bed prevalent throughout, particularly along top. Distinct tracks on right.
Phase 1 Survey Area (OCW)	030	A	Sand Dollars, Snails, Tunicates	None	None	Light brown sand with sparse shell hash throughout. Both tunicate bed and sand dollar beds present. Several small and medium sized tubes. Various tracks throughout.
Phase 1 Survey Area (OCW)	030	B	Sand Dollars, Tunicates	None	None	Light brown sand with sparse shell hash and short form ripples running from top left to bottom right. Both tunicate beds and a sand dollar bed present. Various tracks throughout. Fecal casts in top right.
Phase 1 Survey Area (OCW)	030	C	Sand Dollars, Surf Clam, Tunicates	None	Flatfish	Light brown sand with short form ripples running from top left to bottom right. Sparse, fine shell hash throughout. Both tunicate bed and sand dollar bed present. Left eye flounder in top left. Tracks particularly along right.
Phase 1 Survey Area (OCW)	031	A	Tunicates	None	None	Light brown sand with shell hash and large shell fragments throughout. Extensive tunicate bed.
Phase 1 Survey Area (OCW)	031	B	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None	Light brown sand with shell hash and small shell fragments throughout. A large tunicate bed and sand dollars. A few hermit crabs and snails.
Phase 1 Survey Area (OCW)	031	C	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	Tonguefish	Light brown sand with shell hash throughout. Extensive tunicate bed. Numerous sand dollars. Likely tonguefish in bottom center. Parchment worm tube in top center.
Phase 1 Survey Area (OCW)	032	A	Sand Dollars	None	None	Light brown sand with sparse shell hash evenly distributed. Sand dollar bed.
Phase 1 Survey Area (OCW)	032	B	Hermit Crabs, Sand Dollars	None	None	Light brown sand with shell hash and small shell fragments throughout. Numerous small sand dollars. Faint tracks through center and right.
Phase 1 Survey Area (OCW)	032	C	Hermit Crabs, Sand Dollars	None	None	Light brown sand with shell hash and small shell fragments throughout. Sand dollar bed present. Fish in top center.

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Phase 1 Survey Area (OCW)	033	A	Hermit Crabs, Sand Dollars	None	None	Light brown sand with sparse shell hash. Sand dollar bed. Several small tubes.
Phase 1 Survey Area (OCW)	033	B	Hermit Crabs, Sand Dollars	None	None	Light brown and brown sand with evenly distributed shell hash. Extensive sand dollar bed. Diopatra tubes in top left quadrant.
Phase 1 Survey Area (OCW)	033	C	Hermit Crabs, Sand Dollars	None	None	Brown sand with sparse shell hash and shell fragments. Sand dollar bed throughout. Diopatra tubes in top left and bottom right. Several tracks.
Phase 1 Survey Area (OCW)	034	A	Snails, Tunicates	None	None	Brown sand with evenly distributed shell hash and shell fragments. Tunicate bed along left and top. Several snails.
Phase 1 Survey Area (OCW)	034	B	Hermit Crabs, Snails	None	None	Brown sand with ripples running from top left to bottom right. Shell hash present, particularly in ripple troughs. Hermit crab in bottom right.
Phase 1 Survey Area (OCW)	034	C	Hermit Crabs, Nudibranchs, Snails	None	None	Brown sand with sparse shell hash and shell fragments. Complete coverage of sabellariid reef. High coverage of small tubes on top of sabellariid reef. Several hermit crabs. Nudibranch in bottom right.
Phase 1 Survey Area (OCW)	035	B	Hermit Crabs, Snails, Tunicates	None	None	Light brown sand with shell hash and large shell fragments. Snails and a few tunicates present. No clear CMECS biotic group identified.
Phase 1 Survey Area (OCW)	035	C	Hermit Crabs, Nudibranchs, Sand Dollars	None	None	Brown sand with shell hash and shell fragment and sand dollar fragments. Compete coverage of sabellariid reef along with high coverage of small tubes. Nudibranch in middle right.
Phase 1 Survey Area (OCW)	035	D	Hermit Crabs, Nudibranchs	None	None	Pale brown sand with extensive shell hash and shell fragments. Very high coverage of small tubes. sabellariid reef present in conjunction with other tubes. Numerous nudibranchs.
Phase 1 Survey Area (OCW)	036	A	Tunicates	None	None	Light brown sand with sparse shell hash. Small tunicate bed in top left. Faint tracks in top left.
Phase 1 Survey Area (OCW)	036	B	Snails, Tunicates	None	None	Light brown sand with shell hash and shell fragments in distinct troughs. A few snails and tunicates. Inadequate biota to distinguish CMECS biotic group.
Phase 1 Survey Area (OCW)	036	C	Tunicates	None	None	Light brown sand with short form ripples. Shell hash present in ripple troughs. Small tunicate bed.
Phase 1 Survey Area (OCW)	037	A	Hermit Crabs, Sand Dollars	None	None	Brown sand with evenly distributed shell hash. Sand dollar bed. Small tubes throughout A few hermit crabs. Small diopatra tube in top left.
Phase 1 Survey Area (OCW)	037	B	Hermit Crabs, Sand Dollars, Snails	None	Sea Robin	Light brown sand with sparse shell hash and sand dollar fragments throughout. Sand dollar bed with wide range of sand dollar sizes. Small tubes. Sea Robin in top right.
Phase 1 Survey Area (OCW)	037	C	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with shell hash throughout. Sand dollar bed with wide range of sand dollar sizes. sabellariid reef on right. Several hermit crabs and snails.
Phase 1 Survey Area (OCW)	038	A	Hermit Crabs, Sand Dollars, Snails	None	Sea Robin	Light brown sand with very sparse shell hash. A few sand dollars, snails, and hermit crabs. Sea robin on left. Occasional small tubes.
Phase 1 Survey Area (OCW)	038	B	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None	Light brown sand with very sparse shell fragments. Tunicates present throughout with occasional small tubes. A few sand dollars and hermit crabs. Distinct track in top left.
Phase 1 Survey Area (OCW)	038	C	Hermit Crabs, Nudibranch, Sand Dollars, Snails, Tunicates	None	Unidentified	Light brown sand with irregular short form ripples and very sparse shell hash. Numerous sand dollars. A few small tubes in top center and left. Nudibranch on middle right. Fish tail in top right.
Phase 1 Survey Area (OCW)	039	B	Hermit Crabs, Sand Dollars, Tunicates	None	None	Brown sand with shell hash, shell fragments, and a few sand dollar fragments. Small tubes present. A few sand dollars and tunicates.
Phase 1 Survey Area (OCW)	039	C	Hermit Crabs, Sand Dollars	None	None	A thin layer of reddish-brown microalgae over light brown sand with very sparse shell hash and shell fragments. A few sand dollars and small tubes. Distinct track under right laser.
Phase 1 Survey Area (OCW)	039	D	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None	Light brown sand with very sparse shell hash. Several sand dollars. Some tubes on right. Numerous tracks of different forms.
Phase 1 Survey Area (OCW)	040	A	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. Sand dollar bed with various sized sand dollars. Small tubes throughout. Large hermit crab below left laser.
Phase 1 Survey Area (OCW)	040	B	Hermit Crabs, Sand Dollars	None	None	Light brown sand with very sparse shell hash. Large sand dollar bed with both large and small sized sand dollars. Small tubes throughout. A few hermit crabs.
Phase 1 Survey Area (OCW)	040	C	Hermit Crabs, Sand Dollars	None	None	Light brown sand with very sparse shell hash. Large sand dollar bed with both large and small sand dollars present. Small tubes throughout. Squid egg casing in center. A few hermit crabs.

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Phase 1 Survey Area (OCW)	041	A	Hermit Crabs, Nudibranchs, Snails	None	None	Light brown sand with very sparse shell hash and shell fragments. High coverage of both large tubes and small sabellariid tubes. Various tracks throughout.
Phase 1 Survey Area (OCW)	041	B	Hermit Crabs	None	None	Light brown sand with very sparse shell hash and shell fragments. Small tubes on left. Numerous fecal casts throughout. Several burrows, a few with associated reduced sediment. Various tracks.
Phase 1 Survey Area (OCW)	041	C	Nudibranch, Sea Cucumber, Snails	None	None	Thin layer of reddish-brown microalgae over light brown sand. Very sparse shell hash and sand fragments. Small tube bed in lower center. Numerous burrows, some with associated reduced sediment. Potential gastropod egg case in top left attached to shell fragment. Various tracks.
Phase 1 Survey Area (OCW)	042	A	Cancer Crabs, Hermit Crabs	None	None	sabellariid reef with small patch of brown sand in top right. Other small tubes frequently interspersed within sabellariid reef. Cancer crab in bottom center.
Phase 1 Survey Area (OCW)	042	B	Hermit Crabs	None	None	sabellariid reef interspersed with small patches of brown sand. Very sparse shell hash. Small tubes present within sabellariid reef. Numerous hermit crabs.
Phase 1 Survey Area (OCW)	042	C	Cancer Crabs, Hermit Crabs, Sand Dollars	None	None	Light brown sand with very sparse shell hash. Numerous sand dollars. Numerous diopatra tubes right of the right laser. Small burrow in center with associated reduced sediment. Cancer crab next to left laser.
Phase 1 Survey Area (OCW)	043	A	Hermit Crabs, Sand Dollars	None	None	Brown sand with shell hash, shell fragments, and a few sand dollar fragments. Large and small sand dollars. Small tubes present. Several hermit crabs. Diopatra tubes.
Phase 1 Survey Area (OCW)	043	B	Bryozoa, Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with shell hash and a few sand dollar fragments. Numerous sand dollars. A few small tubes throughout. Diopatra tubes and small bryozoans left of left laser. Faint tracks on right and top left.
Phase 1 Survey Area (OCW)	043	D	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with shell hash throughout. Sand dollar bed with wide range of sand dollar sizes. Several diopatra tubes in top center. Numerous hermit crabs.
Phase 1 Survey Area (OCW)	044	A	Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. Sand dollar bed and numerous small tubes throughout. Faint tracks of various sizes.
Phase 1 Survey Area (OCW)	044	B	Anemone, Hermit Crabs, Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over brown sand with sparse shell hash. Numerous sand dollars. Very few small tubes. Burrowing anemone in bottom center.
Phase 1 Survey Area (OCW)	044	C	Sand Dollars, Snails, Tunicates	None	None	Light brown sand with sparse shell hash and several sand dollar fragments. Sand dollars throughout. A few tunicates and snails. Faint tracks in top left.
Phase 1 Survey Area (OCW)	045	A	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None	Light brown sand with very sparse shell hash. Tunicate bed running down center. Numerous sand dollars.
Phase 1 Survey Area (OCW)	045	B	Sand Dollars, Snails, Tunicates	None	None	Light brown sand with very sparse shell hash. Both sand dollar bed and tunicate bed present. Numerous snails throughout.
Phase 1 Survey Area (OCW)	045	C	Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over light brown sand with sparse shell hash. Both sand dollar and tunicate beds present. Diopatra tube left of left laser. A few snails. Potential gastropod egg casing in bottom center.
Phase 1 Survey Area (OCW)	046	B	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. Sand dollar bed throughout. A few small tubes in upper center. Faint tracks on far left and far right.
Phase 1 Survey Area (OCW)	046	C	Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Sand dollar bed throughout.
Phase 1 Survey Area (OCW)	046	D	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. Sand dollar bed throughout. Cancer crab in bottom right. Diopatra tubes in center/ Likely dead sea whip along bottom. Faint tracks along top.
Phase 1 Survey Area (OCW)	047	B	Hermit Crabs, Sand Dollars	None	None	Brown sand with sparse shell hash and sand dollar fragments. Sand dollar bed throughout. Several tubes and diopatra tubes in center and along top. A few hermit crabs.
Phase 1 Survey Area (OCW)	047	C	Gastropods, Sand Dollars	None	None	Thin layer of reddish-brown microalgae over light brown sand. Sand dollar bed with various size sand dollars. Numerous tubes including diopatra. Gastropod in bottom left. Various tracks throughout.
Phase 1 Survey Area (OCW)	047	D	Hermit Crabs, Sand Dollars	None	None	Thin layer of reddish-brown microalgae over light brown sand with sparse shell hash. Various sized sand dollars. Numerous tubes including diopatra/ Faint tracks on far right.
Phase 1 Survey Area (OCW)	048	A	Hermit Crabs, Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over light brown sand with sparse shell hash. Many tubes including diopatra. Sand dollar bed. Several burrows with associated reduced sediment. Faint tracks in top center and top right.

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Phase 1 Survey Area (OCW)	048	B	Hermit Crabs, Sand Dollars	None	None	Thin layer of reddish-brown microalgae over light brown sand with very sparse shell hash. Sand dollar bed throughout. Both larger (diopatra) and smaller tubes evenly distributed. Tracks present.
Phase 1 Survey Area (OCW)	048	C	Hermit Crabs, Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over pale brown sand. Sparse shell hash throughout. Both larger (diopatra) and smaller tubes. Large track in top center.
Phase 1 Survey Area (OCW)	049	A	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. High coverage of tubes. Sand dollar bed throughout. A few burrows including one just above sand dollars left of left laser. A wide variety of tracks.
Phase 1 Survey Area (OCW)	049	B	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with extremely sparse shell hash. High coverage of large tubes. Sand dollar bed throughout. Various tracks present.
Phase 1 Survey Area (OCW)	049	C	Sand Dollars, Snails	None	None	Light brown sand with extremely sparse shell hash. High coverage of larger tubes. Various sized sand dollars. A few burrows, one above left laser with associated reduced sediment. Gastropod on far left. Several tracks.
Phase 1 Survey Area (OCW)	050	A	Sand Dollars, Snails, Tunicates	None	None	Thin layer of reddish-brown microalgae over light brown sand. Very sparse shell hash primarily found in faint trough running from top left to bottom right. Several sand dollars. Tunicate bed particularly prevalent in trough. Numerous tracks.
Phase 1 Survey Area (OCW)	050	B	Sand Dollars, Snails, Tunicates	None	None	Thin layer of reddish-brown microalgae over light brown sand with very sparse shell hash. Tunicate bed throughout. Numerous small burrows visible as black dots. Various tracks.
Phase 1 Survey Area (OCW)	050	C	Hermit Crabs, Sand Dollars, Tunicates	None	None	Thin layer of reddish-brown microalgae over light brown sand. Algae has been disturbed in path from top left to bottom right. Shell hash throughout. Extensive tunicate bed and a few sand dollars. Various tracks.
Phase 1 Survey Area (OCW)	051	A	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None	Thin layer of reddish-brown microalgae over light brown sand. Microalgae found strongly in association with small tube colony. Numerous sand dollars. Several hermit crabs and snails.
Phase 1 Survey Area (OCW)	051	B	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None	Patchy thin layer of reddish-brown microalgae over light brown sand. High coverage of small tubes. Numerous sand dollars. A few tunicates, hermit crabs, and snails. Several burrows with associated reduced sediment.
Phase 1 Survey Area (OCW)	051	C	Hermit Crabs, Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over light brown sand. Small tubes throughout. A few burrows with associated reduced sediment. Snail with foot extended in center. Large track in top right.
Phase 1 Survey Area (OCW)	052	A	Cancer Crabs, Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over light brown sand with very sparse shell hash. High coverage of small tubes. Sand dollar bed. Cancer crab in lower center. A few tracks.
Phase 1 Survey Area (OCW)	052	B	Sand Dollars, Snails	None	None	Patchy thin layer of reddish-brown microalgae over light brown sand. High coverage of small tubes. Several sand dollars. Tracks and disturbance in top left.
Phase 1 Survey Area (OCW)	052	C	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails	None	None	Patchy thin layer of reddish-brown micro-algae over light brown sand with extremely sparse shell hash. High coverage of small tubes. Extensive sand dollar bed. Cancer crab on far left and a crab burying itself on far right. A few tracks.
Phase 1 Survey Area (OCW)	053	A	Sand Dollars, Snails	None	None	Light brown sand with sparse shell hash. Sand dollar bed. A few small tubes scattered throughout. Large track in center.
Phase 1 Survey Area (OCW)	053	B	Sand Dollars, Tunicates	None	None	Light brown sand with very sparse shell hash. Both sand dollar bed and tunicate bed present. A few tracks.
Phase 1 Survey Area (OCW)	053	C	Sand Dollars, Tunicates	None	None	Light brown sand with very sparse shell hash. Sand dollar bed throughout. Large diopatra tubes in top right. A few tunicates and small tubes scattered throughout. Faint tracks.
Phase 1 Survey Area (OCW)	054	A	Sand Dollars	None	None	Patchy thin layer of reddish-brown microalgae over light brown sand. Extremely sparse shell hash. Both larger (diopatra) and smaller tubes evenly distributed. Several sand dollars. Various tracks throughout.
Phase 1 Survey Area (OCW)	054	B	Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over light brown sand with very sparse shell hash. Small tubes prevalent. A few sand dollars. Various tracks.
Phase 1 Survey Area (OCW)	054	C	Cancer Crabs, Sand Dollars, Snails	None	None	Thin layer of reddish-brown microalgae over light brown sand with very sparse shell hash. A few scattered small tubes. A couple sand dollars. Cancer crab in top center. Various shape tracks.
Phase 1 Survey Area (OCW)	055	A	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with sparse shell hash. sabellariid reef on right and bottom left. Other small tubes strongly associated with sabellariid reef. High coverage of sand dollar bed. Numerous snails and hermit crabs. A few tracks.
Phase 1 Survey Area (OCW)	055	B	Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash and sand fragments. Patchy sabellariid reef throughout. Small tubes interspersed with sabellariid reef. Many sand dollars.
Phase 1 Survey Area (OCW)	055	C	Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Small tubes scattered throughout. High coverage of sand dollar bed. Faint tracks in bottom left and top right.
Phase 1 Survey Area (OCW)	056	A	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. Patchy red seston on sand surface. Sand dollar bed present. Scattered small tubes. A few snails and hermit crabs evenly distributed. Faint tracks.

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Phase 1 Survey Area (OCW)	056	B	Hermit Crabs, Sand Dollars	None	None	Light brown sand with very sparse shell hash. Patchy red seston on sand surface. Sand dollar bed present. Scattered small tubes. A few fecal casts. Faint tracks.
Phase 1 Survey Area (OCW)	056	C	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. Patchy red seston on surface. Sand dollar bed throughout. Scattered small tubes. A few hermit crabs and snails. Burrow to right of right laser.
Phase 1 Survey Area (OCW)	057	B	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with sparse shell hash and shell fragments. Sand dollar bed throughout. Scattered small tubes. A few hermit crabs and snails. Faint tracks.
Phase 1 Survey Area (OCW)	057	C	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash and a few sand dollar fragments. Sand dollar bed with snails and hermit crabs. Small tubes through center and bottom. Long fecal casts in top left. Several faint tracks.
Phase 1 Survey Area (OCW)	057	D	Cancer Crabs, Hermit Crabs, Sand Dollars	None	None	Brown sand with patchy reddish-brown microalgae at surface. Sparse shell hash with a few sand dollar fragments. Sand dollar bed with hermit crabs and a cancer crab in top right. Tubes scattered throughout. Various tracks associated with sand dollars and others fauna.
Phase 1 Survey Area (OCW)	058	A	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over light brown sand. Very sparse shell hash. Tubes scattered throughout. Numerous sand dollars. Fain tracks in top left and bottom right.
Phase 1 Survey Area (OCW)	058	B	Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over light brown sand. Very sparse shell hash. Tubes prevalent along right. Sand dollar bed throughout. A couple of burrows with associated reduced sediment. Faint tracks in top right.
Phase 1 Survey Area (OCW)	058	C	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over brown sand. Sparse shell hash. Both larger tube-building fauna and a sand dollar bed present. Burrow in center. Faint tracks along top right and bottom.
Phase 1 Survey Area (OCW)	059	A	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over light brown sand. Very sparse shell hash. A range of small and large sand dollars. A few small tubes scattered throughout. Tracks running from top left to bottom right. Burrow below hermit crab on far right.
Phase 1 Survey Area (OCW)	059	B	Hermit Crabs, Sand Dollars, Snails	None	None	Very patchy reddish-brown microalgae over light brown sand. Several sand dollars. Small tubes scattered throughout. Many snails and hermit crabs. Distinct tracks causing breaks in the surface microalgae.
Phase 1 Survey Area (OCW)	059	C	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over light brown sand. Small tubes prevalent throughout. Numerous sand dollars. A few scattered burrows with associated reduced sediment. Distinct tracks running just above lasers.
Phase 1 Survey Area (OCW)	060	A	Cancer Crabs, Hermit Crabs, Nudibranchs	None	None	Gravelly sand characterized by dark pebbles and small cobbles over pale brown sand. Very extensive coverage of shell hash with both larger shell fragments and sand dollar fragments present. Small tubes prevalent throughout visible both as tubes and small circular openings between shell hash.
Phase 1 Survey Area (OCW)	060	B	Hermit Crabs	None	None	Gravelly sand with pebbles and small cobbles. Very high coverage of shell hash and larger shell fragments. sabellariid reef throughout. A few hermit crabs.
Phase 1 Survey Area (OCW)	060	C	Hermit Crabs, Nudibranchs	None	None	Gravelly dark brown sand with pebbles and small cobbles. Shell hash and larger shell fragments throughout. High coverage of both small tubes and sabellariid reef. Several nudibranchs. A few hermit crabs. Several burrows present.
Phase 1 Survey Area (OCW)	061	A	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash and a few sand dollar fragments. High coverage of large tubes along right. Sand dollar bed with snails and hermit crabs. Faint tracks throughout.
Phase 1 Survey Area (OCW)	061	B	Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. High coverage of large tubes. Sand dollars throughout. A few snails. Faint tracks on left.
Phase 1 Survey Area (OCW)	061	C	Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash and shell fragments. Large tubes prevalent throughout. Sand dollar bed. A few tracks including very clear trail in bottom left.
Phase 1 Survey Area (OCW)	062	A	Hermit Crabs	None	None	Brown sand with evenly distributed sparse shell hash. Very high coverage of both small and large tubes. sabellariid reef present, particularly along left. Burrows throughout. A few faint tracks in top center.
Phase 1 Survey Area (OCW)	062	B	Hermit Crabs	None	None	Slightly gravelly sand with a few pebbles and small cobbles. High coverage of shell hash, shell fragments, and sand dollar fragments, particularly along left. sabellariid reef throughout. A few hermit crabs.
Phase 1 Survey Area (OCW)	062	C	Hermit Crabs	None	None	Brown sand with sparse shell hash. Small tubes and sabellariid tubes present, but not frequent throughout. A few hermit crabs, including large one in bottom right. Several prevalent tracks.
Phase 1 Survey Area (OCW)	063	A	Hermit Crabs, Sand Dollars	None	None	Brown sand with very sparse shell hash and sand dollar fragments. High coverage of large tubes throughout. A few hermit crabs and a few faint tracks, particularly in bottom left.
Phase 1 Survey Area (OCW)	063	B	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with extremely sparse shell hash. High coverage of large tubes throughout. Sand dollar bed visible in top center. A few hermit crabs and snails. Faint tracks on right.
Phase 1 Survey Area (OCW)	063	C	Sand Dollars, Snails	None	None	Brown sand with extremely sparse shell hash. Very high coverage of large tubes with large patch in top right. Sand dollar bed among tubes in top right. A few snails.
Phase 1 Survey Area (OCW)	064	A	Hermit Crabs, Sand Dollars	None	None	Brown sand with shell hash throughout. Both large and small tubes evenly distributed. sabellariid tube reef found in association with other tubes. Sand dollar present. A few diopatra tubes.

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Phase 1 Survey Area (OCW)	064	B	Hermit Crabs, Sand Dollars	None	None	Brown sand with sparse shell hash evenly distributed. Extensive sand dollar bed. Small tubes scattered throughout. Faint tracks in top left. A few burrows with associated reduced sediment.
Phase 1 Survey Area (OCW)	064	C	Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Sand dollar bed throughout. Scattered small tubes and a few larger tubes including diopatra tube in top left. A couple snails.
Phase 1 Survey Area (OCW)	065	A	Hermit Crabs, Sand Dollars	None	None	Brown gravelly sand with pebbles and small cobbles. Very high coverage of shell hash, shell fragments, and sand dollar fragments. sabellariid reef along far left and far right. Sand dollar and a few hermit crabs in top center.
Phase 1 Survey Area (OCW)	065	C	Hermit Crabs, Sand Dollars, Snails	None	None	Brown gravelly sand with a few pebbles and small cobbles. Several diopatra tubes comprised of shell hash. Several sand dollars and hermit crabs.
Phase 1 Survey Area (OCW)	065	D	Hermit Crabs, Sand Dollars	None	None	Brown gravelly sand with a few pebbles. Very high coverage of shell hash and shell fragments. A few diopatra tubes comprised of shell hash. Sand dollar bed prevalent in top right.
Phase 1 Survey Area (OCW)	066	A	Cancer Crab, Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. High coverage of both large tubes and sand dollar bed. A few snails and hermit crabs. Faint tracks present in center.
Phase 1 Survey Area (OCW)	066	B	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. High coverage of both large tubes and sand dollar bed. A few snails and hermit crabs. Faint tracks along far left and top right.
Phase 1 Survey Area (OCW)	066	C	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. High coverage of large tubes along right and left. Sand dollar bed prevalent along top and right. Tracks visible through center. A few hermit crabs and snails.
Phase 1 Survey Area (OCW)	067	A	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Both large and small tubes present throughout. Very high coverage of sand dollar bed. A few burrows in top center and left middle.
Phase 1 Survey Area (OCW)	067	B	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash and a sand dollar fragment. Both large and small tubes present throughout. Extensive coverage of sand dollar bed. A few burrows with associated reduced sediment.
Phase 1 Survey Area (OCW)	067	C	Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Both large and small tubes present. High coverage of sand dollar bed. A few snails. Faint tracks in bottom right.
Phase 1 Survey Area (OCW)	068	A	Hermit Crabs, Sand Dollars, Snails	None	Unidentified	Brown sand with evenly distributed very sparse shell hash. High coverage of large tubes throughout. Both large and small sand dollars present in sand dollar bed. Fish partially buried below left laser. A few hermit crabs and snails.
Phase 1 Survey Area (OCW)	068	B	Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Large tubes particularly along left. Sand dollar bed, with many sand dollars partially covered by settled sand. A few burrows in top left.
Phase 1 Survey Area (OCW)	068	C	Sand Dollars	None	None	Brown sand with very sparse shell hash. Even distribution and generally high coverage of large tubes and sand dollar bed.
Phase 1 Survey Area (OCW)	069	A	Cancer Crabs, Hermit Crabs, Nudibranchs, Sand Dollars	None	None	Brown slightly gravelly sand with pebbles and a few small cobbles in the bottom left. Sparse shell hash and large and small shell fragments. Very high coverage of large tubes. Cancer crab in bottom right. Nudibranch in upper left. A few small burrows.
Phase 1 Survey Area (OCW)	069	B	Cancer Crabs, Hermit Crabs, Sand Dollars	None	None	Brown lightly gravelly sand with pebbles and small cobbles. Shell hash and fragments along with a few sand dollar fragments. High coverage of large tubes particularly through middle. Cancer crab in middle left. A few partially buried sand dollars.
Phase 1 Survey Area (OCW)	069	C	Cancer Crabs, Hermit Crabs	None	None	Brown slightly gravelly sand with sparse pebbles and small cobbles, particularly in upper left. Scattered shell hash with a few larger shell fragments. High coverage of large and small tubes. Partially buried cancer crab in top right. A few burrows with associated reduced sediment.
Phase 1 Survey Area (OCW)	070	A	Cancer Crabs, Hermit Crabs, Sand Dollars	None	None	Brown sand with very sparse shell hash. Many sand dollars of various sizes. Large and small tubes scattered throughout. A few well preserved fecal casts. Cancer crab in middle right.
Phase 1 Survey Area (OCW)	070	B	Sand Dollars, Snails	None	None	Brown sand with very sparse shell fragments and a sand dollar fragment in middle right. Many sand dollars throughout. Scattered large and small tubes. Several burrows around left laser. Several tracks.
Phase 1 Survey Area (OCW)	070	C	Cancer Crabs, Hermit Crabs, Sand Dollars	None	None	Brown sand with sparse shell hash and a few sand dollar fragments. Various sized sand dollar throughout. Scattered large and small tubes including diopatra with clam shell tubes. Cancer crab in bottom center adjacent skate egg casing.
Phase 1 Survey Area (OCW)	071	A	Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Large tubes prevalent throughout. Sand dollar bed present with a few very small sand dollars. Several tracks, including in bottom right.
Phase 1 Survey Area (OCW)	071	B	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with extremely sparse shell hash. Large tubes scattered throughout. Sand dollar bed with large and small sand dollars. Hermit crab in upper right.
Phase 1 Survey Area (OCW)	071	C	Sand Dollars, Snails	None	None	Brown sand with extremely sparse shell hash. High coverage of large tubes throughout. Also high coverage of sand dollar bed with large and small sand dollars present. A few burrows with associated reduced sediment.

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Phase 1 Survey Area (OCW)	072	B	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Sand dollar bed throughout. A few large and small tubes including several diopatra tubes. Several well formed tracks including in top right.
Phase 1 Survey Area (OCW)	072	D	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Sand dollar bed including large and small sand dollars. Scattered large and small tubes including a few diopatra tubes. A few burrows. Several varieties of tracks.
Phase 1 Survey Area (OCW)	072	E	Nudibranch, Sand Dollars, Snails	None	None	Dark brown sand with very sparse shell hash. Sand dollar bed with large and small sand dollars. Many large tubes including several diopatra shell tubes. Nudibranch to top right of left laser. A few faint tracks.
Phase 1 Survey Area (OCW)	073	A	Sand Dollars, Snails	None	None	Dark brown sand with extremely sparse shell hash. High coverage of large tubes. Sand dollar bed throughout. A few burrows including several in top right. Distinct track running from top left to bottom right.
Phase 1 Survey Area (OCW)	073	B	Sand Dollars, Snails	None	None	Dark brown sand with very sparse shell hash. High coverage of large tubes. Very high coverage of sand dollar bed. A few snails.
Phase 1 Survey Area (OCW)	073	C	Hermit Crabs, Sand Dollars, Snails	None	None	Dark brown sand with very sparse shell hash. High coverage of both large tubes and sand dollar bed. A few hermit crabs and snails. Large track or feeding divot in top right.
Phase 1 Survey Area (OCW)	074	A	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with extremely sparse shell hash. Mound of gray sand above left laser. Sand dollar bed with both large and small sand dollars. Scattered small tubes. Cancer crab just entering image at bottom center. A few burrows.
Phase 1 Survey Area (OCW)	074	B	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with extremely sparse shell hash. High coverage of sand dollar bed. Scattered large tubes including several diopatra shell tubes. Cancer crab in lower left. A few faint tracks.
Phase 1 Survey Area (OCW)	074	C	Sand dollars, Snails	None	Flatfish	Brown sand with extremely sparse shell hash. Sand dollar bed throughout. Scattered large and small tubes. A few burrows with associated reduced sediment. Flatfish with excellent camouflage coloration below right laser.
Phase 1 Survey Area (OCW)	075	B	Hermit Crabs, Snails	None	None	Brown sand with extensive shell hash and small shell fragments. sabellariid reef throughout. A few large tubes including diopatra shell tubes in upper right. Moon snail casing in bottom left.
Phase 1 Survey Area (OCW)	075	C	Hermit Crabs	None	None	Brown sand with extensive shell hash sand a few sand dollar fragments. sabellariid tubes throughout. A few scattered hermit crabs.
Phase 1 Survey Area (OCW)	075	D	Hermit Crabs, Sand Dollars	None	None	Brown sand with extensive shell hash and shell fragments. Small sabellariid tubes throughout. A couple of hermit crabs and sand dollars. Faint tracks on right.
Phase 1 Survey Area (OCW)	076	A	None	None	None	Brown sand with extremely high coverage of shell hash and large and small shell fragments. Several large diopatra tubes. Scarce small tubes.
Phase 1 Survey Area (OCW)	076	B	None	None	None	Brown sand with extremely high coverage of shell hash and large and small shell fragments. Scattered small tubes. A few large diopatra tubes.
Phase 1 Survey Area (OCW)	076	C	None	None	None	Brown sand with extremely high coverage of shell hash and large shell fragments. Large surf clam shell in bottom left. Small tubes scattered throughout. A few large diopatra tubes.
Phase 1 Survey Area (OCW)	077	A	Hermit Crabs, Sand Dollars	None	None	Brown sand with sparse shell hash. Numerous large tubes scattered throughout. Sand dollar bed present. A few burrows in bottom half. Several hermit crabs.
Phase 1 Survey Area (OCW)	077	B	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Sand dollar bed throughout. Scattered large and small tubes. Several hermit crabs and snails.
Phase 1 Survey Area (OCW)	077	C	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Small tubes scattered throughout. Sand dollar bed, prevalent in top right. Numerous snails and a few hermit crabs.
Phase 1 Survey Area (OCW)	078	A	Hermit Crabs, Sand Dollars, Snails	None	Flatfish	Brown sand with sparse shell hash and sand dollar fragments. Sand dollar bed throughout. Several tubes and diopatra tubes in bottom left and top right. Flatfish in top left.
Phase 1 Survey Area (OCW)	078	B	Sand Dollars, Snails	None	None	Brown sand with sparse shell hash. Large tubes scattered throughout. Sand dollar bed with both large and small sand dollars. Several burrows in middle. A few snails.
Phase 1 Survey Area (OCW)	078	C	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Large tubes scattered evenly throughout. High coverage of sand dollar bed. A few hermit crabs and snails. A few burrows in lower right.
Phase 1 Survey Area (OCW)	079	E	Sand Dollars, Snails	None	None	Brown sand with extremely sparse shell hash. Sand dollar bed with large and small sand dollars. Small tubes scattered throughout. Faint tracks, particularly in top right and bottom left.
Phase 1 Survey Area (OCW)	079	F	Cancer Crabs, Hermit Crabs, Sand Dollars	None	None	Brown sand with sparse shell hash and a sand dollar fragments on middle left. Sand dollar bed throughout. Scattered small tubes. Cancer crab above left laser.
Phase 1 Survey Area (OCW)	079	G	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with very sparse shell hash. Sand dollar throughout. Scattered small tubes. A few hermit crabs and snails.

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Phase 1 Survey Area (OCW)	080	A	Hermit Crabs, Sand Dollars, Snails	None	None	Brown sand with extremely sparse shell hash. Several sand dollars evenly distributed. A few large diopatra tubes in lower left. Faint tracks throughout.
Phase 1 Survey Area (OCW)	080	B	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. Sand dollar bed with both large and small sand dollars. A few snails and hermit crabs. Scattered small tubes. Faint tracks in top right.
Phase 1 Survey Area (OCW)	080	C	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash and a sand dollar fragment above right laser. Sand dollar bed throughout. Scattered small tubes. Large diopatra tube on far left. A few snails and hermit crabs. Plentiful tracks.
Phase 1 Survey Area (OCW)	081	A	Sand Dollars	None	None	Light brown sand with very sparse shell hash. Patchy thin layer of reddish-brown microalgae at sand surface. Scattered small tubes throughout. Several sand dollars. Tracks prevalent in top right.
Phase 1 Survey Area (OCW)	081	B	Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over light brown sand with very sparse shell hash. Scattered small tubes throughout. Several sand dollars and snails. A few small burrows with associated reduced sediment. A parchment worm tube on far left.
Phase 1 Survey Area (OCW)	081	C	Hermit Crabs, Sand Dollars, Snails, Tunicates	None	None	A patchy thin layer of reddish-brown microalgae over light brown sand. Very sparse shell hash. Scattered small tubes throughout. Sand dollars in top center and left. A few burrows. Diopatra tube in bottom right. Tracks in top right and bottom center.
Phase 1 Survey Area (OCW)	082	A	Hermit Crabs, Sand Dollars, Snails	None	Unidentified	Pale brown sand with very sparse shell hash. Very high coverage of sand dollar bed. Scattered small tubes and a few burrows. Partially buried fish on far right. A few snails and hermit crabs. Tracks through center and top left.
Phase 1 Survey Area (OCW)	082	B	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. High coverage of sand dollar bed with both large and small sand dollars. Scattered small tubes and a few burrows. A few snails including several large snails in top right. Prominent tracks throughout.
Phase 1 Survey Area (OCW)	082	C	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. Many large and small sand dollars throughout. Several snails and hermit crabs. Scattered small tubes. Burrow with associated reduced sediment below right laser. Many tracks.
Phase 1 Survey Area (OCW)	083	A	Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. Extremely high coverage of small tubes. Several sand dollars. A nudibranch in top right. Tracks present in sand in bottom right where there are fewer tubes.
Phase 1 Survey Area (OCW)	083	B	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash and a few sand dollar fragments. High coverage of small tubes with a few larger tubes interspersed. Several sand dollars and a few hermit crabs and snails.
Phase 1 Survey Area (OCW)	083	C	Hermit Crabs, Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. Extremely high coverage of small tubes throughout. Several sand dollars. A few snails and hermit crabs.
Phase 1 Survey Area (OCW)	084	A	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. Sand dollar bed with both large and small sand dollars. Scattered small tubes throughout. A few snails and hermit crabs. Several burrows, a few with associated reduced sediment.
Phase 1 Survey Area (OCW)	084	B	Sand Dollars, Snails	None	None	Light brown sand with very sparse shell hash. High coverage of sand dollar bed with large and small sand dollars. Numerous burrows with small mounds. A few snails. Tracks throughout.
Phase 1 Survey Area (OCW)	084	C	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. Sand dollar bed with both large and small sand dollars. A few large diopatra tubes on right. A few burrows with small mounds adjacent. A few scattered snails and hermit crabs. Tracks present though center.
Phase 1 Survey Area (OCW)	085	B	Nudibranchs	None	None	Pale brown sand with shell hash and large shell fragments. Very high coverage of large tubes throughout. Many nudibranchs interspersed within tubes.
Phase 1 Survey Area (OCW)	085	C	Hermit Crabs, Nudibranchs, Snails	None	None	Pale brown sand with shell hash and larger shell fragments. Very high coverage of large tubes. Many nudibranchs throughout. A few snails and hermit crabs, with large hermit crab in top right.
Phase 1 Survey Area (OCW)	085	D	Cancer Crabs, Hermit Crabs, Nudibranchs, Snails	None	None	Pale brown sand with extensive shell hash and large shell fragments. Very high coverage of large tubes. Cancer crab above right laser. A few hermit crabs and snails. Nudibranch to right of right laser.
Phase 1 Survey Area (OCW)	086	A	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over pale brown sand with very sparse shell hash. Sand dollar bed throughout. A few hermit crabs and snails. Parchment worm tube on far right. Several tracks.
Phase 1 Survey Area (OCW)	086	B	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over light brown sand with very sparse shell hash. Sand dollar bed present. Scattered small tubes. A few hermit crabs and snails. Tracks prevalent in top right.
Phase 1 Survey Area (OCW)	086	C	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over light brown sand with very sparse shell hash. Sand dollar bed present. Scattered small tubes. Faint tracks in top center.
Phase 1 Survey Area (OCW)	087	A	Hermit Crabs, Sand Dollars	None	None	Pale brown sand with scattered shell hash and sand dollar fragments. Sand dollar bed throughout. A few large diopatra tubes. Several burrows with associated small mounds.
Phase 1 Survey Area (OCW)	087	B	Nudibranchs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. Very high coverage of sand dollar bed with both large and small sand dollars. Many large tubes including several diopatra shell tubes. Numerous burrows with associated mounds. Nudibranch in bottom center. Faint tracks.
Phase 1 Survey Area (OCW)	087	C	Nudibranchs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. High coverage of sand dollar bed. Many large and small tubes throughout. A few burrows with associated mounds. Nudibranch above left laser. Faint tracks in top center.

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Phase 1 Survey Area (OCW)	088	A	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over pale brown sand with very sparse shell hash. Sand dollar bed present. Several burrow openings throughout. Scattered hermit crabs and snails. Faint tracks in top center and far right.
Phase 1 Survey Area (OCW)	088	B	Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over light brown sand with extremely sparse shell hash. Sand dollar bed evenly distributed throughout. Sparse large tubes and burrow openings. A few snails. Faint tracks in bottom left.
Phase 1 Survey Area (OCW)	088	C	Hermit Crabs, Sand Dollars, Snails	None	None	Patchy reddish-brown microalgae over pale brown sand with very sparse shell hash. Sand dollar bed throughout. A few diopatra shell tubes in top right. Scattered snails and hermit crabs. Faint tracks along top.
Phase 1 Survey Area (OCW)	089	A	Sand Dollars	None	None	Pale brown sand with very sparse shell hash. Sand dollar bed throughout. Scattered small tubes. Numerous faint tracks.
Phase 1 Survey Area (OCW)	089	B	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. Small tubes scattered throughout. Sand dollar bed present. A few hermit crabs and snails. Several burrows on far right and below left laser. Tracks present on right.
Phase 1 Survey Area (OCW)	089	C	Sand Dollars	None	None	Pale brown sand with very sparse shell hash and small shell fragments. Small and large tubes scattered throughout. Sand dollar bed present. Various tracks along bottom. Moon snail egg casing byproduct
Phase 1 Survey Area (OCW)	090	A	Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash and small shell fragments. Scattered small tubes throughout. Sand dollar bed present. Various tracks on left and bottom.
Phase 1 Survey Area (OCW)	090	B	Sand Dollars, Snails	None	None	Pale brown sand with sparse shell hash and shell fragment. Scattered small and large tubes throughout. Several sand dollars. Squid egg casing on shell in middle center. Various tracks in center and top left.
Phase 1 Survey Area (OCW)	090	C	Nudibranchs, Sand Dollars, Snails	None	Unidentified	Pale brown sand with scattered shell hash and shell fragments. Primarily small tubes in high coverage throughout. Nudibranch in center. Partially buried fish in top right.
Phase 1 Survey Area (OCW)	091	A	Bryozoa, Cancer Crabs	None	None	Pale brown gravel comprised of sand, pebbles and large cobbles interspersed with a very high coverage of large shell fragments. Attached bryozoans on cobbles and shell fragments. Cancer crab on far left. Numerous tubes in the interstitial spaces of the gravel.
Phase 1 Survey Area (OCW)	091	B	Hermit Crabs, Snails	None	None	Pale brown slightly gravelly sand with sparse shell hash and shell fragments. Clay mud clasts prevalent. Large cobble next to left laser. Very high coverage of large tubes. Scattered hermit crabs and snails.
Phase 1 Survey Area (OCW)	091	C	Hermit Crabs, Hydroids, Snails	None	None	Pale brown gravelly sand with pebbles and small cobbles. Extensive coverage of shell hash and shell fragments. sabellariid worm reef throughout. Attached bryozoans on cobbles and shell fragments along right. Scattered snails and hermit crabs. Attached hydroids on gravel at left.
Phase 1 Survey Area (OCW)	092	A	Hermit Crabs	None	None	Pale brown gravelly sand with pebbles and small cobbles. Near complete coverage of shell hash and large shell fragments. Very few hermit crabs.
Phase 1 Survey Area (OCW)	092	B	Cancer Crab	None	Unidentified	Pale brown gravelly sand with pebbles and small cobbles. Near complete coverage of shell hash and shell fragments. Fish to left of left laser. Cancer crab lower right.
Phase 1 Survey Area (OCW)	092	C	None	None	Unidentified	Pale brown gravelly sand with pebbles and small cobbles. Every high coverage of shell hash and large shell fragments. Three fish swimming towards top of image.
Phase 1 Survey Area (OCW)	093	A	Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. Large and small tubes scattered throughout. Sand dollar bed with both large and small tubes. A few snails. Tracks prevalent along left.
Phase 1 Survey Area (OCW)	093	B	Hermit Crabs, Sand Dollars	None	None	Pale brown sand with very sparse shell hash. Large and small tubes throughout. Sand dollar bed, particularly in bottom left. A few hermit crabs. Tracks along left.
Phase 1 Survey Area (OCW)	093	C	Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash. Large and small tubes throughout. Sand dollar bed present. A few scattered snails. Faint tracks along bottom.
B.L. England Export Cable	201	A	Sand Dollars	None	None	Brown sand with shell hash and shell fragments. Sand dollar bed primarily composed of small sand dollars. Small tubes scattered throughout. Faint tracks along top and right.
B.L. England Export Cable	201	B	Hermit Crabs, Sand Dollars	None	None	Brown sand with sparse shell hash. Numerous small sand dollars. Faint tracks, particularly in top right.
B.L. England Export Cable	201	C	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with evenly distributed shell hash. Numerous sand dollars. A few hermit crabs and snails. Various tracks throughout.
B.L. England Export Cable	202	A	Hermit Crabs	None	None	Light brown sand with reddish-brown microalgae at the surface and an area of accumulated shell hash and shell fragments. Several hermit crabs. A few tracks throughout.
B.L. England Export Cable	202	B	Hermit Crabs	None	None	Pale brown sand with reddish-brown microalgae on the surface interspersed by troughs of shell hash and shell fragments. Hermit crab in top left. Partially buried epifauna in bottom left.

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B.L. England Export Cable	202	C	Cancer Crabs, Hermit Crabs, Moon Snails	None	None	Light brown sand crossed by two troughs of shell hash and shell fragments. Moon snail at left laser. Cancer crab in top right. A few trails along top and left.
B.L. England Export Cable	203	A	Sand Dollars, Snails	None	None	Reddish-brown microalgae over pale brown sand. Spare shell hash evenly distributed throughout. A few scattered small tubes. Partially buried sand dollar above left laser. Distinct track running from top left to bottom right.
B.L. England Export Cable	203	B	Snails	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Sparse shell hash throughout. Scattered small tubes. A few snails. Various types of tracks.
B.L. England Export Cable	203	C	Sand Dollars	None	None	A thin layer of reddish-brown microalgae over pale brown sand with shell hash and shell fragments evenly distributed throughout. A few scattered small tubes. Partially buried sand dollar below left laser. Various tracks.
B.L. England Export Cable	204	A	Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Scattered shell hash and shell fragments. A few small tubes throughout. Sand dollar on far left.
B.L. England Export Cable	204	B	Cancer Crabs	None	None	Thin layer of reddish-brown micro-algae over pale brown sand. Shell hash, shell fragments, and sand dollar fragments scattered throughout. A few small tubes evenly distributed. Cancer crab in center. Several different tracks present.
B.L. England Export Cable	204	C	Cancer Crabs, Hermit Crabs, Nudibranchs	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Scattered shell hash and shell fragments. A few small tubes throughout. Several nudibranchs. Various tracks present.
B.L. England Export Cable	205	A	Nudibranchs, Snails	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Sparse shell hash with sand dollar fragments. A few scattered small tubes. Nudibranch in bottom center. Various track present.
B.L. England Export Cable	205	B	None	None	None	A thin layer of reddish-brown microalgae over pale brown sand with sparse shell hash and shell fragments. A few scattered small tubes. Many prominent tracks and trails present.
B.L. England Export Cable	205	C	Hermit Crabs, Snails	None	None	A thin layer of reddish brown microalgae over pale brown sand. Scattered shell hash with denser accumulation of shell hash and shell fragments in top right. A few small tubes. Many tracks present. A few burrows with associated reduced sediment.
B.L. England Export Cable	206	A	Cancer Crabs, Hermit Crabs	None	None	A thin layer of reddish-brown microalgae over pale gray sand. Scattered shell hash. A few small tubes throughout. Cancer crab in top left. Unidentified organism bottom right.
B.L. England Export Cable	206	B	Hermit Crabs, Nudibranchs	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Scattered shell hash and shell fragments. Dense accumulation of small tubes in center. A few hermit crabs. Several tracks.
B.L. England Export Cable	206	C	Cancer Crabs, Hermit Crabs	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Shell hash and shell fragments throughout. A few small tubes. Cancer crab in top left. Numerous tracks throughout.
B.L. England Export Cable	207	B	Snails	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Scattered shell hash. A few small tubes throughout. Various tracks present.
B.L. England Export Cable	207	C	Hermit Crabs, Snails	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Sparse shell hash. A few scattered small tubes. Several snails and hermit crabs. Various tracks present.
B.L. England Export Cable	207	D	Cancer Crabs	None	None	A thin layer of reddish-brown microalgae over pale grey sand with scattered shell hash and shell fragments. Sand ripples running from bottom left to top right. A few tubes throughout. Partially buried cancer crab in top center. Numerous tracks.
B.L. England Export Cable	208	A	Hermit Crabs	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Scattered shell hash. Sand ripples running from bottom left to top right. Several small tubes. Faint tracks present.
B.L. England Export Cable	208	B	Nudibranchs, Snails	None	None	Pale brown sand with sparse shell hash. Scattered small tubes throughout. Nudibranch in top center. Various tracks.
B.L. England Export Cable	208	C	Cancer Crabs	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Scattered shell hash and shell fragments. Sand ripples running from bottom left to top right. Small tubes throughout. Cancer crab in top center. Several tracks present.
B.L. England Export Cable	209	A	Cancer Crabs, Snails	None	None	A thin layer of reddish0brown microalgae over pale grey sand. Scattered shell hash and shell fragments throughout. Sand ripples running from top left to bottom right. Small tubes with large aggregation in center. Cancer crab in top left.
B.L. England Export Cable	209	B	Cancer Crabs, Hermit Crabs, Snails	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Evenly distributed shell hash and shell fragments. A few scattered small tubes. Two cancer crabs. A few snails and hermit crabs. Various tracks.
B.L. England Export Cable	209	C	Hermit Crabs	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Scattered shell hash and shell fragments throughout. Small tubes present. Several hermit crabs. Shrimp in near field view in bottom left.
B.L. England Export Cable	210	B	Hermit Crabs	None	None	A thin layer of reddish-brown microalgae over light brown sand. Sparse shell hash evenly distributed. Sand ripples running from bottom left to top right. Numerous small diopatra tubes. A few hermit crabs.
B.L. England Export Cable	210	C	Hermit Crabs, Snails	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Very sparse shell hash and shell fragments. Sand ripples running from bottom left to top right. Numerous diopatra tubes. A few hermit crabs and snails. Faint tracks on bottom and left.

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B.L. England Export Cable	210	D	Hermit Crabs, Snails	None	None	A thin layer of reddish-brown microalgae over pale brown sand with sparse shell hash and shell fragments. Numerous diopatra tubes evenly distributed throughout. Several hermit crabs and snails. Empty moon snail egg case in bottom center. Track running full length of image on right.
B.L. England Export Cable	211	A	Anemones, Hermit Crabs, Sand Dollars	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Scattered shell hash and shell fragments. Numerous diopatra tubes. Anemone on far left middle. Several small shrimp in water column.
B.L. England Export Cable	211	B	Sand Dollars	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Sparse shell hash and shell fragments. Numerous diopatra tubes throughout. Sand dollar in lower left. Several prominent tracks in top and right.
B.L. England Export Cable	211	C	Hermit Crabs, Sand Dollars, Snails	None	Flatfish	A thin layer of reddish-brown microalgae over pale grey sand with sparse shell hash. Numerous diopatra tubes. A few sand dollars in center. Flatfish in bottom right. Faint tracks.
Oyster Creek Export Cable	301	A	Cerianthids, Snails	None	None	Light brown slightly gravelly sand with small pebbles. Scattered shell hash. sabellariid reef through center and top left. Cerianthid in center.
Oyster Creek Export Cable	301	B	Hermit Crabs, Surf Clam	None	None	Light brown slightly gravelly sand with pebbles and small cobbles. Sparse shell hash and shell fragments throughout. Small section of sabellariid reef in top center. Small tubes present in the interstitial spaces of the gravel.
Oyster Creek Export Cable	301	C	Hermit Crabs, Sand Dollars	None	None	Light brown slightly gravelly sand with pebbles and small cobbles. Shell hash and shell fragments throughout. Small sabellariid reef in top center. San dollar and hermit crab in top left. A few faint tracks in center and bottom right.
Oyster Creek Export Cable	302	A	Hermit Crabs, Nudibranchs	None	None	Multicolored washed gravel primarily composed of pebbles and small cobbles. Very sparse shell hash. A few nudibranchs. Small tubes present in the interstitial spaces of the gravel.
Oyster Creek Export Cable	302	B	Hermit Crabs, Snails	None	None	Multicolored washed gravel primarily composed of pebbles and small cobbles. Very sparse shell hash and shell fragments. Several hermit crabs and snails. Small tubes present in the interstitial spaces of the gravel.
Oyster Creek Export Cable	302	C	Hermit Crabs, Nudibranchs	None	None	Multicolored washed gravel comprised of pebbles and cobbles. Very sparse shell hash. Trace attached fauna on cobbles. A couple spent squid egg casings. Small tubes present in the interstitial spaces of the gravel.
Oyster Creek Export Cable	303	A	Cancer Crabs, Sand Dollars	None	None	A thin layer of reddish-brown microalgae over pale brown sand with shell hash and shell fragments throughout. Several sand dollars. Two cancer crabs along top. Numerous tracks. Burrow with associated reduced sediment.
Oyster Creek Export Cable	303	B	Sand Dollars, Snails	None	None	Pale brown sand with scattered shell hash and small shell fragments. Small tubes present in top right. A couple sand dollars.
Oyster Creek Export Cable	303	C	Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over light brown sand. Scattered shell hash throughout. A few sand dollars and snails. Faint tracks.
Oyster Creek Export Cable	304	A	Hermit Crabs, Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Scattered shell hash and small shell fragments. Sand dollar bed present. A few small tubes throughout.
Oyster Creek Export Cable	304	B	Hermit Crabs, Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over light brown sand. Scattered shell hash and shell fragments including a large surf clam shell on left. Sparse sand dollar bed. A few small tubes throughout. Faint tracks present.
Oyster Creek Export Cable	304	C	Sand Dollars, Snails, Surf Clam	None	None	A thin layer of reddish-brown microalgae over light brown sand. Scattered shell hash and shell fragments. Sparse sand dollar bed. Very few small tubes. Tracks prevalent in top right.
Oyster Creek Export Cable	305	A	Cancer Crabs, Hermit Crabs, Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Shell hash and small shell fragments scattered throughout. Sand dollar bed present. Many small and large tubes. Cancer crab in top right.
Oyster Creek Export Cable	305	B	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with shell hash and numerous sand dollar fragments. Sand dollar bed present. Many aggregations of small tubes. Several hermit crabs and snails.
Oyster Creek Export Cable	305	C	Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None	Pale brown sand with extensive shell hash and shell fragments. Sand dollar bed present. Scattered small tubes. Nudibranch in bottom center.
Oyster Creek Export Cable	306	A	Sand Dollars, Snails	None	None	Patchy thin layer of reddish-brown microalgae over light brown sand. Sparse shell hash and shell fragments. Sand ripples running from lower left to top right. Scattered small tubes associated with microalgae. A few sand dollars and snails. Tracks evident at top.
Oyster Creek Export Cable	306	B	Cancer Crab, Nudibranchs	None	None	A thin layer of reddish-brown microalgae over light brown sand. Sparse shell hash and small shell fragments. Nudibranch in top center and a cancer crab in lower right. Very sparse small tubes. Distinct tracks below lasers.
Oyster Creek Export Cable	306	C	Nudibranchs, Snails	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Sparse shell hash and small shell fragments. A couple of nudibranchs and snails. Faint tracks in top and center.

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Oyster Creek Export Cable	307	A	Nudibranchs, Snails	None	None	A patchy thin layer of reddish-brown microalgae over pale brown slightly gravelly sand. Shell hash, shell fragments, and sand dollar fragments scattered throughout. Sparse small tubes primarily associated with microalgae. Nudibranch in lower left. S Safe snails. Large track in top right.
Oyster Creek Export Cable	307	B	Nudibranchs, Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over light brown slightly gravelly sand. Gravel composed of scattered pebbles. Sparse shell hash and small sand dollar fragments. Small tubes present throughout. Nudibranch left of left laser. Large track below lasers.
Oyster Creek Export Cable	307	C	Hermit Crabs	None	None	A thin layer of reddish-brown microalgae over light brown slightly gravelly sand. Gravel primarily composed of pebbles. Sparse shell hash, shell fragments, and sand dollar fragments. Scattered small tubes throughout. Various tracks along top left and bottom.
Oyster Creek Export Cable	308	A	None	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Sparse shell hash and small sand dollar fragments. Very few small tubes. Tracks along left and center.
Oyster Creek Export Cable	308	B	None	None	None	A thin layer of reddish-brown microalgae over light brown sand. Sparse shell hash. Faint tracks throughout.
Oyster Creek Export Cable	308	C	Cerianthids, Hermit Crabs, Snails	None	None	A patchy thin layer of reddish-brown microalgae over pale brown sand. Sparse shell hash throughout. Cerianthid in left middle. A single diopatra tube right of right laser.
Oyster Creek Export Cable	309	A	Hermit Crabs, Nudibranchs, Sand Dollars	None	None	A patchy thin layer of reddish-brown microalgae over pale brown sand. Sparse shell hash evenly distributed. Sand ripples with microalgae in troughs. Several sand dollars. Nudibranch in top left. Burrows with associated reduced sediment along left and bottom. Faint tracks throughout.
Oyster Creek Export Cable	309	B	Hermit Crabs, Sand Dollars	None	None	A patchy thin layer of reddish-brown microalgae over light brown sand. Sparse shell hash and shell fragments. A few scattered small tubes. Hermit crabs in top left. Track in bottom right.
Oyster Creek Export Cable	309	C	Snails	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Very sparse shell hash and small sand dollar fragments. A few scattered small tubes throughout. Snail to top right of right laser. Very faint tracks along top.
Oyster Creek Export Cable	310	A	Hermit Crabs, Sand Dollars	None	None	A thin layer of reddish-brown microalgae over pale brown slightly gravelly sand. Gravel comprised of pebbles. Shell hash and shell fragments throughout. Scattered small tubes. Several sand dollars.
Oyster Creek Export Cable	310	B	Hermit Crabs, Sand Dollars	None	None	A thin layer of reddish-brown microalgae over light brown sand. Sparse shell hash throughout. A few small tubes and sand dollars. Faint track in top left.
Oyster Creek Export Cable	310	C	Sand Dollars	None	None	A thin layer of reddish-brown microalgae over light brown sand. Shell hash and shell fragments throughout. Several sand dollars. Sparse small tubes. Tracks in top left and top center.
Oyster Creek Export Cable	311	A	Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over light brown slightly gravelly sand. Gravel comprised of pebbles. Sparse shell hash and shell fragments. Large tubes scattered throughout. Sand dollar on left.
Oyster Creek Export Cable	311	B	Sand Dollars, Snails	None	None	Pale brown slightly gravelly sand. Gravel comprised of pebbles. Very sparse shell hash. A few scattered tubes. Sand dollar on right middle. Tracks in top left.
Oyster Creek Export Cable	311	C	Nudibranchs, Sand Dollars, Snails	None	None	A thin layer of reddish-brown microalgae over pale brown slightly gravelly sand. Gravel comprised of pebbles. Very sparse shell hash. Scattered large tubes. Nudibranch in top left. Tracks along top and bottom.
Oyster Creek Export Cable	312	A	Nudibranchs, Sand Dollars	None	None	A thin layer of reddish-brown microalgae over pale brown sand. Sparse shell hash and shell fragments. Scattered small and large tubes. Parchment worm tubes on right. Nudibranch above left laser. A few burrows with associated reduced sediment. Faint tracks in top left and bottom right.
Oyster Creek Export Cable	312	B	Sand Dollars	None	None	Light brown sand with very sparse shell hash. S few sand dollars and small tubes. Tracks in top left.
Oyster Creek Export Cable	312	C	Nudibranchs, Sand Dollars	None	None	A thin layer of reddish-brown microalgae over pale grey sand. Very sparse shell hash and small shell fragments. Small tubes, including a few diopatra tubes throughout. Faint tracks along left and middle.
Oyster Creek Export Cable	313	A	Hermit Crabs	None	None	Light brown slightly gravelly sand with the gravel comprised of pebbles and small cobbles. Very sparse shell hash and shell fragments. Two diopatra shell tubes in lower right. Parchment worm tube in-between lasers. Tracks in lower left. Chaetopterus tubes visible in the center and lower right.
Oyster Creek Export Cable	313	B	Hermit Crabs, Sand Dollars	None	None	Light brown gravelly sand with gravel comprised of pebbles and a few small cobbles. Sparse shell hash and shell fragments associated with gravels. A single parchment worm tube in right middle. Hermit crab and sand dollar in lower left. Faint tracks in top right. Chaetopterus tube visible at right.
Oyster Creek Export Cable	313	C	Limpets, Nudibranch, Sand Dollars	None	None	Pale brown slightly gravelly sand with gravel comprised of pebbles. Very sparse shell hash and shell fragments. Three nudibranchs across middle. Sand dollar in top left. Limpets attached to shell fragment just right of center.
Oyster Creek Export Cable	314	A	Hermit Crabs, Nudibranchs, Sand Dollars	None	None	Pale brown sand with very sparse shell hash and shell fragments. Several large diopatra shell tubes along top. Sand dollar bed in bottom center. Nudibranch in bottom left. Various faint tracks throughout.

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Oyster Creek Export Cable	314	B	Hermit Crabs, Sand Dollars	None	None	Light brown sand with sparse shell hash and shell fragments. Numerous diopatra shell tubes throughout. Sand dollars in bottom center. Faint tracks through middle.
Oyster Creek Export Cable	314	C	Nudibranchs, Sand Dollars	None	None	Pale brown sand with shell hash and sparse shell fragments. Numerous diopatra shell tubes throughout. Nudibranch below left laser.
Oyster Creek Export Cable	315	A	Hermit Crabs, Nudibranchs, Sand Dollars, Surf Clam	None	None	Dark brown sand with shell hash and sparse shell fragments. Large diopatra shell tubes along bottom. Small tubes along top. Sand dollar bed throughout. Skate egg case in bottom center.
Oyster Creek Export Cable	315	B	Nudibranchs, Sand Dollars, Tunicates	None	Sea Robin	Dark brown sand with sparse shell hash and shell fragments. Single diopatra shell tube in top left. Two sand dollars in bottom right. Sea robin in bottom center. Tunicates in the upper and lower portion of image.
Oyster Creek Export Cable	315	C	Sand Dollars	None	None	Dark brown sand with very sparse shell hash and shell fragments. Sand dollar bed throughout. A couple small tubes along top. Faint tracks in bottom left and top right.
Oyster Creek Export Cable	316	A	Cerianthids, Sand Dollars	None	None	Dark brown slightly gravelly sand with sparse shell hash and a few large shell fragments. Gravel comprised of pebbles. Sand ripples running from top left to bottom right with two clear troughs. Sand dollar bed with several partially buried sand dollars. Single large diopatra shell tube in center. Cerianthid in very top center.
Oyster Creek Export Cable	316	B	Sand Dollars	None	None	Dark brown slightly gravelly sand with very sparse shell hash and shell fragments. Gravel comprised of pebbles. Many small tubes between lasers. Sand dollar bed throughout.
Oyster Creek Export Cable	316	C	Sand Dollars, Surf Clam	None	Sea Robin	Brown slightly gravelly sand with shell hash and sparse shell fragments. Gravel comprised of pebbles. Scattered small tubes. Sand dollar bed with several partially buried sand dollars. Sea robin in top left. Chaetopterus tube visible at lower left.
Oyster Creek Export Cable	317	A	Cerianthids, Sand Dollars, Surf Clam	None	None	Brown slightly gravelly sand with sparse shell hash and shell fragments. Gravel comprised of small pebbles. Sand dollar bed throughout. Faint tracks in top right.
Oyster Creek Export Cable	317	B	Sand Dollars	None	None	Brown slightly gravelly sand with sparse shell hash, shell fragments, and sand dollar fragments. Sand ripples running from left to right with two distinct troughs. Sand dollar bed throughout. Moon snail egg casing in top left.
Oyster Creek Export Cable	317	C	Sand Dollars	None	None	Dark brown slightly gravelly sand with sparse shell hash and sand dollar fragments. Gravel comprised of pebbles. Sand dollar bed throughout. Tracks along top and right.
Oyster Creek Export Cable	318	B	Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None	Light brown gravelly sand with very sparse shell hash and shell fragments. Gravel comprised of pebbles. Sand ripples running from lower left to top right . Gravel associated with ripple troughs. Sand dollar and nudibranch in lower left.
Oyster Creek Export Cable	318	C	Hermit Crabs, Sand Dollars	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Ripples running from lower left to top right. Gravel associated with ripple troughs. Partially buried sand dollar below right laser.
Oyster Creek Export Cable	318	D	Hydroids, Sand Dollars, Sponges	None	None	Dark brown gravelly sand with very sparse shell hash and shell fragments. Gravel comprised of pebbles. Irregular sand ripples. Sparse sand dollar bed throughout. Hydroids on shell to right of right laser. Boring sponges on both surf shell clam shells.
Oyster Creek Export Cable	319	A	Nudibranchs, Sand Dollars, Snails	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Sand ripples running from top left to bottom right. A few sand dollars and a nudibranch in bottom left. Faint tracks in top left.
Oyster Creek Export Cable	319	C	Sand Dollars	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Sand ripples running from left to right with clear trough in center. Gravel associated with ripple trough. A few sand dollars and small tubes.
Oyster Creek Export Cable	319	D	Sand Dollars, Surf Clam	None	None	Light brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Sand ripples running from left to rights. Gravel and shell hash associated with ripple trough. Sand dollar in bottom right. Moon snail egg casing in bottom right.
Oyster Creek Export Cable	320	A	Sand Dollars	None	None	Light brown gravelly sand with very sparse shell hash. Gravel comprised of pebbles. Ripples running from left to right. Gravel and shell hash associated with ripple trough. Sand dollar bed throughout. Faint tracks in top left and center.
Oyster Creek Export Cable	320	B	Sand Dollars	None	None	Light brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles and small cobbles. Ripples running from lower left to top right. Gravel associated with ripple troughs. Sand dollar bed throughout. Faint tracks in top left.
Oyster Creek Export Cable	320	C	Cerianthids, Sand Dollars	None	None	Light brown slightly gravelly sand with very sparse shell hash and shell fragments. Gravel comprised of pebbles. Sand ripples running from left to right with trough in center. Gravel and shell hash associated with ripple trough. Sand dollar bed throughout. Cerianthid in bottom center. Faint tracks present.
Oyster Creek Export Cable	321	A	Sand Dollars, Snails, Surf Clam	None	None	Light brown slightly gravelly sand with very sparse shell hash and shell fragments. Gravel comprised of pebbles. Ripples running from left to right with two distinct troughs. Sand dollar bed throughout. A few scattered large and small tubes. Numerous tracks along top.
Oyster Creek Export Cable	321	B	Sand Dollars, Surf Clam	None	None	Light brown slightly gravelly sand with very sparse shell hash and shell fragments. Gravel comprised of pebbles. Ripples running from left to right. Sand dollar bed throughout. Numerous tracks running through middle.

Area	StationID	Replicate	Epifauna	Flora	Fish Type	Comments
Oyster Creek Export Cable	321	C	Sand Dollars	None	None	Brown slightly gravelly sand with very sparse shell hash and shell fragments. Gravel comprised of pebbles. Ripples running from lower left to top right. Sand dollar bed throughout. A few small tubes in trough on left. Numerous tracks.
Oyster Creek Export Cable	322	A	Sand Dollars	None	None	Brown sand with very sparse shell hash. Ripples running from left to right. Several sand dollars. A few small tubes in left trough. Various tracks throughout.
Oyster Creek Export Cable	322	B	Sand Dollars, Snails	None	None	Brown sand with sparse shell hash and shell fragments. Irregular sand ripples. Several sand dollars. A few scattered small tubes in troughs. Faint tracks along right.
Oyster Creek Export Cable	322	C	Bryozoa, Cancer Crabs, Sand Dollars	None	None	Light brown sand with very sparse shell hash and shell fragments. Sand ripples running from lower left to top right. Several large diopatra shell tubes along top. Numerous small tubes prevalent within troughs. Sand dollar bed present as well. Egg mass with attached bryozoans in top right. Cancer crab adjacent to egg mass.
Oyster Creek Export Cable	323	A	Surf Clam	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Sand ripples running from top left to bottom right. Gravel comprised of pebbles and small cobbles. Gravels and shell hash primarily confined to ripple trough with small tubes with EPS hanging off of them. Numerous partially buried small surf clams.
Oyster Creek Export Cable	323	B	Hermit Crabs, Sand Dollars, Surf Clam	None	Sea Robin	Brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles and small cobbles. Sand ripples running from top left to bottom right. Gravels and shell hash primarily confined to ripple trough. A few small tubes in top right. Sea robin under left laser. Numerous partially buried small surf clams.
Oyster Creek Export Cable	323	C	Hermit Crabs, Nudibranchs, Sand Dollars, Surf Clam	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Sand ripples running from top left to bottom right. Nudibranch in top right. A few sand dollars. A few partially buried small surf clams.
Oyster Creek Export Cable	324	A	Cerianthids, Hermit Crabs, Moon Snails, Sand Dollars, Surf Clam	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel primarily comprised of pebbles. Sand ripples running from lower left to top right. Gravel and shell hash within ripple trough. Extensive sand dollar bed. Cerianthid in top center. Moon snail in bottom right. Numerous partially buried small surf clams.
Oyster Creek Export Cable	324	B	Hermit Crab, Sand Dollars, Surf Clam	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel primarily comprised of pebbles. Sand ripples running from top left to bottom right. Gravel and shell hash accumulated in ripple trough. Extensive sand dollar bed throughout. Several large diopatra shell tubes below left laser. Numerous partially buried small surf clams.
Oyster Creek Export Cable	324	C	Sand Dollars, Surf Clam	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel primarily comprised of pebbles. Sand ripples running from top left to bottom right. Extensive sand dollar bed. A few bivalves in ripple trough. Numerous partially buried small surf clams.
Oyster Creek Export Cable	325	A	Hermit Crabs, Sand Dollars	None	None	Dark brown gravelly sand with very sparse shell hash, shell fragments, and sand dollar fragments. Gravel comprised of pebbles. Sand ripples running from left to right. Gravel and shell hash confined to ripple trough. Extensive sand dollar bed throughout.
Oyster Creek Export Cable	325	B	Sand Dollars	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles and is confined to sand ripple troughs. Extensive sand dollar bed throughout.
Oyster Creek Export Cable	325	C	Sand Dollars, Snails, Surf Clam	None	None	Dark brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles and is confined to ripple troughs. Extensive sand dollar bed throughout. A few snails.
Oyster Creek Export Cable	326	A	Nudibranchs, Sand Dollars	None	None	Dark brown gravelly sand with sparse shell hash. Gravel and shell hash confined to sand ripple trough. Sand dollar bed throughout. Nudibranch in bottom center.
Oyster Creek Export Cable	326	B	Bryozoa, Hermit Crabs, Sand Dollars, Surf Clam	None	None	Dark brown gravelly sand with very sparse shell hash and a large shell fragment. Gravel comprised of pebbles. Sand ripples running from top left to bottom right. Extensive sand dollar bed throughout. A few feathery bryozoans in lower left.
Oyster Creek Export Cable	326	C	Sand Dollars, Surf Clam	None	None	Dark brown gravelly sand with very sparse shell hash. Gravel comprised of pebbles and confined to sand ripple trough. Extensive sand dollar bed throughout.
Oyster Creek Export Cable	327	A	Hermit Crabs, Hydroid, Sand Dollars	None	None	Dark brown gravelly sand with pebbles and shell hash confined to sand ripple trough. Extensive sand dollar bed. Broad clawed hermit crab in middle right. Hydroid in bottom right.
Oyster Creek Export Cable	327	B	Cerianthids, Sand Dollars	None	None	Pale brown gravelly sand with sparse pebbles and shell hash. Extensive sand dollar bed throughout. Edge of cerianthid in top center.
Oyster Creek Export Cable	327	C	Hermit Crabs, Sand Dollars, Surf Clam	None	None	Pale brown gravelly sand with very sparse shell hash. Gravel comprised of pebbles. Extensive sand dollar bed throughout. Hermit crab in top left.
Oyster Creek Export Cable	328	A	Hermit Crabs, Moon Snails, Snails	None	None	Pale brown slightly gravelly sand with very sparse shell hash. Sand ripples running from left to right. Moon snail laying egg case in top right.
Oyster Creek Export Cable	328	B	None	None	None	Light brown slightly gravelly sand with extremely sparse shell hash. Sparse gravel comprised of pebbles. Sand ripples running from top left to bottom right. Faint tracks along top.
Oyster Creek Export Cable	328	C	None	None	None	Light brown slightly gravelly sand with extremely sparse shell hash. Gravel comprised of pebbles. Sand ripples running from top left to bottom right. A few small tubes in left ripple trough. Very faint tracks throughout.

Area	StationID	Replicate	Epifauna	Flora	Fish Type	Comments
Oyster Creek Export Cable	329	A	Hermit Crabs, Nudibranchs, Sand Dollars, Tunicates	None	None	Pale brown slightly gravelly sand with sparse shell hash. Sparse gravel comprised of pebbles. Small tubes throughout. A few scattered sand dollars. Nudibranch in lower right. Moon snail egg casing in lower left. Tunicates sparsely distributed.
Oyster Creek Export Cable	329	B	Hermit Crabs, Sand Dollars, Tunicates	None	None	Pale brown slightly gravelly sand with sparse shell hash. Gravel comprised of small pebbles. Sand ripples running from left to right. Numerous small tubes throughout. A few sand dollars. Tunicates sparsely distributed.
Oyster Creek Export Cable	329	C	Sand Dollars, Tunicates	None	None	Pale brown slightly gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Sand ripples running from left to right. Small tubes in ripple troughs. Sand dollar bed present. Faint tracks along left and center. Tunicates sparsely distributed.
Oyster Creek Export Cable	330	A	Hermit Crabs, Sea Slugs, Snails, Tunicates	None	None	Washed gravel of various brown hues with very sparse shell hash. Extensive molgula tunicate bed through center. Snails with egg mass in lower left. Sea slug between lasers. A few large Diopatra tubes.
Oyster Creek Export Cable	330	B	Cerianthids, Hermit Crabs, Nudibranchs, Snails, Tunicates	None	None	Washed gravel granules of various brown hues with very sparse shell hash. Large molgula tunicate bed running through center. Numerous cerianthids throughout. Nudibranch in bottom center.
Oyster Creek Export Cable	330	D	Cerianthids, Hermit Crabs, Nudibranchs, Surf Clam, Tunicates	None	None	Washed granule of various brown hues. Molgula tunicate bed through center. Several cerianthids and nudibranchs throughout. Moon snail egg casing between lasers.
Oyster Creek Export Cable	331	A	Nudibranch, Snails	None	None	Pale brown slightly gravelly sand with sparse shell hash and shell fragments. sabellariid reef on left half of image. A single diopatra shell tube in bottom center.
Oyster Creek Export Cable	331	B	Cerianthids, Nudibranchs	None	None	Pale brown slightly gravelly sand with very sparse shell hash and shell fragments. Numerous small tubes scattered throughout. A couple diopatra shell tubes in bottom right. Cerianthid and nudibranch in top right.
Oyster Creek Export Cable	331	C	Cerianthids, Hermit Crabs, Sand Dollars	None	None	Pale brown gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Small tubes including sabellariid tubes throughout. Cerianthid on left. Large tracks along top and lower right.
Oyster Creek Export Cable	332	A	None	None	None	Pale brown slightly gravelly sand with very sparse shell hash and shell fragments. A few small tubes scattered throughout. Faint tracks along top.
Oyster Creek Export Cable	332	B	Snails	None	None	Dark brown slightly gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Small tubes scattered throughout. A few snails.
Oyster Creek Export Cable	332	C	Hydroids, Sand Dollars	None	None	Light brown slightly gravelly sand with sparse shell hash and shell fragments. Gravel comprised of pebbles. Scattered small tubes through center. Attached hydroids in lower left. Sand dollar in top right. Numerous tracks along right.
Oyster Creek Export Cable	333	A	Hermit Crabs, Sand Dollars	None	None	Light brown sand with extremely sparse shell hash. Scattered small tubes throughout. Hermit crab in center. Faint tracks to left of left laser.
Oyster Creek Export Cable	333	B	Cerianthids, Sand Dollars	None	None	Light and pale brown sand with very sparse shell hash. Scattered small tubes throughout. Several sand dollars along left and center. A couple diopatra shell tubes at bottom. Cerianthid in bottom right. Faint tracks along top.
Oyster Creek Export Cable	333	C	Cerianthids, Sand Dollars	None	None	Light brown sand with very sparse shell hash and shell fragments. Very small scattered tubes throughout. Cerianthid with diopatra shell tube in top center. Partially buried sand dollar on right. Various tracks prominent.
Oyster Creek Export Cable	334	A	Snails	None	None	Granule and s few pebbles of brown hues. Very sparse shell hash. Small tubes, potentially Sabellariid tubes along left, particularly visible in top left.
Oyster Creek Export Cable	334	B	Cerianthids	None	None	Light brown granule with a few pebbles. Very sparse shell hash and shell fragments. Small tubes in top right. Cerianthid in top left.
Oyster Creek Export Cable	334	D	Hermit Crabs, Hydroids, Snails, Surf Clam, Tunicates	None	None	Light brown granule with very sparse pebbles. Sparse shell hash. Molgula tunicate bed through center. Attached hydroids on right middle.
Oyster Creek Export Cable	335	A	Hermit Crabs	None	None	Light brown gravelly sand with pebbles and a few small cobbles. Shell hash and shell fragments throughout. Several diopatra shell tubes along left and bottom. A few small tubes in top center. Track along right middle.
Oyster Creek Export Cable	335	B	Cerianthids, Hydroids	None	None	Light brown gravelly sand with pebbles and small cobbles. Scattered shell hash and shell debris. Single set of attached hydroids in top center. Cerianthid in bottom center. Faint tracks in top right.
Oyster Creek Export Cable	335	D	Snails	None	None	Light brown gravelly sand with pebbles. Scattered shell hash and shell fragments. A couple snails on left.
Oyster Creek Export Cable	336	A	Cerianthids, Clam, Snails	None	None	Light brown gravelly sand with pebbles and a few small cobbles. Scattered shell hash and large shell fragments. sabellariid worm reef throughout. Several large diopatra shell tubes. A few scattered small non-sabellariid tubes. Cerianthid in top left.
Oyster Creek Export Cable	336	B	None	None	None	Pale brown gravelly sand with pebbles. Sparse shell hash. Sabellariid worm tube reef throughout. Tracks in top right.

Area	StationID	Replicate	Epifauna	Flora	Fish Type	Comments
Oyster Creek Export Cable	336	C	Clam, Hermit Crabs	None	None	Pale brown gravelly sand with pebbles. Scattered shell hash and shell fragments. Sabellariid reef throughout. Several large diopatra shell tubes. Faint tracks in top left.
Oyster Creek Export Cable	337	A	None	None	None	Pale brown gravelly sand with pebbles and a few small cobbles. Scattered shell hash and shell fragments. Sabellariid reef throughout including under pebbles.
Oyster Creek Export Cable	337	B	Limpets	None	None	Brown pebbles with sand, granules, and small cobbles. Scattered shell hash. Sabellariid reef throughout including under pebbles. Single diopatra tube In bottom center.
Oyster Creek Export Cable	337	C	Hermit Crabs, Nudibranchs	None	None	Brown gravelly sand with pebbles and small cobbles. Sparse shell hash. Sabellariid tubes throughout. Broad clawed hermit crab in top right. A few nudibranchs.
Oyster Creek Export Cable	338	A	None	None	None	Light brown sand with sparse shell hash. Scattered small tubes. Faint tracks throughout.
Oyster Creek Export Cable	338	B	Snails	None	None	Pale brown sand with sparse shell hash and shell fragments. A couple diopatra shell tubes in top center. Distinct track in top center.
Oyster Creek Export Cable	338	C	None	None	None	Light brown sand with very sparse shell hash. A few small tubes in center. Numerous tracks throughout.
Oyster Creek Export Cable	339	A	Clam, Nudibranchs, Snails	None	None	Granule with a few pebbles and shell fragments. Extremely high coverage of large tube bed. Nudibranch in bottom center. Squid egg casing on left.
Oyster Creek Export Cable	339	B	Cerianthids, Clams, Hermit Crabs, Nudibranchs, Snails	None	None	Granule with numerous pebbles and shell fragments. Extremely high coverage of large tube bed. Cerianthids between lasers. A few squid egg casings.
Oyster Creek Export Cable	339	C	Cancer Crabs, Hermit Crabs, Nudibranchs, Snails	None	None	Dark brown granule with small pebbles. Very sparse shell hash. High coverage of large tube bed. Cancer crab on far right. Nudibranch in top left. Squid egg casings below left laser and along bottom.
Oyster Creek Export Cable	340	A	None	None	None	Pale brown slightly gravelly sand with pebbles. Scattered shell hash and shell fragments. A few small tubes. Faint tracks in center and bottom.
Oyster Creek Export Cable	340	B	None	None	None	Light brown slightly gravelly sand with pebbles. Scattered shell hash, shell fragments, and sand dollar fragments. A few small tubes throughout.
Oyster Creek Export Cable	340	C	Bryozoa, Cerianthids	None	None	Pale brown slightly gravelly sand with pebbles. Scattered shell hash and shell fragments. Large surf clam shell with attached hydroids above left laser. Burrows with visible fauna directly below lasers. A few small tubes.
Oyster Creek Export Cable	341	B	Cerianthids, Hermit Crabs	None	None	Dark brown gravelly sand with pebbles. Scattered shell hash and shell fragments. Small tubes throughout. Two cerianthids in top center.
Oyster Creek Export Cable	341	C	Cerianthids	None	None	Dark brown gravelly sand with pebbles. Sparse shell hash with a sand dollar fragment. Small tubes throughout. Cerianthid above left laser.
Oyster Creek Export Cable	341	D	Cerianthids, Hermit Crabs, Hydroids	None	None	Pale brown gravelly sand with pebbles. Very sparse shell hash. Small tubes scattered throughout. Large squid egg mat in center with a few attached hydroids. Cerianthids on left.
Oyster Creek Export Cable	342	A	Clam, Cerianthids, Hydroids	None	None	Pale brown slightly gravelly sand with pebbles and small cobbles. Scattered shell hash and shell fragments. Sabellariid worm reef throughout. Hydroids attached to surf clam shell.
Oyster Creek Export Cable	342	B	Cerianthids, Hermit Crabs, Hydroids	None	None	Pale brown slightly gravelly sand with pebbles. Scattered shell hash and shell fragments. Sabellariid worm reef throughout. A few attached hydroids on right. Cerianthids in middle center. Faint tracks in top left.
Oyster Creek Export Cable	342	C	Cerianthids, Hermit Crabs, Hydroids, Limpets	None	None	Pale brown slightly gravelly sand with pebbles and a few small cobbles. Scattered shell hash and shell fragments. Sabellariid worm reef throughout. A few attached hydroids in lower left. Cerianthid in top right and to left of left laser.
Oyster Creek Export Cable	343	A	Clams, Hydroids	None	None	Light brown sandy gravel. Gravel primarily comprised of pebbles. Scattered shell hash and shell fragments. Small tubes above left laser. A few attached hydroids in lower left.
Oyster Creek Export Cable	343	B	Hermit Crabs, Hydroids	None	None	Light brown sandy gravel with pebbles. Scattered shell hash and shell fragments. Small tubes above left laser. Several larger diopatra shell tubes. A few attached hydroids on left. Moon snail egg casing in lower left.
Oyster Creek Export Cable	343	C	Cerianthids	None	None	Pale brown sandy gravel with pebbles and a few small cobbles. Scattered shell hash and shell fragments. Small tubes throughout. A couple diopatra shell tubes. Cerianthid in lower right.

Area	StationID	Replicate	Epifauna	Flora	Fish Type	Comments
Oyster Creek Export Cable	344	A	Ceriantids, Hermit Crabs, Hydroids	None	None	Pale brown gravel comprised of pebbles, granules, and sand. Scattered shell hash and shell fragments throughout. Several small tubes along top. A few attached hydroids through middle. Cerianthid to right of right laser.
Oyster Creek Export Cable	344	B	Cerianthids, Hermit Crabs	None	None	Pale brown gravel comprised primarily of pebbles with small cobbles, granules, and sand. Scattered shell hash and shell fragments. Sabellariid tubes prevalent in top right.
Oyster Creek Export Cable	344	D	Cerianthids, Hermit Crabs, Snails	None	None	Pale brown sandy gravel comprised of pebbles with granule and sand. A few sabellariid tubes along top. Cerianthids in top left. A couple hermit crabs and snails.
Oyster Creek Export Cable	345	A	Cerianthids, Hermit Crabs, Tunicates	None	None	Dark brown sandy gravel with pebbles. Sparse shell hash. Scattered small tubes including many in top left. A few cerianthids. Squid egg casings in top left surrounded by tunicates.
Oyster Creek Export Cable	345	B	Cerianthids, Hermit Crabs	None	None	Dark brown sandy gravel with pebbles. Sparse shell hash and shell fragments. Several small tubes on right. A couple diopatra shell tubes. Numerous hermit crabs on left. Large track in bottom right.
Oyster Creek Export Cable	345	C	Cerianthids, Hermit Crabs	None	None	Dark brown sandy gravel with pebbles. Sparse shell hash and shell fragments. Numerous cerianthids along left. A few scattered small tubes. Several hermit crabs.
Oyster Creek Export Cable	346	A	Hermit Crabs	None	None	Pale brown gravelly sand with pebbles and granule. Sparse shell hash and shell fragments. Sabellariid worm tubes throughout. A few large tubes in top left.
Oyster Creek Export Cable	346	B	Cerianthids, Hermit Crabs, Hydroids	None	None	Pale brown gravelly sand with pebbles. Scattered shell hash, shell fragments, and sand dollar fragments. Sabellariid worm tubes throughout. A couple diopatra shell tubes. Cerianthid in bottom right. Several hermit crabs. Occasional attached hydroids.
Oyster Creek Export Cable	346	C	Hermit Crabs, Hydroids	None	None	Pale brown slightly gravelly sand with small pebbles. Scattered shell hash and shell fragments. Sabellariid worm tubes throughout. Attached hydroids on surf clam shell in top center. A couple hermit crabs.
Oyster Creek Export Cable	347	A	Cerianthids, Snails	None	None	Brown sandy gravel with pebbles and small cobbles. Very sparse shell hash. Ripples running left to right with gravel in troughs. A few cerianthids and snails. A couple tubes along top.
Oyster Creek Export Cable	347	B	Cerianthids, Clams	None	None	Brown sandy gravel with pebbles and small cobbles. Sparse shell hash and shell fragments. Ripples running from left to right. Several diopatra shell tubes. A couple cerianthids in top center.
Oyster Creek Export Cable	347	C	Cerianthids, Snails	None	None	Brown sandy gravel with pebbles and small cobbles. Scattered shell hash and shell fragments. Ripples running from lower left to top right with gravel in troughs. Several diopatra shell tubes.
Oyster Creek Export Cable	348	A	Clam, Hermit Crabs	None	None	Brown gravelly sand with pebbles. Sparse shell hash and shell fragments. Several diopatra shell tubes along with a few other large tubes along right. A few hermit crabs.
Oyster Creek Export Cable	348	B	Clam, Hermit Crabs	None	None	Pale brown gravelly sand with pebbles. Sparse shell hash. A few small tubes in top left. A couple hermit crabs.
Oyster Creek Export Cable	348	C	Cerianthid, Clam, Hermit Crabs	None	None	Pale brown gravelly sand with pebbles and granule. Very sparse shell hash and shell fragments. A few small tube in top center. Several hermit crabs.
Oyster Creek Export Cable	349	A	Hermit Crabs, Hydroids	None	None	Pale brown gravel primarily comprised of pebbles. Scattered shell hash and shell fragments. A few Diopatra shell tubes. Large tubes in top center. A few attached hydroids in bottom center.
Oyster Creek Export Cable	349	B	Barnacles, Hermit Crabs	None	None	Pale brown gravel primarily comprised of pebbles. High coverage of shell hash and shell fragments. A couple diopatra shell tubes. A few hermit crabs.
Oyster Creek Export Cable	349	C	None	None	None	Pale brown gravel comprised of pebbles and small cobbles. Scattered shell hash and shell fragments. A few large and small tubes throughout.
Oyster Creek Export Cable	350	A	None	None	None	Pale brown gravelly sand with cobbles. Scattered shell hash and shell fragments. Turbid water column.

Area	StationID	Replicate	Epifauna	Flora	Fish Type	Comments
Oyster Creek Export Cable	350	B	None	None	None	Pale brown gravelly sand with cobbles. Scattered shell hash and shell fragments. Turbid water column.
Oyster Creek Export Cable	350	C	Hermit Crabs	None	None	Pale brown gravelly sand with cobbles. Scattered shell hash and shell fragments. Turbid water column.
Reference	401	A	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with very sparse shell hash and shell fragments. Numerous small tubes throughout. Sand dollar bed present. A few hermit crabs and snails. Faint tracks along top.
Reference	401	B	Nudibranchs, Sand Dollars	None	None	Pale brown sand with sparse shell hash and a sand dollar fragment. Scattered small tubes throughout. Sand dollar bed present. Track on far right.
Reference	401	C	Cancer Crabs, Sand Dollars, Tunicate	None	None	Pale brown sand with fine shell hash and a few sand dollar fragments. Scattered small tubes throughout. Sand dollar bed present. Several cancer crabs. Tunicate in lower left.
Reference	402	A	Sand Dollars	None	None	Pale brown sand with fine shell hash. Scattered small tubes throughout. Several sand dollars.
Reference	402	B	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with shell hash and a sand dollar fragment. Scattered small tubes throughout. Sand dollar on far left. Faint tracks along top.
Reference	402	C	Hermit Crabs, Sand Dollars, Snails	None	None	Pale brown sand with fine shell hash. Small tubes present throughout. A couple sand dollars and hermit crabs.
Reference	403	A	Cancer Crabs, Hermit Crabs, Nudibranchs, Snails	None	None	Light brown sand with sparse shell hash and shell fragments. A couple of small tubes. Cancer crab and broad clawed hermit crab in center. Faint tracks throughout.
Reference	403	B	Sand Dollars, Snails	None	None	Light brown sand with sparse shell hash and shell fragments. Very few small tubes. Numerous snails and a sand dollar. Several tracks particularly in top left.
Reference	403	C	Hermit Crabs, Nudibranchs, Sand Dollars, Snails	None	None	Light brown sand with scattered shell hash and a few shell fragments. A few small tubes. Nudibranch in bottom center. Several snails. Tracks along bottom.

Attachment F – Habitat Characterization Report, WTG Site, 2019 Survey, Gardline, February 2020

Survey Report for

Ørsted Wind Power North America

Project:

Ocean Wind NJ Offshore Wind Farm Survey

Description:

Habitat Characterization Report

WTG Site

Survey Date:

Survey: 04-Jul-2019 to 13-Dec-2019

Environmental: 08-Dec-2019 to 13-Dec-2019

Project Number:

11311.E00

Report Status:

Interim

REPORT AUTHORISATION AND DISTRIBUTION

Compilation	Geophysics	C Buckmaster
	Surveying	R Grice
	Environmental	A Chaverra/K Sanders
Authorization	Checked	………………… S Lines
	Approved	………………… M Thompson

Revision	Date	Title
0	17-Feb-2020	Interim

Distribution

PDF

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For attention of

Jens Andreas Rasmussen

EXECUTIVE SUMMARY

Gardline completed a geophysical and habitat characterization survey on behalf of Ørsted, across the Ocean Wind NJ Offshore Wind Farm GP1b (OCW01) wind turbine grid (WTG) site. The OCW01 WTG site survey area was located within BOEM's New Jersey South Leasing Area for wind power on the outer continental shelf (OCS-A 0498), 15 miles (24km) southeast of the New Jersey coast, USA. The survey aim was to support characterization of benthic resources for the GP1B Construction and Operations Plan (COP). Survey operations were undertaken onboard the Gardline motor vessel (MV) *Ocean Researcher* between 04-Jul-2019 and 13-Dec-2019, with all environmental sampling work conducted between 08-Dec-2019 and 13-Dec-2019.

Specifically, the technical objectives of the GP1B COP as defined by the scope of work (Ørsted, 2018a) were to obtain:

- Accurate bathymetry;
- Seabed classification;
- Mapping of seabed morphology;
- Shallow seismic stratigraphic and structural model;
- Information on ferromagnetic objects;
- Information on archaeological features; and
- Information on geohazards; and
- Integration of contact listings and seabed and sub-surface interpretations with results from previous geophysical campaign.

The full geophysical suite consisted of multi-beam echo sounder (MBES), side scan sonar (SSS), magnetic gradiometer (MAG) and shallow and medium penetration sub-bottom profiler (SBP); specifically, a pinger and sparker (ultra-high resolution seismic; UHRS) spread. The results of the geophysical survey for the WTG site are summarized where relevant in the current report and given in full separately (Gardline, 2020). A total of 20 co-located camera and grab stations were selected by the onboard environmental scientists and all were successfully investigated using a shallow water camera system to acquire seabed imagery. Seabed sampling yielded three acceptable Day grab deployments at each station, apart from Station GRAB_5015 and the offset target GRAB_5015A, which were abandoned following multiple failed attempts. At stations where three samples were acquired, two were sieved through a 0.5mm mesh sieve, with one labeled 'MFA' and sent for macrofaunal analyses and the second labeled 'MFB' and retained as a spare. The third sample (CHEM) was acquired for particle size and total organic matter analyzes.

Interpretation of the geophysical data revealed sand and muddy sand with areas of higher SSS reflectivity representing coarse sediments. The majority of objects were thought to be boulders with one small area in the east with sufficient density of boulders to be assigned a boulder field. Interpreted trawl scars were mostly concentrated in the southern part of the survey area. Water depths varied across the survey area from -16.2m mean lower low water (MLLW) in the northwest to -37.5m MLLW in the east of the survey area. The seabed gently undulated with seabed gradients of less than 1°. Sand waves and megaripples were often seen associated with a series of mostly relict bedforms that trended southwest to northeast. Due to the cyclical nature of the weather in the area, large parts of the survey area were interpreted to have temporal ripples associated with storm events.

Environmental camera imagery across the survey area revealed that the seabed predominantly comprised fine to medium sand with shell fragments. The majority of stations investigating this low SSS reflectivity seabed (GRAB_5001, GRAB_5003, GRAB_5005, GRAB_5007, GRAB_5011 and GRAB_5012) were characterized by the common sand dollar and therefore categorized as the biotic community '*Echinarachinus parma* bed', according to

the Coastal and Marine Ecological Classification Standard (CMECS; FGDC, 2012). One exception was Station GRAB_5017, which included biotic groups 'sand dollar bed' and 'larger tube-building fauna'. Three other exceptions were Stations GRAB_5006, GRAB_5008 and GRAB_5016, which were categorized as biotic group 'mobile mollusks on soft sediments' possibly reflecting the more mobile nature of the substrate at these locations.

Medium SSS reflectivity at Stations GRAB_5002, GRAB_5004, GRAB_5009, GRAB_5013, GRAB_5014, GRAB_5018 and GRAB_5020 was found to represent areas of sand with abundant shell fragments. Biotope groups included 'mobile crustaceans on soft sediments' (Stations GRAB_5002, GRAB_5009, GRAB_5014 and GRAB_5018), 'small tube-building fauna' (Stations GRAB_5004 and GRAB_5009) and 'larger tube-building fauna' (Stations GRAB_5014 and GRAB_5020). Note that Stations GRAB_5009 and GRAB_5014 could not be categorized into one biotic group as they included a range of soft sediment and tube building fauna including mobile mollusks at Station GRAB_5009. Station GRAB_5013 could not be categorized beyond the biotic subclass 'soft sediment fauna' due to the limited visible fauna.

Medium SSS reflectivity at Stations GRAB_5010, GRAB_5015 and GRAB_5019 corresponded with increased gravel content. All three of these stations were assigned the biotic subclass 'attached fauna' and classified to the biotic group 'mobile crustaceans on hard or mixed substrates', with Station GRAB_5015 additionally characterized by 'mobile mollusks on hard or mixed substrates'.

Small-scale, ephemeral ripples evident on some lines of SSS data at Stations GRAB_5003, GRAB_5006 and GRAB_5012 were confirmed as rippled sand.

A total of 13 individuals of *Squalus acanthias* (spiny dog fish) were observed at 10 of the 20 stations. This is considered a vulnerable species on the International Union for Conservation of Nature's (IUCN) Red List of threatened species (IUCN, 2019).The survey area was within an area designated as an essential fish habitat (EFH) for this taxon (NOAA, 2020b) and for the ocean quahog (*Arctica islandica*). A total of 14 individuals of *A. islandica* in the form of dead shells were observed at four stations.

Particle size analysis confirmed the interpretation of the geophysical data and seabed imagery, returning a Folk (1954) classification, and a CMECS substrate components classification (FGDC, 2012), ranging between fine sand to sandy gravel. The sand fraction (≥63µm and <2mm) accounted for the majority of sediment, ranging from 78.3% to 98.2%, except at Stations GRAB_5010 and GRAB_5019 where gravel accounted for the majority of the sediment (55.4% and 51.78%, respectively). The fines fraction accounted for ≤3.7% at all stations. Concentrations of total organic matter were relatively homogeneous across the OCW01 survey area.

The survey area did not fall in any final or proposed critical habitat as defined by United States Fish and Wildlife Service (2018). Furthermore, other than those mentioned above, no benthic species listed on the IUCN Red List of threatened species (IUCN, 2019) or endangered species listed under the Endangered Species Act of 1973 (USFWS, 2018) were observed in the imagery or grab samples in the current survey. Nor was there any further evidence from imagery or sampling of any sensitive habitats within the surveyed area, as defined by BOEM (2019), such as exposed hard bottoms or those covered by ephemeral sand layers, seagrass patches, kelp or other algal beds.

SERVICE WARRANTY

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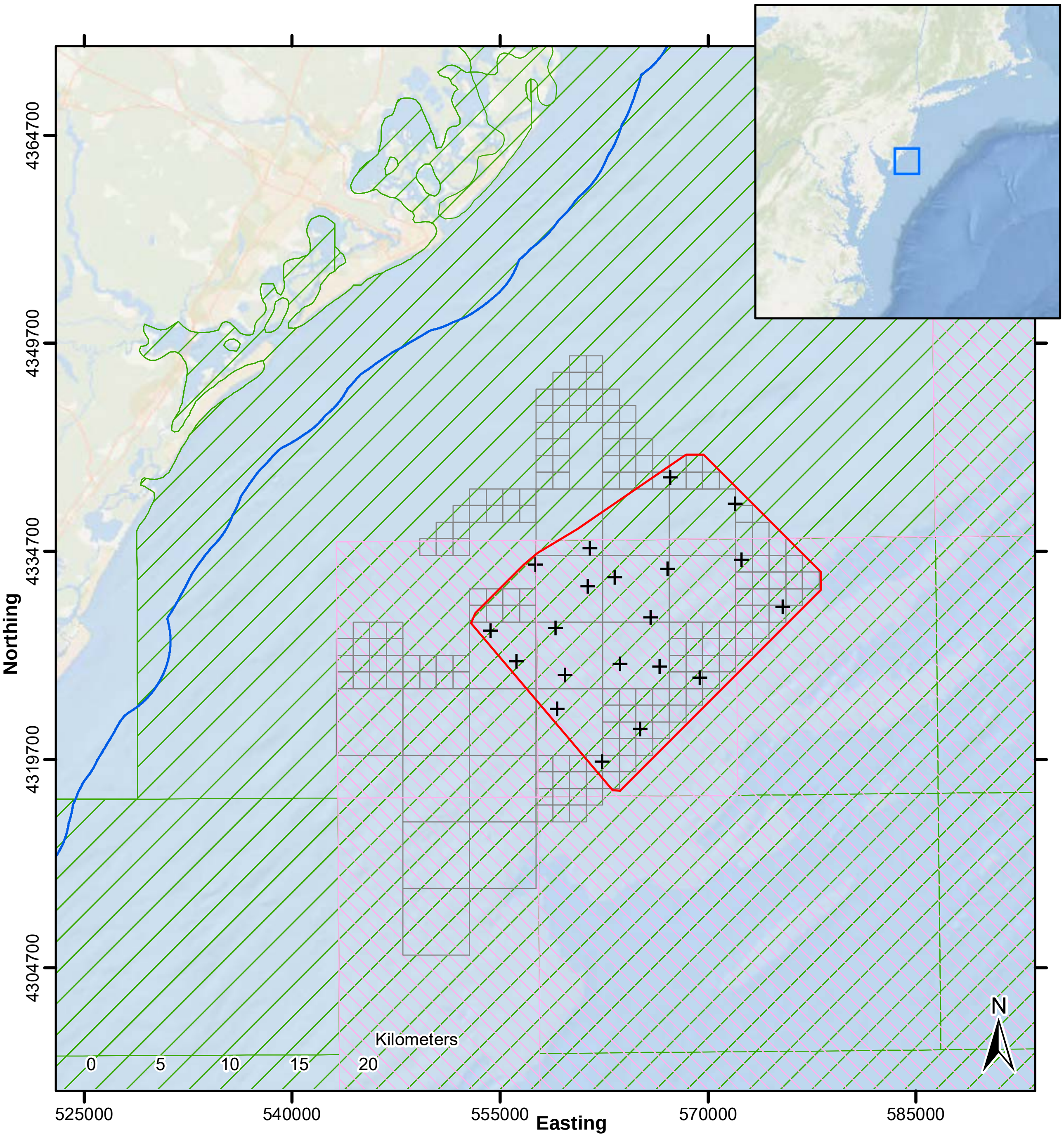
LOCATION MAP



Key

BOEM Lease Area OCS-A 0498
OCW01 WTG Survey Area
Target Environmental Station
3 Nautical Mile Limit

Essential Fishing Habitat (NOAA, 2020b)
Spiny Dogfish
Ocean Quahog

Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator Datum: North American 1983
Central Meridian: -75.0°E

Service Layer Credits: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors

Target and actual sampling stations are illustrated in Section 1.2.

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GLOSSARY OF TERMS AND ABBREVIATIONS

Benthic	Relating to the seabed
BOEM	Bureau of Ocean Energy Management
Clay	Sediment grains <3.9µm in diameter
CM	Central Meridian
CMECS	Coastal and Marine Ecological Classification Standard
COP	Construction and Operations Plan
EFH	Essential Fish Habitat
FGDC	Federal Geographic Data Committee
Fines	Sediment grains <63µm in diameter (same as Mud)
Gravel	Sediment grains ≥2mm in diameter
GRS	Geodetic Reference System
HAPC	Habitat Areas of Particular Concern
HD	High Definition
IUCN	International Union for Conservation of Nature
LOI	Loss of Ignition
Macrofauna	Organisms that are normally larger than the mesh size of the sieve used. In this case 0.5 mm.
MBES	Multi-beam Echo Sounder
MLLW	Mean Lower Low Water
Mud	Sediment grains <63µm (includes Silt and Clay)
MV	Motor Vessel
NAD	North American Datum
NOAA	National Oceanic and Atmospheric Administration
OCS	Outer Continental Shelf
OCW01	Ocean Wind NJ Offshore Wind Farm
PSA	Particle Size Analysis
Sand	Sediment grains ≥63µm and <2mm in diameter
SBP	Sub-Bottom Profiler
SD	Standard Deviation
Silt	Sediment grains ≥3.9µm and <63µm in diameter
SOW	Scope of Work
SSS	Side Scan Sonar
TOM	Total Organic Matter
UHRS	Ultra-High Resolution Seismic
USCS	Unified Soil Classification System
US EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
UTM	Universal Transverse Mercator
VU	Vulnerable (IUCN, 2019)
WTG	Wind Turbine Grid

1 PROJECT SUMMARY

1.1 Scope of Work

Gardline completed a geophysical and environmental habitat characterization survey on behalf of Ørsted, across the Ocean Wind NJ Offshore Wind Farm (OCW01) wind turbine grid (WTG) site. The OCW01 WTG site survey area was located within BOEM's New Jersey South Leasing Area for wind power on the Outer Continental Shelf (OCS-A 0498), 15 miles (24km) southeast of the New Jersey coast, USA. The survey aim was to support characterization of benthic resources for the GP1B Construction and Operations Plan (COP). The geophysical survey comprised a seabed and sub-seabed survey of the OCW01 WTG site, whilst the habitat characterization survey comprised seabed imagery and seabed samples across the OCW01 WTG site. The extent of the lease area OCS-A 0498 and the OCW01 WTG site is presented on the Location Map for reference. Survey operations were undertaken onboard the Gardline motor vessel (MV) *Ocean Researcher* between 04-Jul-2019 to 13-Dec-2019, with all environmental sampling work conducted between 08-Dec-2019 and 13-Dec-2019.

The current report details the interim results of the habitat characterization survey, with macrofaunal interpretation of benthic grab samples to be included in the full habitat characterization report. The geophysical results for the WTG site are summarized where relevant in the current report and are given in full separately (Gardline, 2020). For the full list of geophysical reports see Table 1.1.

Table 1.1 List of Reports

Report Title
OCW01 NJ Offshore Wind Farm GP1B Survey Acquisition Report
OCW01 NJ Offshore Wind Farm GP1B Survey WTG Processing and Interpretation Report
OCW01 NJ Offshore Wind Farm GP1B Survey BL England Processing and Interpretation Report
OCW01 NJ Offshore Wind Farm GP1B Survey IAC Processing and Interpretation Report
OCW01 NJ Offshore Wind Farm Habitat Characterization Report

The overall aims of the geophysical survey as defined by the scope of work (SOW; Ørsted, 2018a) were to meet consenting requirements, gather information for cable concept and installation selection, plan geotechnical and grab sampling investigations (including the avoidance of unexploded ordnance) and assess geo-hazards and archaeological restrictions. The objectives of the survey were therefore to provide:

- Accurate bathymetry
- Seabed classification
- Mapping of seabed morphology
- Shallow seismic stratigraphic and structural model
- Information on ferromagnetic objects
- Information on archaeological features
- Information on geo-hazards
- Integration of contact listings and seabed and sub-surface interpretations with results from previous geophysical campaign.

The overall aim of the seabed imagery and grab sampling, as defined by the SOW (Ørsted, 2018a) was to ground truth the seabed sediment classification derived from geophysical data and to support identification of seabed features (boulder/gravel lags) that may affect possible offshore installation. Additionally, the OCW01 survey area was monitored to ensure the WTG site did not contain any sensitive/protected benthic habitats and species (Ørsted, 2018b).

The geophysical SOW requirements were achieved by using a multi-beam echo sounder (MBES), side scan sonar (SSS), magnetic gradiometer (MAG) and shallow and medium penetration sub-bottom profiler (SBP); specifically, a pinger and sparker (ultra-high resolution seismic; UHRS) spread. The environmental survey component utilized a shallow water camera system for seabed imagery acquisition and a 0.1m^2 Day grab to obtain sediment samples across the survey area.

All positional information in this report is referenced to geodetic reference system (GRS) 1980 Ellipsoid, North American Datum (NAD) 1983. All grid coordinates are projected using Universal Transverse Mercator (UTM) Projection, Grid Zone 18N, Central Meridian (CM) -75°E.

1.2 Environmental Survey Strategy

A total of 20 co-located grab and camera stations were selected by the onboard environmental scientists and were distributed across the survey area to capture the range of different sediment types and depths. All stations were successfully investigated with a drop-down camera system in order to provide ground truthing prior to sampling with a 0.1m^2 modified Day grab, with samples acquired for faunal and physico-chemical analysis. Due to failure of the flash at six stations (GRAB_5001, GRAB_5004 and GRAB_011 to GRAB_5013), photographs were poorly lit and therefore snapshots were taken from the HD footage for each fix and analyzed instead.

At stations where there were three consecutive unsuccessful sampling attempts, the target location was moved 15m away from the original target and the offset target was denoted by a letter suffix and successfully sampled or abandoned upon client request. Three sediment samples were collected at all stations, except for GRAB_5015 and the corresponding target location offset GRAB_5015A which were abandoned following numerous failed sampling attempts due to hard sediment.

At stations where all three samples were acquired, one sample (designated CHEM) was sub-sampled for particle size analysis (PSA) and organic content along with a spare and frozen upon collection prior to analysis. The remaining grab samples labelled ‘MFA’ and ‘MFB’ were each screened through a 0.5mm mesh size sieve to provide benthic sieved infauna (hereafter referred to as macrofauna) samples and preserved in buffered formalin. The PSA, organic content and macrofauna samples were sent to their respective analytical laboratories and the results reported in Section 2.4.1.

Details of the target locations and samples collected at each station are summarized in Table 1.2. Target and actual sampling locations, the latter of which may be slightly offset from the former, are presented in Figure 1.1 to Figure 1.8 and in the surveyor’s log sheets in Appendix A. Detailed methods are given in Appendix B and summary photoplates for each station are presented in Appendix C.

Table 1.2 Summary of Environmental Sampling Positions and Samples Acquired

Station	Target	Water Depth (m)[1]	Easting[2]	Northing[2]	Imagery	Samples Acquired			
							Sub samples		
						Fauna[3]	Organic Matter	Particle Size	Spare[4]
GRAB_5001	Low SSS reflectivity – main sediment type	-24	554301	4328977	Y	2	1	1	1
GRAB_5002	Area of medium SSS reflectivity in trough of megaripple	-24	561482	4334920	Y	2	1	1	1
GRAB_5003	Low SSS reflectivity – main sediment type	-21	567257	4340040	Y	2	1	1	1
GRAB_5004	Area of medium SSS reflectivity with megaripples	-31	575383	4330707	Y				
GRAB_5004A	Area of medium SSS reflectivity with megaripples	-31	575392	4330712		2	1	1	1
GRAB_5005	Low SSS reflectivity – main sediment type	-27	569419	4325581	Y	2	1	1	1
GRAB_5006	Low SSS reflectivity – main sediment type. Megarippled seabed	-26	562349	4319545	Y	2	1	1	1
GRAB_5007	Low SSS reflectivity – main sediment type	-24	559104	4323348	Y	2	1	1	1
GRAB_5008	Low SSS reflectivity – main sediment type	-27	556183	4326772	Y	2	1	1	1
GRAB_5009	Area of mottled/medium to low SSS reflectivity. Rough seabed	-23	563272	4332825	Y	2	1	1	1
GRAB_5010	Area of medium SSS reflectivity. Rough seabed	-28	565859	4329916	Y	2	1	1	1
GRAB_5011	Area of mottled low SSS reflectivity	-32	572422	4334075	Y	2	1	1	1
GRAB_5012	Area of mottled low SSS reflectivity	-22	571948	4338125	Y	2	1	1	1
GRAB_5013	Area of medium SSS reflectivity with megaripples	-24	567065	4333433	Y	2	1	1	1
GRAB_5014	Area of medium SSS reflectivity. Trawl scar	-30	565098	4321890	Y	2	1	1	1
GRAB_5015	Area of medium SSS reflectivity with megaripples	-32	563654	4326576	Y				
GRAB_5015A	Area of medium SSS reflectivity with megaripples	-32	563643	4326564					
GRAB_5016	Area of mottled low SSS reflectivity	-29	559000	4329177	Y	2	1	1	1
GRAB_5017	Low SSS reflectivity – main sediment type.	-23	557553	4333727	Y	2	1	1	1
GRAB_5018	Area of medium SSS reflectivity	-25	561315	4332173	Y	2	1	1	1
GRAB_5019	Area of medium SSS reflectivity	-30	559674	4325775	Y	2	1	1	1
GRAB_5020	Area of medium SSS reflectivity	-32	566497	4326374	Y	2	1	1	1

1 Depths have been taken from the observed depth of the chemistry grab and corrected to mean lower low water (MLLW)

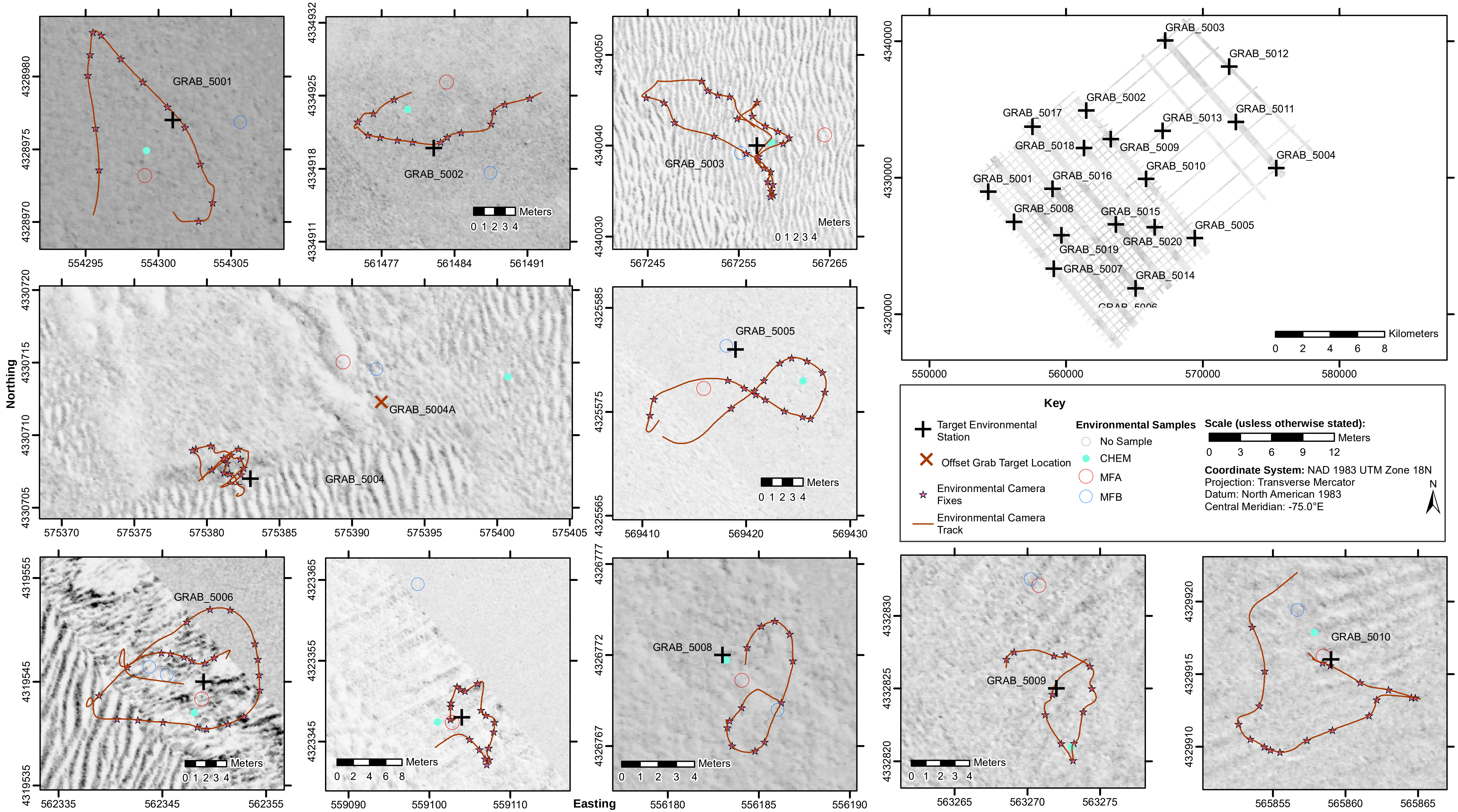
2 Environmental target locations; actual sampling positions for each individual grab sample are detailed in Appendix A

3 One macrofauna sample was sent to be analyzed, one sample kept as a spare at room temperature. Analysis methods are as detailed in Appendix B.

4 One spare sub-sample was stored in a double-lined zip-lock bag and available for analysis of organics and particle size if required. Analysis methods are as detailed in Appendix B.

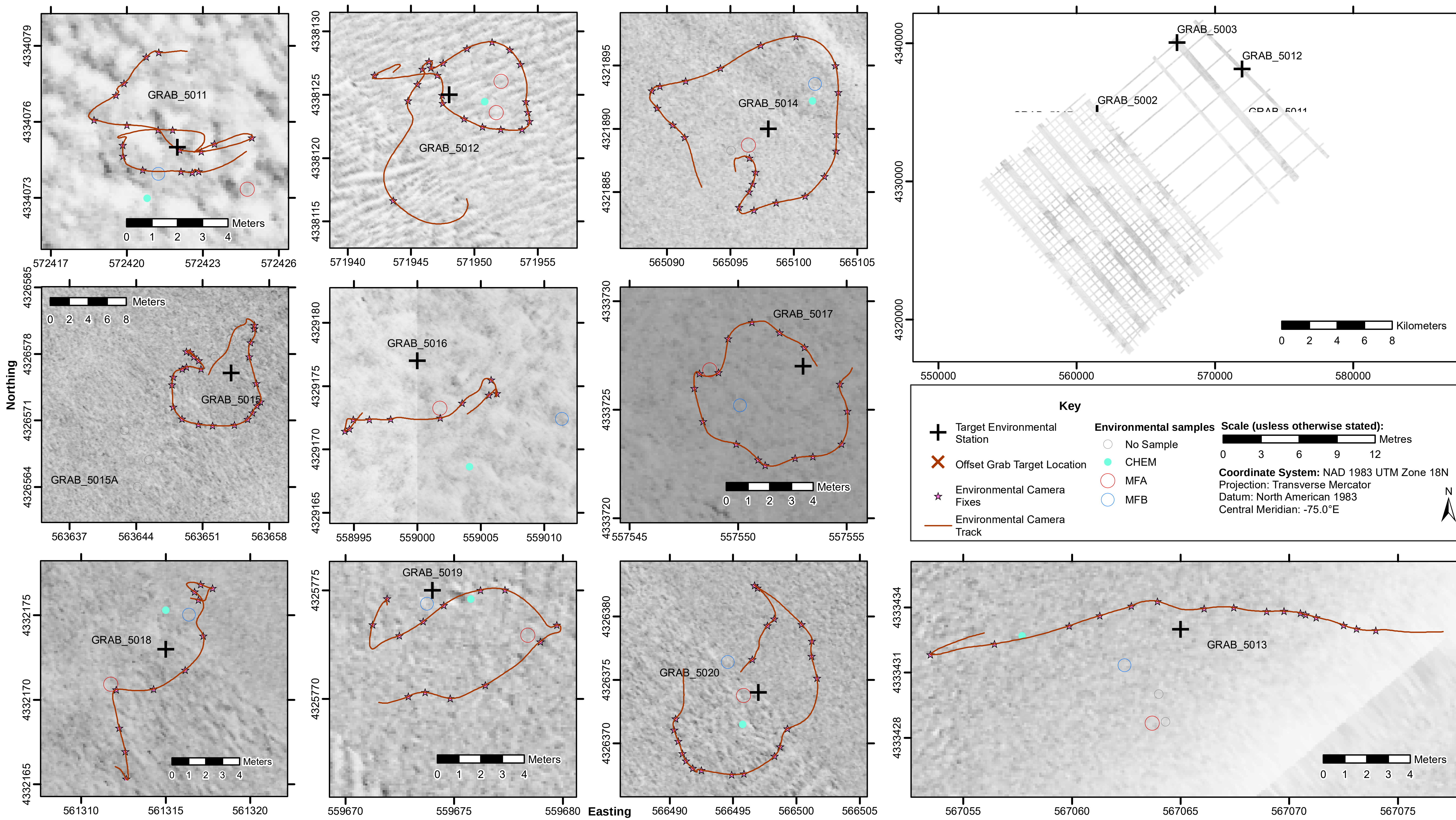
Grey cells indicate where no samples were acquired.

Figure 1.1 Target Camera Transect and Actual Fix Locations: GRAB_5001 – GRAB_5010



Gardline

Figure 1.2 Target Camera Transect and Actual Fix Locations: GRAB_5011 – GRAB_5020



2 RESULTS AND DISCUSSION

2.1 Geophysical Survey Summary

2.1.1 Geophysical Survey Overview

Gardline acquired shallow geophysical data across the OCW01 WTG site survey area. Survey lines were orientated 140º/320º with primary line spacing at 30m within 9 corridors. The survey utilized MBES, SSS, MAG and SBP; specifically, a pinger and sparker UHRS spread.

2.1.2 Bathymetry

A color shaded relief of the WTG site survey area bathymetry, gridded at 1m, is presented in Figure 2.1 and as inset maps for each station target in Appendix C. Water depths varied across the OCW01 WTG site survey area from -16.2m MLLW in the northwest to -37.5m MLLW in the east of the survey area. The seabed gently undulated with seabed gradients of less than 1°. Within the survey area, a series of mostly relict bedforms were interpreted. These were low lying and have been seen on previous datasets to remain in situ. The bedforms trended southwest to northeast and appeared parallel to the coastline with very gentle gradients less than 1°. Sand waves and megaripples were often seen associated with these bedforms. The sand waves and megaripples were identified using height ranges instead of wavelengths, so were found to have varying wavelengths from 50m-500m and 20m-230m, respectively. Following Hurricane Dorian and other storms that interrupted operations, previously featureless seabed was found to exhibit sand ripples. Due to the cyclical nature of the weather in the area, large parts of the survey area were interpreted to have temporal ripples. These were possibly seasonal and could be expected throughout much of the survey area at certain times.

2.1.3 Seabed Features and Shallow Soils

The SSS mosaic and interpreted seabed features across the WTG site survey area are presented in Figure 2.2 and Figure 2.3 and as inset maps for each station target in Appendix C. Sand and muddy sand was interpreted, as defined by the Unified Soil Classification System (USCS; Howard, 1986), across the majority of the survey area. These represent Holocene deposits and correspond with shoaling seabed. Areas of coarse sediments were found in bands trending southwest to northeast and were most frequent and large in the south. These correspond with where Pleistocene units intermittently outcrop or subcrop the Holocene deposits.

Numerous objects were present at seabed throughout the survey area as identified on both SSS and MBES data. The majority of these were thought to be boulders, as defined by the USCS (Howard, 1986), although some were likely to be debris associated with fishing activity in the area. The highest concentration of seafloor objects was in the east and west of the survey area. There was one small area in the east with sufficient density of boulders (minimum 10 boulders per 100m x 100m) to be assigned as a boulder field. It is likely that these boulders were associated with a thinning of the surface sediments in these areas. After Hurricane Dorian and other storms, discussed in Section 2.1.2, boulders that had not previously been seen were visible within the newly formed ripples.

Fishing activity is common, with trawling being particularly prevalent as was seen with the large numbers of trawl scars visible across the seabed. The four main areas of trawl scars have been mapped in Figure 2.3.These scars were mostly concentrated in the southern part of the site. It should be noted that the presence of ripples and megaripples across the survey area indicates seabed mobility and as such trawl scars may not be preserved for extended periods of time. It is therefore likely that the trawling activity was more extensive than the mapped trawl scars would indicate.

Two obstructions and one wreck with associated area of debris were identified within the area.

Figure 2.1 Color Shaded Relief of Bathymetry

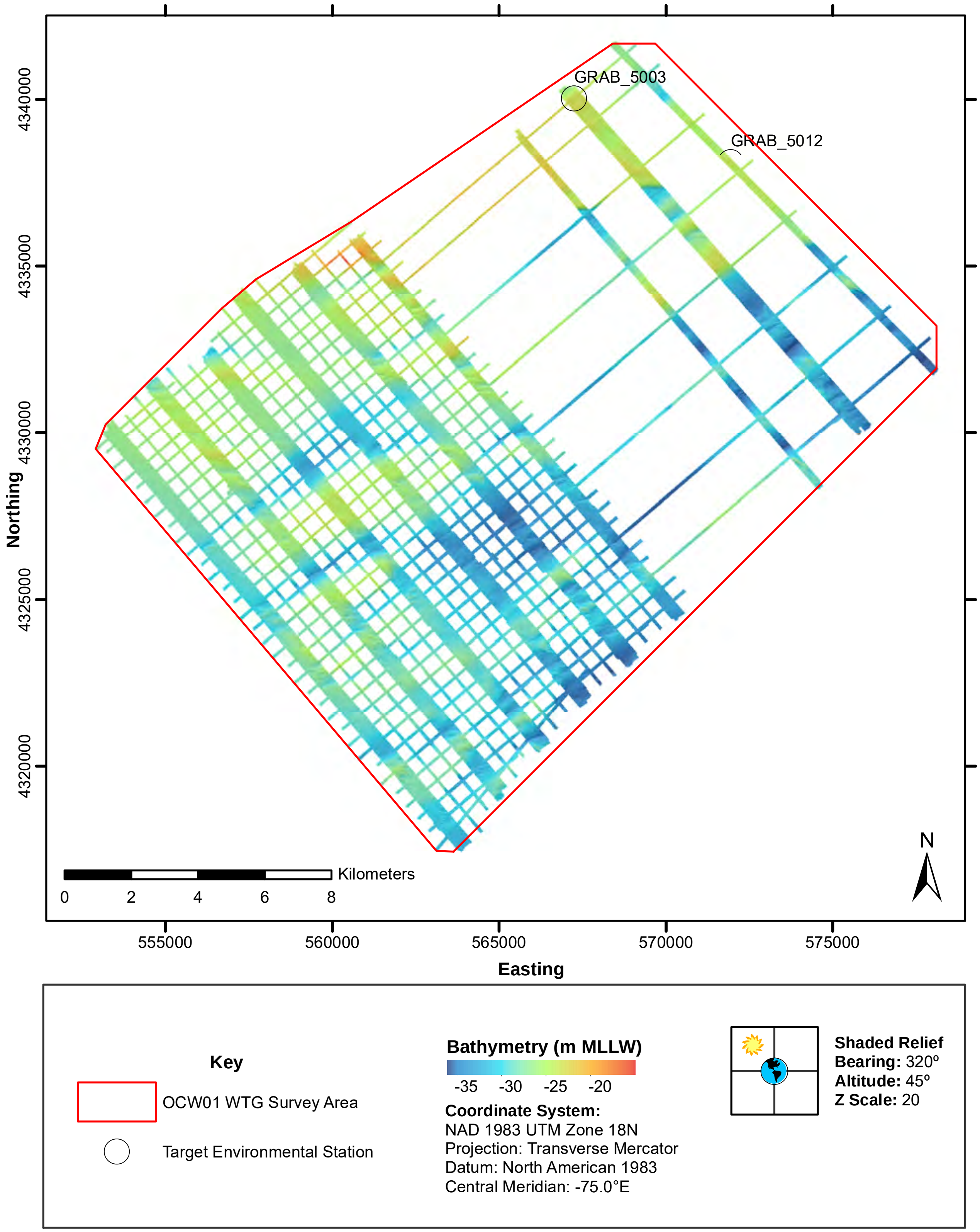
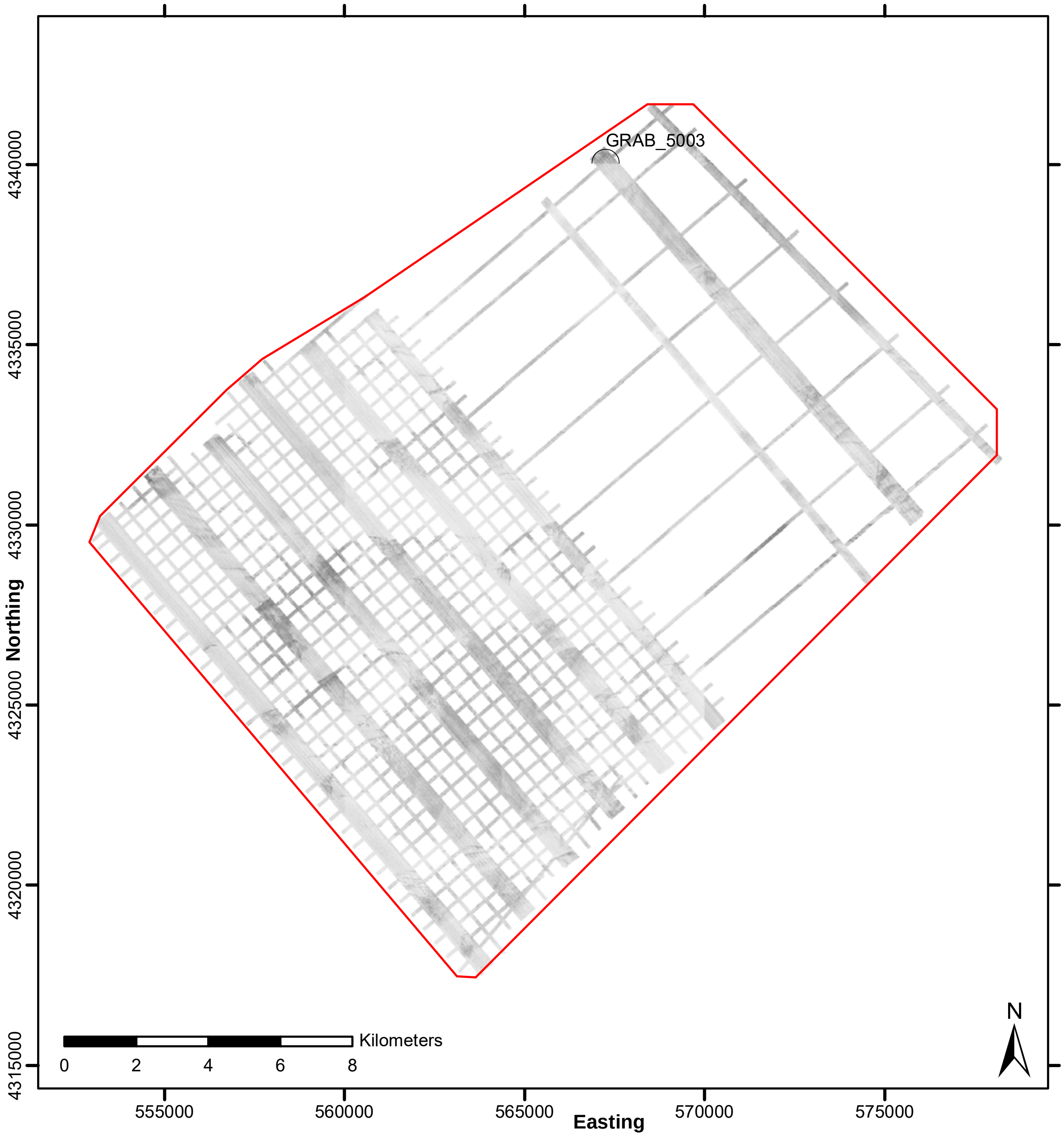


Figure 2.2 SSS Mosaic



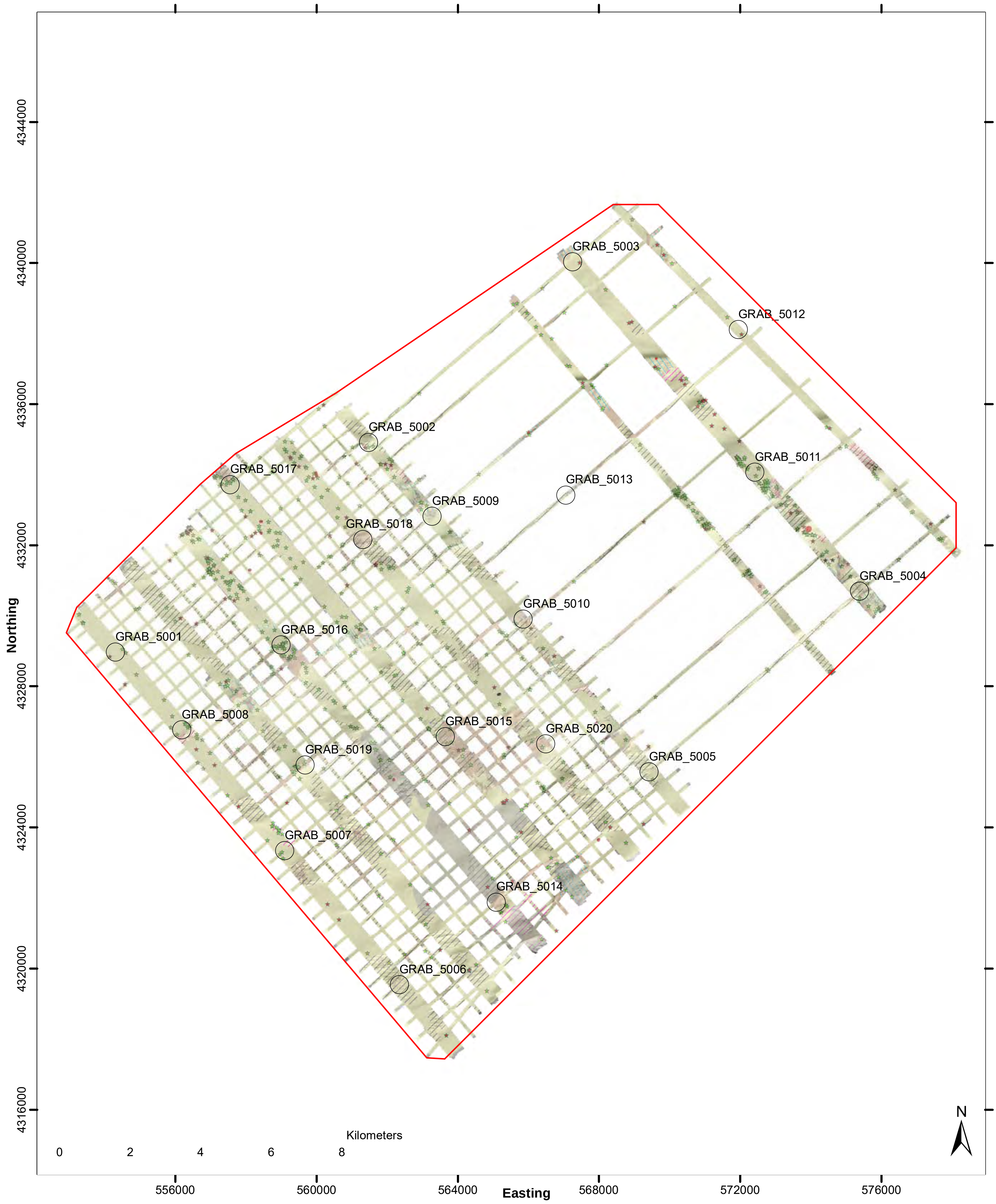
Key

OCW01 WTG Survey Area

Target Environmental Station

Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

Figure 2.3 Seabed Features



Key

OCW01 WTG Survey Area
Target Environmental Station
BoulderField
Linear Debris
Significant Linear Debris
Obstruction / Wreck

Seafloor Point Contact
Boulder
Debris
Obstruction/Wreck
Trawl Scar Area

Seabed Morphology
Megaripples
Rough Seabed
Sandwaves

Sediment Description
Coarse Sediment
Sand and Muddy Sand

Shaded Relief
Bearing: 320º
Altitude: 45º
Z Scale: 20

Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

2.2 Seabed Imagery Observations Summary

All 20 stations selected for investigation were successfully ground truthed with the digital camera system. Environmental camera imagery across the survey area revealed that the seabed predominantly comprised fine to medium sand with shell fragments. Medium SSS reflectivity at Stations GRAB_5002, GRAB_5004, GRAB_5009, GRAB_5013, GRAB_5014, GRAB_5018 and GRAB_5020 were found to represent areas of sand with abundant shell fragments while medium SSS reflectivity at Stations GRAB_5010, GRAB_5015 and GRAB_5019 corresponded with increased gravel content. Small-scale, ephemeral ripples evident on some lines of SSS data at Stations GRAB_5003, GRAB_5006 and GRAB_5012 were confirmed as rippled sand.

In total, 339 photographs were taken across the 20 stations and a further 124 video snapshots were captured for analysis, to ensure a maximum distance of 3m between images and to ensure all protected species were enumerated. Therefore, 463 images in total were analyzed. Environmental deck and positioning logs are presented in Appendix A. Further details of the seabed imagery acquisition and processing methods are given in Appendix B. A table of all taxa recorded per image is presented in Appendix C and per station presented in Appendix E, with species of interest enumerated and highlighted in red. Example images of species identified in this survey are presented in Appendix F. A selection of seabed photographs, together with sediment descriptions and positions are given in Appendix C.

Fauna observed included:

- Animalia indeterminate, Animalia tube,
- Annelida (Polychaeta tubes, Pectinariidae, Sabellidae, Serpulidae, Terebellidae Tube),
- Arthropoda (Brachyura, Caridea, Cirripedia, Paguroidea, *Squilla*),
- Chordata (Actinopterygii, Blennidae, Elasmobranchii, Phycidae, Pleuronectiformes, *Raja montagui*, Rajidae egg cases, *Squalus acanthias*, Syngnathinae, Triglidae),
- Echinodermata (*Echinarachnius parma*),
- Mollusca (*Arctica islandica* shell, Astarte, Bivalvia, Cephalopoda, cf. *Modiolus modiolus*, *Crepidula fornicate*, Gastropoda, Naticidae, Neogastropoda, Nudibranchia, Pectinidae, Sepiolida).

Bioturbation in the form of faunal burrows and tracks were also observed as well as faunal turf.

A total of 13 individuals of *S. acanthias* (spiny dog fish) were observed at 10 of the 20 stations, across areas of both fine and coarser sediment. It is considered a vulnerable species on the International Union for Conservation of Nature's (IUCN) Red List of threatened species (IUCN, 2019). The survey area was within an area designated as an Essential Fish Habitat (EFH) for this taxon (NOAA, 2020b) and for the ocean quahog (*A. islandica*). A total of 14 dead individuals of *A. islandica* in the form of shell were observed at Stations GRAB_5004, GRAB_5014, GRAB_5015 and GRAB_5019, corresponding with areas of coarser sediments.

The survey area did not fall in any Habitat Areas of Particular Concern (HAPC) as defined by NOAA (NOAA, 2020a) or in any final or proposed Critical Habitat as defined by the United States Fish and Wildlife Service (USFWS, 2017). Special attention was given to the presence of sensitive benthic habitats as defined by BOEM (2019). These include areas where information suggests the presence of exposed hard bottoms of high, moderate, or low relief; hard bottoms covered by thick, ephemeral sand layers; seagrass patches; or kelp and other algal beds, as well as the presence of anthozoan species (BOEM, 2019).

Apart from those habitats and species mentioned above, there was no evidence from seabed imagery of any other sensitive benthic habitats, defined by BOEM (2019); species listed on the IUCN Red List of threatened species (IUCN, 2019); or any critical habitats or endangered species listed under the Endangered Species Act of 1973 (USFWS, 2018).

Coastal and Marine Ecological Classification Standard (CMECS) biotic classification of stations based on seabed imagery (FGDC, 2012) is presented in
Table 2.1. CMECS classification was possible to community level at six stations, where aggregations of the common sand dollar *E. parma* were observed. At these stations (GRAB_5001, GRAB_5003, GRAB_5005, GRAB_5007, GRAB_5011 and GRAB_5012) the biotic community was categorized as '*Echinarachinus parma* bed' and corresponded with areas of sand and muddy sand.

Hermit crabs (Paguroidea) were observed in relatively high densities on soft sediment at Stations GRAB_5002 and GRAB_5018 and on mixed substrates at Stations GRAB_5010 and GRAB_5019, therefore these stations were categorized at the biotic group level as 'mobile crustaceans on soft sediment' and 'mobile crustacean on hard or mixed substrates', respectively.

Stations GRAB_5006, GRAB_5008 and GRAB_5016 were categorized at the biotic group level as 'mobile mollusks on soft sediment' due to relatively high densities of gastropods.

Station GRAB_5004 was categorized as 'small tube-building fauna' due the relatively higher frequency occurrence of small polychaeta tubes, while Station GRAB_5020 was categorized as 'larger tube-building fauna' due to relatively higher frequency occurrence of larger tube-building polychaetes.

Station GRAB_5009, GRAB_5014, GRAB_5015 and GRAB_5017 could not be categorized by one biotic group, suggesting limited species dominance at these stations. In the case of Stations GRAB_5009, GRAB_5014 and GRAB_5017 this included a range of soft sediment and tube building fauna, including sand dollar bed at Station GRAB_5017, while at Station GRAB_5015 the hard and mixed substrates were characterized by mobile crustaceans and mollusks.

Station GRAB_5013 was the only station where few fauna were observed and overall CMECS classification was only possible to biotope subclass level of 'soft sediment fauna'.

Table 2.1 CMECS Biotic Classification from Visual Assessment

Station	Biotic Setting	Biotic Class	Biotic Subclass	Biotic Group	Biotic Community
GRAB_5001	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
GRAB_5002	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Mobile Crustaceans on Soft Sediments	
GRAB_5003	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
GRAB_5004	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Small Tube-Building Fauna	
GRAB_5005	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
GRAB_5006	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Mobile Mollusks on Soft sediment	
GRAB_5007	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
GRAB_5008	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Mobile Mollusks on Soft Sediments	
GRAB_5009	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Mobile Crustaceans on Soft Sediments Mobile Mollusks on Soft Sediments Small Tube-Building Fauna	
GRAB_5010	Benthic/Attached Biota	Faunal Bed	Attached Fauna	Mobile Crustaceans on Hard or Mixed Substrates	
GRAB_5011	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
GRAB_5012	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
GRAB_5013	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna		
GRAB_5014	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Mobile Crustaceans on Soft Sediments Soft Sediment Fauna Larger Tube-Building Fauna	
GRAB_5015	Benthic/Attached Biota	Faunal Bed	Attached Fauna	Mobile Crustaceans on Hard or Mixed Substrates Mobile Mollusks on Hard or Mixed Substrates	
GRAB_5016	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Mobile Mollusks on Soft Sediments	
GRAB_5017	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed Larger Tube-Building Fauna	
GRAB_5018	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Mobile Crustaceans on Soft Sediments	
GRAB_5019	Benthic/Attached Biota	Faunal Bed	Attached Fauna	Mobile Crustaceans on Hard or Mixed Substrates	
GRAB_5020	Benthic/Attached Biota	Faunal Bed	Soft Sediment Fauna	Larger Tube-Building Fauna	

Grey cells indicate where biotic community categories could not be classified

Figure 2.4 CMECS Biotic Group from Visual Assessment

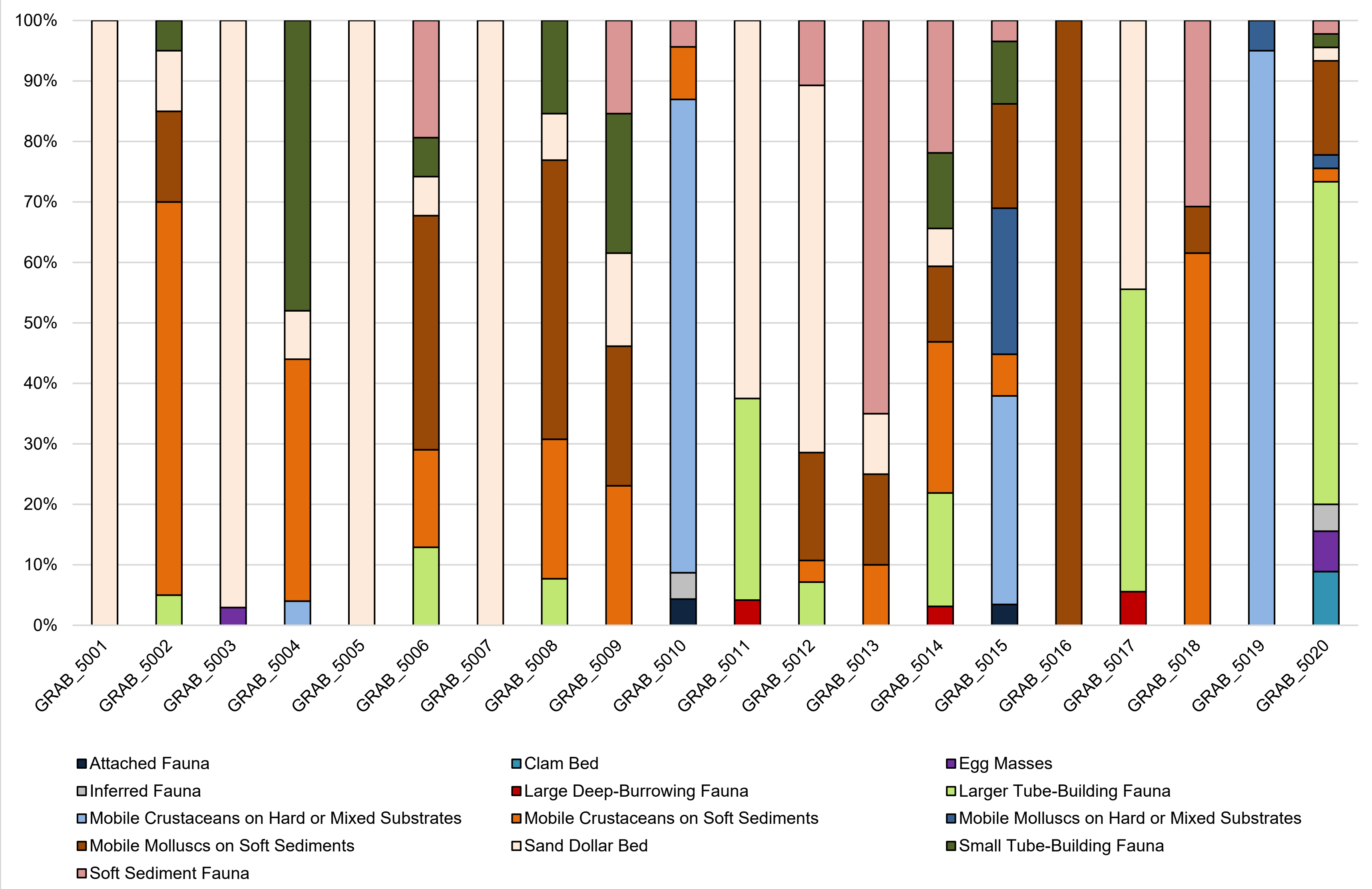


Table 2.2 CMECS Biotic Classification per Image from Visual Assessment

Station	Attached Fauna	Clam Bed	Egg Masses	Inferred Fauna	Large Deep Burrowing Fauna	Larger Tube Building Fauna	Mobile Crustaceans on Hard or Mixed Substrates	Mobile Crustaceans on Soft Sediments	Mobile Mollusks on Hard or Mixed Substrates	Mobile Mollusks on Soft Sediments	Sand Dollar Bed	Small Tube Building Fauna	Soft Sediment Fauna	Total images assessed
GRAB_5001											16			16
GRAB_5002						1		13		3	2	1		20
GRAB_5003			1								33			34
GRAB_5004							1	10			2	12		25
GRAB_5005											23			23
GRAB_5006						4		5		12	2	2	6	31
GRAB_5007											18			18
GRAB_5008						1		3		6	1	2		13
GRAB_5009								3		3	2	3	2	13
GRAB_5010	1			1			18	2					1	23
GRAB_5011					1	8					15			24
GRAB_5012						2		1		5	17		3	28
GRAB_5013								2		3	2		13	20
GRAB_5014					1	6		8		4	2	4	7	32
GRAB_5015	1						10	2	7	5		3	1	29
GRAB_5016										18				18
GRAB_5017					1	9					8			18
GRAB_5018								8		1			4	13
GRAB_5019							19		1					20
GRAB_5020		4	3	2		24		1	1	7	1	1	1	45
Total	**2**	**4**	**4**	**3**	**3**	**55**	**48**	**58**	**9**	**67**	**144**	**28**	**38**	**463**

2.3 Sediment Sampling Summary of Benthic Grab Samples

Observations of the sediment were made by the field environmental scientist at the time of sampling. Seabed sampling observations were used to ground truth the geophysical interpretation and seabed imagery, with results supporting preliminary findings. A selection of photographs of the recovered samples, together with sample description and positions are given in Appendix C.

Across the 20 stations investigated, 57 acceptable samples were retained using a modified 0.1m^2 steel Day grab. There were 17 failed sampling attempts, five of which (at Station GRAB_5015 and GRAB_5015A) were due to rock trapped in the grab's jaw leading to sample washout. This can be regarded as further evidence of the coarse sediments present at this station. Similarly, seven failed attempts (across Stations GRAB_5004, GRAB_5004A, GRAB_5014 and GRAB_5015) were due to shell being trapped in the grab's jaws, consistent with the variable presence of shells observed during seabed imagery at these stations. The remaining five failed attempts were related to equipment performance rather than seabed conditions.

Of the 57 retained samples, 55 were acquired within 10m of the target location and all were within 20m of their respective target locations. The two samples outside 10m of the target location were changed to act as the spare sample (MFB). On average, retained samples were acquired 4.1m (±2.8 SD) from their target location. Environmental deck and positioning logs are presented in Appendix A.

Seabed sampling observations supported the geophysical interpretation and seabed imagery findings, with samples predominantly described as fine to medium sand with shell fragments. At Stations GRAB_5003, GRAB_5006 and GRAB_5012, where small-scale, ephemeral ripples were evident on SSS data and seabed imagery, the sand was generally described as medium to coarse, which is consistent with more mobile, higher energy conditions (Appendix G). Medium SSS reflectivity at Stations GRAB_5009, GRAB_5014, GRAB_5018 and GRAB_5020 was found to contain coarser sands, while Stations GRAB_5010 and GRAB_5019 were described as sandy gravel.

Visible fauna within the grab samples included;

- Annelida (Polychaeta, Terebellidae Tube),
- Arthropoda (Paguroidea),
- Chordata (Phycidae),
- Echinodermata (Clypeasteroida),
- Mollusca (Gastropoda).

No benthic species listed on the IUCN Red List of threatened species (IUCN, 2019) or endangered species listed under the Endangered Species Act of 1973 (USFWS, 2018) were observed in the grab samples in the current survey.

2.4 Sediment Characteristics of Benthic Grab Samples

2.4.1 Particle Size Analysis of Benthic Grab Samples

The results of the PSA determined using wet and dry sieving, are presented in Table 2.3 together with Folk (1954) classifications. CMECS substrate components classification (FGDC, 2012) are presented in Table 2.4. Full results and histograms illustrating particle size distributions at each sampled station are presented in Appendix C and Appendix G.

The PSA results supported the geophysical interpretation, seabed imagery findings and observations of the recovered samples. The stations broadly fell into three groups;

- The predominant low SSS reflectivity seabed type (sampled at Stations GRAB_5001, GRAB_5005, GRAB_5007, GRAB_5008, GRAB_5011, GRAB_5016 and GRAB_5017) recorded a mean particle diameter of 138µm to 177µm, which is fine sand under Wentworth (1922). These stations recorded ≤1% gravel and were therefore classified as well sorted to moderately well sorted under Folk and Ward (1957) and sand or slightly gravelly sand under Folk (1954). Station GRAB_5002, which sampled the medium SSS reflectivity seabed in the trough of a megaripple, also recorded this sediment type with a mean grain size of 180µm. Under the CMECS (FGDC, 2012) classification all of these stations were categorized as fine unconsolidated substrate subgroup slightly gravelly sand or fine sand.
- At Stations GRAB_5003, GRAB_5006 and GRAB_5012, where small-scale, ephemeral ripples were present in the low SSS reflectivity seabed, the mean grain size ranged from 390µm to 437µm, which is medium sand under Wentworth (1922). These stations recorded ≤1.5% gravel and were therefore classified as moderately well sorted to moderately sorted under Folk and Ward (1957) and sand or slightly gravelly sand under Folk (1954). Medium SSS reflectivity seabed at Stations GRAB_5004A, GRAB_5009, GRAB_5013, GRAB_5014, GRAB_5018 and GRAB_5020 recorded medium to coarse sand, with mean grain sizes ranging from 403µm to 771µm. With gravel content of ≤20.2%, these six stations were classified as moderately sorted to poorly sorted under Folk and Ward (1957) and slightly gravelly sand to gravelly sand under Folk (1954). This subtle shift from fine to medium and coarse sand and increased gravel content is consistent with more mobile, higher energy conditions (Appendix G) and/or a change in the underlying shallow geology. Under the CMECS (FGDC, 2012) classification Stations GRAB_5003, GRAB_5004A, GRAB_5006, GRAB_5012 and GRAB_5018 were categorized as fine unconsolidated substrate subgroup slightly gravelly sand or medium sand, while Stations GRAB_5009, GRAB_5013, GRAB_5014 and GRAB_5020 were categorized as coarse unconsolidated substrate gravelly sand.
- Medium SSS reflectivity at Stations GRAB_5010 and GRAB_5019 corresponded with notably increased gravel content of 55% and 52% and a mean particle diameter of 1425µm and 2033µm, respectively. The sediment at these two stations was classified as poorly sorted to very poorly sorted under Folk and Ward (1957) and sandy gravel under Folk (1954). Under the CMECS (FGDC, 2012) classification both of these stations were categorized as coarse unconsolidated substrate group gravel mixes, subgroup sandy gravel.

At all stations fine sediment (silt and clay, <63µm) accounted for only a small fraction of the sediment, ranging from 1.5% to 3.7% across the survey area.

Generally, stations displayed a unimodal distribution with a peak around 151µm (fine sand) or 427µm (medium sand). The exceptions included Station GRAB_5020, which displayed a unimodal distribution with a peak around 603µm (coarse sand). Further exceptions were Stations GRAB_5009, GRAB_5013 and GRAB_5018, which showed bimodal distributions with the main peak around 603µm (coarse sand) and secondary peaks either at very fine gravel (Station GRAB_5009) or fine sand (GRAB_5013 and GRAB_5018). Finally, Stations GRAB_5010 and GRAB_5019 showed polymodal distributions with the main peak around fine gravel and additional peaks in very fine gravel and/or fine to coarse sand.

Overall, the sediment Wentworth (1922) classification of fine sand to very fine gravel and Folk (1954) classification of sand to sandy gravel were recorded, suggesting natural spatial variation in composition across the survey area (Appendix G). Additionally, the results supported geophysical interpretation of sand with areas of coarse sediments. No evidence of fishing activity such as trawl scars were noted in the seabed imagery but were identified in the geophysical data near Station GRAB_5014, as show in Figure 2.3. In conclusion, with no evidence of seabed disturbance within the area, the gravelly sediments were considered representative of the wider area and region.

2.4.2 Total Organic Matter

The results of the total organic matter (TOM) analysis are presented in Table 2.3. Organic matter in marine sediments is primarily made up of detrital matter and naphthenic materials (carboxylic acids and humic substances with a small proportion of biological biomass). TOM ranged between 0.1% at Station GRAB_5012 and 0.5% at Station GRAB_5016. A Spearman's rank correlation conducted on the data revealed a statistically significant negative correlation between concentrations of TOM and mean sediment diameter (r-0.48, $p<0.05$), consistent with the association between fines and organic matter (Appendix G).

Table 2.3 Sediment Characteristics

Station	Mean Diameter (µm)[1]	Mean Diameter (Phi)[1]	Fines %	Sand %	Gravel %	Wentworth Classification of Mean Grain Size	Sorting[1]	Folk Classification[2]	Total Organic Matter (%)
GRAB_5001	167.4	2.6	2.4	97.0	0.6	Fine sand	Well	Slightly gravelly sand	0.4
GRAB_5002	179.8	2.5	2.6	96.4	1.0	Fine sand	Moderately well	Slightly gravelly sand	0.4
GRAB_5003	389.8	1.4	1.8	98.2	0.0	Medium sand	Moderately well	Sand	0.2
GRAB_5004A	415.4	1.3	2.2	97.1	0.7	Medium sand	Moderately	Slightly gravelly sand	0.3
GRAB_5005	168.1	2.6	2.3	97.6	0.1	Fine sand	Well	Slightly gravelly sand	0.4
GRAB_5006	397.5	1.3	1.6	97.3	1.1	Medium sand	Moderately	Slightly gravelly sand	0.2
GRAB_5007	177.4	2.5	2.4	97.6	0.0	Fine sand	Moderately well	Sand	0.3
GRAB_5008	158.3	2.7	2.5	97.4	0.1	Fine sand	Moderately well	Slightly gravelly sand	0.4
GRAB_5009	771.0	0.4	1.5	78.3	20.2	Coarse sand	Poorly	Gravelly sand	0.3
GRAB_5010	1424.9	-0.5	1.6	43.0	55.4	Very coarse sand	Very poorly	Sandy gravel	0.3
GRAB_5011	170.4	2.6	3.2	96.8	0.0	Fine sand	Well	Sand	0.3
GRAB_5012	437.2	1.2	2.4	96.1	1.5	Medium sand	Moderately	Slightly gravelly sand	0.1
GRAB_5013	403.2	1.3	2.5	90.0	7.5	Medium sand	Poorly	Gravelly sand	0.2
GRAB_5014	520.0	0.9	2.5	88.7	8.8	Coarse sand	Poorly	Gravelly sand	0.2
GRAB_5016	137.7	2.9	3.7	96.2	0.1	Fine sand	Well	Slightly gravelly sand	0.5
GRAB_5017	158.4	2.7	1.6	98.1	0.3	Fine sand	Well	Slightly gravelly sand	0.3
GRAB_5018	465.0	1.1	2.0	93.1	4.9	Medium sand	Moderately	Slightly gravelly sand	0.2
GRAB_5019	2033.0	-1.0	2.5	45.8	51.7	Very fine gravel	Poorly	Sandy gravel	0.4
GRAB_5020	582.0	0.8	1.7	93.2	5.1	Coarse sand	Moderately	Gravelly Sand	0.2
Minimum	137.7	-1.0	1.5	43.0	0.0	Fine sand to very fine gravel	Very poor to well sorted	Sand to sandy gravel	0.1
Maximum	2033.0	2.9	3.7	98.2	55.4				0.5
Mean	481.9	1.5	2.3	89.4	8.4				0.3
± SD	484.5	1.1	0.6	16.5	16.7				0.1

Sediments were not treated to remove carbonates prior to particle size analyses.

1 Sorting according to Folk and Ward (1957)

2 Calculated using the Folk classification triangle (Folk, 1954), presented in Appendix B.5

Table 2.4 CMECS Substrate Component Classification

Station	Substrate Origin	Substrate Class	Substrate Subclass[1]	Substrate Group[1]	Substrate Subgroup[1]
GRAB_5001	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5002	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5003	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Sand	Medium sand
GRAB_5004A	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5005	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5006	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5007	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Sand	Fine sand
GRAB_5008	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5009	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly sand
GRAB_5010	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravel Mixes	Sandy gravel
GRAB_5011	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Sand	Fine sand
GRAB_5012	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5013	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly sand
GRAB_5014	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly sand
GRAB_5016	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5017	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5018	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly gravelly sand
GRAB_5019	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravel Mixes	Sandy gravel
GRAB_5020	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly Sand

1 Calculated using the Folk classification triangle (Folk, 1954), presented in Appendix B.5

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APPENDICES

APPENDIX A FIELD SAMPLING LOGS

APPENDIX A FIELD SAMPLING LOGS

SEABED IMAGERY LOG SHEET (Deck) **QPRO-0753**

Job No:	11311	Area: New Jersey, USA	Scale: 100mm green line laser scale bar
Project:	OCW01_GP1B		Equipment: Kongsberg-14208 Shallow Water Camera System with 1CAM Alpha MK6
Client:	Ørsted		Vessel: RV *Ocean Researcher*

Station Number	Date	Time on Overlay Start	Time on Overlay Finish	Media Location			Sediment Description	Fauna Description	Operator(s)	No. of Photos	First Fix No.	Last Fix No.	Comments
				VHS No.	DVD No. & Chapter	HDD File Name(s)							
GRAB_5001	08-Dec-19	00:10:10	00:16:00			**SD:** Dive 08 GRAB_5001 19-12-08 00.10.08_C1, Dive 08 GRAB_5001 19-12-08 00.10.08_C2 **HD: 0025, 0026, 0027, 0028**	Fine to medium brown sand	Chordata (Phycidae, Squalidae), Echinodermata (Clypeasteroida, Echinoidea), Mollusca (Cephalopoda)	GD	13	1	13	
GRAB_5008	08-Dec-19	01:49:05	01:56:12			**SD:** Dive 09 19-12-08 01.49.02_C1, Dive 09 19-12-08 01.49.02_C1, Dive 09 19-12-08 01.49.02_C2 **HD: 0029**	Fine brown sand with shell some fragments	Annelida (Terebellidae), Arthropoda (Paguroidea), Chordata (Rajidae), Echinodermata (Clypeasteroida), Mollusca (Gastropoda)	GD	12	14	25	
GRAB_5016	08-Dec-19	03:09:31	03:15:52			**SD:** Dive 10 19-12-08 03.09.29_C1, Dive 10 19-12-08 03.09.29_C1, Dive 10 19-12-08 03.09.29_C2 **HD: 0030**	Fine sand, possible anoxic grey patches with faunal tracks	Annelida (Terebellidae), Arthropoda (Paguroidea), Chordata (Phycidae), Mollusca (Gastropoda)	GD	10	26	35	
GRAB_5019	08-Dec-19	04:22:24	04:28:56			**SD:** Dive 11 GRAB_5019 19-12-08 04.22.17_C1, Dive 11 GRAB_5019 19-12-08 04.22.17_C2 **HD: 0031**	Coarse sand and gravel with shells and a cobble	Arthropoda (Paguroidea, Brachyura), Chordata (Squalidae), Mollusca (Cephalopoda)	GD	13	36	48	
GRAB_5007	08-Dec-19	05:45:41	05:52:00			**SD:** Dive 12 19-12-08 05.45.34_C1, Dive 12 19-12-08 05.45.34_C2 **HD: 0032, 0033**	Fine to medium brown/grey sand with some shell fragments	Arthropoda (Paguroidea), Chordata (Phycidae), Echinodermata (Clypeasteroida), Mollusca (Gastropoda, Nudibranchia)	AS	17	49	65	
GRAB_5006	08-Dec-19	07:03:22	07:10:30			**SD:** Dive 13 GRAB_5006 19-12-08 07.03.18_C1, Dive 13 GRAB_5006 19-12-08 07.03.18_C2 **HD: 0034, 0035**	Medium brown sand with shells and shell fragments, faunal tracks and sand waves	Arthropoda (Paguroidea), Echinodermata (Clypeasteroida), Mollusca (Bivalvia)	AS	22	66	87	
GRAB_5014	08-Dec-19	08:26:27	08:33:38			**SD:** Dive 14 GRAB_5014 19-12-08 08.26.05_C1, Dive 14 GRAB_5014 19-12-08 08.26.05_C2 **HD: 0036, 0037**	Medium to coarse sand with shells and numerous shell fragments (shell hash)	Annelida (Terebellidae), Arthropoda (Brachyura, Paguroidea), Chordata (Squalidae, Triglidae), Echinodermata (Clypeasteroida), Mollusca (Bivalvia)	AS	22	88	109	

APPENDIX A FIELD SAMPLING LOGS

SEABED IMAGERY LOG SHEET (Deck)														QPRO-0753
Job No:	11311			Area: New Jersey, USA					Scale: 100mm green line laser scale bar					
Project:	OCW01_GP1B								Equipment: Kongsberg-14208 Shallow Water Camera System with 1CAM Alpha MK6					
Client:	Ørsted								Vessel: RV *Ocean Researcher*					
Station Number	Date	Time on Overlay Start	Time on Overlay Finish	Media Location			Sediment Description	Fauna Description	Operator(s)	No. of Photos	First Fix No.	Last Fix No.	Comments	
				VHS No.	DVD No. & Chapter	HDD File Name(s)								
GRAB_5005	08-Dec-19	10:05:03	10:10:59			**SD:** Dive 15 GRAB_5005 19-12-08 10.04.58_C1, Dive 15 GRAB_5005 19-12-08 10.04.58_C2 **HD: 0038, 0039**	Fine to medium silty brown sand	Annelida (Terebellidae), Arthropoda (Brachyura), Echinodermata (Clypeasteroida), Mollusca (Gastropoda)	AS	17	110	126		
GRAB_5002	09-Dec-19	00:27:09	00:33:31			**SD:** Dive 16 19-12-09 00.27.05_C1, Dive 16 19-12-09 00.27.05_C2 **HD: 0040, 0041**	Fine silty brown sand with shell fragments, small depression	Annelida (Terebellidae), Arthropoda (Paguroidea), Chordata (Phycidae), Echinodermata (Clypeasteroida)	GD	14	128	141		
GRAB_5017	09-Dec-19	01:43:19	01:49:56			**SD:** Dive 17 19-12-09 01.43.15_C1, Dive 17 19-12-09 01.43.15_C2 **HD: 0042, 0043**	Fine silty brownsand with shell fragments	Annelida (Terebellidae), Chordata (Phycidae), Echinodermata (Clypeasteroida)	GD	16	142	157		
GRAB_5018	09-Dec-19	02:52:24	02:58:41			**SD:** Dive 17 19-12-09 01.43.15_C1, Dive 17 19-12-09 01.43.15_C2 **HD: 0044, 0045**	Fine to medium silty brown sand with shells and lots of shell fragments	Arthropoda (Paguroidea), Chordata (Squalidae)	GD	11	158	168		
GRAB_5009	09-Dec-19	03:53:07	03:59:51			**SD:** Dive 19 19-12-09 03.52.43_C1, Dive 19 19-12-09 03.52.43_C2 **HD: 0046, 0047**	Medium to coarse brown sand with shell fragments and sand waves	Arthropoda (Paguroidea), Chordata (Phycidae), Echinodermata (Clypeasteroida)	GD	12	169	180		
GRAB_5010	09-Dec-19	05:10:26	05:16:58			**SD:** Dive 20 GRAB_5010 19-12-09 05.10.24_C1, Dive 20 GRAB_5010 19-12-09 05.10.24_C2 **HD: 0048, 0049**	Course sandy gravel with shells, occasional silty outcrops	Arthropoda (Paguroidea), Chordata (Elasmobranchii egg case, Phycidae, Squalidae)	AS	18	181	198		
GRAB_5015	09-Dec-19	06:30:10	06:37:03			**SD:** Dive 21 GRAB_5015 19-12-09 06.30.05_C1, Dive 21 GRAB_5015 19-12-09 06.30.05_C2 **HD: 0050, 0051**	Fine to medium sandy gravel and with shells and shell fragments	Arthropoda (Brachyura), Chordata (Elasmobranchii egg case), Phycidae, Squalidae), Mollusca (Nudibranchia)	AS	23	199	221		

Gardline

APPENDIX A FIELD SAMPLING LOGS

SEABED IMAGERY LOG SHEET (Deck)														QPRO-0753
Job No:	11311			Area: New Jersey, USA				Scale: 100mm green line laser scale bar						
Project:	OCW01_GP1B							Equipment: Kongsberg-14208 Shallow Water Camera System with 1CAM Alpha MK6						
Client:	Ørsted							Vessel: RV *Ocean Researcher*						
Station Number	Date	Time on Overlay Start	Time on Overlay Finish	Media Location: VHS No.	Media Location: DVD No. & Chapter	Media Location: HDD File Name(s)	Sediment Description	Fauna Description	Operator(s)	No. of Photos	First Fix No.	Last Fix No.	Comments	
GRAB_5020	09-Dec-19	07:56:23	08:03:23			**SD:** Dive 22 GRAB_5020 19-12-09 07.56.21_C1, Dive 22 GRAB_5020 19-12-09 07.56.21_C2 **HD: 0052, 0053**	Medium sand with shells and shell fragments	Annelida (Terebellidae), Chordata (Phycidae, Squalidae)	AS	21	222	242		
GRAB_5013	12-Dec-19	23:54:48	00:00:31			**SD:** Dive 24 GRAB_5013 19-12-12 23.54.46_C1, Dive 24 GRAB_5013 19-12-12 23.54.46_C2 **HD: 00057**	Silty fine brown sand with shells, shell fragments and sand waves	Annelida (Terebellidae), Arthropoda (Paguroidea), Chordata (Phycidae), Echinodermata (Clypeasteroida), Mollusca (Gastropoda)	GD	16	243	258		
GRAB_5004	13-Dec-19	01:43:53	01:54:16			**SD:** Dive 23 GRAB_5004 19-12-13 01.43.46_C1, Dive 23 GRAB_5004 19-12-13 01.43.46_C2 **HD: 00060**	Medium brown sand with numerous shells and shell fragments	Arthropoda (Brachyura, Paguroidea), Chordata (Phycidae, Squalidae), Echinodermata (Clypeasteroida)	GD	17	259	275		
GRAB_5011	13-Dec-19	03:26:57	03:48:09			**SD:** Dive 26 19-12-13 03.26.55_C1, Dive 26 19-12-13 03.26.55_C2 **HD: 00063**	Fine to medium brown/grey sand with grey patches and occasional shell fragments	Annelida (Terebellidae), Arthropoda (Brachyura, Paguroidea), Chordata (Phycidae, Triglidae), Echinodermata (Clypeasteroida)	GD	18	276	293	Seabed attained 03:39:15. HD seabed footage 08:04 mins long Topside video recording paused for 4mins at 03:40:04	
GRAB_5012	13-Dec-19	05:06:28	05:14:02			**SD:** Dive 27 GRAB_5012 19-12-13 05.06.26_C1, Dive 27 GRAB_5012 19-12-13 05.06.26_C2 **HD: 00041**	Medium brown sand with numerous shells, shell fragments and sand waves	Annelida (Terebellidae), Arthropoda (Paguroidea), Chordata (Phycidae), Echinodermata (Clypeasteroida), Mollusca (Gastropoda, Naticidae)	AS	22	294	315		
GRAB_5003	13-Dec-19	06:41:35	06:49:50			**SD:** Dive 27 GRAB_5012 19-12-13 05.06.26_C1, Dive 27 GRAB_5012 19-12-13 05.06.26_C2 **HD: 00066**	Medium brown/grey sand with shells, shell fragments and sand waves	Annelida (Terebellidae), Arthropoda (Paguroidea), Chordata (Elasmobranchii egg case, Phycidae), Echinodermata (Clypeasteroida)	AS	25	316	340		

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*				
Client	Ørsted			Vessel Reference Point (VRP)	CoG				
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame	x	8.96	y	-3.08
						z	6.05		
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location				
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid GRS 80	Projection	UTM ZONE 18 N (75 W)	Vertical / Tidal Datum	MLLW		

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
08-Dec-2019	00:10:44	1	GRAB_5001				-24	554303	4328970	554301	4328977	2	-7	7	346		(Corr'd Nav, Kongsberg 14208, img#2) (V) (T.A)
08-Dec-2019	00:11:27	2	GRAB_5001				-24	554304	4328971	554301	4328977	3	-6	6	334		(Corr'd Nav, Kongsberg 14208, img#3) (V) (T.A)
08-Dec-2019	00:12:31	3	GRAB_5001				-24	554303	4328974	554301	4328977	2	-3	4	328		(Corr'd Nav, Kongsberg 14208, img#4) (V) (T.A)
08-Dec-2019	00:12:59	4	GRAB_5001				-24	554302	4328977	554301	4328977	1	0	1	301		(Corr'd Nav, Kongsberg 14208, img#5) (V) (T.A)
08-Dec-2019	00:13:19	5	GRAB_5001				-24	554301	4328978	554301	4328977	0	1	1	158		(Corr'd Nav, Kongsberg 14208, img#6) (V) (T.A)
08-Dec-2019	00:13:37	6	GRAB_5001				-24	554299	4328980	554301	4328977	-2	3	3	142		(Corr'd Nav, Kongsberg 14208, img#7) (V) (T.A)
08-Dec-2019	00:13:52	7	GRAB_5001				-24	554297	4328981	554301	4328977	-4	4	6	140		(Corr'd Nav, Kongsberg 14208, img#8) (V) (T.A)
08-Dec-2019	00:14:09	8	GRAB_5001				-24	554296	4328983	554301	4328977	-5	6	8	140		(Corr'd Nav, Kongsberg 14208, img#9) (V) (T.A)
08-Dec-2019	00:14:23	9	GRAB_5001				-24	554296	4328983	554301	4328977	-6	6	8	138		(Corr'd Nav, Kongsberg 14208, img#10) (V) (T.A)
08-Dec-2019	00:14:43	10	GRAB_5001				-24	554295	4328982	554301	4328977	-6	5	7	128		(Corr'd Nav, Kongsberg 14208, img#11) (V) (T.A)
08-Dec-2019	00:15:02	11	GRAB_5001				-24	554295	4328980	554301	4328977	-6	3	7	118		(Corr'd Nav, Kongsberg 14208, img#12) (V) (T.A)
08-Dec-2019	00:15:24	12	GRAB_5001				-24	554296	4328976	554301	4328977	-5	-1	5	84		(Corr'd Nav, Kongsberg 14208, img#13) (V) (T.A)
08-Dec-2019	00:15:37	13	GRAB_5001				-24	554296	4328974	554301	4328977	-5	-3	6	56		(Corr'd Nav, Kongsberg 14208, img#14) (V) (T.A)
08-Dec-2019	01:50:05	14	GRAB_5008				-27	556184	4326769	556183	4326772	1	-3	3	340		(Corr'd Nav, Kongsberg 14208, img#15) (V) (T.A)
08-Dec-2019	01:50:37	15	GRAB_5008				-27	556183	4326768	556183	4326772	0	-4	4	354		(Corr'd Nav, Kongsberg 14208, img#16) (V) (T.A)
08-Dec-2019	01:51:24	16	GRAB_5008				-27	556183	4326768	556183	4326772	0	-4	4	356		(Corr'd Nav, Kongsberg 14208, img#17) (V) (T.A)
08-Dec-2019	01:51:49	17	GRAB_5008				-27	556184	4326767	556183	4326772	1	-5	5	354		(Corr'd Nav, Kongsberg 14208, img#18) (V) (T.A)
08-Dec-2019	01:52:23	18	GRAB_5008				-27	556185	4326767	556183	4326772	2	-5	6	341		(Corr'd Nav, Kongsberg 14208, img#19) (V) (T.A)
08-Dec-2019	01:52:46	19	GRAB_5008				-27	556185	4326767	556183	4326772	2	-5	5	334		(Corr'd Nav, Kongsberg 14208, img#20) (V) (T.A)
08-Dec-2019	01:53:28	20	GRAB_5008				-27	556186	4326769	556183	4326772	3	-3	4	309		(Corr'd Nav, Kongsberg 14208, img#21) (V) (T.A)
08-Dec-2019	01:54:03	21	GRAB_5008				-27	556187	4326772	556183	4326772	4	0	4	275		(Corr'd Nav, Kongsberg 14208, img#22) (V) (T.A)
08-Dec-2019	01:54:34	22	GRAB_5008				-27	556187	4326773	556183	4326772	4	1	4	253		(Corr'd Nav, Kongsberg 14208, img#23) (V) (T.A)
08-Dec-2019	01:54:59	23	GRAB_5008				-27	556186	4326774	556183	4326772	3	2	3	237		(Corr'd Nav, Kongsberg 14208, img#24) (V) (T.A)
08-Dec-2019	01:55:23	24	GRAB_5008				-27	556185	4326774	556183	4326772	2	2	3	234		(Corr'd Nav, Kongsberg 14208, img#25) (V) (T.A)
08-Dec-2019	01:55:51	25	GRAB_5008				-27	556184	4326772	556183	4326772	1	0	1	253		(Corr'd Nav, Kongsberg 14208, img#26) (V) (T.A)
08-Dec-2019	03:09:56	26	GRAB_5016				-29	559006	4329174	559000	4329177	6	-3	6	296		(Corr'd Nav, Kongsberg 14208, img#27) (V) (T.A)
08-Dec-2019	03:10:42	27	GRAB_5016				-29	559006	4329174	559000	4329177	6	-3	7	292		(Corr'd Nav, Kongsberg 14208, img#28) (V) (T.A)
08-Dec-2019	03:11:28	28	GRAB_5016				-29	559006	4329175	559000	4329177	6	-2	6	285		(Corr'd Nav, Kongsberg 14208, img#29) (V) (T.A)
08-Dec-2019	03:12:30	29	GRAB_5016				-29	559004	4329174	559000	4329177	4	-3	5	313		(Corr'd Nav, Kongsberg 14208, img#30) (V) (T.A)
08-Dec-2019	03:12:55	30	GRAB_5016				-29	559002	4329172	559000	4329177	2	-5	5	338		(Corr'd Nav, Kongsberg 14208, img#31) (V) (T.A)
08-Dec-2019	03:13:44	31	GRAB_5016				-29	558998	4329172	559000	4329177	-2	-5	5	25		(Corr'd Nav, Kongsberg 14208, img#32) (V) (T.A)
08-Dec-2019	03:14:10	32	GRAB_5016				-29	558996	4329172	559000	4329177	-4	-5	6	39		(Corr'd Nav, Kongsberg 14208, img#33) (V) (T.A)
08-Dec-2019	03:14:33	33	GRAB_5016				-29	558995	4329172	559000	4329177	-5	-5	7	48		(Corr'd Nav, Kongsberg 14208, img#34) (V) (T.A)
08-Dec-2019	03:15:12	34	GRAB_5016				-29	558994	4329171	559000	4329177	-6	-6	8	46		(Corr'd Nav, Kongsberg 14208, img#35) (V) (T.A)
08-Dec-2019	03:15:35	35	GRAB_5016				-29	558995	4329172	559000	4329177	-5	-5	8	45		(Corr'd Nav, Kongsberg 14208, img#36) (V) (T.A)
08-Dec-2019	04:22:43	36	GRAB_5019				-30	559673	4325770	559674	4325775	-1	-5	5	13		(Corr'd Nav, Kongsberg 14208, img#37) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline | Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*				
Client	Ørsted			Vessel Reference Point (VRP)	CoG				
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame	x	8.96	y	-3.08	z	6.05
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location				
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid	GRS 80	Projection	UTM ZONE 18 N (75 W)	Vertical / Tidal Datum	MLLW	

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
08-Dec-2019	04:22:58	37	GRAB_5019				-30	559674	4325770	559674	4325775	0	-5	5	4		(Corr'd Nav, Kongsberg 14208, img#38) (V) (T.A)
08-Dec-2019	04:23:17	38	GRAB_5019				-30	559675	4325770	559674	4325775	1	-5	5	351		(Corr'd Nav, Kongsberg 14208, img#39) (V) (T.A)
08-Dec-2019	04:23:43	39	GRAB_5019				-30	559676	4325771	559674	4325775	2	-4	5	331		(Corr'd Nav, Kongsberg 14208, img#40) (V) (T.A)
08-Dec-2019	04:24:13	40	GRAB_5019				-30	559679	4325773	559674	4325775	5	-2	5	295		(Corr'd Nav, Kongsberg 14208, img#41) (V) (T.A)
08-Dec-2019	04:25:01	41	GRAB_5019				-30	559680	4325773	559674	4325775	6	-2	6	286		(Corr'd Nav, Kongsberg 14208, img#42) (V) (T.A)
08-Dec-2019	04:26:01	42	GRAB_5019				-30	559677	4325775	559674	4325775	3	0	3	269		(Corr'd Nav, Kongsberg 14208, img#43) (V) (T.A)
08-Dec-2019	04:26:14	43	GRAB_5019				-30	559676	4325775	559674	4325775	2	0	2	270		(Corr'd Nav, Kongsberg 14208, img#44) (V) (T.A)
08-Dec-2019	04:26:33	44	GRAB_5019				-30	559675	4325774	559674	4325775	1	-1	1	324		(Corr'd Nav, Kongsberg 14208, img#45) (V) (T.A)
08-Dec-2019	04:26:44	45	GRAB_5019				-30	559674	4325774	559674	4325775	0	-1	2	17		(Corr'd Nav, Kongsberg 14208, img#46) (V) (T.A)
08-Dec-2019	04:27:01	46	GRAB_5019				-30	559672	4325773	559674	4325775	-2	-2	3	36		(Corr'd Nav, Kongsberg 14208, img#47) (V) (T.A)
08-Dec-2019	04:28:01	47	GRAB_5019				-30	559671	4325773	559674	4325775	-3	-2	3	60		(Corr'd Nav, Kongsberg 14208, img#48) (V) (T.A)
08-Dec-2019	04:28:33	48	GRAB_5019				-30	559672	4325775	559674	4325775	-2	0	2	80		(Corr'd Nav, Kongsberg 14208, img#49) (V) (T.A)
08-Dec-2019	05:45:57	49	GRAB_5007				-24	559103	4323348	559104	4323348	-1	0	1	79		(Corr'd Nav, Kongsberg 14208, img#50) (V) (T.A)
08-Dec-2019	05:46:29	50	GRAB_5007				-24	559103	4323349	559104	4323348	-1	1	2	134		(Corr'd Nav, Kongsberg 14208, img#51) (V) (T.A)
08-Dec-2019	05:46:45	51	GRAB_5007				-24	559103	4323350	559104	4323348	-1	2	2	143		(Corr'd Nav, Kongsberg 14208, img#52) (V) (T.A)
08-Dec-2019	05:47:16	52	GRAB_5007				-24	559103	4323352	559104	4323348	-1	4	4	171		(Corr'd Nav, Kongsberg 14208, img#53) (V) (T.A)
08-Dec-2019	05:47:30	53	GRAB_5007				-24	559104	4323351	559104	4323348	0	3	3	177		(Corr'd Nav, Kongsberg 14208, img#54) (V) (T.A)
08-Dec-2019	05:47:47	54	GRAB_5007				-24	559104	4323351	559104	4323348	0	3	3	187		(Corr'd Nav, Kongsberg 14208, img#55) (V) (T.A)
08-Dec-2019	05:48:08	55	GRAB_5007				-24	559106	4323352	559104	4323348	2	4	5	205		(Corr'd Nav, Kongsberg 14208, img#56) (V) (T.A)
08-Dec-2019	05:49:00	56	GRAB_5007				-24	559106	4323349	559104	4323348	2	1	3	249		(Corr'd Nav, Kongsberg 14208, img#57) (V) (T.A)
08-Dec-2019	05:49:14	57	GRAB_5007				-24	559107	4323348	559104	4323348	3	0	3	265		(Corr'd Nav, Kongsberg 14208, img#58) (V) (T.A)
08-Dec-2019	05:49:38	58	GRAB_5007				-24	559108	4323347	559104	4323348	4	-1	4	279		(Corr'd Nav, Kongsberg 14208, img#59) (V) (T.A)
08-Dec-2019	05:49:49	59	GRAB_5007				-24	559108	4323346	559104	4323348	4	-2	4	294		(Corr'd Nav, Kongsberg 14208, img#60) (V) (T.A)
08-Dec-2019	05:50:07	60	GRAB_5007				-24	559107	4323344	559104	4323348	3	-4	5	319		(Corr'd Nav, Kongsberg 14208, img#61) (V) (T.A)
08-Dec-2019	05:50:34	61	GRAB_5007				-24	559107	4323343	559104	4323348	3	-5	6	327		(Corr'd Nav, Kongsberg 14208, img#62) (V) (T.A)
08-Dec-2019	05:50:57	62	GRAB_5007				-24	559107	4323342	559104	4323348	3	-6	7	332		(Corr'd Nav, Kongsberg 14208, img#63) (V) (T.A)
08-Dec-2019	05:51:19	63	GRAB_5007				-24	559107	4323343	559104	4323348	3	-5	6	331		(Corr'd Nav, Kongsberg 14208, img#64) (V) (T.A)
08-Dec-2019	05:51:35	64	GRAB_5007				-24	559106	4323344	559104	4323348	2	-4	5	331		(Corr'd Nav, Kongsberg 14208, img#65) (V) (T.A)
08-Dec-2019	05:51:52	65	GRAB_5007				-24	559105	4323345	559104	4323348	1	-3	3	341		(Corr'd Nav, Kongsberg 14208, img#66) (V) (T.A)
08-Dec-2019	07:03:35	66	GRAB_5006				-26	562350	4319547	562349	4319545	1	2	3	203		(Corr'd Nav, Kongsberg 14208, img#67) (V) (T.A)
08-Dec-2019	07:03:46	67	GRAB_5006				-26	562349	4319547	562349	4319545	0	2	2	182		(Corr'd Nav, Kongsberg 14208, img#68) (V) (T.A)
08-Dec-2019	07:04:08	68	GRAB_5006				-26	562348	4319547	562349	4319545	-1	2	2	150		(Corr'd Nav, Kongsberg 14208, img#69) (V) (T.A)
08-Dec-2019	07:04:22	69	GRAB_5006				-26	562347	4319547	562349	4319545	-2	2	3	141		(Corr'd Nav, Kongsberg 14208, img#70) (V) (T.A)
08-Dec-2019	07:04:39	70	GRAB_5006				-26	562346	4319548	562349	4319545	-3	3	4	130		(Corr'd Nav, Kongsberg 14208, img#71) (V) (T.A)
08-Dec-2019	07:04:47	71	GRAB_5006				-26	562345	4319548	562349	4319545	-4	3	5	124		(Corr'd Nav, Kongsberg 14208, img#72) (V) (T.A)
08-Dec-2019	07:05:11	72	GRAB_5006				-26	562342	4319546	562349	4319545	-7	1	8	101		(Corr'd Nav, Kongsberg 14208, img#73) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline | Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*						
Client	Ørsted			Vessel Reference Point (VRP)	CoG						
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame	x	8.96	y	-3.08	z	6.05
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location						
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid	GRS 80	Projection	UTM ZONE 18 N (75 W)		Vertical / Tidal Datum	MLLW		

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
08-Dec-2019	07:05:29	73	GRAB_5006				-26	562339	4319544	562349	4319545	-10	-1	10	82		(Corr'd Nav, Kongsberg 14208, img#74) (V) (T.A)
08-Dec-2019	07:06:48	74	GRAB_5006				-26	562341	4319541	562349	4319545	-8	-4	9	67		(Corr'd Nav, Kongsberg 14208, img#75) (V) (T.A)
08-Dec-2019	07:07:00	75	GRAB_5006				-26	562343	4319541	562349	4319545	-6	-4	7	60		(Corr'd Nav, Kongsberg 14208, img#76) (V) (T.A)
08-Dec-2019	07:07:13	76	GRAB_5006				-26	562345	4319541	562349	4319545	-4	-4	6	45		(Corr'd Nav, Kongsberg 14208, img#77) (V) (T.A)
08-Dec-2019	07:07:40	77	GRAB_5006				-26	562348	4319541	562349	4319545	-1	-4	4	8		(Corr'd Nav, Kongsberg 14208, img#78) (V) (T.A)
08-Dec-2019	07:07:50	78	GRAB_5006				-26	562349	4319540	562349	4319545	0	-5	5	357		(Corr'd Nav, Kongsberg 14208, img#79) (V) (T.A)
08-Dec-2019	07:08:06	79	GRAB_5006				-26	562351	4319541	562349	4319545	2	-4	5	330		(Corr'd Nav, Kongsberg 14208, img#80) (V) (T.A)
08-Dec-2019	07:08:17	80	GRAB_5006				-26	562353	4319542	562349	4319545	4	-3	5	311		(Corr'd Nav, Kongsberg 14208, img#81) (V) (T.A)
08-Dec-2019	07:08:41	81	GRAB_5006				-26	562354	4319544	562349	4319545	5	-1	5	279		(Corr'd Nav, Kongsberg 14208, img#82) (V) (T.A)
08-Dec-2019	07:08:55	82	GRAB_5006				-26	562354	4319546	562349	4319545	5	1	5	263		(Corr'd Nav, Kongsberg 14208, img#83) (V) (T.A)
08-Dec-2019	07:09:08	83	GRAB_5006				-26	562354	4319547	562349	4319545	5	2	6	247		(Corr'd Nav, Kongsberg 14208, img#84) (V) (T.A)
08-Dec-2019	07:09:18	84	GRAB_5006				-26	562354	4319549	562349	4319545	5	4	6	233		(Corr'd Nav, Kongsberg 14208, img#85) (V) (T.A)
08-Dec-2019	07:09:49	85	GRAB_5006				-26	562352	4319552	562349	4319545	3	7	7	200		(Corr'd Nav, Kongsberg 14208, img#86) (V) (T.A)
08-Dec-2019	07:10:04	86	GRAB_5006				-26	562350	4319552	562349	4319545	1	7	7	185		(Corr'd Nav, Kongsberg 14208, img#87) (V) (T.A)
08-Dec-2019	07:10:22	87	GRAB_5006				-26	562347	4319551	562349	4319545	-2	6	6	164		(Corr'd Nav, Kongsberg 14208, img#88) (V) (T.A)
08-Dec-2019	08:26:44	88	GRAB_5014				-30	565096	4321888	565098	4321890	-2	-2	3	33		(Corr'd Nav, Kongsberg 14208, img#89) (V) (T.A)
08-Dec-2019	08:27:07	89	GRAB_5014				-30	565097	4321887	565098	4321890	-1	-3	4	17		(Corr'd Nav, Kongsberg 14208, img#90) (V) (T.A)
08-Dec-2019	08:27:21	90	GRAB_5014				-30	565097	4321886	565098	4321890	-1	-4	5	16		(Corr'd Nav, Kongsberg 14208, img#91) (V) (T.A)
08-Dec-2019	08:27:30	91	GRAB_5014				-30	565096	4321885	565098	4321890	-2	-5	5	17		(Corr'd Nav, Kongsberg 14208, img#92) (V) (T.A)
08-Dec-2019	08:27:50	92	GRAB_5014				-30	565096	4321884	565098	4321890	-2	-6	7	21		(Corr'd Nav, Kongsberg 14208, img#93) (V) (T.A)
08-Dec-2019	08:28:18	93	GRAB_5014				-30	565097	4321884	565098	4321890	-1	-6	7	10		(Corr'd Nav, Kongsberg 14208, img#94) (V) (T.A)
08-Dec-2019	08:28:34	94	GRAB_5014				-30	565099	4321884	565098	4321890	1	-6	6	354		(Corr'd Nav, Kongsberg 14208, img#95) (V) (T.A)
08-Dec-2019	08:28:53	95	GRAB_5014				-30	565101	4321885	565098	4321890	3	-5	6	331		(Corr'd Nav, Kongsberg 14208, img#96) (V) (T.A)
08-Dec-2019	08:29:13	96	GRAB_5014				-30	565102	4321886	565098	4321890	4	-4	6	310		(Corr'd Nav, Kongsberg 14208, img#97) (V) (T.A)
08-Dec-2019	08:29:29	97	GRAB_5014				-30	565103	4321888	565098	4321890	5	-2	6	288		(Corr'd Nav, Kongsberg 14208, img#98) (V) (T.A)
08-Dec-2019	08:29:38	98	GRAB_5014				-30	565103	4321890	565098	4321890	5	0	5	275		(Corr'd Nav, Kongsberg 14208, img#99) (V) (T.A)
08-Dec-2019	08:29:56	99	GRAB_5014				-30	565104	4321893	565098	4321890	6	3	6	242		(Corr'd Nav, Kongsberg 14208, img#100) (V) (T.A)
08-Dec-2019	08:30:06	100	GRAB_5014				-30	565103	4321895	565098	4321890	5	5	7	227		(Corr'd Nav, Kongsberg 14208, img#101) (V) (T.A)
08-Dec-2019	08:30:30	101	GRAB_5014				-30	565100	4321897	565098	4321890	2	7	8	197		(Corr'd Nav, Kongsberg 14208, img#102) (V) (T.A)
08-Dec-2019	08:30:47	102	GRAB_5014				-30	565097	4321897	565098	4321890	-1	7	7	175		(Corr'd Nav, Kongsberg 14208, img#103) (V) (T.A)
08-Dec-2019	08:31:08	103	GRAB_5014				-30	565094	4321895	565098	4321890	-4	5	6	142		(Corr'd Nav, Kongsberg 14208, img#104) (V) (T.A)
08-Dec-2019	08:31:29	104	GRAB_5014				-30	565091	4321894	565098	4321890	-7	4	8	120		(Corr'd Nav, Kongsberg 14208, img#105) (V) (T.A)
08-Dec-2019	08:31:50	105	GRAB_5014				-30	565089	4321893	565098	4321890	-9	3	9	112		(Corr'd Nav, Kongsberg 14208, img#106) (V) (T.A)
08-Dec-2019	08:32:08	106	GRAB_5014				-30	565089	4321893	565098	4321890	-9	3	10	108		(Corr'd Nav, Kongsberg 14208, img#107) (V) (T.A)
08-Dec-2019	08:32:42	107	GRAB_5014				-30	565089	4321892	565098	4321890	-9	2	9	101		(Corr'd Nav, Kongsberg 14208, img#108) (V) (T.A)
08-Dec-2019	08:33:09	108	GRAB_5014				-30	565090	4321890	565098	4321890	-8	0	8	92		(Corr'd Nav, Kongsberg 14208, img#109) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*			
Client	Ørsted			Vessel Reference Point (VRP)	CoG			
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame	x 8.96	y -3.08	z 6.05
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location			
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid GRS 80	Projection	UTM ZONE 18 N (75 W)	Vertical / Tidal Datum	MLLW	

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
08-Dec-2019	08:33:27	109	GRAB_5014				-30	565091	4321889	565098	4321890	-7	-1	7	84		(Corr'd Nav, Kongsberg 14208, img#110) (V) (T.A)
08-Dec-2019	10:05:41	110	GRAB_5005				-27	569411	4325575	569419	4325581	-8	-6	10	53		(Corr'd Nav, Kongsberg 14208, img#111) (V) (T.A)
08-Dec-2019	10:06:05	111	GRAB_5005				-27	569411	4325576	569419	4325581	-8	-5	9	59		(Corr'd Nav, Kongsberg 14208, img#112) (V) (T.A)
08-Dec-2019	10:07:15	112	GRAB_5005				-27	569418	4325578	569419	4325581	-1	-3	3	15		(Corr'd Nav, Kongsberg 14208, img#113) (V) (T.A)
08-Dec-2019	10:07:30	113	GRAB_5005				-27	569420	4325577	569419	4325581	1	-4	4	347		(Corr'd Nav, Kongsberg 14208, img#114) (V) (T.A)
08-Dec-2019	10:07:41	114	GRAB_5005				-27	569421	4325577	569419	4325581	2	-4	5	336		(Corr'd Nav, Kongsberg 14208, img#115) (V) (T.A)
08-Dec-2019	10:07:50	115	GRAB_5005				-27	569422	4325576	569419	4325581	3	-5	6	329		(Corr'd Nav, Kongsberg 14208, img#116) (V) (T.A)
08-Dec-2019	10:08:10	116	GRAB_5005				-27	569424	4325575	569419	4325581	5	-6	8	322		(Corr'd Nav, Kongsberg 14208, img#117) (V) (T.A)
08-Dec-2019	10:08:31	117	GRAB_5005				-27	569425	4325575	569419	4325581	6	-6	9	315		(Corr'd Nav, Kongsberg 14208, img#118) (V) (T.A)
08-Dec-2019	10:08:47	118	GRAB_5005				-27	569426	4325574	569419	4325581	7	-7	10	313		(Corr'd Nav, Kongsberg 14208, img#119) (V) (T.A)
08-Dec-2019	10:09:13	119	GRAB_5005				-27	569428	4325577	569419	4325581	9	-4	9	295		(Corr'd Nav, Kongsberg 14208, img#120) (V) (T.A)
08-Dec-2019	10:09:31	120	GRAB_5005				-27	569427	4325579	569419	4325581	8	-2	9	285		(Corr'd Nav, Kongsberg 14208, img#121) (V) (T.A)
08-Dec-2019	10:09:47	121	GRAB_5005				-27	569426	4325580	569419	4325581	7	-1	7	279		(Corr'd Nav, Kongsberg 14208, img#122) (V) (T.A)
08-Dec-2019	10:10:01	122	GRAB_5005				-27	569424	4325580	569419	4325581	5	-1	5	279		(Corr'd Nav, Kongsberg 14208, img#123) (V) (T.A)
08-Dec-2019	10:10:12	123	GRAB_5005				-27	569423	4325580	569419	4325581	4	-1	4	287		(Corr'd Nav, Kongsberg 14208, img#124) (V) (T.A)
08-Dec-2019	10:10:28	124	GRAB_5005				-27	569422	4325578	569419	4325581	3	-3	4	318		(Corr'd Nav, Kongsberg 14208, img#125) (V) (T.A)
08-Dec-2019	10:10:36	125	GRAB_5005				-27	569421	4325577	569419	4325581	2	-4	4	336		(Corr'd Nav, Kongsberg 14208, img#126) (V) (T.A)
08-Dec-2019	10:10:53	126	GRAB_5005				-27	569419	4325575	569419	4325581	0	-6	6	4		(Corr'd Nav, Kongsberg 14208, img#127) (V) (T.A)
09-Dec-2019	00:27:30	128	GRAB_5002				-24	561478	4334925	561482	4334920	-4	5	6	141		(Corr'd Nav, Kongsberg 14208, img#1) (V) (T.A)
09-Dec-2019	00:28:13	129	GRAB_5002				-24	561476	4334923	561482	4334920	-6	3	7	120		(Corr'd Nav, Kongsberg 14208, img#2) (V) (T.A)
09-Dec-2019	00:28:58	130	GRAB_5002				-24	561475	4334923	561482	4334920	-7	3	8	109		(Corr'd Nav, Kongsberg 14208, img#3) (V) (T.A)
09-Dec-2019	00:30:10	131	GRAB_5002				-24	561476	4334921	561482	4334920	-6	1	6	101		(Corr'd Nav, Kongsberg 14208, img#4) (V) (T.A)
09-Dec-2019	00:30:24	132	GRAB_5002				-24	561477	4334921	561482	4334920	-5	1	5	101		(Corr'd Nav, Kongsberg 14208, img#5) (V) (T.A)
09-Dec-2019	00:30:44	133	GRAB_5002				-24	561478	4334921	561482	4334920	-4	1	4	102		(Corr'd Nav, Kongsberg 14208, img#6) (V) (T.A)
09-Dec-2019	00:31:00	134	GRAB_5002				-24	561480	4334921	561482	4334920	-2	1	2	106		(Corr'd Nav, Kongsberg 14208, img#7) (V) (T.A)
09-Dec-2019	00:31:29	135	GRAB_5002				-24	561483	4334921	561482	4334920	1	1	1	229		(Corr'd Nav, Kongsberg 14208, img#8) (V) (T.A)
09-Dec-2019	00:31:40	136	GRAB_5002				-24	561483	4334921	561482	4334920	1	1	2	231		(Corr'd Nav, Kongsberg 14208, img#9) (V) (T.A)
09-Dec-2019	00:31:55	137	GRAB_5002				-24	561485	4334921	561482	4334920	3	2	3	240		(Corr'd Nav, Kongsberg 14208, img#10) (V) (T.A)
09-Dec-2019	00:32:24	138	GRAB_5002				-24	561488	4334922	561482	4334920	6	2	6	247		(Corr'd Nav, Kongsberg 14208, img#11) (V) (T.A)
09-Dec-2019	00:32:39	139	GRAB_5002				-24	561488	4334923	561482	4334920	6	3	7	239		(Corr'd Nav, Kongsberg 14208, img#12) (V) (T.A)
09-Dec-2019	00:32:53	140	GRAB_5002				-24	561489	4334924	561482	4334920	7	4	8	238		(Corr'd Nav, Kongsberg 14208, img#13) (V) (T.A)
09-Dec-2019	00:33:13	141	GRAB_5002				-24	561491	4334925	561482	4334920	9	5	10	242		(Corr'd Nav, Kongsberg 14208, img#14) (V) (T.A)
09-Dec-2019	01:43:30	142	GRAB_5017				-23	557553	4333728	557553	4333727	0	1	1	184		(Corr'd Nav, Kongsberg 14208, img#15) (V) (T.A)
09-Dec-2019	01:43:55	143	GRAB_5017				-23	557552	4333729	557553	4333727	-1	2	2	145		(Corr'd Nav, Kongsberg 14208, img#16) (V) (T.A)
09-Dec-2019	01:44:23	144	GRAB_5017				-23	557551	4333729	557553	4333727	-2	2	3	131		(Corr'd Nav, Kongsberg 14208, img#17) (V) (T.A)
09-Dec-2019	01:44:42	145	GRAB_5017				-23	557550	4333728	557553	4333727	-3	1	4	110		(Corr'd Nav, Kongsberg 14208, img#18) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*				
Client	Ørsted			Vessel Reference Point (VRP)	CoG				
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame	x 8.96	y -3.08	z 6.05	
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location				
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid GRS 80	Projection	UTM ZONE 18 N (75 W)		Vertical / Tidal Datum	MLLW	

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
09-Dec-2019	01:45:02	146	GRAB_5017				-23	557549	4333727	557553	4333727	-4	0	4	86		(Corr'd Nav, Kongsberg 14208, img#19) (V) (T.A)
09-Dec-2019	01:45:27	147	GRAB_5017				-23	557548	4333727	557553	4333727	-5	0	5	86		(Corr'd Nav, Kongsberg 14208, img#20) (V) (T.A)
09-Dec-2019	01:45:53	148	GRAB_5017				-23	557548	4333726	557553	4333727	-5	-1	5	79		(Corr'd Nav, Kongsberg 14208, img#21) (V) (T.A)
09-Dec-2019	01:46:11	149	GRAB_5017				-23	557548	4333724	557553	4333727	-5	-3	5	61		(Corr'd Nav, Kongsberg 14208, img#22) (V) (T.A)
09-Dec-2019	01:46:46	150	GRAB_5017				-23	557550	4333723	557553	4333727	-3	-4	5	41		(Corr'd Nav, Kongsberg 14208, img#23) (V) (T.A)
09-Dec-2019	01:47:12	151	GRAB_5017				-23	557551	4333723	557553	4333727	-2	-4	5	26		(Corr'd Nav, Kongsberg 14208, img#24) (V) (T.A)
09-Dec-2019	01:47:22	152	GRAB_5017				-23	557551	4333722	557553	4333727	-2	-5	5	21		(Corr'd Nav, Kongsberg 14208, img#25) (V) (T.A)
09-Dec-2019	01:47:50	153	GRAB_5017				-23	557553	4333723	557553	4333727	0	-4	4	5		(Corr'd Nav, Kongsberg 14208, img#26) (V) (T.A)
09-Dec-2019	01:48:04	154	GRAB_5017				-23	557553	4333723	557553	4333727	0	-4	4	354		(Corr'd Nav, Kongsberg 14208, img#27) (V) (T.A)
09-Dec-2019	01:48:28	155	GRAB_5017				-23	557555	4333723	557553	4333727	2	-4	4	334		(Corr'd Nav, Kongsberg 14208, img#28) (V) (T.A)
09-Dec-2019	01:48:48	156	GRAB_5017				-23	557555	4333725	557553	4333727	2	-2	3	316		(Corr'd Nav, Kongsberg 14208, img#29) (V) (T.A)
09-Dec-2019	01:49:17	157	GRAB_5017				-23	557555	4333726	557553	4333727	2	-1	2	296		(Corr'd Nav, Kongsberg 14208, img#30) (V) (T.A)
09-Dec-2019	02:52:48	158	GRAB_5018				-25	561313	4332165	561315	4332173	-2	-8	8	17		(Corr'd Nav, Kongsberg 14208, img#31) (V) (T.A)
09-Dec-2019	02:53:35	159	GRAB_5018				-25	561313	4332167	561315	4332173	-2	-6	7	22		(Corr'd Nav, Kongsberg 14208, img#32) (V) (T.A)
09-Dec-2019	02:53:53	160	GRAB_5018				-25	561312	4332168	561315	4332173	-3	-5	5	31		(Corr'd Nav, Kongsberg 14208, img#33) (V) (T.A)
09-Dec-2019	02:54:23	161	GRAB_5018				-25	561312	4332171	561315	4332173	-3	-2	4	51		(Corr'd Nav, Kongsberg 14208, img#34) (V) (T.A)
09-Dec-2019	02:54:47	162	GRAB_5018				-25	561314	4332171	561315	4332173	-1	-2	2	17		(Corr'd Nav, Kongsberg 14208, img#35) (V) (T.A)
09-Dec-2019	02:55:11	163	GRAB_5018				-25	561316	4332172	561315	4332173	1	-1	2	317		(Corr'd Nav, Kongsberg 14208, img#36) (V) (T.A)
09-Dec-2019	02:55:38	164	GRAB_5018				-25	561317	4332174	561315	4332173	2	1	2	250		(Corr'd Nav, Kongsberg 14208, img#37) (V) (T.A)
09-Dec-2019	02:56:26	165	GRAB_5018				-25	561317	4332176	561315	4332173	2	3	4	206		(Corr'd Nav, Kongsberg 14208, img#38) (V) (T.A)
09-Dec-2019	02:57:05	166	GRAB_5018				-25	561317	4332177	561315	4332173	2	4	4	208		(Corr'd Nav, Kongsberg 14208, img#39) (V) (T.A)
09-Dec-2019	02:57:24	167	GRAB_5018				-25	561318	4332177	561315	4332173	3	4	5	217		(Corr'd Nav, Kongsberg 14208, img#40) (V) (T.A)
09-Dec-2019	02:58:28	168	GRAB_5018				-25	561317	4332176	561315	4332173	2	3	4	213		(Corr'd Nav, Kongsberg 14208, img#41) (V) (T.A)
09-Dec-2019	03:53:23	169	GRAB_5009				-23	563272	4332825	563272	4332825	0	0	0	37		(Corr'd Nav, Kongsberg 14208, img#42) (V) (T.A)
09-Dec-2019	03:53:59	170	GRAB_5009				-23	563271	4332823	563272	4332825	-1	-2	2	23		(Corr'd Nav, Kongsberg 14208, img#43) (V) (T.A)
09-Dec-2019	03:54:25	171	GRAB_5009				-23	563272	4332821	563272	4332825	0	-4	4	355		(Corr'd Nav, Kongsberg 14208, img#44) (V) (T.A)
09-Dec-2019	03:55:05	172	GRAB_5009				-23	563273	4332820	563272	4332825	1	-5	5	347		(Corr'd Nav, Kongsberg 14208, img#45) (V) (T.A)
09-Dec-2019	03:55:39	173	GRAB_5009				-23	563273	4332821	563272	4332825	1	-4	4	342		(Corr'd Nav, Kongsberg 14208, img#46) (V) (T.A)
09-Dec-2019	03:56:13	174	GRAB_5009				-23	563274	4332823	563272	4332825	2	-2	2	311		(Corr'd Nav, Kongsberg 14208, img#47) (V) (T.A)
09-Dec-2019	03:56:57	175	GRAB_5009				-23	563274	4332825	563272	4332825	2	0	2	270		(Corr'd Nav, Kongsberg 14208, img#48) (V) (T.A)
09-Dec-2019	03:57:37	176	GRAB_5009				-23	563274	4332827	563272	4332825	2	2	3	236		(Corr'd Nav, Kongsberg 14208, img#49) (V) (T.A)
09-Dec-2019	03:58:10	177	GRAB_5009				-23	563273	4332827	563272	4332825	1	2	2	194		(Corr'd Nav, Kongsberg 14208, img#50) (V) (T.A)
09-Dec-2019	03:58:31	178	GRAB_5009				-23	563272	4332827	563272	4332825	0	2	2	176		(Corr'd Nav, Kongsberg 14208, img#51) (V) (T.A)
09-Dec-2019	03:59:17	179	GRAB_5009				-23	563269	4332828	563272	4332825	-3	3	4	131		(Corr'd Nav, Kongsberg 14208, img#52) (V) (T.A)
09-Dec-2019	03:59:31	180	GRAB_5009				-23	563269	4332827	563272	4332825	-3	2	4	120		(Corr'd Nav, Kongsberg 14208, img#53) (V) (T.A)
09-Dec-2019	05:11:04	181	GRAB_5010				-28	565858	4329916	565859	4329916	-1	0	1	69		(Corr'd Nav, Kongsberg 14208, img#54) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*					
Client	Ørsted			Vessel Reference Point (VRP)	CoG					
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame	x	8.96	y	-3.08	z 6.05
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location					
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid GRS 80	Projection	UTM ZONE 18 N (75 W)		Vertical / Tidal Datum	MLLW		

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
09-Dec-2019	05:11:12	182	GRAB_5010				-28	565859	4329916	565859	4329916	0	0	0	9		(Corr'd Nav, Kongsberg 14208, img#55) (V) (T.A)
09-Dec-2019	05:11:38	183	GRAB_5010				-28	565861	4329914	565859	4329916	2	-2	3	308		(Corr'd Nav, Kongsberg 14208, img#56) (V) (T.A)
09-Dec-2019	05:12:01	184	GRAB_5010				-28	565863	4329914	565859	4329916	4	-2	4	298		(Corr'd Nav, Kongsberg 14208, img#57) (V) (T.A)
09-Dec-2019	05:12:17	185	GRAB_5010				-27	565865	4329913	565859	4329916	6	-3	6	294		(Corr'd Nav, Kongsberg 14208, img#58) (V) (T.A)
09-Dec-2019	05:12:37	186	GRAB_5010				-27	565865	4329913	565859	4329916	6	-3	6	295		(Corr'd Nav, Kongsberg 14208, img#59) (V) (T.A)
09-Dec-2019	05:13:06	187	GRAB_5010				-27	565862	4329913	565859	4329916	3	-3	4	311		(Corr'd Nav, Kongsberg 14208, img#60) (V) (T.A)
09-Dec-2019	05:13:22	188	GRAB_5010				-27	565862	4329912	565859	4329916	3	-4	5	326		(Corr'd Nav, Kongsberg 14208, img#61) (V) (T.A)
09-Dec-2019	05:13:44	189	GRAB_5010				-27	565859	4329911	565859	4329916	0	-5	5	359		(Corr'd Nav, Kongsberg 14208, img#62) (V) (T.A)
09-Dec-2019	05:13:59	190	GRAB_5010				-27	565857	4329910	565859	4329916	-2	-6	6	17		(Corr'd Nav, Kongsberg 14208, img#63) (V) (T.A)
09-Dec-2019	05:14:26	191	GRAB_5010				-27	565855	4329910	565859	4329916	-4	-6	7	29		(Corr'd Nav, Kongsberg 14208, img#64) (V) (T.A)
09-Dec-2019	05:14:35	192	GRAB_5010				-27	565855	4329910	565859	4329916	-4	-6	8	34		(Corr'd Nav, Kongsberg 14208, img#65) (V) (T.A)
09-Dec-2019	05:14:40	193	GRAB_5010				-27	565854	4329910	565859	4329916	-5	-6	8	38		(Corr'd Nav, Kongsberg 14208, img#66) (V) (T.A)
09-Dec-2019	05:14:57	194	GRAB_5010				-27	565853	4329911	565859	4329916	-6	-5	8	46		(Corr'd Nav, Kongsberg 14208, img#67) (V) (T.A)
09-Dec-2019	05:15:25	195	GRAB_5010				-28	565853	4329912	565859	4329916	-6	-4	8	55		(Corr'd Nav, Kongsberg 14208, img#68) (V) (T.A)
09-Dec-2019	05:16:02	196	GRAB_5010				-28	565854	4329913	565859	4329916	-5	-3	6	57		(Corr'd Nav, Kongsberg 14208, img#69) (V) (T.A)
09-Dec-2019	05:16:24	197	GRAB_5010				-28	565854	4329915	565859	4329916	-5	-1	5	80		(Corr'd Nav, Kongsberg 14208, img#70) (V) (T.A)
09-Dec-2019	05:16:48	198	GRAB_5010				-28	565854	4329918	565859	4329916	-5	2	6	112		(Corr'd Nav, Kongsberg 14208, img#71) (V) (T.A)
09-Dec-2019	06:30:32	199	GRAB_5015				-32	563649	4326578	563654	4326576	-5	2	5	116		(Corr'd Nav, Kongsberg 14208, img#72) (V) (T.A)
09-Dec-2019	06:31:02	200	GRAB_5015				-32	563650	4326578	563654	4326576	-4	2	4	114		(Corr'd Nav, Kongsberg 14208, img#73) (V) (T.A)
09-Dec-2019	06:31:27	201	GRAB_5015				-32	563650	4326578	563654	4326576	-4	2	5	117		(Corr'd Nav, Kongsberg 14208, img#74) (V) (T.A)
09-Dec-2019	06:31:42	202	GRAB_5015				-32	563651	4326577	563654	4326576	-3	1	4	111		(Corr'd Nav, Kongsberg 14208, img#75) (V) (T.A)
09-Dec-2019	06:32:01	203	GRAB_5015				-32	563651	4326576	563654	4326576	-3	0	3	97		(Corr'd Nav, Kongsberg 14208, img#76) (V) (T.A)
09-Dec-2019	06:32:21	204	GRAB_5015				-32	563649	4326577	563654	4326576	-5	1	5	98		(Corr'd Nav, Kongsberg 14208, img#77) (V) (T.A)
09-Dec-2019	06:32:28	205	GRAB_5015				-32	563649	4326576	563654	4326576	-5	0	5	95		(Corr'd Nav, Kongsberg 14208, img#78) (V) (T.A)
09-Dec-2019	06:32:53	206	GRAB_5015				-32	563648	4326576	563654	4326576	-6	0	6	86		(Corr'd Nav, Kongsberg 14208, img#79) (V) (T.A)
09-Dec-2019	06:33:08	207	GRAB_5015				-32	563648	4326575	563654	4326576	-6	-1	6	79		(Corr'd Nav, Kongsberg 14208, img#80) (V) (T.A)
09-Dec-2019	06:33:33	208	GRAB_5015				-32	563648	4326572	563654	4326576	-6	-4	7	60		(Corr'd Nav, Kongsberg 14208, img#81) (V) (T.A)
09-Dec-2019	06:33:50	209	GRAB_5015				-32	563649	4326571	563654	4326576	-5	-5	7	47		(Corr'd Nav, Kongsberg 14208, img#82) (V) (T.A)
09-Dec-2019	06:34:07	210	GRAB_5015				-32	563651	4326571	563654	4326576	-3	-5	6	33		(Corr'd Nav, Kongsberg 14208, img#83) (V) (T.A)
09-Dec-2019	06:34:18	211	GRAB_5015				-32	563652	4326570	563654	4326576	-2	-6	6	20		(Corr'd Nav, Kongsberg 14208, img#84) (V) (T.A)
09-Dec-2019	06:34:34	212	GRAB_5015				-32	563654	4326571	563654	4326576	0	-5	5	356		(Corr'd Nav, Kongsberg 14208, img#85) (V) (T.A)
09-Dec-2019	06:34:48	213	GRAB_5015				-32	563656	4326571	563654	4326576	2	-5	5	341		(Corr'd Nav, Kongsberg 14208, img#86) (V) (T.A)
09-Dec-2019	06:34:59	214	GRAB_5015				-32	563656	4326572	563654	4326576	2	-4	5	332		(Corr'd Nav, Kongsberg 14208, img#87) (V) (T.A)
09-Dec-2019	06:35:12	215	GRAB_5015				-32	563657	4326573	563654	4326576	3	-3	4	322		(Corr'd Nav, Kongsberg 14208, img#88) (V) (T.A)
09-Dec-2019	06:35:21	216	GRAB_5015				-32	563657	4326573	563654	4326576	3	-3	4	314		(Corr'd Nav, Kongsberg 14208, img#89) (V) (T.A)
09-Dec-2019	06:35:44	217	GRAB_5015				-32	563657	4326575	563654	4326576	3	-1	3	292		(Corr'd Nav, Kongsberg 14208, img#90) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311				Vessel	RV *Ocean Researcher*						
Client	Ørsted				Vessel Reference Point (VRP)	CoG						
Project Name	OCW01_GP1B				Deployment Location	Starboard A-Frame	x	8.96	y	-3.08	z	6.05
Primary Positioning System	Starpack Pos 1				Actual Coordinates derived from	Deployment Location						
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid	GRS 80	Projection	UTM ZONE 18 N (75 W)			Vertical / Tidal Datum	MLLW		

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
09-Dec-2019	06:36:03	218	GRAB_5015				-32	563656	4326578	563654	4326576	2	2	3	227		(Corr'd Nav, Kongsberg 14208, img#91) (V) (T.A)
09-Dec-2019	06:36:15	219	GRAB_5015				-32	563656	4326579	563654	4326576	2	3	4	212		(Corr'd Nav, Kongsberg 14208, img#92) (V) (T.A)
09-Dec-2019	06:36:32	220	GRAB_5015				-32	563656	4326581	563654	4326576	2	5	5	208		(Corr'd Nav, Kongsberg 14208, img#93) (V) (T.A)
09-Dec-2019	06:36:44	221	GRAB_5015				-32	563656	4326581	563654	4326576	2	5	6	206		(Corr'd Nav, Kongsberg 14208, img#94) (V) (T.A)
09-Dec-2019	07:56:38	222	GRAB_5020				-32	566497	4326377	566497	4326374	0	3	3	169		(Corr'd Nav, Kongsberg 14208, img#95) (V) (T.A)
09-Dec-2019	07:57:41	223	GRAB_5020				-32	566498	4326379	566497	4326374	1	5	5	188		(Corr'd Nav, Kongsberg 14208, img#96) (V) (T.A)
09-Dec-2019	07:57:51	224	GRAB_5020				-32	566498	4326380	566497	4326374	1	6	6	192		(Corr'd Nav, Kongsberg 14208, img#97) (V) (T.A)
09-Dec-2019	07:58:16	225	GRAB_5020				-32	566497	4326382	566497	4326374	0	8	8	180		(Corr'd Nav, Kongsberg 14208, img#98) (V) (T.A)
09-Dec-2019	07:58:25	226	GRAB_5020				-32	566497	4326382	566497	4326374	0	8	8	178		(Corr'd Nav, Kongsberg 14208, img#99) (V) (T.A)
09-Dec-2019	07:59:08	227	GRAB_5020				-32	566500	4326379	566497	4326374	3	5	6	212		(Corr'd Nav, Kongsberg 14208, img#100) (V) (T.A)
09-Dec-2019	07:59:23	228	GRAB_5020				-32	566501	4326378	566497	4326374	4	4	6	226		(Corr'd Nav, Kongsberg 14208, img#101) (V) (T.A)
09-Dec-2019	07:59:38	229	GRAB_5020				-32	566501	4326377	566497	4326374	4	3	5	235		(Corr'd Nav, Kongsberg 14208, img#102) (V) (T.A)
09-Dec-2019	07:59:50	230	GRAB_5020				-32	566502	4326375	566497	4326374	5	1	5	256		(Corr'd Nav, Kongsberg 14208, img#103) (V) (T.A)
09-Dec-2019	08:00:33	231	GRAB_5020				-32	566499	4326371	566497	4326374	2	-3	4	322		(Corr'd Nav, Kongsberg 14208, img#104) (V) (T.A)
09-Dec-2019	08:00:50	232	GRAB_5020				-32	566499	4326370	566497	4326374	2	-4	5	338		(Corr'd Nav, Kongsberg 14208, img#105) (V) (T.A)
09-Dec-2019	08:00:58	233	GRAB_5020				-32	566498	4326369	566497	4326374	1	-5	5	346		(Corr'd Nav, Kongsberg 14208, img#106) (V) (T.A)
09-Dec-2019	08:01:20	234	GRAB_5020				-32	566496	4326368	566497	4326374	-1	-6	7	10		(Corr'd Nav, Kongsberg 14208, img#107) (V) (T.A)
09-Dec-2019	08:01:26	235	GRAB_5020				-32	566495	4326368	566497	4326374	-2	-6	7	18		(Corr'd Nav, Kongsberg 14208, img#108) (V) (T.A)
09-Dec-2019	08:01:46	236	GRAB_5020				-32	566492	4326368	566497	4326374	-5	-6	8	36		(Corr'd Nav, Kongsberg 14208, img#109) (V) (T.A)
09-Dec-2019	08:02:23	237	GRAB_5020				-32	566492	4326368	566497	4326374	-5	-6	8	41		(Corr'd Nav, Kongsberg 14208, img#110) (V) (T.A)
09-Dec-2019	08:02:35	238	GRAB_5020				-32	566491	4326369	566497	4326374	-6	-5	8	47		(Corr'd Nav, Kongsberg 14208, img#111) (V) (T.A)
09-Dec-2019	08:02:44	239	GRAB_5020				-32	566491	4326369	566497	4326374	-6	-5	8	51		(Corr'd Nav, Kongsberg 14208, img#112) (V) (T.A)
09-Dec-2019	08:02:54	240	GRAB_5020				-32	566491	4326370	566497	4326374	-6	-4	7	59		(Corr'd Nav, Kongsberg 14208, img#113) (V) (T.A)
09-Dec-2019	08:03:03	241	GRAB_5020				-32	566490	4326371	566497	4326374	-7	-3	7	66		(Corr'd Nav, Kongsberg 14208, img#114) (V) (T.A)
09-Dec-2019	08:03:17	242	GRAB_5020				-32	566490	4326372	566497	4326374	-7	-2	7	73		(Corr'd Nav, Kongsberg 14208, img#115) (V) (T.A)
12-Dec-2019	23:55:11	243	GRAB_5013				-24	567053	4333432	567065	4333433	-12	-1	12	84		(Corr'd Nav, Kongsberg 14208, img#1) (V) (T.A)
12-Dec-2019	23:55:53	244	GRAB_5013				-24	567056	4333432	567065	4333433	-9	-1	9	86		(Corr'd Nav, Kongsberg 14208, img#2) (V) (T.A)
12-Dec-2019	23:56:25	245	GRAB_5013				-24	567060	4333433	567065	4333433	-5	0	5	92		(Corr'd Nav, Kongsberg 14208, img#3) (V) (T.A)
12-Dec-2019	23:56:42	246	GRAB_5013				-24	567061	4333434	567065	4333433	-4	1	4	100		(Corr'd Nav, Kongsberg 14208, img#4) (V) (T.A)
12-Dec-2019	23:57:00	247	GRAB_5013				-24	567063	4333434	567065	4333433	-2	1	3	116		(Corr'd Nav, Kongsberg 14208, img#5) (V) (T.A)
12-Dec-2019	23:57:23	248	GRAB_5013				-24	567064	4333434	567065	4333433	-1	1	2	140		(Corr'd Nav, Kongsberg 14208, img#6) (V) (T.A)
12-Dec-2019	23:57:58	249	GRAB_5013				-24	567066	4333434	567065	4333433	1	1	1	229		(Corr'd Nav, Kongsberg 14208, img#7) (V) (T.A)
12-Dec-2019	23:58:15	250	GRAB_5013				-24	567067	4333434	567065	4333433	2	1	3	248		(Corr'd Nav, Kongsberg 14208, img#8) (V) (T.A)
12-Dec-2019	23:58:35	251	GRAB_5013				-24	567069	4333434	567065	4333433	4	1	4	258		(Corr'd Nav, Kongsberg 14208, img#9) (V) (T.A)
12-Dec-2019	23:58:47	252	GRAB_5013				-24	567070	4333434	567065	4333433	5	1	5	260		(Corr'd Nav, Kongsberg 14208, img#10) (V) (T.A)
12-Dec-2019	23:59:03	253	GRAB_5013				-24	567071	4333434	567065	4333433	6	1	6	262		(Corr'd Nav, Kongsberg 14208, img#11) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*						
Client	Ørsted			Vessel Reference Point (VRP)	CoG						
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame		x	8.96	y	-3.08	z 6.05
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location						
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid GRS 80		Projection	UTM ZONE 18 N (75 W)		Vertical / Tidal Datum	MLLW		

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
12-Dec-2019	23:59:10	254	GRAB_5013				-24	567071	4333434	567065	4333433	6	1	6	263		(Corr'd Nav, Kongsberg 14208, img#12) (V) (T.A)
12-Dec-2019	23:59:19	255	GRAB_5013				-24	567071	4333434	567065	4333433	6	1	6	265		(Corr'd Nav, Kongsberg 14208, img#13) (V) (T.A)
12-Dec-2019	23:59:46	256	GRAB_5013				-24	567073	4333433	567065	4333433	8	0	8	269		(Corr'd Nav, Kongsberg 14208, img#14) (V) (T.A)
13-Dec-2019	00:00:02	257	GRAB_5013				-24	567073	4333433	567065	4333433	8	0	8	270		(Corr'd Nav, Kongsberg 14208, img#15) (V) (T.A)
13-Dec-2019	00:00:20	258	GRAB_5013				-24	567074	4333433	567065	4333433	9	0	9	270		(Corr'd Nav, Kongsberg 14208, img#16) (V) (T.A)
13-Dec-2019	01:44:08	259	GRAB_5004				-31	575383	4330706	575383	4330707	0	-1	1	26		(Corr'd Nav, Kongsberg 14208, img#17) (V) (T.A)
13-Dec-2019	01:44:43	260	GRAB_5004				-31	575382	4330707	575383	4330707	-1	0	1	62		(Corr'd Nav, Kongsberg 14208, img#18) (V) (T.A)
13-Dec-2019	01:45:23	261	GRAB_5004				-31	575382	4330707	575383	4330707	-1	0	1	103		(Corr'd Nav, Kongsberg 14208, img#19) (V) (T.A)
13-Dec-2019	01:45:40	262	GRAB_5004				-31	575381	4330707	575383	4330707	-2	0	2	103		(Corr'd Nav, Kongsberg 14208, img#20) (V) (T.A)
13-Dec-2019	01:45:59	263	GRAB_5004				-31	575381	4330708	575383	4330707	-2	1	2	124		(Corr'd Nav, Kongsberg 14208, img#21) (V) (T.A)
13-Dec-2019	01:46:18	264	GRAB_5004				-31	575382	4330709	575383	4330707	-1	2	2	141		(Corr'd Nav, Kongsberg 14208, img#22) (V) (T.A)
13-Dec-2019	01:46:47	265	GRAB_5004				-31	575381	4330708	575383	4330707	-2	1	2	128		(Corr'd Nav, Kongsberg 14208, img#23) (V) (T.A)
13-Dec-2019	01:47:54	266	GRAB_5004				-31	575380	4330708	575383	4330707	-3	1	3	103		(Corr'd Nav, Kongsberg 14208, img#24) (V) (T.A)
13-Dec-2019	01:48:10	267	GRAB_5004				-31	575381	4330708	575383	4330707	-2	1	2	128		(Corr'd Nav, Kongsberg 14208, img#25) (V) (T.A)
13-Dec-2019	01:48:28	268	GRAB_5004				-31	575382	4330709	575383	4330707	-1	2	2	158		(Corr'd Nav, Kongsberg 14208, img#26) (V) (T.A)
13-Dec-2019	01:49:36	269	GRAB_5004				-31	575383	4330708	575383	4330707	0	1	1	148		(Corr'd Nav, Kongsberg 14208, img#27) (V) (T.A)
13-Dec-2019	01:50:58	270	GRAB_5004				-31	575382	4330707	575383	4330707	-1	0	1	75		(Corr'd Nav, Kongsberg 14208, img#28) (V) (T.A)
13-Dec-2019	01:51:14	271	GRAB_5004				-31	575382	4330707	575383	4330707	-1	0	1	114		(Corr'd Nav, Kongsberg 14208, img#29) (V) (T.A)
13-Dec-2019	01:51:37	272	GRAB_5004				-31	575382	4330708	575383	4330707	-1	1	2	153		(Corr'd Nav, Kongsberg 14208, img#30) (V) (T.A)
13-Dec-2019	01:53:00	273	GRAB_5004				-31	575380	4330709	575383	4330707	-3	2	4	130		(Corr'd Nav, Kongsberg 14208, img#31) (V) (T.A)
13-Dec-2019	01:53:25	274	GRAB_5004				-31	575379	4330709	575383	4330707	-4	2	4	119		(Corr'd Nav, Kongsberg 14208, img#32) (V) (T.A)
13-Dec-2019	01:53:34	275	GRAB_5004				-31	575379	4330709	575383	4330707	-4	2	4	116		(Corr'd Nav, Kongsberg 14208, img#33) (V) (T.A)
13-Dec-2019	03:40:25	276	GRAB_5011				-32	572421	4334079	572422	4334075	-1	4	4	169		(Corr'd Nav, Kongsberg 14208, img#34) (V) (T.A)
13-Dec-2019	03:40:42	277	GRAB_5011				-32	572421	4334079	572422	4334075	-1	4	4	161		(Corr'd Nav, Kongsberg 14208, img#35) (V) (T.A)
13-Dec-2019	03:41:03	278	GRAB_5011				-32	572420	4334078	572422	4334075	-2	3	3	140		(Corr'd Nav, Kongsberg 14208, img#36) (V) (T.A)
13-Dec-2019	03:41:33	279	GRAB_5011				-32	572420	4334077	572422	4334075	-2	2	3	130		(Corr'd Nav, Kongsberg 14208, img#37) (V) (T.A)
13-Dec-2019	03:42:04	280	GRAB_5011				-32	572419	4334076	572422	4334075	-3	1	3	108		(Corr'd Nav, Kongsberg 14208, img#38) (V) (T.A)
13-Dec-2019	03:42:21	281	GRAB_5011				-32	572420	4334076	572422	4334075	-2	1	2	114		(Corr'd Nav, Kongsberg 14208, img#39) (V) (T.A)
13-Dec-2019	03:42:38	282	GRAB_5011				-32	572421	4334076	572422	4334075	-1	1	1	132		(Corr'd Nav, Kongsberg 14208, img#40) (V) (T.A)
13-Dec-2019	03:43:04	283	GRAB_5011				-32	572422	4334075	572422	4334075	0	0	0	320		(Corr'd Nav, Kongsberg 14208, img#41) (V) (T.A)
13-Dec-2019	03:43:14	284	GRAB_5011				-32	572423	4334075	572422	4334075	1	0	1	280		(Corr'd Nav, Kongsberg 14208, img#42) (V) (T.A)
13-Dec-2019	03:43:37	285	GRAB_5011				-32	572425	4334075	572422	4334075	3	0	3	263		(Corr'd Nav, Kongsberg 14208, img#43) (V) (T.A)
13-Dec-2019	03:44:04	286	GRAB_5011				-32	572423	4334075	572422	4334075	1	0	1	265		(Corr'd Nav, Kongsberg 14208, img#44) (V) (T.A)
13-Dec-2019	03:45:07	287	GRAB_5011				-32	572422	4334076	572422	4334075	0	1	1	164		(Corr'd Nav, Kongsberg 14208, img#45) (V) (T.A)
13-Dec-2019	03:46:04	288	GRAB_5011				-32	572420	4334075	572422	4334075	-2	0	2	92		(Corr'd Nav, Kongsberg 14208, img#46) (V) (T.A)
13-Dec-2019	03:46:15	289	GRAB_5011				-32	572420	4334075	572422	4334075	-2	0	2	81		(Corr'd Nav, Kongsberg 14208, img#47) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline | Seafloor Sampling Positioning Summary

Job No	11311				Vessel	RV *Ocean Researcher*					
Client	Ørsted				Vessel Reference Point (VRP)	CoG					
Project Name	OCW01_GP1B				Deployment Location	Starboard A-Frame	x	8.96	y	-3.08	z 6.05
Primary Positioning System	Starpack Pos 1				Actual Coordinates derived from	Deployment Location					
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid	GRS 80	Projection	UTM ZONE 18 N (75 W)		Vertical / Tidal Datum	MLLW		

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
13-Dec-2019	03:46:41	290	GRAB_5011				-32	572421	4334074	572422	4334075	-1	-1	2	57		(Corr'd Nav, Kongsberg 14208, img#48) (V) (T.A)
13-Dec-2019	03:47:09	291	GRAB_5011				-32	572422	4334074	572422	4334075	0	-1	1	352		(Corr'd Nav, Kongsberg 14208, img#49) (V) (T.A)
13-Dec-2019	03:47:30	292	GRAB_5011				-32	572423	4334074	572422	4334075	1	-1	1	330		(Corr'd Nav, Kongsberg 14208, img#50) (V) (T.A)
13-Dec-2019	03:47:55	293	GRAB_5011				-32	572423	4334074	572422	4334075	1	-1	1	319		(Corr'd Nav, Kongsberg 14208, img#51) (V) (T.A)
13-Dec-2019	05:06:45	294	GRAB_5012				-21	571942	4338127	571948	4338125	-6	2	6	105		(Corr'd Nav, Kongsberg 14208, img#52) (V) (T.A)
13-Dec-2019	05:07:31	295	GRAB_5012				-21	571947	4338127	571948	4338125	-1	2	2	149		(Corr'd Nav, Kongsberg 14208, img#53) (V) (T.A)
13-Dec-2019	05:07:50	296	GRAB_5012				-21	571947	4338125	571948	4338125	-1	0	1	86		(Corr'd Nav, Kongsberg 14208, img#54) (V) (T.A)
13-Dec-2019	05:08:00	297	GRAB_5012				-21	571947	4338124	571948	4338125	-1	-1	1	37		(Corr'd Nav, Kongsberg 14208, img#55) (V) (T.A)
13-Dec-2019	05:08:20	298	GRAB_5012				-21	571949	4338123	571948	4338125	1	-2	2	328		(Corr'd Nav, Kongsberg 14208, img#56) (V) (T.A)
13-Dec-2019	05:08:31	299	GRAB_5012				-21	571951	4338122	571948	4338125	3	-3	4	314		(Corr'd Nav, Kongsberg 14208, img#57) (V) (T.A)
13-Dec-2019	05:08:46	300	GRAB_5012				-21	571952	4338122	571948	4338125	4	-3	5	304		(Corr'd Nav, Kongsberg 14208, img#58) (V) (T.A)
13-Dec-2019	05:09:03	301	GRAB_5012				-21	571954	4338122	571948	4338125	6	-3	6	295		(Corr'd Nav, Kongsberg 14208, img#59) (V) (T.A)
13-Dec-2019	05:09:20	302	GRAB_5012				-21	571954	4338123	571948	4338125	6	-2	7	288		(Corr'd Nav, Kongsberg 14208, img#60) (V) (T.A)
13-Dec-2019	05:09:30	303	GRAB_5012				-21	571954	4338124	571948	4338125	6	-1	6	283		(Corr'd Nav, Kongsberg 14208, img#61) (V) (T.A)
13-Dec-2019	05:09:39	304	GRAB_5012				-21	571954	4338124	571948	4338125	6	-1	6	275		(Corr'd Nav, Kongsberg 14208, img#62) (V) (T.A)
13-Dec-2019	05:10:05	305	GRAB_5012				-21	571954	4338127	571948	4338125	6	2	6	247		(Corr'd Nav, Kongsberg 14208, img#63) (V) (T.A)
13-Dec-2019	05:10:15	306	GRAB_5012				-21	571953	4338129	571948	4338125	5	4	6	233		(Corr'd Nav, Kongsberg 14208, img#64) (V) (T.A)
13-Dec-2019	05:10:26	307	GRAB_5012				-21	571951	4338129	571948	4338125	3	4	5	219		(Corr'd Nav, Kongsberg 14208, img#65) (V) (T.A)
13-Dec-2019	05:10:39	308	GRAB_5012				-21	571949	4338129	571948	4338125	1	4	4	201		(Corr'd Nav, Kongsberg 14208, img#66) (V) (T.A)
13-Dec-2019	05:10:50	309	GRAB_5012				-21	571948	4338128	571948	4338125	0	3	3	169		(Corr'd Nav, Kongsberg 14208, img#67) (V) (T.A)
13-Dec-2019	05:11:05	310	GRAB_5012				-21	571947	4338127	571948	4338125	-1	2	3	146		(Corr'd Nav, Kongsberg 14208, img#68) (V) (T.A)
13-Dec-2019	05:11:24	311	GRAB_5012				-21	571946	4338128	571948	4338125	-2	3	3	149		(Corr'd Nav, Kongsberg 14208, img#69) (V) (T.A)
13-Dec-2019	05:11:43	312	GRAB_5012				-21	571946	4338127	571948	4338125	-2	2	3	134		(Corr'd Nav, Kongsberg 14208, img#70) (V) (T.A)
13-Dec-2019	05:12:10	313	GRAB_5012				-21	571946	4338126	571948	4338125	-2	1	3	108		(Corr'd Nav, Kongsberg 14208, img#71) (V) (T.A)
13-Dec-2019	05:12:26	314	GRAB_5012				-21	571945	4338125	571948	4338125	-3	0	3	82		(Corr'd Nav, Kongsberg 14208, img#72) (V) (T.A)
13-Dec-2019	05:13:32	315	GRAB_5012				-21	571944	4338117	571948	4338125	-4	-8	9	28		(Corr'd Nav, Kongsberg 14208, img#73) (V) (T.A)
13-Dec-2019	06:41:49	316	GRAB_5003				-21	567255	4340043	567257	4340040	-2	3	4	144		(Corr'd Nav, Kongsberg 14208, img#74) (V) (T.A)
13-Dec-2019	06:42:29	317	GRAB_5003				-21	567257	4340045	567257	4340040	0	5	5	180		(Corr'd Nav, Kongsberg 14208, img#75) (V) (T.A)
13-Dec-2019	06:42:47	318	GRAB_5003				-21	567257	4340043	567257	4340040	0	3	3	172		(Corr'd Nav, Kongsberg 14208, img#76) (V) (T.A)
13-Dec-2019	06:43:01	319	GRAB_5003				-21	567258	4340042	567257	4340040	1	2	2	203		(Corr'd Nav, Kongsberg 14208, img#77) (V) (T.A)
13-Dec-2019	06:43:11	320	GRAB_5003				-21	567259	4340042	567257	4340040	2	2	3	236		(Corr'd Nav, Kongsberg 14208, img#78) (V) (T.A)
13-Dec-2019	06:43:25	321	GRAB_5003				-21	567261	4340041	567257	4340040	4	1	4	256		(Corr'd Nav, Kongsberg 14208, img#79) (V) (T.A)
13-Dec-2019	06:43:40	322	GRAB_5003				-21	567260	4340040	567257	4340040	3	0	3	265		(Corr'd Nav, Kongsberg 14208, img#80) (V) (T.A)
13-Dec-2019	06:44:00	323	GRAB_5003				-21	567257	4340039	567257	4340040	0	-1	1	352		(Corr'd Nav, Kongsberg 14208, img#81) (V) (T.A)
13-Dec-2019	06:44:19	324	GRAB_5003				-21	567258	4340038	567257	4340040	1	-2	3	342		(Corr'd Nav, Kongsberg 14208, img#82) (V) (T.A)
13-Dec-2019	06:44:30	325	GRAB_5003				-21	567259	4340037	567257	4340040	2	-3	3	332		(Corr'd Nav, Kongsberg 14208, img#83) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*						
Client	Ørsted			Vessel Reference Point (VRP)	CoG						
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame	x	8.96	y	-3.08	z	6.05
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location						
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid	GRS 80	Projection	UTM ZONE 18 N (75 W)		Vertical / Tidal Datum	MLLW		

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
13-Dec-2019	06:44:46	326	GRAB_5003				-21	567258	4340036	567257	4340040	1	-4	4	343		(Corr'd Nav, Kongsberg 14208, img#84) (V) (T.A)
13-Dec-2019	06:45:11	327	GRAB_5003				-21	567259	4340035	567257	4340040	2	-5	6	342		(Corr'd Nav, Kongsberg 14208, img#85) (V) (T.A)
13-Dec-2019	06:45:31	328	GRAB_5003				-21	567259	4340034	567257	4340040	2	-6	6	345		(Corr'd Nav, Kongsberg 14208, img#86) (V) (T.A)
13-Dec-2019	06:45:47	329	GRAB_5003				-21	567259	4340035	567257	4340040	2	-5	5	342		(Corr'd Nav, Kongsberg 14208, img#87) (V) (T.A)
13-Dec-2019	06:45:56	330	GRAB_5003				-21	567259	4340036	567257	4340040	2	-4	5	338		(Corr'd Nav, Kongsberg 14208, img#88) (V) (T.A)
13-Dec-2019	06:46:19	331	GRAB_5003				-21	567257	4340038	567257	4340040	0	-2	2	354		(Corr'd Nav, Kongsberg 14208, img#89) (V) (T.A)
13-Dec-2019	06:46:28	332	GRAB_5003				-21	567256	4340039	567257	4340040	-1	-1	1	55		(Corr'd Nav, Kongsberg 14208, img#90) (V) (T.A)
13-Dec-2019	06:46:49	333	GRAB_5003				-21	567252	4340041	567257	4340040	-5	1	5	102		(Corr'd Nav, Kongsberg 14208, img#91) (V) (T.A)
13-Dec-2019	06:47:10	334	GRAB_5003				-21	567248	4340043	567257	4340040	-9	3	9	106		(Corr'd Nav, Kongsberg 14208, img#92) (V) (T.A)
13-Dec-2019	06:47:28	335	GRAB_5003				-21	567247	4340045	567257	4340040	-10	5	11	115		(Corr'd Nav, Kongsberg 14208, img#93) (V) (T.A)
13-Dec-2019	06:47:41	336	GRAB_5003				-21	567245	4340045	567257	4340040	-12	5	13	113		(Corr'd Nav, Kongsberg 14208, img#94) (V) (T.A)
13-Dec-2019	06:48:56	337	GRAB_5003				-21	567251	4340047	567257	4340040	-6	7	9	139		(Corr'd Nav, Kongsberg 14208, img#95) (V) (T.A)
13-Dec-2019	06:49:18	338	GRAB_5003				-21	567252	4340046	567257	4340040	-5	6	8	138		(Corr'd Nav, Kongsberg 14208, img#96) (V) (T.A)
13-Dec-2019	06:49:29	339	GRAB_5003				-21	567253	4340046	567257	4340040	-4	6	7	142		(Corr'd Nav, Kongsberg 14208, img#97) (V) (T.A)
13-Dec-2019	06:49:40	340	GRAB_5003				-21	567254	4340045	567257	4340040	-3	5	6	151		(Corr'd Nav, Kongsberg 14208, img#98) (V) (T.A)

APPENDIX A FIELD SAMPLING LOGS

SEABED SAMPLING LOG SHEET (Deck)										QPRO-0755
Job No:	11311		Area:	New Jersey, USA				Sieve Size: 0.5mm		
Project:	OCW01_GP1B Ocean Wind							Equipment: 0.1m^2 Day Grab		
Client:	Ørsted							Vessel: RV *Ocean Researcher*		
Sample Number	Station Number	Date	Time	Penetration	Sample Retention	Sample Receptacle	Sediment Description	Fauna Description	Operator(s)	Comments
1	GRAB_5001	07-Dec-2019	00:41	70%	MFA	1x 1 litre pot	Fine brown sand	Annelida (Terebellidae tube), Echinodermata (Clypeasteroida)	GD	
2	GRAB_5001	08-Dec-2019	00:50	60%	CHEM	3x ziplock bags	Fine brown sand	Annelida (Terebellidae tube), Echinodermata (Clypeasteroida), Mollusca (Gastropoda)	GD	
3	GRAB_5001	08-Dec-2019	01:05	60%	MFB	1x 1 litre pot	Fine brown sand	Annelida (Terebellidae tube), Arthropoda (Paguroidea)	GD	
4	GRAB_5008	08-Dec-2019	02:11	80%	MFA	1x 1 litre pot	Fine brown sand with a few shell fragments	Annelida (Terebellidae tube), Mollusca (Gastropoda)	GD	
5	GRAB_5008	08-Dec-2019	02:20	80%	CHEM	3x ziplock bags	Fine brown sand with a few shell fragments	Annelida (Polychaeta)	GD	
6	GRAB_5008	08-Dec-2019	02:29	90%	MFB	1x 1 litre pot	Fine brown sand with a few shell fragments	Annelida (Polychaeta)	GD	
7	GRAB_5016	08-Dec-2019	03:26	90%	MFA	1x 1 litre pot	Fine brown sand	Mollusca (Gastropoda)	GD	
8	GRAB_5016	08-Dec-2019	03:33	80%	CHEM	3x ziplock bags	Fine brown sand	Mollusca (Gastropoda)	GD	
9	GRAB_5016	08-Dec-2019	03:44	80%	MFB	1x 1 litre pot	Fine brown sand	Mollusca (Gastropoda)	GD	
10	GRAB_5019	08-Dec-2019	04:38	90%	MFA	3x 5litre buckets	Coarse sandy gravel	Arthropoda (Paguroidea)	GD	
11	GRAB_5019	08-Dec-2019	04:47	60%	CHEM	3x ziplock bags	Coarse sandy gravel	Annelida (Terebellidae tube), Arthropoda (Paguroidea), Mollusca (Gastropoda)	GD	
12	GRAB_5019	08-Dec-2019	04:59	90%	MFB	3x 5 litre buckets	Coarse sandy gravel	Annelida (Polychaeta), Arthropoda (Paguroidea)	GD	
13	GRAB_5007	08-Dec-2019	06:01	80%	MFA	1x 1 litre pot	Fine to medium brown sand	Annelida (Polychaeta), Arthropoda (Paguroidea), Echinodermata (Clypeasteroida)	AS	
14	GRAB_5007	08-Dec-2019	06:07	90%	CHEM	3x ziplock bags	Fine to medium brown sand	Echinodermata (Clypeasteroida)	AS	
15	GRAB_5007	08-Dec-2019	06:16	90%	MFB	1x 1 litre pot	Fine to medium brown sand	Annelida (Polychaeta)	AS	
16	GRAB_5006	08-Dec-2019	07:20	80%	MFA	2x 5 litre buckets	Medium to coarse brown sand with shell fragments	Annelida (Polychaeta)	AS	
17	GRAB_5006	08-Dec-2019	07:26	90%	CHEM	3x ziplock bags	Medium to coarse brown sand with shell fragments	Annelida (Polychaeta)	AS	
18	GRAB_5006	08-Dec-2019	07:34	90%	MFB				AS	Sample lost
19	GRAB_5006	08-Dec-2019	07:43	90%	MFB	2x 5 litre buckets	Medium to coarse brown sand with shell fragments	Annelida (Polychaeta)	AS	
20	GRAB_5014	08-Dec-2019	08:43	80%	MFA	1x 5 litre bucket	Medium to coarse brown sand with shell fragments	Annelida (Polychaeta), Echinodermata (Clypeasteroida)	AS	
21	GRAB_5014	08-Dec-2019	08:47		No Sample				AS	No sample shell in jaw
22	GRAB_5014	08-Dec-2019	08:54		No Sample				AS	No sample shell in jaw
23	GRAB_5014	08-Dec-2019	08:59	70%	CHEM	3x ziplock bags	Medium to coarse brown sand with shells and shell fragments	No fauna observed	AS	

APPENDIX A FIELD SAMPLING LOGS

SEABED SAMPLING LOG SHEET (Deck) QPRO-0755

Job No: 11311 | Area: New Jersey, USA | Sieve Size: 0.5mm
Project: OCW01_GP1B Ocean Wind | Equipment: 0.1m^2 Day Grab
Client: Ørsted | Vessel: RV *Ocean Researcher*

Sample Number	Station Number	Date	Time	Penetration	Sample Retention	Sample Receptacle	Sediment Description	Fauna Description	Operator(s)	Comments
24	GRAB_5014	08-Dec-2019	09:05	80%	MFB	2x 5 litre buckets	Medium to coarse brown sand with shells and shell fragments	Annelida (Polychaeta)	AS	
25	GRAB_5005	08-Dec-2019	10:20	70%	MFA	1x 1 litre pot	Fine brown sand with shell fragments	Annelida (Polychaeta), Echinodermata (Clypeasteroida)	AS	
26	GRAB_5005	08-Dec-2019	10:25	60%	CHEM	3x ziplock bags	Fine brown sand with shell fragments	Echinodermata (Clypeasteroida)	AS	
27	GRAB_5005	08-Dec-2019	10:33	60%	MFB	1x 1 litre pot	Fine brown sand with shell fragments	Echinodermata (Clypeasteroida)	AS	
28	GRAB_5002	09-Dec-2019	00:43	60%	MFA	1x 1 litre pot	Fine silty brown sand	Annelida (Terebellidae tube)	GD	
29	GRAB_5002	09-Dec-2019	00:50	80%	CHEM	3x ziplock bags	Fine silty brown sand	Annelida (Terebellidae tube)	GD	
30	GRAB_5002	09-Dec-2019	01:01	80%	MFB	1x 5 litre bucket	Fine silty brown sand	Arthropoda (Paguroidea)	GD	
31	GRAB_5017	09-Dec-2019	02:00	60%	MFA	1x 1 litre pot	Fine silty brown sand	Annelida (Terebellidae tube), Arthropoda (Paguroidea), Mollusca (Gastropoda)	GD	
32	GRAB_5017	09-Dec-2019	02:06	60%	CHEM	3x ziplock bags	Fine silty brown sand	Annelida (Terebellidae tube), Arthropoda (Paguroidea), Echinodermata (Clypeasteroida), Mollusca (Gastropoda)	GD	
33	GRAB_5017	09-Dec-2019	02:16	70%	MFB	1x 1 litre pot	Fine silty brown sand	Annelida (Terebellidae tube), Arthropoda (Paguroidea)	GD	
34	GRAB_5018	09-Dec-2019	03:08	90%	MFA	3 x 5 litre buckets	Fine to coarse brown sand	Arthropoda (Paguroidea)	GD	
35	GRAB_5018	09-Dec-2019	03:14	60%	CHEM	3x ziplock bags	Fine to coarse brown sand	Annelida (Polychaeta), Arthropoda (Paguroidea)	GD	
36	GRAB_5018	09-Dec-2019	03:23	70%	MFB	3 x 5 litre buckets	Fine to coarse brown sand	Annelida (Polychaeta)	GD	
37	GRAB_5009	09-Dec-2019	04:10	40%	MFA	1 x 5 litre bucket	Coarse brown sand with shell fragments	Annelida (Polychaeta)	GD	
38	GRAB_5009	09-Dec-2019	04:17	40%	MFB	1 x 5 litre bucket	Coarse brown sand with shell fragments	Annelida (Polychaeta)	GD	
39	GRAB_5009	09-Dec-2019	04:24	70%	CHEM	3x ziplock bags	Coarse brown sand with shell fragments	Annelida (Polychaeta)	GD	
40	GRAB_5010	09-Dec-2019	05:25	70%	MFA	2x 5 litre buckets	Slightly silty coarse sandy gravel with shells and shell fragments	Arthropoda (Paguroidea)	AS	
41	GRAB_5010	09-Dec-2019	05:31	70%	CHEM	3x ziplock bags	Slightly silty coarse sandy gravel with shells and shell fragments	Arthropoda (Paguroidea)	AS	
42	GRAB_5010	09-Dec-2019	05:37	95%	MFB	4x 5 litre buckets	Slightly silty coarse sandy gravel with shells and shell fragments	Annelida (Polychaeta)	AS	
43	GRAB_5015	09-Dec-2019	06:48		No Sample				AS	No sample shell in jaw
44	GRAB_5015	09-Dec-2019	06:53		No Sample				AS	No sample rock in jaw
45	GRAB_5015	09-Dec-2019	06:57		No Sample				AS	No sample rock in jaw, move 15m

APPENDIX A FIELD SAMPLING LOGS

SEABED SAMPLING LOG SHEET (Deck)										QPRO-0755
Job No:	11311		Area:	New Jersey, USA				Sieve Size: 0.5mm		
Project:	OCW01_GP1B Ocean Wind							Equipment: 0.1m^2 Day Grab		
Client:	Ørsted							Vessel: RV *Ocean Researcher*		
Sample Number	Station Number	Date	Time	Penetration	Sample Retention	Sample Receptacle	Sediment Description	Fauna Description	Operator(s)	Comments
46	GRAB_5015A	09-Dec-2019	07:13		No Sample				AS	No sample rock in jaw
47	GRAB_5015A	09-Dec-2019	07:18		No Sample				AS	No sample rock in jaw
48	GRAB_5015A	09-Dec-2019	07:23		No Sample				AS	No sample rock in jaw
49	GRAB_5020	09-Dec-2019	08:12	90%	MFA	3x 5 litre buckets	Medium to coarse brown sand with shell fragments	Annelida (Polychaeta)	AS	
50	GRAB_5020	09-Dec-2019	08:17	80%	CHEM	3x ziplock bags	Medium to coarse brown sand with shell fragments	Mollusca (Bivalvia)	AS	
51	GRAB_5020	09-Dec-2019	08:25	50%	MFB	2x 5 litre buckets	Medium to coarse brown sand with shell fragments	Annelida (Polychaeta)	AS	
52	GRAB_5013	13-Dec-2019	00:11		No Sample				GD	Half-trigger due to uneven seabed
53	GRAB_5013	13-Dec-2019	00:15	40%	MFB	1 x 5 litre bucket	Slightly silty medium brown sand with shell fragments	No fauna observed	GD	
54	GRAB_5013	13-Dec-2019	00:22		No Sample				GD	Failed to trigger
55	GRAB_5013	13-Dec-2019	00:27	70%	CHEM	3x ziplock bags	Slightly silty medium brown sand with shell fragments	Mollusca (Gastropoda)	GD	
56	GRAB_5013	13-Dec-2019	00:35	90%	MFA	2 x 5 litre buckets	Slightly silty medium brown-grey sand with shell fragments	Annelida (Terebellidae tube)	GD	
57	GRAB_5004	13-Dec-2019	02:04		No Sample				GD	Shells in jaw
58	GRAB_5004	13-Dec-2019	02:12		No Sample				GD	Shells in jaw
59	GRAB_5004	13-Dec-2019	02:18		No Sample				GD	Shells in jaw
60	GRAB_5004A	13-Dec-2019	02:25		No Sample				GD	Shells in jaw
61	GRAB_5004A	13-Dec-2019	02:33	80%	MFA	1x 1 litre bucket	Fine grey sand with a few shell fragments	Annelida (Terebellidae tube), Mollusca (Gastropoda)	GD	
62	GRAB_5004A	13-Dec-2019	02:40		No Sample				GD	Lid open on grab
63	GRAB_5004A	13-Dec-2019	02:46	70%	CHEM	3x ziplock bags	Fine grey sand with a few shell fragments	No fauna observed	GD	
64	GRAB_5004A	13-Dec-2019	02:57	80%	MFB	1 x 5 litre bucket	Fine grey sand with a few shell fragments	Arthropoda (Paguridae)	GD	
65	GRAB_5011	13-Dec-2019	03:58	95%	MFA	1x 1 litre	Fine grey-brown sand with some clay, anoxic smell	Annelida (Terebellidae tube), Mollusca (Gastropoda)	GD	
66	GRAB_5011	13-Dec-2019	04:04	75%	CHEM	3x ziplock bags	Fine grey-brown sand	Annelida (Terebellidae tube), Arthropoda (Paguridae)	GD	
67	GRAB_5011	13-Dec-2019	04:14	80%	MFB	1x 1 litre	Fine grey-brown sand	No fauna observed	GD	
68	GRAB_5012	13-Dec-2019	05:22	90%	MFA	3 x 5 litre buckets	Medium to coarse brown sand with shell fragments	Echinodermata (Clypeasteroida)	AS	
69	GRAB_5012	13-Dec-2019	05:26	70%	CHEM	3x ziplock bags	Medium to coarse brown sand with shell fragments	Annelida (Terebellidae tube)	AS	
70	GRAB_5012	13-Dec-2019	05:32	80%	MFB	3 x 5 litre buckets	Medium to coarse brown sand with shell fragments	Annelida (Polychaeta)	AS	
71	GRAB_5003	13-Dec-2019	06:58	90%	MFA	3 x 5 litre buckets	Medium to coarse brown sand with shells and shell fragments	Echinodermata (Clypeasteroida)	AS	

APPENDIX A FIELD SAMPLING LOGS

SEABED SAMPLING LOG SHEET (Deck)										QPRO-0755
Job No:	11311			Area:	New Jersey, USA			Sieve Size: 0.5mm		
Project:	OCW01_GP1B Ocean Wind							Equipment: 0.1m^2 Day Grab		
Client:	Ørsted							Vessel: RV *Ocean Researcher*		
Sample Number	Station Number	Date	Time	Penetration	Sample Retention	Sample Receptacle	Sediment Description	Fauna Description	Operator(s)	Comments
72	GRAB_5003	13-Dec-2019	07:02		No Sample				AS	Half-trigger due to uneven seabed
73	GRAB_5003	13-Dec-2019	07:05	90%	CHEM	3x ziplock bags	Medium to coarse brown sand with shells and shell fragments	Chordata (Phycidae)	AS	
74	GRAB_5003	13-Dec-2019	07:08		No Sample				AS	Half-trigger due to uneven seabed
75	GRAB_5003	13-Dec-2019	07:10	80%	MFB	2 x 5 litre buckets	Medium to coarse brown sand with shells and shell fragments	Annelida (Polychaeta)	AS	

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311	Vessel	RV *Ocean Researcher*
Client	Ørsted	Vessel Reference Point (VRP)	CoG
Project Name	OCW01_GP1B	Deployment Location	Starboard A-Frame; x 8.96; y -3.08; z 6.05
Primary Positioning System	Starpack Pos 1	Actual Coordinates derived from	Deployment Location
Geodetic Reference System	Datum WGS84 - NAD83_2019_5; Ellipsoid GRS 80	Projection	UTM ZONE 18 N (75 W); Vertical / Tidal Datum MLLW

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Corrected Seafloor Depth (m)	Actual coordinates Easting	Actual coordinates Northing	Target coordinates Easting	Target coordinates Northing	Offset from target dE	Offset from target dN	Offset from target Range	Offset from target Bearing	Surveyor	Remarks
07-Dec-2019	00:41:00	1	GRAB_5001		MFA	70%	-25	554299	4328973	554301	4328977	-2	4	4	207	CB	
08-Dec-2019	00:50:00	2	GRAB_5001		CHEM	60%	-24	554299	4328975	554301	4328977	-2	2	3	221	CB	:
08-Dec-2019	01:05:00	3	GRAB_5001		MFB	60%	-24	554306	4328977	554301	4328977	5	0	5	92	CB	:
08-Dec-2019	02:11:00	4	GRAB_5008		MFA	80%	-27	556184	4326771	556183	4326772	1	1	2	142	CB	
08-Dec-2019	02:20:00	5	GRAB_5008		CHEM	80%	-27	556183	4326772	556183	4326772	0	0	0	144	CB	
08-Dec-2019	02:29:00	6	GRAB_5008		MFB	90%	-27	556186	4326769	556183	4326772	3	3	4	135	CB	:
08-Dec-2019	03:26:00	7	GRAB_5016		MFB	90%	-29	559011	4329172	559000	4329177	11	5	12	112	CB	Sample retention changed to MFB once range to target identified
08-Dec-2019	03:33:00	8	GRAB_5016		CHEM	80%	-29	559004	4329169	559000	4329177	4	8	9	154	CB	:
08-Dec-2019	03:44:00	9	GRAB_5016		MFA	80%	-29	559002	4329173	559000	4329177	2	4	4	154	CB	Sample retention changed to MFA once range to target identified
08-Dec-2019	04:38:00	10	GRAB_5019		MFA	90%	-30	559678	4325773	559674	4325775	4	2	5	115	CB	:
08-Dec-2019	04:47:00	11	GRAB_5019		CHEM	60%	-30	559676	4325775	559674	4325775	2	0	2	103	CB	
08-Dec-2019	04:59:00	12	GRAB_5019		MFB	90%	-30	559674	4325774	559674	4325775	0	1	1	202	CB	:
08-Dec-2019	06:01:00	13	GRAB_5007		MFA	80%	-24	559103	4323347	559104	4323348	-1	1	1	242	PK	
08-Dec-2019	06:07:00	14	GRAB_5007		CHEM	90%	-24	559101	4323347	559104	4323348	-3	1	3	260	PK	
08-Dec-2019	06:16:00	15	GRAB_5007		MFB	90%	-24	559099	4323364	559104	4323348	-5	-16	17	342	PK	
08-Dec-2019	07:20:00	16	GRAB_5006		MFA	80%	-26	562349	4319543	562349	4319545	0	2	2	186	PK	
08-Dec-2019	07:26:00	17	GRAB_5006		CHEM	90%	-26	562348	4319542	562349	4319545	-1	3	3	197	PK	
08-Dec-2019	07:34:00	18	GRAB_5006		MFB	90%	-26	562345	4319546	562349	4319545	-4	-1	4	281	PK	Sample discarded
08-Dec-2019	07:43:00	19	GRAB_5006		MFB	90%	-26	562344	4319546	562349	4319545	-5	-1	5	285	PK	
08-Dec-2019	08:43:00	20	GRAB_5014		MFA	80%	-30	565096	4321889	565098	4321890	-2	1	2	231	PK	
08-Dec-2019	08:47:00	21	GRAB_5014				-30	565097	4321888	565098	4321890	-1	2	3	214	PK	No sample shell in jaw
08-Dec-2019	08:54:00	22	GRAB_5014				-30	565095	4321888	565098	4321890	-3	2	3	240	PK	No sample shell in jaw
08-Dec-2019	08:59:00	23	GRAB_5014		CHEM	70%	-30	565101	4321892	565098	4321890	3	-2	4	57	PK	
08-Dec-2019	09:05:00	24	GRAB_5014		MFB	80%	-30	565102	4321894	565098	4321890	4	-4	5	46	PK	
08-Dec-2019	10:20:00	25	GRAB_5005		MFA	70%	-27	569416	4325577	569419	4325581	-3	4	5	220	PK	
08-Dec-2019	10:25:00	26	GRAB_5005		CHEM	60%	-27	569425	4325578	569419	4325581	6	3	7	115	PK	
08-Dec-2019	10:33:00	27	GRAB_5005		MFB	60%	-27	569418	4325581	569419	4325581	-1	0	1	292	PK	
09-Dec-2019	00:43:00	28	GRAB_5002		MFA	60%	-24	561483	4334926	561482	4334920	1	-6	6	11	CB	
09-Dec-2019	00:50:00	29	GRAB_5002		CHEM	80%	-24	561480	4334924	561482	4334920	-2	-4	4	326	CB	
09-Dec-2019	01:01:00	30	GRAB_5002		MFB	80%	-24	561487	4334918	561482	4334920	5	2	6	113	CB	
09-Dec-2019	02:00:00	31	GRAB_5017		MFA	60%	-23	557549	4333727	557553	4333727	-4	0	4	268	CB	
09-Dec-2019	02:06:00	32	GRAB_5017		CHEM	60%	-23	557555	4333733	557553	4333727	2	-6	6	19	CB	
09-Dec-2019	02:16:00	33	GRAB_5017		MFB	70%	-23	557550	4333725	557553	4333727	-3	2	3	238	CB	
09-Dec-2019	03:08:00	34	GRAB_5018		MFA	90%	-25	561312	4332171	561315	4332173	-3	2	4	237	CB	
09-Dec-2019	03:14:00	35	GRAB_5018		CHEM	60%	-25	561315	4332175	561315	4332173	0	-2	2	0	CB	
09-Dec-2019	03:23:00	36	GRAB_5018		MFB	70%	-25	561316	4332175	561315	4332173	1	-2	2	34	CB	
09-Dec-2019	04:10:00	37	GRAB_5009		MFA	40%	-23	563271	4332832	563272	4332825	-1	-7	7	350	CB	
09-Dec-2019	04:17:00	38	GRAB_5009		MFB	40%	-23	563270	4332833	563272	4332825	-2	-8	8	347	CB	
09-Dec-2019	04:24:00	39	GRAB_5009		CHEM	70%	-23	563273	4332821	563272	4332825	1	4	4	166	CB	
09-Dec-2019	05:25:00	40	GRAB_5010		MFA	70%	-28	565858	4329916	565859	4329916	-1	0	1	294	PK	
09-Dec-2019	05:31:00	41	GRAB_5010		CHEM	70%	-28	565858	4329918	565859	4329916	-1	-2	2	329	PK	
09-Dec-2019	05:37:00	42	GRAB_5010		MFB	95%	-28	565857	4329919	565859	4329916	-2	-3	4	326	PK	
09-Dec-2019	06:48:00	43	GRAB_5015				-32	563654	4326580	563654	4326576	0	-4	4	0	PK	No sample shell in jaw
09-Dec-2019	06:53:00	44	GRAB_5015				-32	563652	4326578	563654	4326576	-2	-2	2	315	PK	No sample rock in jaw

APPENDIX A FIELD SAMPLING LOGS

Gardline — Seafloor Sampling Positioning Summary

Job No	11311			Vessel	RV *Ocean Researcher*					
Client	Ørsted			Vessel Reference Point (VRP)	CoG					
Project Name	OCW01_GP1B			Deployment Location	Starboard A-Frame	x	8.96	y	-3.08	z	6.05
Primary Positioning System	Starpack Pos 1			Actual Coordinates derived from	Deployment Location					
Geodetic Reference System	Datum	WGS84 - NAD83_2019_5	Ellipsoid	GRS 80	Projection	UTM ZONE 18 N (75 W)	Vertical / Tidal Datum	MLLW		

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Corrected Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
09-Dec-2019	06:57:00	45	GRAB_5015				-32	563657	4326577	563654	4326576	3	-1	4	70	PK	No sample rock in jaw, moving 15m
09-Dec-2019	07:13:00	46	GRAB_5015A				-32	563645	4326567	563643	4326564	2	-3	4	39	PK	No sample rock in jaw
09-Dec-2019	07:18:00	47	GRAB_5015A				-32	563643	4326570	563643	4326564	0	-6	6	357	PK	No sample rock in jaw
09-Dec-2019	07:23:00	48	GRAB_5015A				-32	563644	4326564	563643	4326564	1	0	1	88	PK	No sample shell in jaw
09-Dec-2019	08:12:00	49	GRAB_5020		MFA	90%	-32	566496	4326374	566497	4326374	-1	0	1	258	PK	
09-Dec-2019	08:17:00	50	GRAB_5020		CHEM	80%	-32	566496	4326371	566497	4326374	-1	3	3	206	PK	
09-Dec-2019	08:25:00	51	GRAB_5020		MFB	50%	-32	566495	4326376	566497	4326374	-2	-2	3	315	PK	
12-Dec-2019	00:11:00	52	GRAB_5013				-24	567064	4333429	567065	4333433	-1	4	4	189	CB	No sample - no trigger
12-Dec-2019	00:15:00	53	GRAB_5013		MFB	40%	-24	567062	4333431	567065	4333433	-3	2	3	237	CB	
12-Dec-2019	00:22:00	54	GRAB_5013				-24	567064	4333430	567065	4333433	-1	3	3	199	CB	No sample - no trigger
12-Dec-2019	00:27:00	55	GRAB_5013		CHEM	70%	-24	567058	4333433	567065	4333433	-7	0	7	268	CB	
12-Dec-2019	00:35:00	56	GRAB_5013		MFA	90%	-24	567064	4333429	567065	4333433	-1	4	5	197	CB	
12-Dec-2019	02:04:00	57	GRAB_5004				-31	575382	4330708	575383	4330707	-1	-1	2	305	CB	No sample
12-Dec-2019	02:12:00	58	GRAB_5004				-31	575386	4330709	575383	4330707	3	-2	4	65	CB	No sample shell in jaw
12-Dec-2019	02:18:00	59	GRAB_5004				-31	575383	4330705	575383	4330707	0	2	2	196	CB	No sample shell in jaw, moving target 10m
12-Dec-2019	02:25:00	60	GRAB_5004A				-31	575386	4330718	575392	4330712	-6	-6	8	315	CB	No sample shell in jaw
12-Dec-2019	02:33:00	61	GRAB_5004A		MFA	80%	-31	575389	4330715	575392	4330712	-3	-3	4	316	CB	
12-Dec-2019	02:40:00	62	GRAB_5004A				-31	575387	4330719	575392	4330712	-5	-6	8	322	CB	No sample-lid open
12-Dec-2019	02:46:00	63	GRAB_5004A		CHEM	70%	-31	575401	4330714	575392	4330712	9	-2	9	79	CB	
12-Dec-2019	02:57:00	64	GRAB_5004A		MFB	60%	-31	575392	4330715	575392	4330712	0	-2	2	351	CB	
12-Dec-2019	03:58:00	65	GRAB_5011		MFA	95%	-32	572425	4334073	572422	4334075	3	2	3	121	CB	
12-Dec-2019	04:04:00	66	GRAB_5011		CHEM	75%	-32	572421	4334073	572422	4334075	-1	2	2	211	CB	
12-Dec-2019	04:14:00	67	GRAB_5011		MFB	75%	-32	572421	4334074	572422	4334075	-1	1	1	216	CB	
13-Dec-2019	05:22:00	68	GRAB_5012		MFA	90%	-22	571952	4338126	571948	4338125	4	-1	4	76	PK	
13-Dec-2019	05:26:00	69	GRAB_5012		CHEM	70%	-22	571951	4338124	571948	4338125	3	1	3	101	PK	
13-Dec-2019	05:32:00	70	GRAB_5012		MFA	80%	-22	571952	4338124	571948	4338125	4	1	4	111	PK	
13-Dec-2019	06:58:00	71	GRAB_5003		MFA	90%	-21	567264	4340041	567257	4340040	7	-1	8	81	PK	
13-Dec-2019	07:02:00	72	GRAB_5003				-21	567254	4340043	567257	4340040	-3	-3	5	318	PK	No sample, half triggered
13-Dec-2019	07:05:00	73	GRAB_5003		CHEM	90%	-21	567259	4340040	567257	4340040	2	0	2	78	PK	
13-Dec-2019	07:08:00	74	GRAB_5003				-21	567259	4340040	567257	4340040	2	0	2	78	PK	No sample, half triggered
13-Dec-2019	07:10:00	75	GRAB_5003		MFB	80%	-21	567255	4340039	567257	4340040	-2	1	2	245	PK	

APPENDIX B METHODS

APPENDIX B METHODS

B.1 Seabed Imagery Acquisition

Environmental seabed images were taken by means of a digital stills shallow water camera system with a dedicated strobe and video lamps, mounted within a stainless-steel frame. Video footage was also acquired throughout target investigations using a high definition (HD) video camera. The vessel offset of camera deployment was used to represent the position of the system.

Footage was viewed in real time via an umbilical, assisting in the control of the digital stills camera. This allowed for shot selection, in the event that the system recorded a sediment change or feature at the seafloor.

During acquisition, a minimum of 10 seabed photographs and 5 minutes of footage were collected at each station at appropriate intervals. This technique allowed the frame to move progressively along the seabed as the vessel traversed the work area on its thrusters or drifted. The images were captured remotely using the surface control unit and stored on the camera's internal memory card. Video footage was overlaid with time, position and depth, and recorded directly onto PC hard drive. On completion, photographs were downloaded onto a PC via a USB download cable and copied onto HDD. All HDDs were labelled with the relevant job details, write-protected and stored.

During acquisition, total of 339 photographs were taken using the stills camera system across 20 stations. Environmental deck and positioning logs are contained in Appendix A, and a selection of seabed photographs is presented in Appendix C.

Table B.1 Camera Equipment Specifications

Equipment	HD Camera System	Stills Camera System
Manufacturer	SubC Control Ltd.	Kongsberg/Simrad.
Model	1Cam Alpha Mk6	OE14-208
Lens	Wide angle (26.3mm), f 3.8 ~ 38.0 mm (5/32 ~	f 7.2 – 28.8 (35mm format equivalent to 38 –
Pixels	12.0 M (Picture mode) OR	5.0 M
Video Resolution	1920 x 1080p	PAL 625 Line/50 Hz PAL
Image Resolution (pixels)	4000 x 3000 (Picture mode)	2592 x 1944
Field of View	47.8° horizontal (β) by 36.2° vertical (α)	48.4° horizontal (β) by 29.9° vertical (α)
Video Overlay	Digital Edge Subsea Overlay	Digital Edge Subsea Overlay
Trigger	Remote from deck	Remote from deck
Height Control	Video footage	Video footage
Lighting	1 fixed forward-facing strobe, 1 fixed LED lamp	1 fixed forward-facing strobe, 1 fixed LED
Scale bar	Green line lasers with 100mm separation	Green line lasers with 100mm separation

Table unit definitions: M = megapixels, p = progressive scan, PAL = phase alternating line, Hz = Hertz

B.2 Imagery Processing

Of the 339 photographs taken with the Kongsberg 14-208 camera during the survey, 228 were of sufficient quality to analyze. The remaining 111, which were taken at Stations GRAB_5001, GRAB_5003, GRAB_5004, GRAB_5011, GRAB_5012 and GRAB_5013, suffered from poor lighting due to a problem with the flash. For these fixes, snapshots were taken from the HD footage for analysis instead. In addition to these 339 images, a further 124 video snapshots were captured for analysis to ensure a maximum distance of 3m between images and to ensure all protected species were enumerated.

Seabed images were assessed using the Gardline developed imagery analysis program (CountEM). The program allows for individual fauna to be tagged and a sediment description to be assigned to each image.

Gardline has developed an institution-level reference image catalogue of operational taxonomic units (OTUs) or morphospecies based on Howell *et al.* (2019). Where examples within the images were matched with a morphotype already included within the OTU database these have been given the suffix mspXXXX.

Each visible morphotype was tagged once in each image to record its presence. The exceptions were specific taxa of potential conservation interest (*S. acanthias,* Rajidae egg case, *A. islandica* and bivalve siphons), which were enumerated from all images.

Following quality control, data were exported into Excel file used to summarize seabed imagery observations and allow for further analysis as applicable. A table of all taxa recorded per image is presented in Appendix C and per station presented in Appendix E, with species of interest enumerated and highlighted in red. Example images of species identified in this survey are presented in Appendix F.

B.3 Seabed Sampling

Benthic samples were recovered using an in-house constructed, modified, stainless-steel , 0.1m^2 Day grab. The modification incorporates guides for the cables to prevent them becoming trapped during triggering. The grab also carried extra weights where appropriate to induce penetration on triggering and an extended bucket lip to reduce sediment washout. Storm feet and elastic straps were used to reduce the likelihood of the instrument pre-triggering in the water column during deployment.

Grab sampling operational procedures were as follows:

The vessel's sampling area was pre-cleaned using a powerful deck firehose and seawater. The Day grab was washed thoroughly using pentane prior to deployment at every station to prevent hydrocarbon cross contamination. The Day grab was lowered to the seabed using a 300m-length of 12mm, dry-core, galvanized-steel cable.

For accuracy, the Day grab was lowered to approximately 10-15 meters just above the seabed, then, using positioning information relayed from the surveyors or bridge, once directly over the target location the grab was lowered to the seabed and then quickly recovered. Positional fixes were captured immediately for each grab sample when the grab reached the sea floor. The precise time that the grab reached the seabed was determined by observations of the tension on the winch cable. The vessel offset of grab deployment was used to represent the position of the sampler.

On recovery of a sample, the grab would first be examined for acceptability following strict quality assurance (QA) criteria. In the following cases, a grab sample would be rejected and the instrument returned to the pre-deployment position:

1 Jammed jaws due to a large stone or shell allowing sediment washout;
2 One or both of the bucket doors open on recovery, causing possible surface washout;
3 Half sample obtained where the grab had not struck a flat area of bottom, or not hit true, causing a side or half bite of sediment;
4 Loss of fine fractions of the sediment is suspected
5 Disruption of the sample by obvious shaking or contamination (these can occur when a sample is badly handled or if the grab strikes the side of the vessel during operations);
6 The grab was less than 40% full or totally filled the grab. The latter potentially allowing the sample to overflow the grab or for the surface sediments to come into contact with the lids.
7 Sample is more than 10 meters away from the desired position.
8 The presence of exopolymeric substances, mucus coagulants and/or fauna that generate them *i.e.,* Myxinidae.
9 Depth of sediment is less than 5 centimeters, unless the sediment in very hard and/or coarse and it is clear that better samples cannot be obtained.

Brief descriptions of the collected sediments were made at the time of sampling. These were recorded in the environmentalist’s log sheets and are presented in Appendix A. A selection of photographs, taken of the sediment samples whilst still in the Day grab, is presented in Appendix C.

Sediment samples collected for physico-chemical analysis (CHEM) were sub-sampled into the relevant containers. A plastic scoop was then used to obtain three surficial sediment (<2cm) sub-samples: one for particle size analysis (PSA), one for TOM and a spare sample. These were placed in double-lined zip-lock bags. All physico-chemical samples were transferred to an onboard freezer for storage at <-18ºC.

Sediment samples collected for faunal analyses (MFA and MFB) were thoroughly washed from the grab into a plastic tray. Once all of the equipment was washed free of sediment, the sediment sample was transferred to a sieving machine where it was broken down using a low powered seawater spray. All material retained by the 500µm mesh sieve was transferred to a squat jar or bucket by means of a scoop and funnel, making sure that none of the sample was lost or trapped in the mesh. The sample was fixed with a pre-buffered <10% formalin solution of known concentration, then subsequently diluted to a final concentration of approximately 4% formalin. Biological samples were placed in 1-liter polypropylene screw-top squat jars or 5-liter buckets, depending on sample size, and provided with an additional internal waterproof label.

At the end of the survey samples sent directly from the vessel to their respective analytical sub-contractors detailed in Section B.4. All physico-chemical sub-samples were kept frozen, and biological samples stored at room temperature.

B.4 Sample Analysis

Sediment and faunal samples were analyzed by the following laboratories:

- Particle size and sediment total organic matter (TOM) analyses were carried out by TerraSense LLC, Totowa, New Jersey, USA.
- Benthic macrofaunal identification was undertaken by EcoAnalysts Inc, Moscow, Idaho, USA

B.5 Particle Size Analysis

Particle size analysis (PSA) was carried out in accordance with the ASTM methods D6913 and D7928.

No dispersants were used and the sediment was not treated to remove carbonates or organic matter prior to analysis. The range of sieve sizes, together with their Wentworth Classification (Wentworth, 1922), is given in Table B.1.

The results, given in Appendix E and summarized in Section 2.4.1, present particle size distributions in terms of mean phi, fraction percentages (i.e. gravel, sand and fines), sorting (mixture of sediment sizes) and skewness (weighting of sediment fractions above and below the mean sediment size) and kurtosis (degree of peakdness) (Folk & Ward, 1957). These indices are described below:

1 Graphic Mean - a measure of average particle size in phi units (-log2(diamm), Folk & Ward, 1957).

$$M_z = \frac{\emptyset 16 + \emptyset 84 + \emptyset 50}{3}$$

where M_z= The graphic mean particle size in phi
ø = the phi size of the nth percentile of the sample

2 Sorting – the inclusive graphic standard deviation of the sample is a measure of the degree of sorting. Sorting classifications are presented in Table B.2.

$$\sigma_1 = \frac{\emptyset 84 - \emptyset 16}{4} + \frac{\emptyset 95 - \emptyset 5}{6.6}$$

where σ_1 = the inclusive graphic standard deviation

3 Inclusive Graphic Skewness – the degree of asymmetry of a frequency or cumulative curve, Skewness classification are presented in Table B.3.

$$S = \frac{\emptyset 16 + \emptyset 84 - 2(\emptyset 50)}{2(\emptyset 84 - \emptyset 16)} + \frac{\emptyset 5 + \emptyset 95 - 2(\emptyset 50)}{2(\emptyset 95 - \emptyset 5)}$$

where S= the skewness of the sample

4 Graphic Kurtosis – The degree of peakdness or departure from a ‘normal’ frequency or cumulative curve. Kurtosis classifications are presented in Table B.4.

$$K = \frac{\text{Ø}95 - \text{Ø}5}{2.44(\text{Ø}75 - \text{Ø}25)}$$

where K= Kurtosis

The sediment samples were additionally classified using the Folk classification triangles (Folk, 1954), utilized by the CMECS Substrate Classification (SC; FGDC, 2012), which uses the threshold values for Gravel-Sand-Mud combinations and for Sand-Silt-Clay combinations (Folk, 1954). The Folk triangles are presented in Figure B.1, which adds colors to show the hierarchical framework of the CMECS SC applied to the Folk diagrams.

Table B.1 Phi and Sieve Aperture with Wentworth Classifications

Aperture in microns	Aperture in Phi Unit	Sediment Description	
<63000 to 50800	>-6 to -5.7	Pebble	GRAVEL
< 50800 to 38100	>-5.7 to -5.3		
<38100 to 25400	>-5.3 to -4.7		
< 25400 to 19100	>-4.7 to -4.3		
<19100 to 15900	>-4.3 to -4.0		
<15900 to 12700	>-4.0 to -3.7		
<12700 to 7900	>-3.7 to -3.0		
<7900 to 6400	>-3.0 to -2.7		
<6400 to 4000	>-2.7 to -2.0		
<4000 to 2800	>-2.0 to -1.5	Granule	
<2800 to 2000	>-1.5 to -1		
<2000 to 1400	>-1 to -0.5	Very Coarse Sand	SAND
<1400 to 1000	>-0.5 to 0		
<1000 to 710	>0 to 0.5	Coarse Sand	
<710 to 500	>0.5 to 1		
<500 to 355	>1 to 1.5	Medium Sand	
<355 to 250	>1.5 to 2		
<250 to 180	>2 to 2.5	Fine Sand	
<180 to 125	>2.5 to 3		
<125 to 90	>3 to 3.5	Very Fine Sand	
<90 to 63	>3.5 to 4		
<63 to 44	>4 to 4.5	Coarse Silt	FINES
<44 to 31.5	>4.5 to 5		
<31.5 to 22	>5 to 5.5	Medium Silt	
<22 to 15.6	>5.5 to 6		
<15.6 to 11	>6 to 6.5	Fine Silt	
<11 to 7.8	>6.5 to 7		
<7.8 to 5.5	>7 to 7.5	Very Fine Silt	
<5.5 to 3.9	>7.5 to 8		
<3.9 to 2.8	>8 to 8.5	Clay	
<2.8 to 2	>8.5 to 9		
<2 to 1.4	>9 to 9.5		
<1.4 to 1	>9.5 to 10		
<1	>10		

Table B.2 Sorting Classifications

Sorting Coefficient (Graphical Standard Deviation)	Sorting Classifications
0 < 0.35	Very well sorted
0.35 < 0.50	Well sorted
0.50 < 0.71	Moderately well sorted
0.71 < 1.00	Moderately sorted
1.00 < 2.00	Poorly sorted
2.00 < 4.00	Very poorly sorted
4.00	Extremely poorly sorted

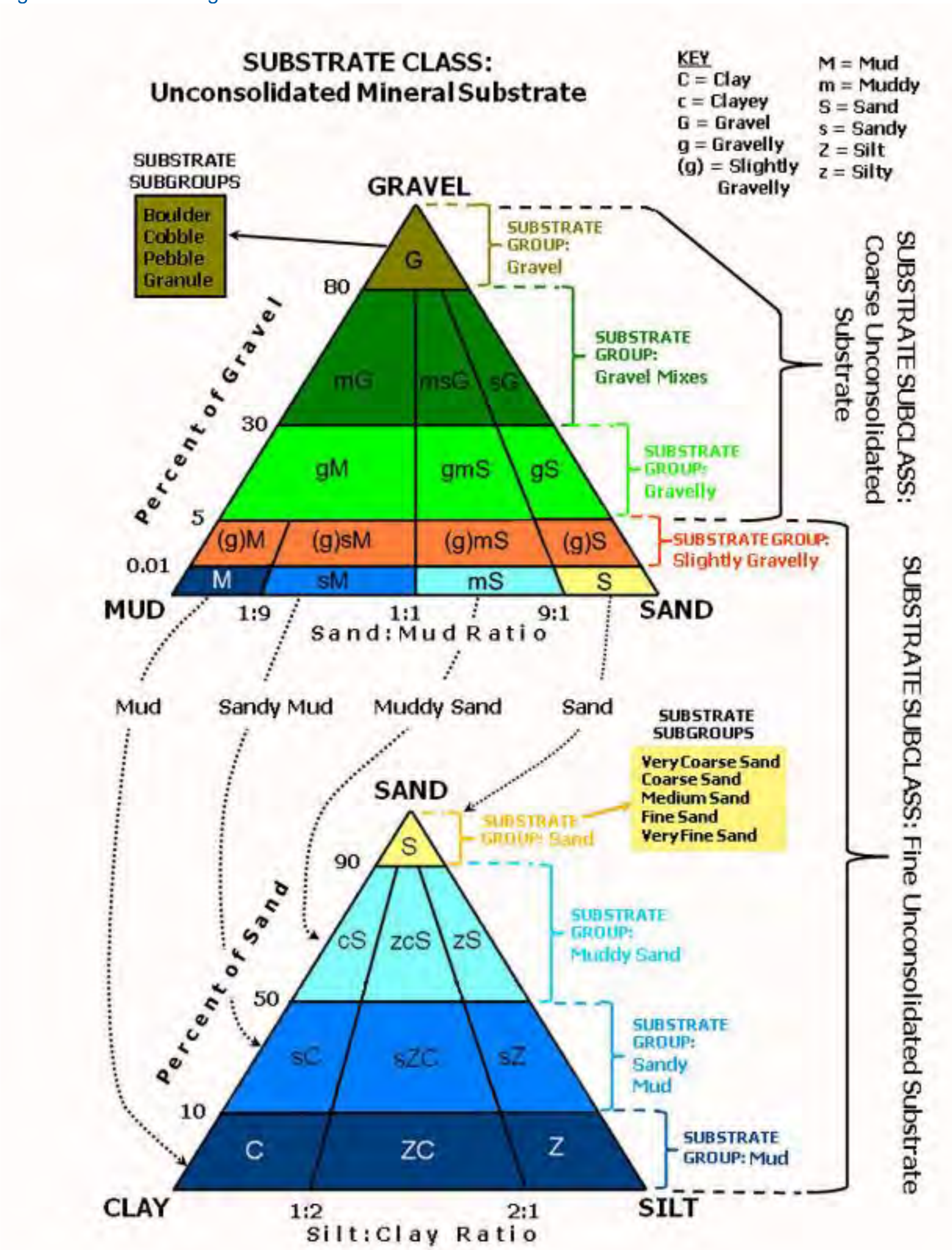
Table B.3 Skewness Classification

Skewness Coefficient	Mathematical Skewness	Graphical Skewness
1.00 > 0.30	Strongly Positive	Strongly fine skewed
0.30 > 0.10	Positive	Fine skewed
0.10 > -0.10	Near Symmetrical	Symmetrical
-0.10 > -0.30	Negative	Coarse skewed
-0.30 > -1.00	Strongly Negative	Strongly coarse skewed

Table B.4 Kurtosis Classification

Kurtosis Coefficient	Kurtosis Classification	Graphical meaning
≤ 0.67	Very Platykurtic	Flat-peaked; the ends are better sorted than the center
0.67 < 0.90	Platykurtic	
0.90 < 1.11	Mesokurtic	Normal; bell shaped curve
1.11 < 1.50	Leptokurtic	Curves are excessively peaked; the center is better sorted than the ends
1.50 < 3.00	Very Leptokurtic	
≥ 3.00	Extremely Leptokurtic	

Figure B.1 Folk Triangles with the Hierarchical Framework of the CMECS SC



Adapted from Folk (1954) by FGDC (2012).

B.6 Total Organic Matter

A 1g air-dried and ground (particle size <118µm) sample was placed in a crucible and dried in an oven at 50 ±2.5°C until constant weight was achieved. The weight was recorded after drying to the nearest 0.1% and the sample placed in a desiccator to cool. The sample was then transferred to a cold muffle furnace and heated to 450 ±25°C. After four hours the crucible was removed from the furnace and allowed to cool to room temperature in a desiccator. The crucible was then reweighed and the loss on ignition (LOI) calculated and reported as a percentage of the original sample mass.

LOI was calculated as follows:

$$\text{Total Organic Matter (TOM)} = \frac{b-f}{b} \times 100\%(^{w}/_{w})$$

Where b = weight of dried analysis sample (g)
f = weight of residue after ignition (g)

B.7 Statistical Analyses

B.7.1 Spearman's Rank Correlation

Spearman's Rank Correlation Co-efficient is a non-parametric correlation analysis that may be used to test for relationships between environmental variables. Significant relationships indicate that environmental variables vary similarly. Large numbers of significant correlations might suggest the presence of an environmental gradient, that in the absence of obvious natural changes in the environment (such as a depth gradient), may be attributable to point source pollution or some other form of anthropogenic interference.

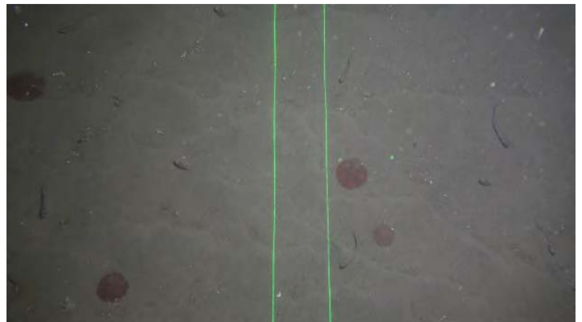
APPENDIX C SAMPLING AND SEABED PHOTOPLATES

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5001 **Fix:** 2 **Easting:** 554299 **Northing:** 4328975 **Depth:** -24m

Sediment Description
Fine brown sand

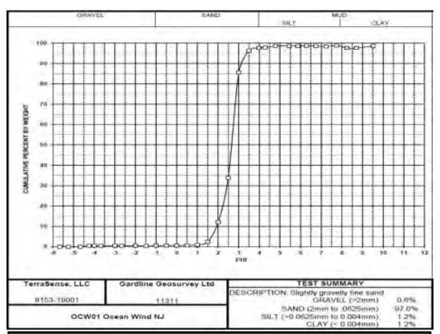
Fauna Description
Annelida (Terrebellidae tube), Echinodermata (Clypeasteroida)



Station: GRAB_5001 **Fix:** 1 **Easting:** 554303 **Northing:** 4328970 **Depth:** -24m

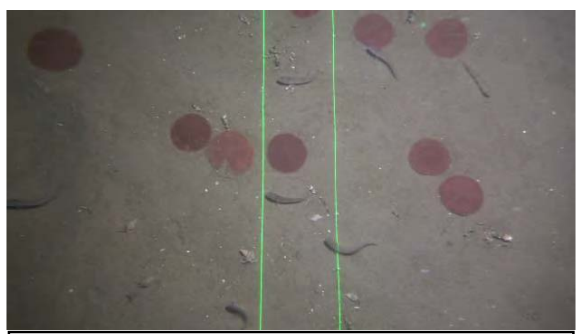
Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A), Arthropoda (Paguroidea), Chordata (Blenniidae 1), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda C, Neogastropoda A)



Station: GRAB_5001 **Fix:** 2 **Easting:** 554299 **Northing:** 4328975 **Retention:** PSA

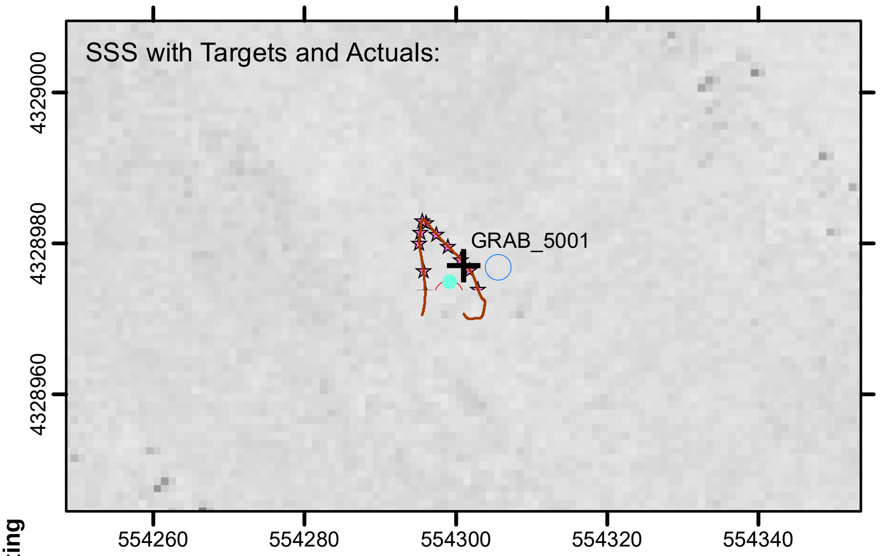
Sediment Description
Slightly gravelly sand

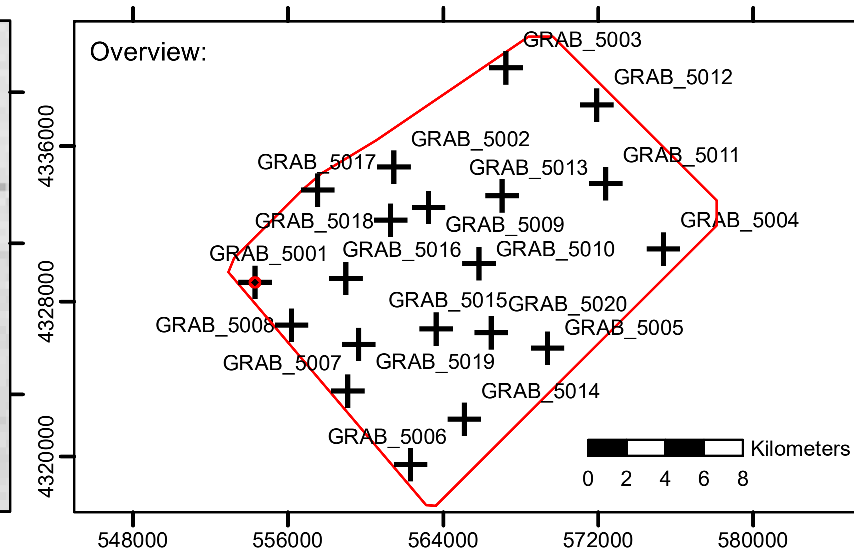


Station: GRAB_5001 **Fix:** 8 **Easting:** 554296 **Northing:** 4328983 **Depth:** -24m

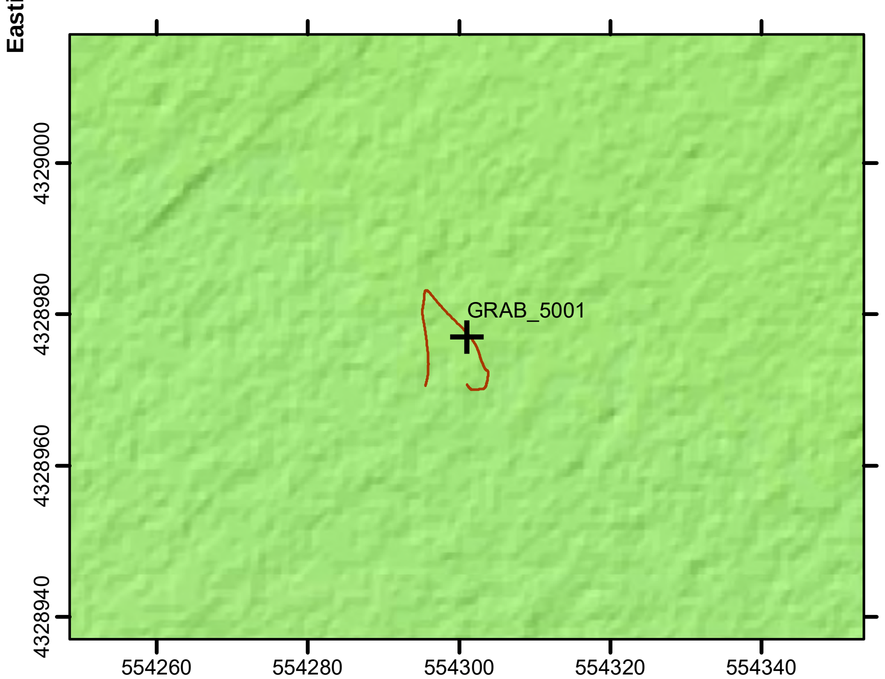
Sediment Description
Fine sand with shell fragments

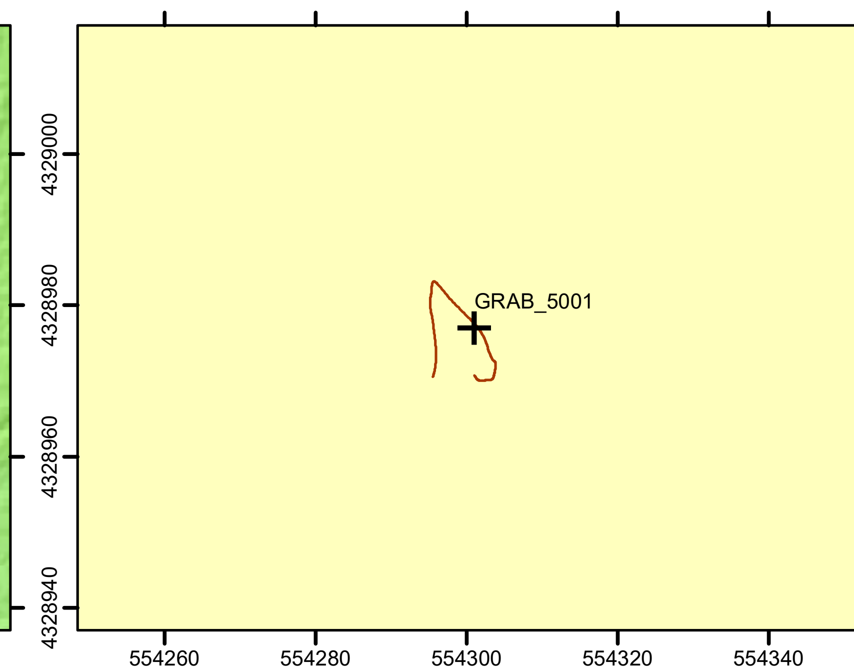
Fauna Description
Annelida (Polychaeta Tube A), Arthropoda (Paguroidea), Chordata (Blenniidae 1), Echinodermata (*Echinarachnius parma*), Mollusca (Neogastropoda A)





Easting





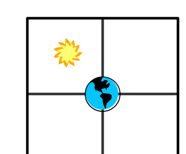
Northing

Key

OCW01 WTG Survey Area
Target Environmental Station
Environmental Camera Track
Environmental Camera Fixes

Environmental Samples
No Sample
CHEM
MFA
MFB

Sediment Description
Sand and Muddy Sand



N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

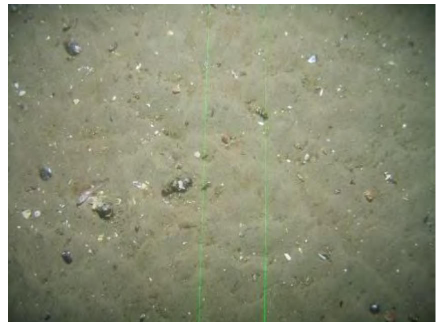
Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5002 **Fix:** 29 **Easting:** 561480
Northing: 4334924 **Depth:** -24m

Sediment Description
Fine silty brown sand

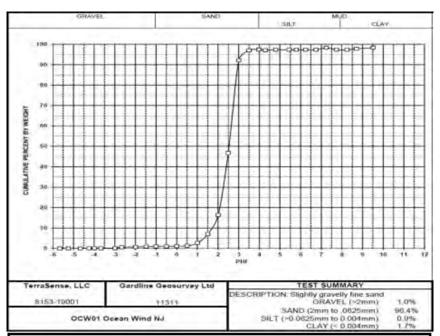
Fauna Description
Annelida (Terrebellidae tube)



Station: GRAB_5002 **Fix:** 129 **Easting:** 561476
Northing: 4334923 **Depth:** -24m

Sediment Description
Fine sand with shell fragments. Some rippling.

Fauna Description
Annelida (Polychaeta Tube A, Sabellidae), Arthropoda (Paguroidea), Chordata (Blennidae 1), Mollusca (Gastropoda B, Nudibranchia C)



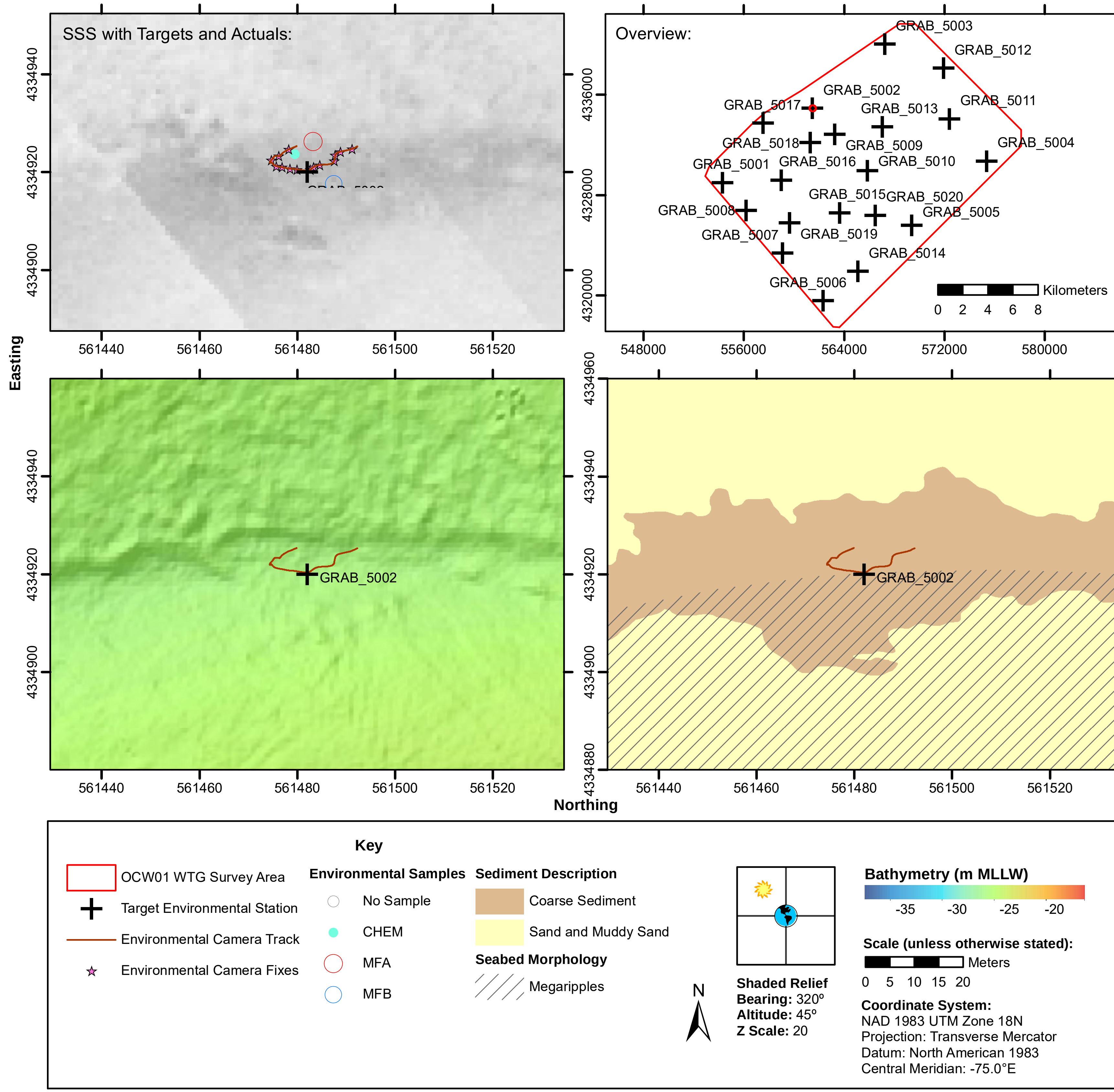
Station: GRAB_5002 **Fix:** 29 **Easting:** 561480
Northing: 4334924 **Retention:** PSA

Sediment Description
Slightly gravelly sand

Station: GRAB_5002 **Fix:** 132 **Easting:** 561477
Northing: 4334921 **Depth:** -24m

Sediment Description
Fine sand with shell fragments. Faunal tracks

Fauna Description
Arthropoda (Paguroidea), Chordata (Blennidae 1), Mollusca (Nudibranchia C)



APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5003 **Fix:** 73 **Easting:** 567259 **Northing:** 4340040 **Depth:** -21m

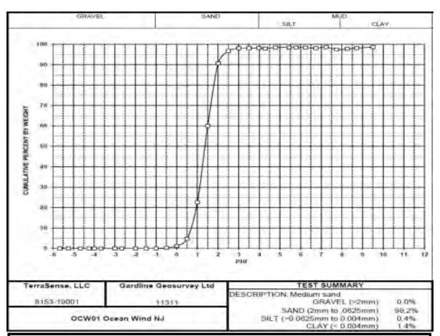
Sediment Description
Medium to coarse brown sand with shells and shell fragments

Fauna Description
Chordata (Phycidae)

Station: GRAB_5003 **Fix:** 328 **Easting:** 567259 **Northing:** 4340034 **Depth:** -21m

Sediment Description
Rippled fine sand with shell fragments

Fauna Description
Annelida (Polycheata Tube H), Arthropoda (Paguroidea), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda A, Gastropoda C)



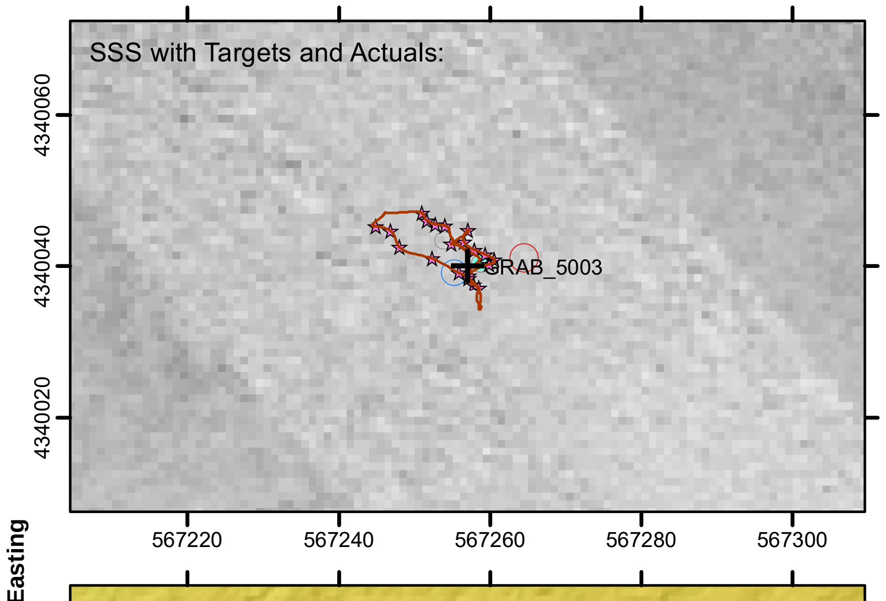
Station: GRAB_5003 **Fix:** 73 **Easting:** 567259 **Northing:** 4340040 **Retention:** PSA

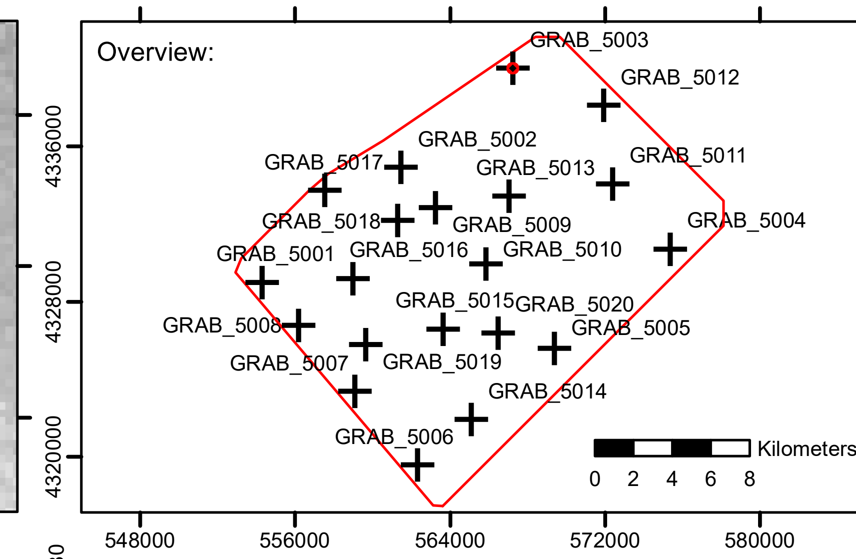
Sediment Description
Sand

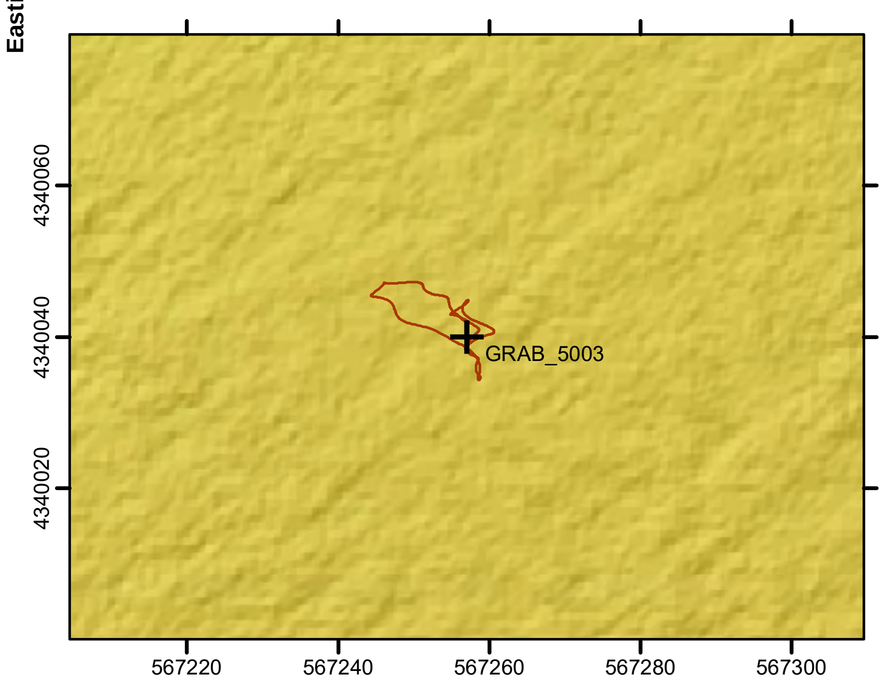
Station: GRAB_5003 **Fix:** 340 **Easting:** 567254 **Northing:** 4340045 **Depth:** -21m

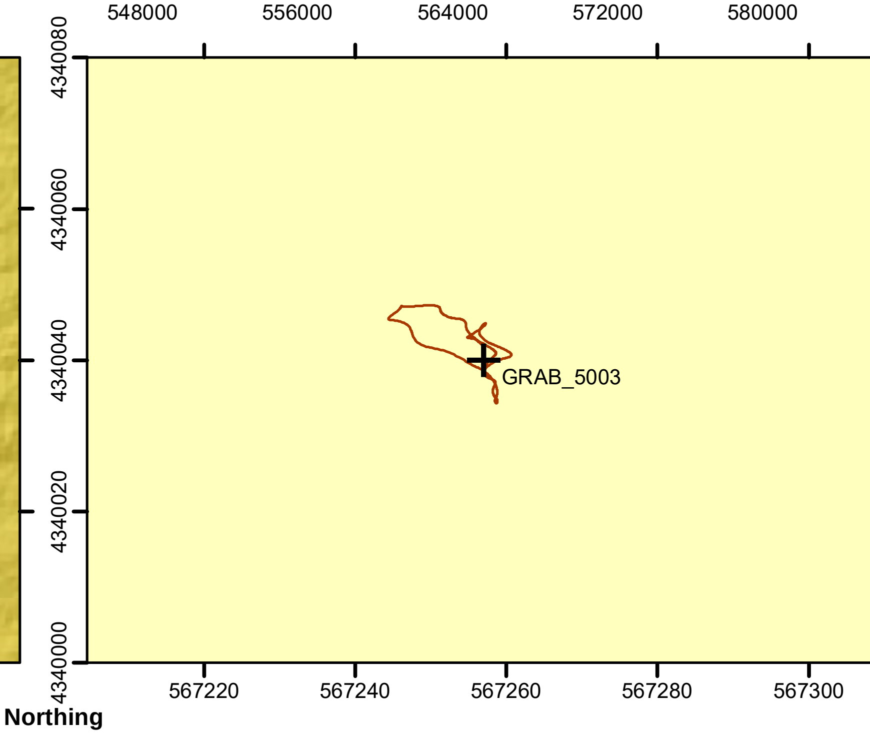
Sediment Description
Rippled fine sand with shell fragments

Fauna Description
Burrow, Chordata (Blennidae 1), Mollusca (Bivalvia Siphons, Nudibranchia D)









Key

OCW01 WTG Survey Area
Target Environmental Station
Environmental Camera Track
Environmental Camera Fixes

Environmental Samples
No Sample
CHEM
MFA
MFB

Sediment Description
Sand and Muddy Sand

N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5004A **Fix:** 61 **Easting:** 575389 **Northing:** 4330715 **Depth:** -31m

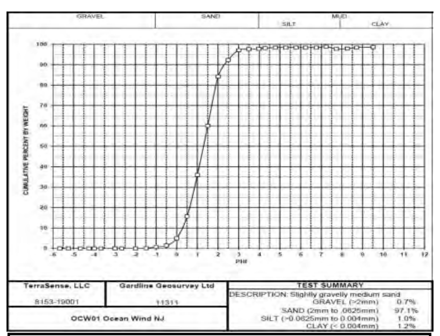
Sediment Description
Fine grey sand with a few shell fragments

Fauna Description
Annelida (Terrebellidae tube), Mollusca (Gastropoda)

Station: GRAB_5004 **Fix:** 262 **Easting:** 575381 **Northing:** 4330707 **Depth:** -31m

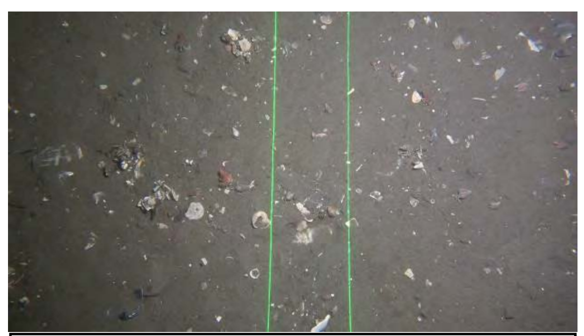
Sediment Description
Fine sand with some silt and shell fragments

Fauna Description
Annelida (Polychaeta Tube A, Polychaeta Tube E), Arthropoda (Paguroidea), Mollusca (Bivalvia F)



Station: GRAB_5004A **Fix:** 61 **Easting:** 575389 **Northing:** 4330715 **Retention:** PSA

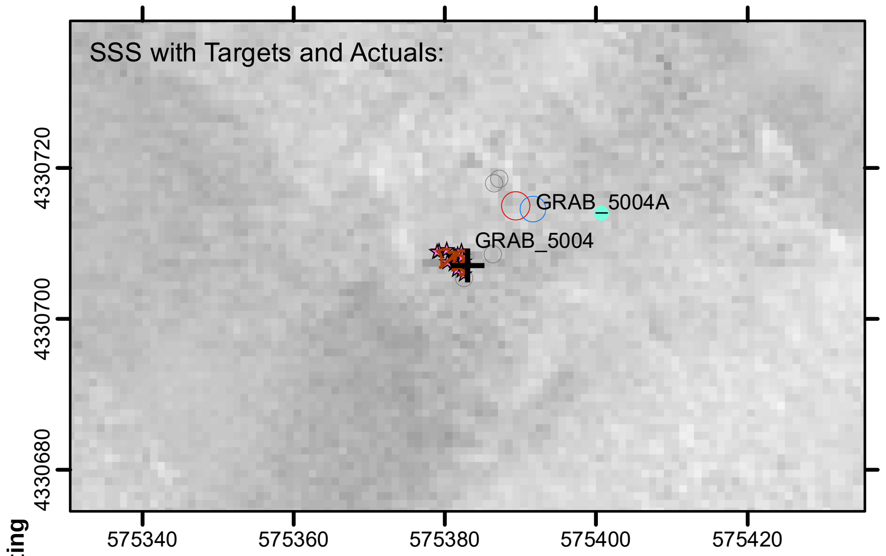
Sediment Description
Slightly gravelly sand

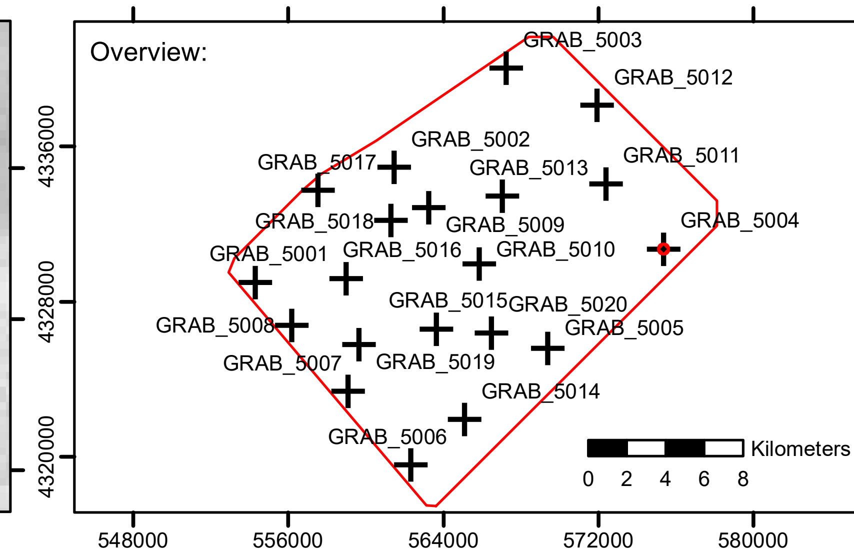


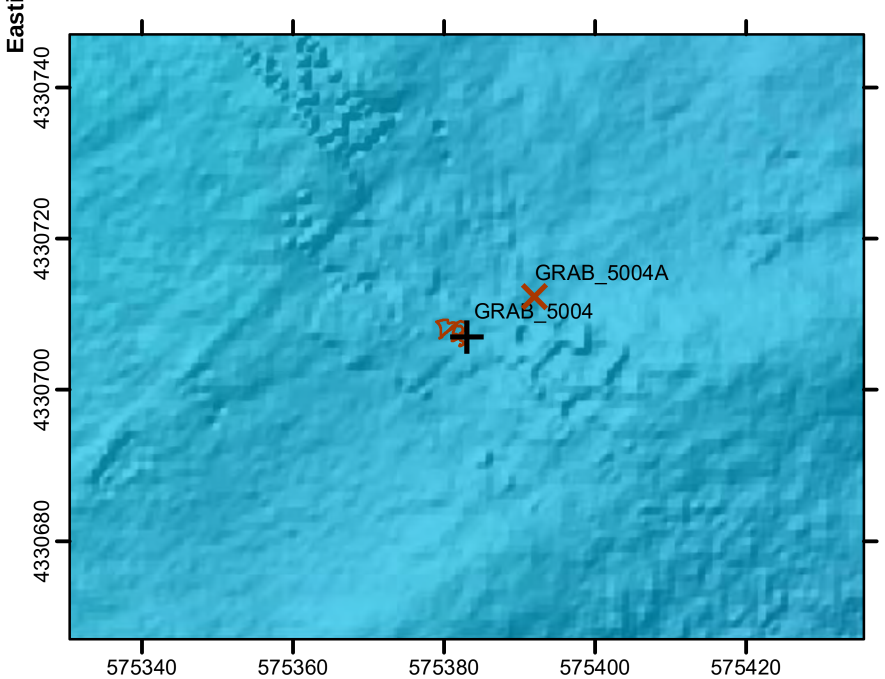
Station: GRAB_5004 **Fix:** 273 **Easting:** 575380 **Northing:** 4330709 **Depth:** -31m

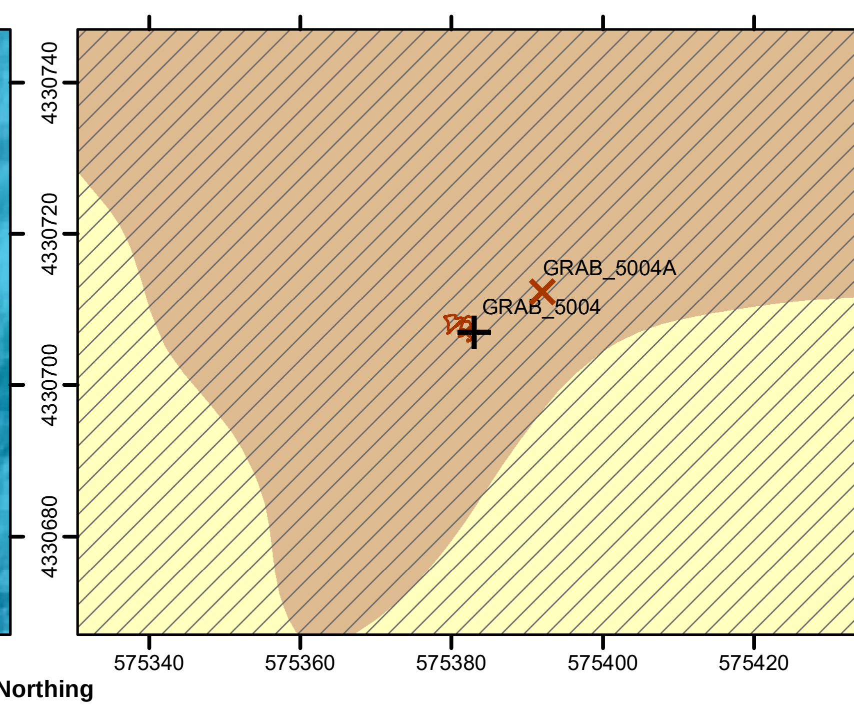
Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A, Polychaeta Tube E), Arthropoda (Paguroidea), Mollusca (Nudibranchia C)









Key

OCW01 WTG Survey Area
Target Environmental Station
Offset Grab Target Location
Environmental Camera Track
Environmental Camera Fixes

Environmental Samples
No Sample
CHEM
MFA
MFB

Sediment Description
Coarse Sediment
Sand and Muddy Sand

Seabed Morphology
Megaripples

N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

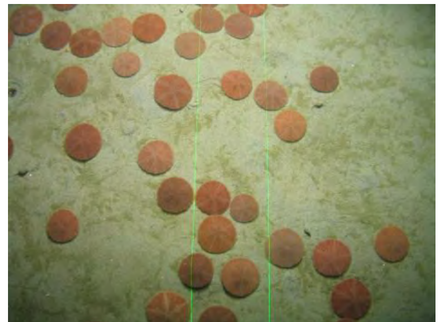
Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5005 **Fix:** 25 **Easting:** 569416
Northing: 4325577 **Depth:** -27m

Sediment Description
Fine brown sand with shell fragments

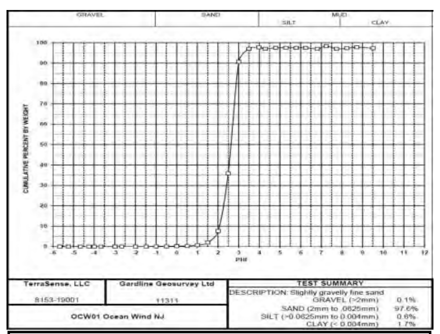
Fauna Description
Annelida (Polychaeta), Echinodermata (Clypeasteroida)



Station: GRAB_5005 **Fix:** 113 **Easting:** 569420
Northing: 4325577 **Depth:** -27m

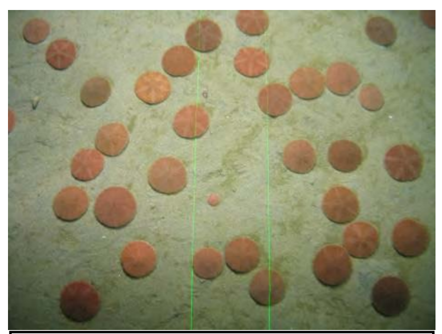
Sediment Description
Fine sand

Fauna Description
Animalia (indeterminate 1), Arthropoda (Paguroidea), Echinodermata (*Echinarachnius parma*), Mollusca (Bivalvia Siphons, Gastropoda A, Gastropoda B)



Station: GRAB_5005 **Fix:** 25 **Easting:** 569416
Northing: 4325577 **Retention:** PSA

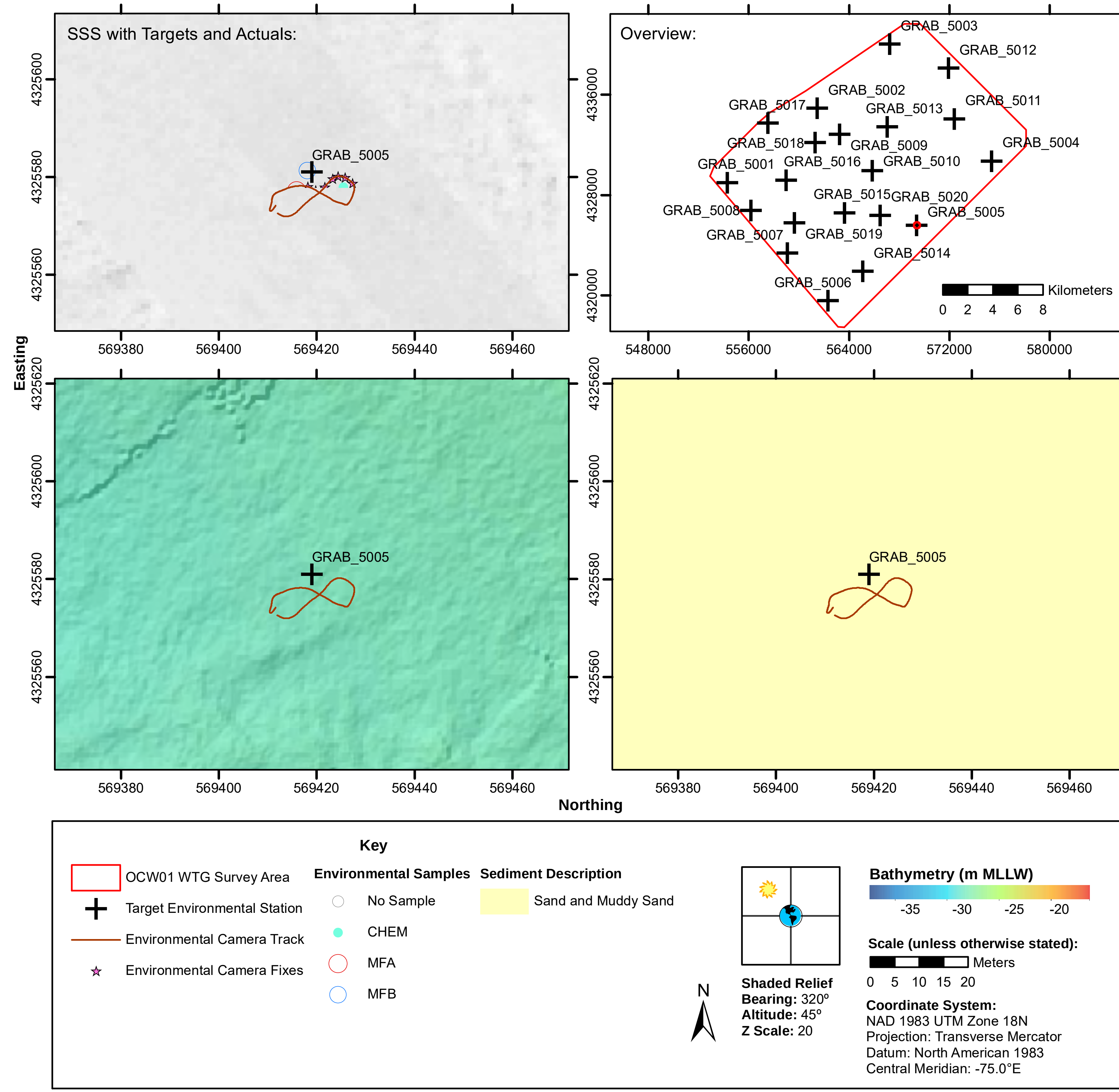
Sediment Description
Slightly gravelly sand



Station: GRAB_5005 **Fix:** 125 **Easting:** 569421
Northing: 4325577 **Depth:** -27m

Sediment Description
Fine sand with shell fragments

Fauna Description
Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda C, Neogastropoda A)



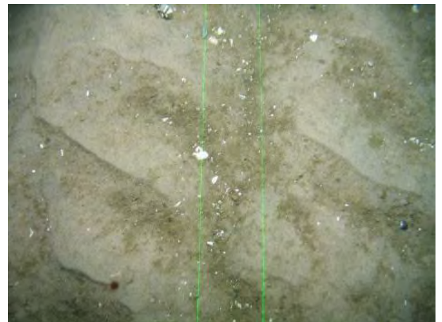
Gardline

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5006 **Fix:** 16 **Easting:** 562349
Northing: 4319543 **Depth:** -26m

Sediment Description
Medium to coarse brown sand with shells and shell fragments

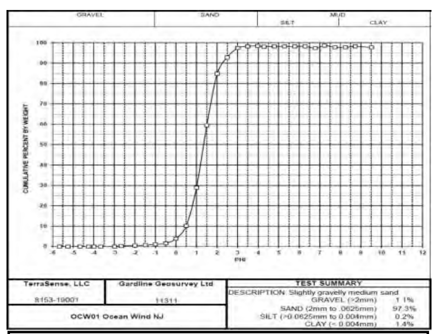
Fauna Description
Annelida (Polychaeta)



Station: GRAB_5006 **Fix:** 81 **Easting:** 562354
Northing: 4319544 **Depth:** -26m

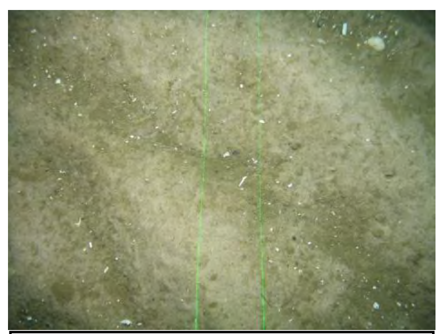
Sediment Description
Rippled medium sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A)



Station: GRAB_5006 **Fix:** 16 **Easting:** 562349
Northing: 4319543 **Retention:** PSA

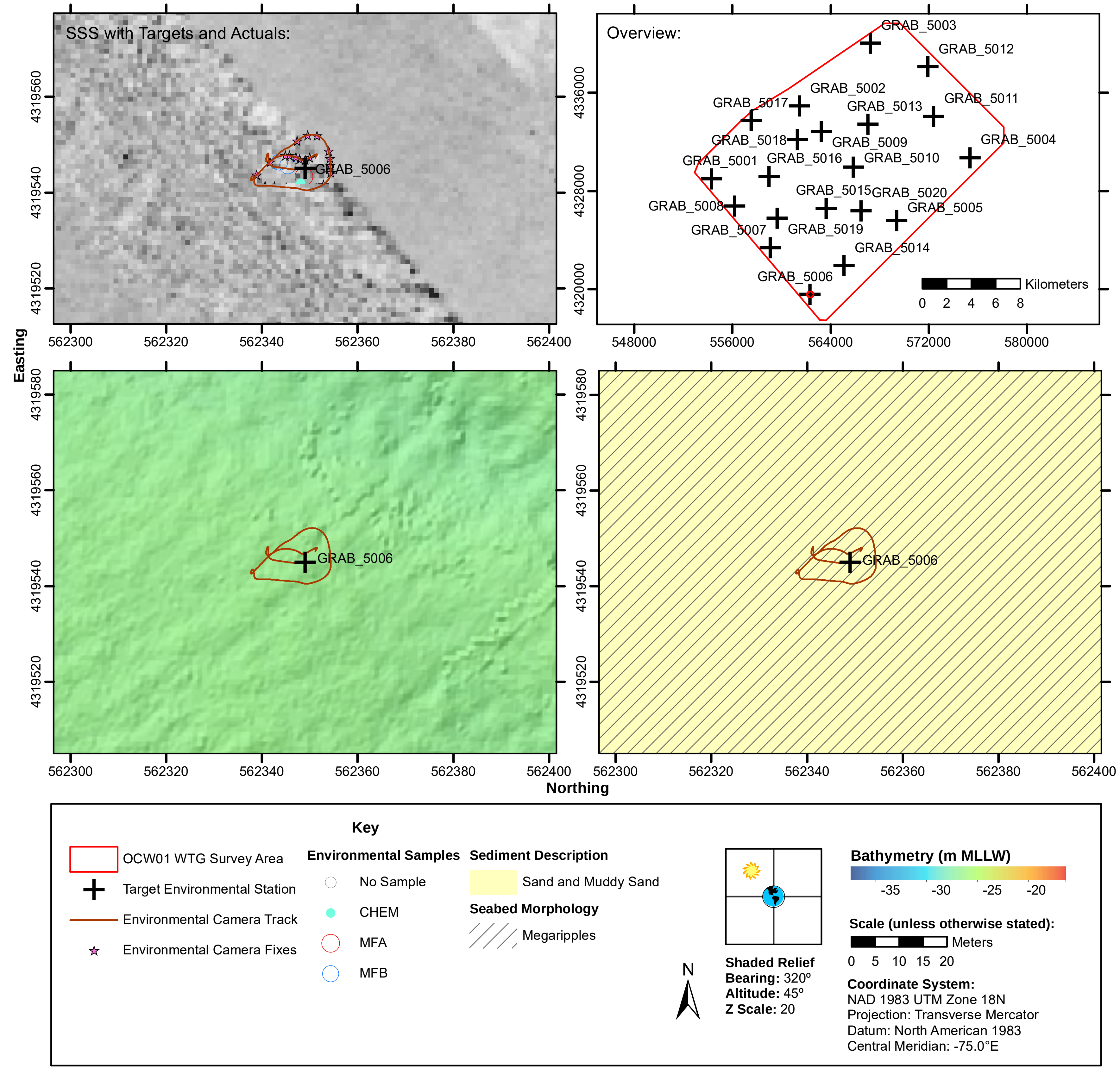
Sediment Description
Slightly gravelly sand



Station: GRAB_5006 **Fix:** 86 **Easting:** 562350
Northing: 4319552 **Depth:** -26m

Sediment Description
Rippled medium sand with shell fragments

Fauna Description
Burrow, Mollusca (Gastropoda B)



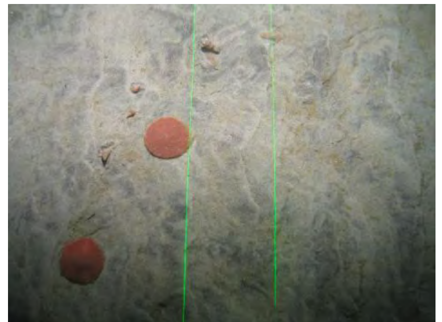
Gardline

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5007 **Fix:** 13 **Easting:** 559103
Northing: 4323347 **Depth:** -24m

Sediment Description
Fine to medium brown sand

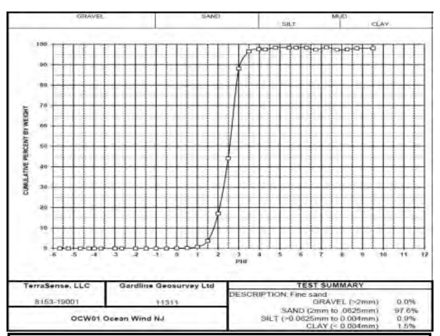
Fauna Description
Annelida (Polychaeta), Arthropoda (Paguroidea), Echinodermata (Clypeasteroida)



Station: GRAB_5007 **Fix:** 53 **Easting:** 559104
Northing: 4323351 **Depth:** -24m

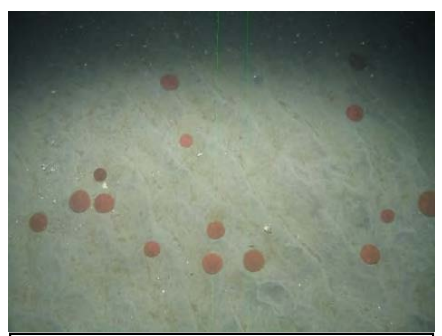
Sediment Description
Fine sand

Fauna Description
Chordata (Blenniidae 1), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda B, Gastropoda E, Nudibranchia C)



Station: GRAB_5007 **Fix:** 13 **Easting:** 559103
Northing: 4323347 **Retention:** PSA

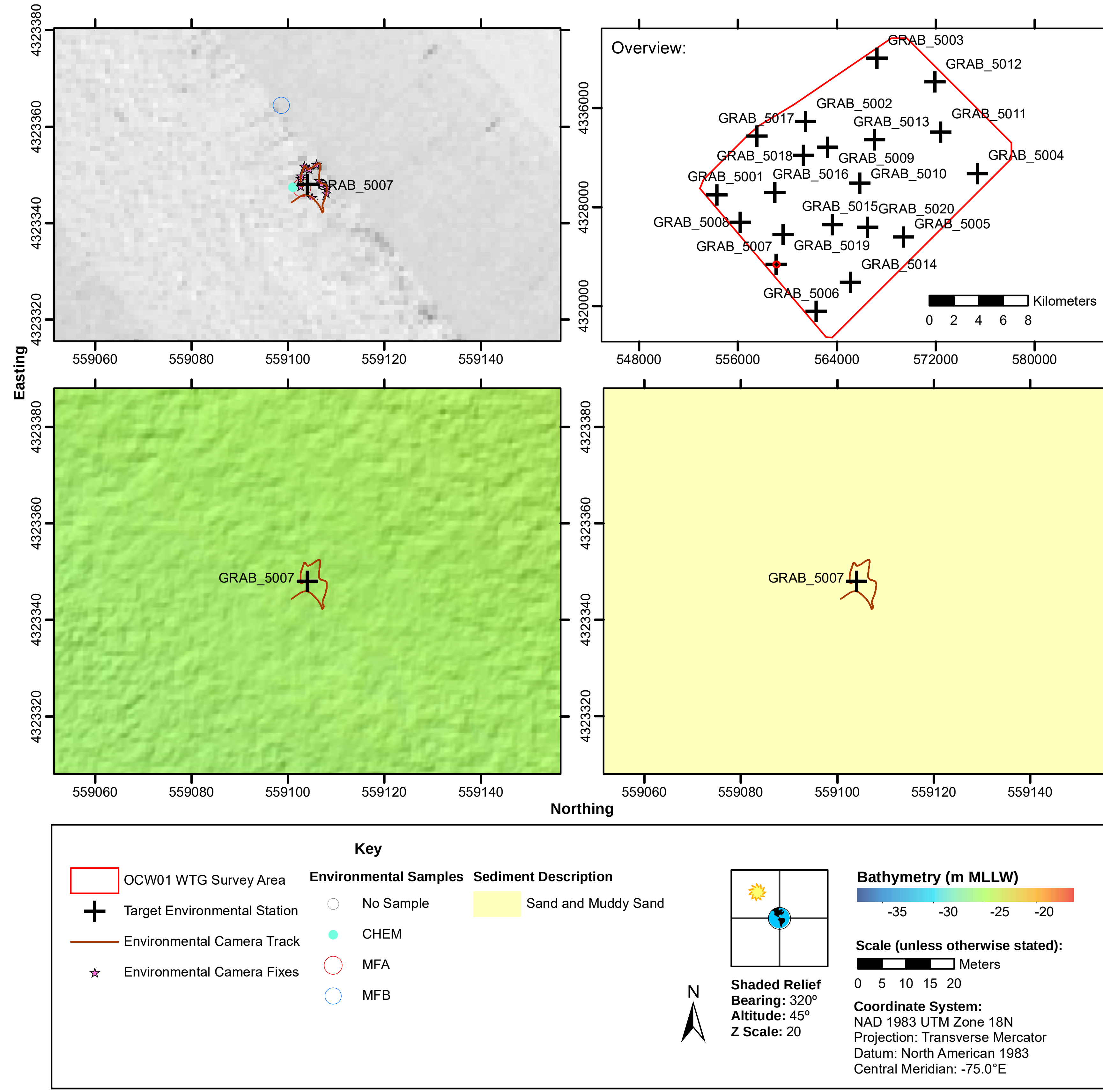
Sediment Description
Sand



Station: GRAB_5007 **Fix:** 56 **Easting:** 559106
Northing: 4323349 **Depth:** -24m

Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A), Arthropoda (Paguroidea), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda B)



APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5008 **Fix:** 4 **Easting:** 556184
Northing: 4326771 **Depth:** -27m

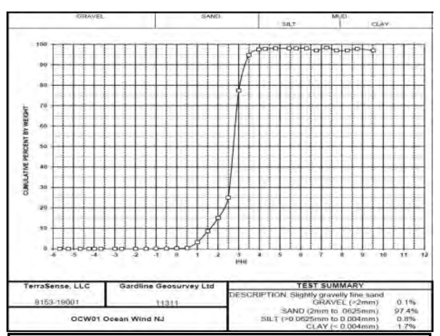
Sediment Description
Fine brown sand with a few shell fragments

Fauna Description
Annelida (Terrebellidae tube), Mollusca (Gastropoda)

Station: GRAB_5008 **Fix:** 17 **Easting:** 556184
Northing: 4326767 **Depth:** -27m

Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A, Polychaeta Tube E), Arthropoda (Paguroidea), Burrow, Chordata (Blennidae 1, *Raja montagui*), Mollusca (Gastropoda A, Gastropoda B, Gastropoda C)



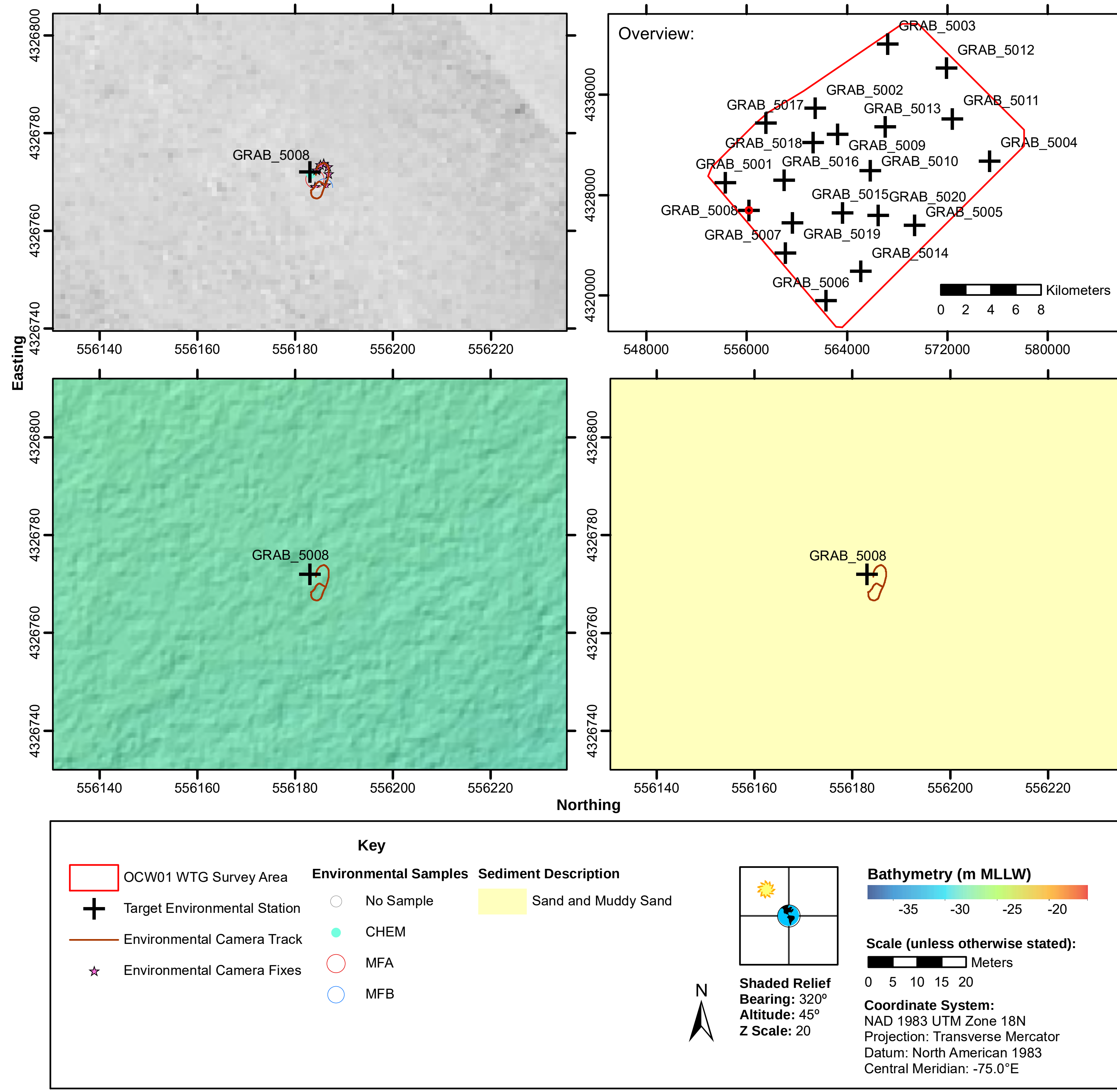
Station: GRAB_5008 **Fix:** 4 **Easting:** 556184
Northing: 4326771 **Retention:** PSA

Sediment Description
Slightly gravelly sand

Station: GRAB_5008 **Fix:** 20 **Easting:** 556186
Northing: 4326769 **Depth:** -27m

Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A, Polychaeta Tube B), Arthropoda (Paguroidea), Chordata (Blennidae 1), Mollusca (Gastropoda B, Gastropoda C)

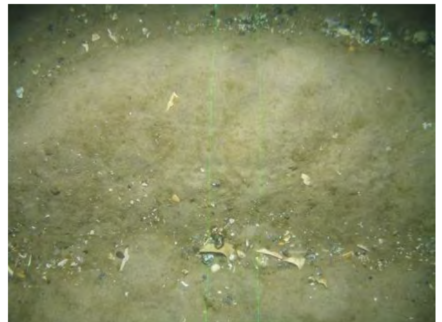


APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5009 **Fix:** 39 **Easting:** 563273
Northing: 4332821 **Depth:** -23m

Sediment Description
Coarse brown sand with shell fragments

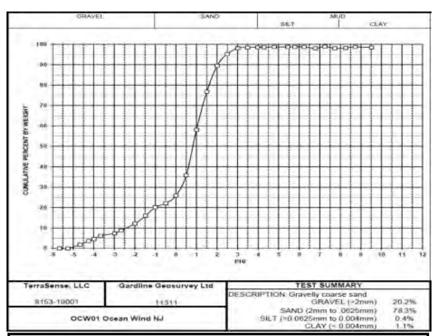
Fauna Description
Annelida (Polychaeta)



Station: GRAB_5009 **Fix:** 169 **Easting:** 563272
Northing: 4332825 **Depth:** -23m

Sediment Description
Rippled fine sand with gravel, shells and shell fragments.

Fauna Description
Annelida (Polycheata Tube H), Chordata (Blennidae 1)



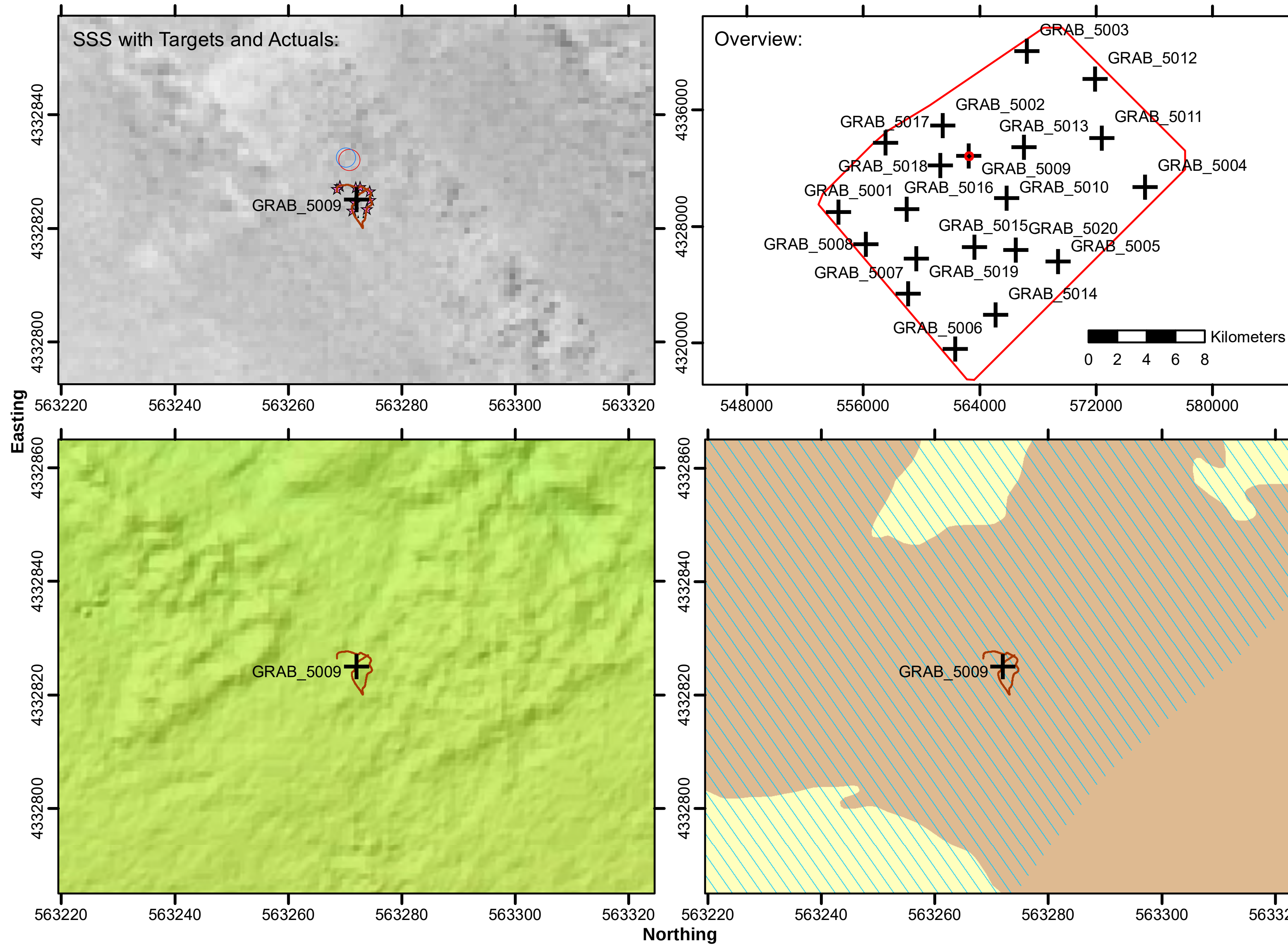
Station: GRAB_5009 **Fix:** 39 **Easting:** 563273
Northing: 4332821 **Retention:** PSA

Sediment Description
Gravelly sand

Station: GRAB_5009 **Fix:** 171 **Easting:** 563272
Northing: 4332821 **Depth:** -23m

Sediment Description
Rippled fine sand with gravel, shell and shell fragments

Fauna Description
Arthropoda (Paguroidea), Chordata (Blennidae 1)



Key

OCW01 WTG Survey Area
Target Environmental Station
Environmental Camera Track
Environmental Camera Fixes

Environmental Samples
No Sample
CHEM
MFA
MFB

Sediment Description
Coarse Sediment
Sand and Muddy Sand

Seabed Morphology
Rough Seabed

N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5010 **Fix:** 41 **Easting:** 565858
Northing: 4329918 **Depth:** -28m

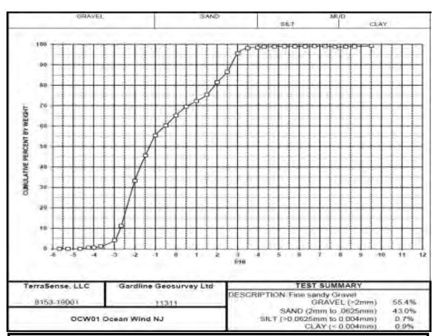
Sediment Description
Silty silty coarse sandy gravel with shells and shell fragments

Fauna Description
Arthropoda (Paguroidea)

Station: GRAB_5010 **Fix:** 186 **Easting:** 565865
Northing: 4329913 **Depth:** -27m

Sediment Description
Gravelly sands with abundant shells and shell fragments.

Fauna Description
Arthropoda (Paguroidea)



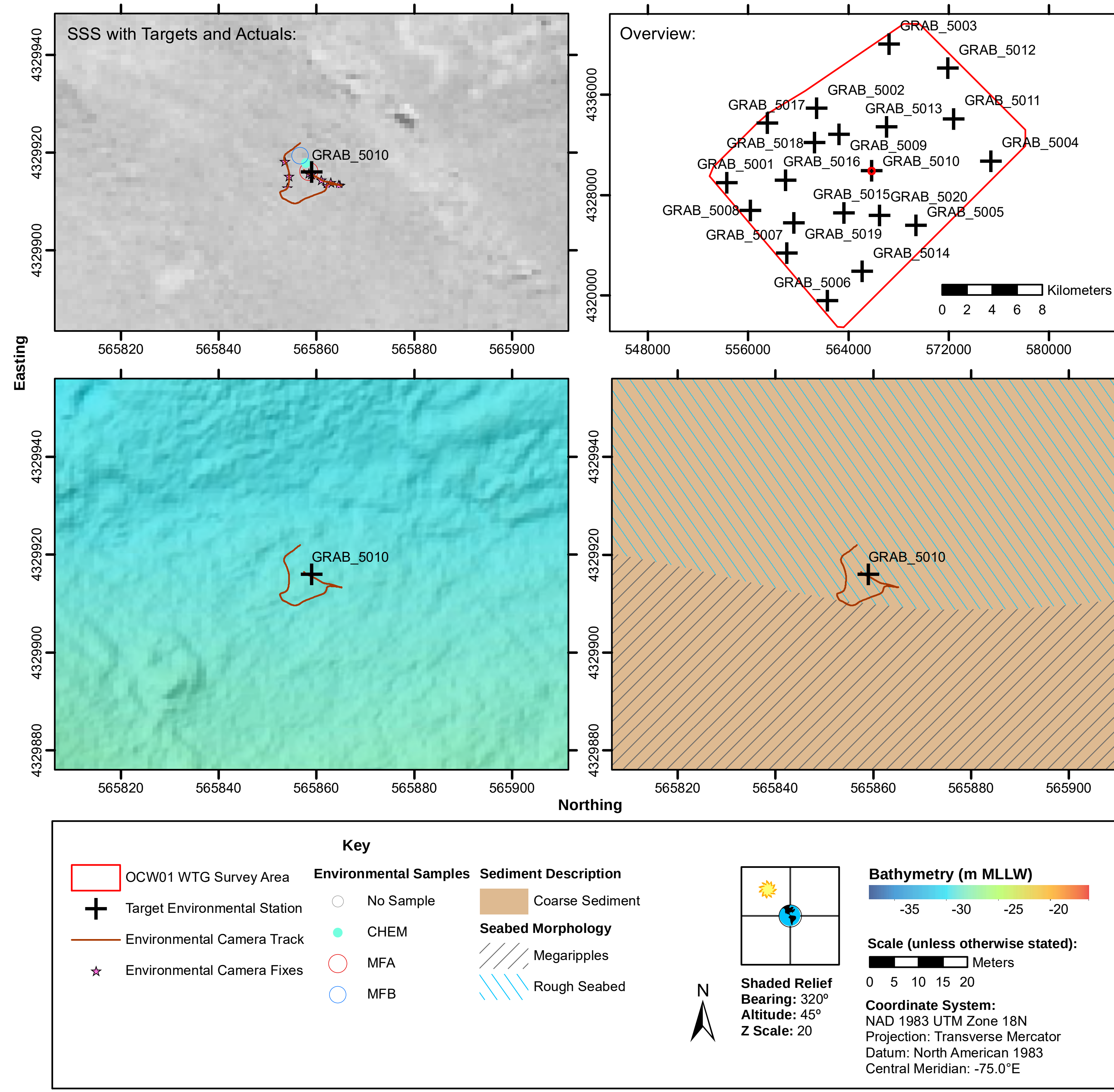
Station: GRAB_5010 **Fix:** 41 **Easting:** 565858
Northing: 4329918 **Retention:** PSA

Sediment Description
Sandy gravel

Station: GRAB_5010 **Fix:** 198 **Easting:** 565854
Northing: 4329918 **Depth:** -28m

Sediment Description
Gravelly sands with abundant shells and shell fragments.

Fauna Description
Arthropoda (Paguroidea), Chordata (Rajidae Egg Case)



APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5011 **Fix:** 65 **Easting:** 572425 **Northing:** 4334073 **Depth:** -32m

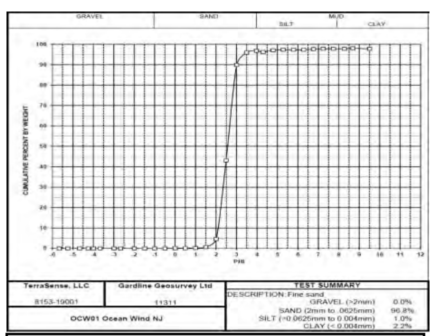
Sediment Description
Fine grey-brown sand with some clay, anoxic smell

Fauna Description
Annelida (Terrebellidae tube), Mollusca (Gastropoda)

Station: GRAB_5011 **Fix:** 278 **Easting:** 572420 **Northing:** 4334078 **Depth:** -32m

Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A), Chordata (Blennidae 1), Echinodermata (*Echinarachnius parma*)



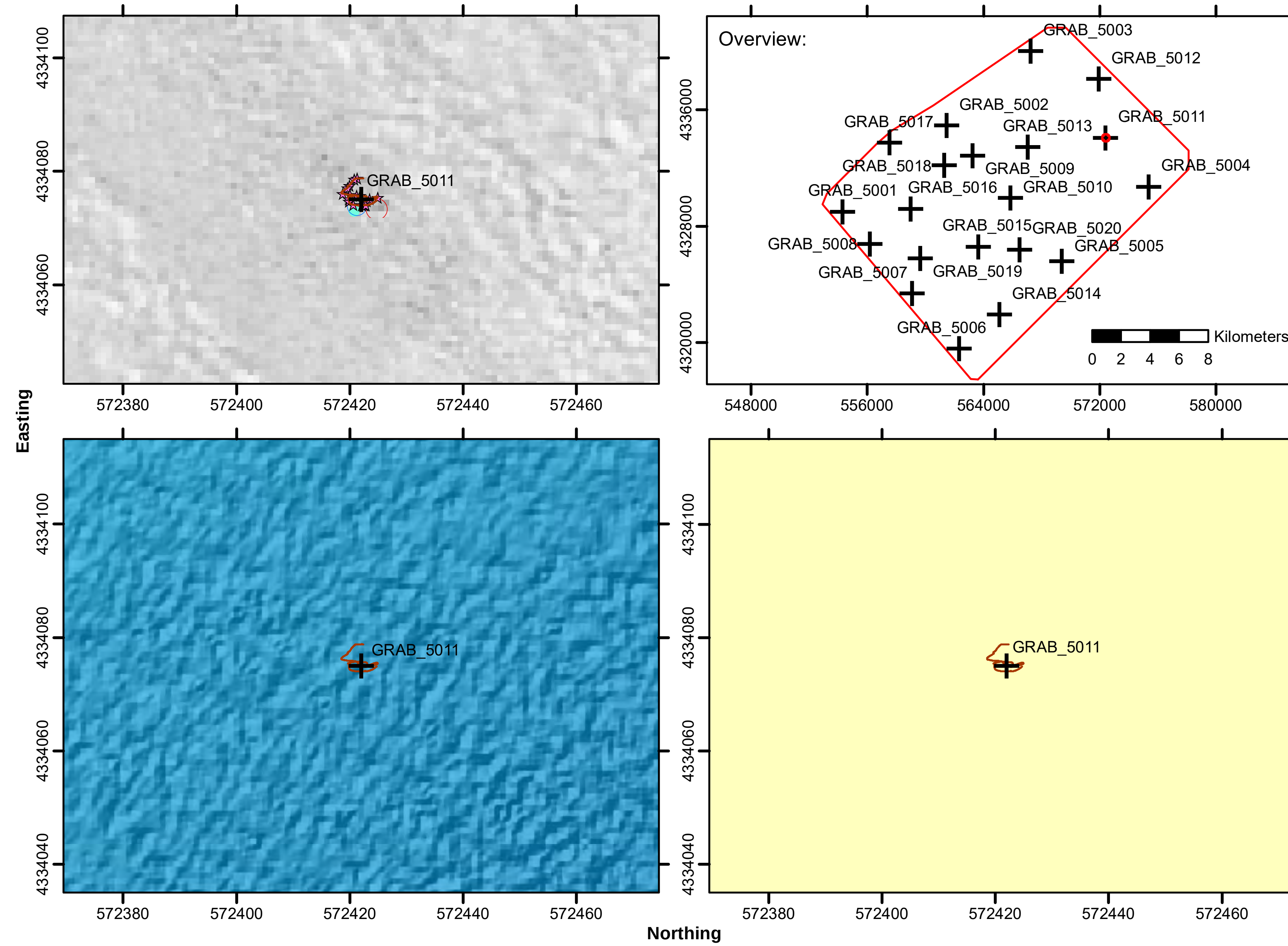
Station: GRAB_5011 **Fix:** 65 **Easting:** 572425 **Northing:** 4334073 **Retention:** PSA

Sediment Description
Sand

Station: GRAB_5011 **Fix:** 287 **Easting:** 572422 **Northing:** 4334076 **Depth:** -32m

Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A), Chordata (Blennidae 1), Echinodermata (*Echinarachnius parma*)



Key

OCW01 WTG Survey Area	
Target Environmental Station	
Environmental Camera Track	
Environmental Camera Fixes	

Environmental Samples
- No Sample
- CHEM
- MFA
- MFB

Sediment Description
- Sand and Muddy Sand

N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5012 **Fix:** 68 **Easting:** 571952 **Northing:** 4338126 **Depth:** -22

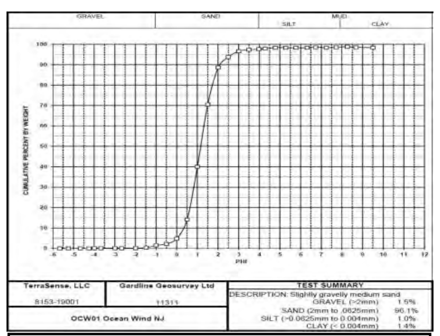
Sediment Description
Medium to coarse brown sand with shells and shell fragments

Fauna Description
Echinodermata (Clypeasteroida)

Station: GRAB_5012 **Fix:** 297 **Easting:** 571947 **Northing:** 4338124 **Depth:** -21

Sediment Description
Fine rippled sand with shell fragments

Fauna Description
Chordata (Blenniidae 1), Mollusca (Gastropoda B)



Station: GRAB_5012 **Fix:** 68 **Easting:** 571952 **Northing:** 4338126 **Retention:** PSA

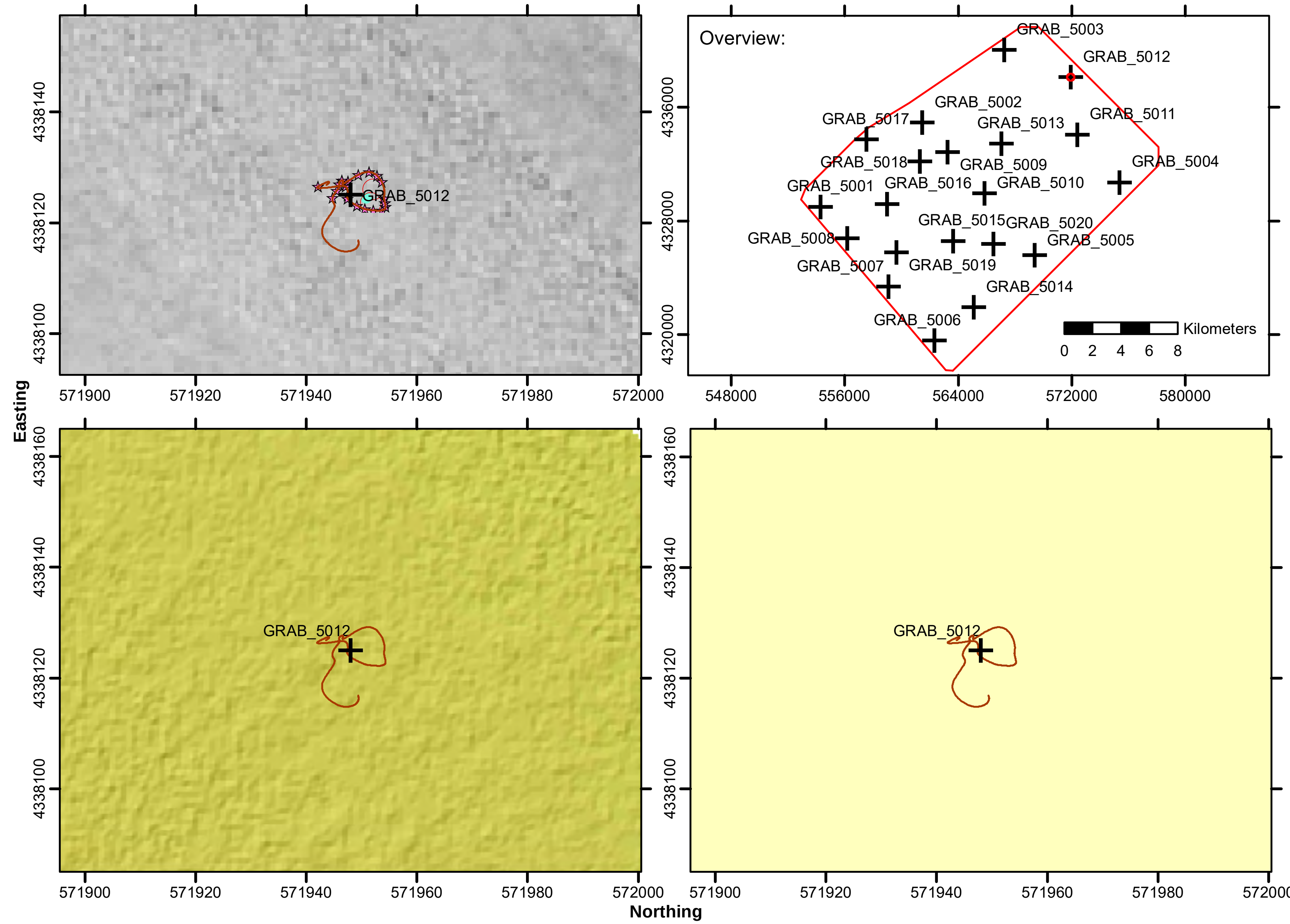
Sediment Description
Slightly gravelly sand

Fauna Description

Station: GRAB_5012 **Fix:** 309 **Easting:** 571948 **Northing:** 4338128 **Depth:** -21

Sediment Description
Fine rippled sand with shell fragments

Fauna Description
Arthropoda (Paguroidea), Mollusca (Gastropoda A)



Key

OCW01 WTG Survey Area	**Environmental Samples**	**Sediment Description**
Target Environmental Station	No Sample	Sand and Muddy Sand
Environmental Camera Track	CHEM	
Environmental Camera Fixes	MFA	
	MFB	

N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5013 **Fix:** 56 **Easting:** 567064 **Northing:** 4333429 **Depth:** -24m

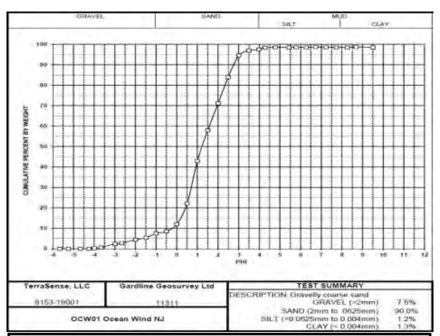
Sediment Description
Slightly silty medium grey-brown sand with shell fragments

Fauna Description
Annelida (Terrebellidae tube)

Station: GRAB_5013 **Fix:** 249 **Easting:** 567066 **Northing:** 4333434 **Depth:** -24m

Sediment Description
Fine sand with shell fragments

Fauna Description
Chordata (Blennidae 1), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda B, Gastropoda E, Nudibranchia C)



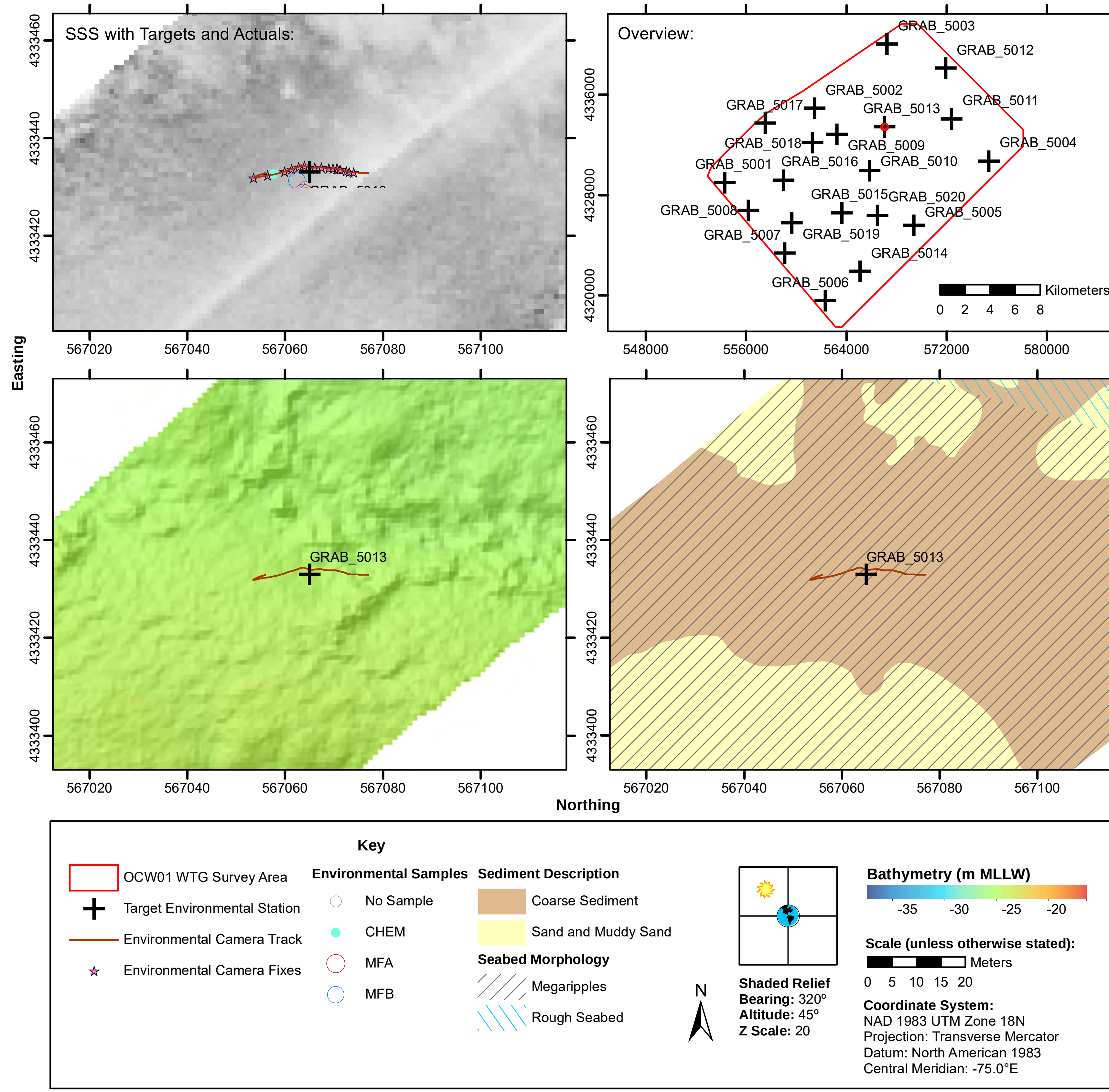
Station: GRAB_5013 **Fix:** 56 **Easting:** 567064 **Northing:** 4333429 **Retention:** PSA

Sediment Description
Gravelly sand

Station: GRAB_5013 **Fix:** 252 **Easting:** 567070 **Northing:** 4333434 **Depth:** -24m

Sediment Description
Fine sand with shell fragments

Fauna Description
Arthropoda (Paguroidea), Chordata (Blennidae 1)

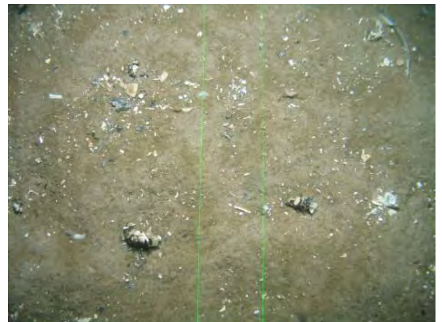


APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5014 **Fix:** 20 **Easting:** 565096
Northing: 4321889 **Depth:** -30m

Sediment Description
Medium to coarse brown sand with shell fragments

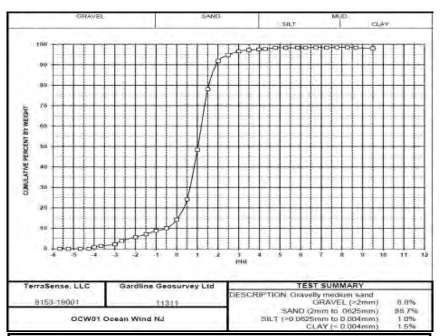
Fauna Description
Annelida (Polychaeta), Echinodermata (Clypeasteroida)



Station: GRAB_5014 **Fix:** 90 **Easting:** 565097
Northing: 4321886 **Depth:** -30m

Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube A), Mollusca (Gastropoda A, Gastropoda B)



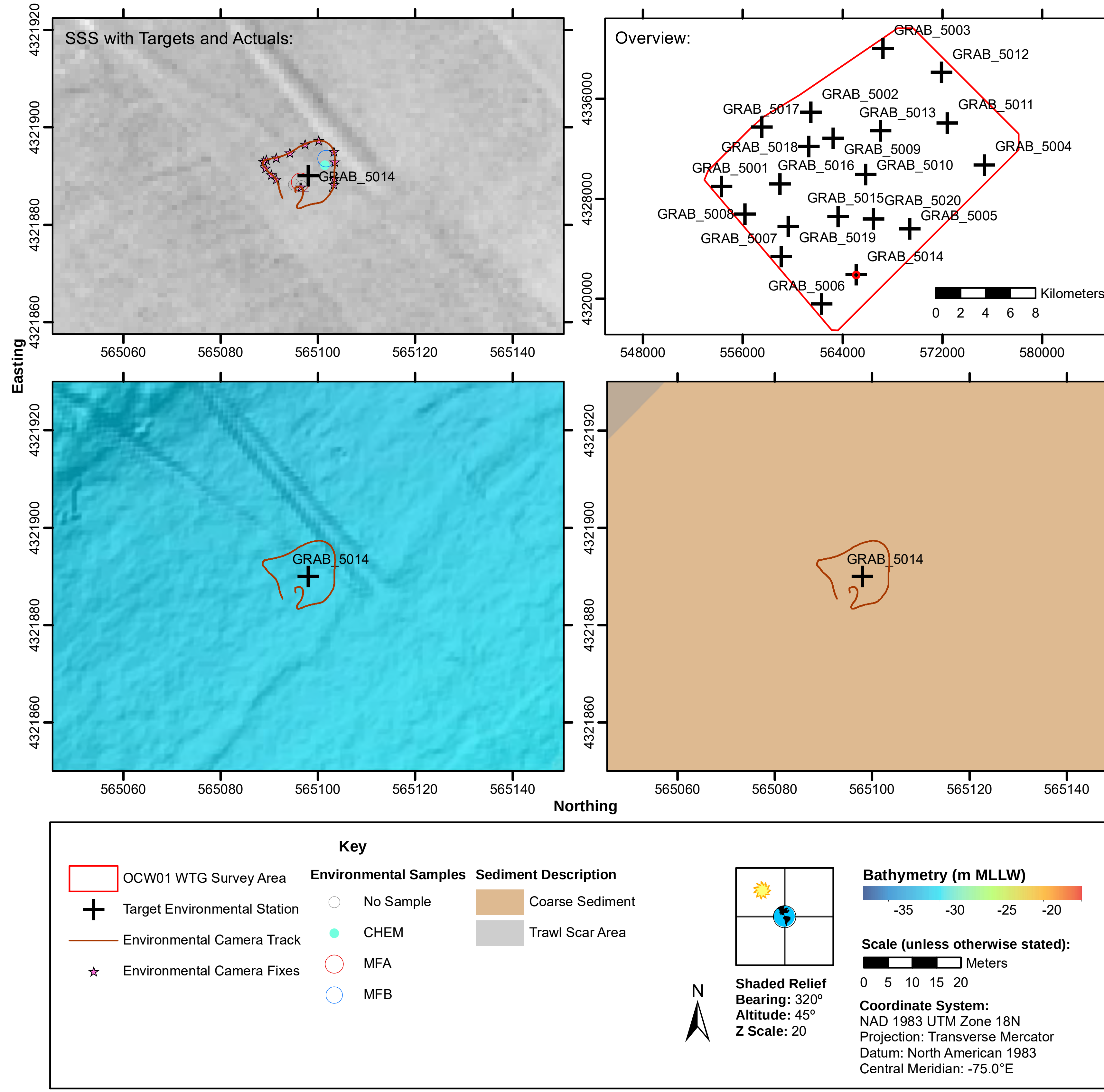
Station: GRAB_5014 **Fix:** 20 **Easting:** 565096
Northing: 4321889 **Retention:** PSA

Sediment Description
Gravelly sand

Station: GRAB_5014 **Fix:** 106 **Easting:** 565089
Northing: 4321893 **Depth:** -30m

Sediment Description
Fine sand with shell fragments

Fauna Description
Annelida (Polychaeta Tube E), Arthropoda (Paguroidea), Burrow, Chordata (Triglidae 1), Mollusca (Nudibranchia C)



APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5015 **Fix:** 199 **Easting:** 563649 **Northing:** 4326578 **Depth:** -32m

Sediment Description
Fine sand and gravel with shell fragments

Fauna Description
Annelida (Polychaeta Tube E), Arthropoda (Paguroidea, Arthropoda Indeterminate), Mollusca (*Arctica islandica* - dead, Gastropoda B, Gastropoda F)

Station: GRAB_5015 **Fix:** 211 **Easting:** 563652 **Northing:** 4326570 **Depth:** -32m

Sediment Description
Fine sand

Fauna Description
Chordata (Rajidae Egg Case), Mollusca (Gastropoda A, Nudibranchia C)

Station: GRAB_5015 **Fix:** 218 **Easting:** 563656 **Northing:** 4326578 **Depth:** -32m

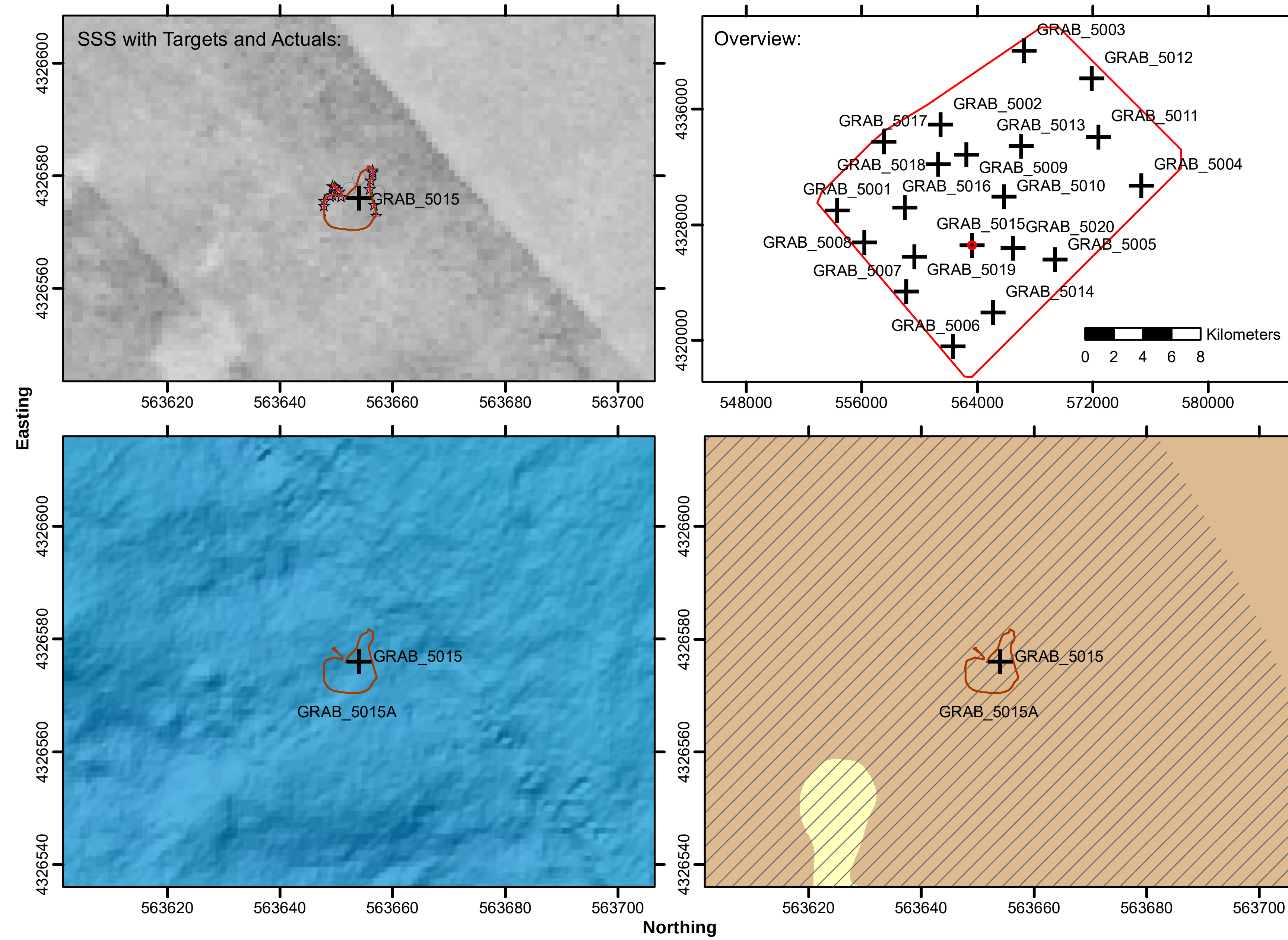
Sediment Description
Gravelly sands with abundant shells and shell fragments.

Fauna Description
Arthropoda (Paguroidea), Chordata (Blennidae 1), Mollusca (*Arctica islandica* - dead, Gastropoda A)

Station: GRAB_5015 **Fix:** 221 **Easting:** 563656 **Northing:** 4326581 **Depth:** -32m

Sediment Description
Fine sands with abundant shells and occasional gravel

Fauna Description
Mollusca (Nudibranchia C)



Key

OCW01 WTG Survey Area
Target Environmental Station
Offset Grab Target Location
Environmental Camera Track
Environmental Camera Fixes

Environmental Samples
No Sample
CHEM
MFA
MFB

Sediment Description
Coarse Sediment
Sand and Muddy Sand

Seabed Morphology
Megaripples

N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5016 **Fix:** 8 **Easting:** 559004
Northing: 4329169 **Depth:** -29m

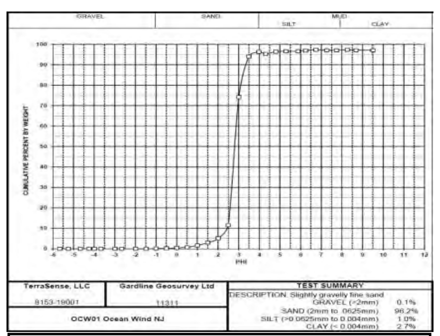
Sediment Description
Fine brown sand

Fauna Description
Mollusca (Gastropoda)

Station: GRAB_5016 **Fix:** 27 **Easting:** 559006
Northing: 4329174 **Depth:** -29m

Sediment Description
Fine sand

Fauna Description
Annelida (Polychaeta Tube A), Arthropoda (Paguroidea), Chordata (Blenniidae 1), Mollusca (Gastropoda A)



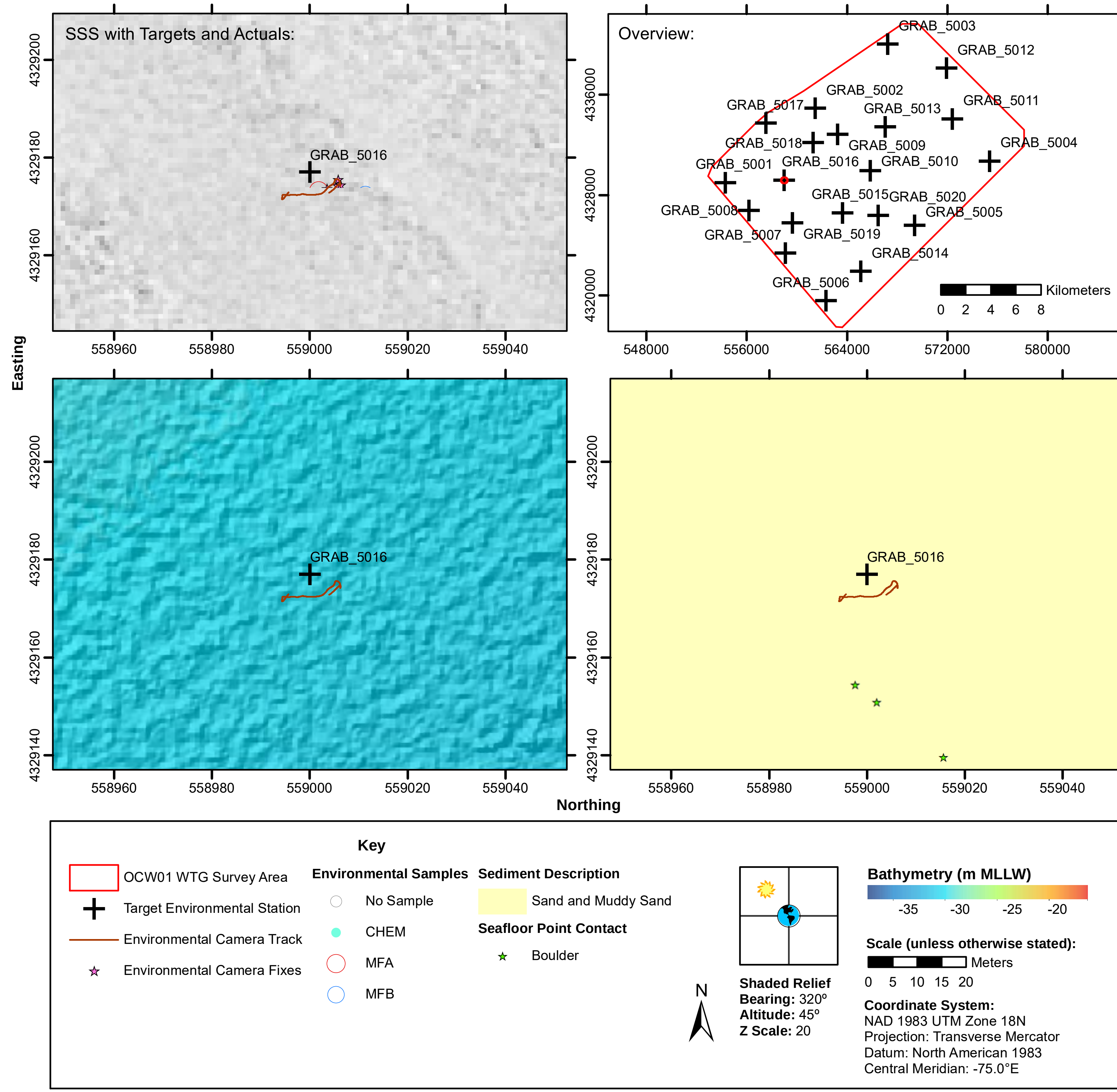
Station: GRAB_5016 **Fix:** 8 **Easting:** 559004
Northing: 4329169 **Retention:** PSA

Sediment Description
Slightly gravelly sand

Station: GRAB_5016 **Fix:** 33 **Easting:** 558995
Northing: 4329172 **Depth:** -29m

Sediment Description
Fine sand

Fauna Description
Arthropoda (Paguroidea), Chordata (Blenniidae 1), Mollusca (Gastropoda A)

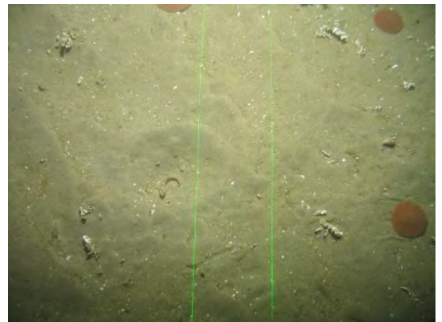


APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5017 **Fix:** 31 **Easting:** 557549
Northing: 4333727 **Depth:** -23m

Sediment Description
Fine silty brown sand

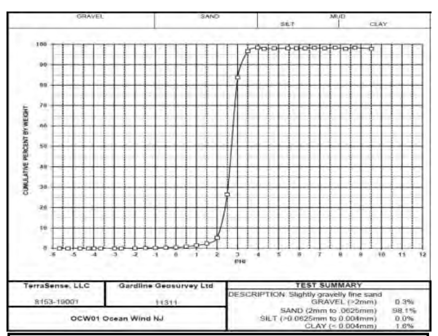
Fauna Description
Annelida (Terrebellidae tube), Arthropoda (Paguroidea), Mollusca (Gastropoda)



Station: GRAB_5017 **Fix:** 144 **Easting:** 557551
Northing: 4333729 **Depth:** -23m

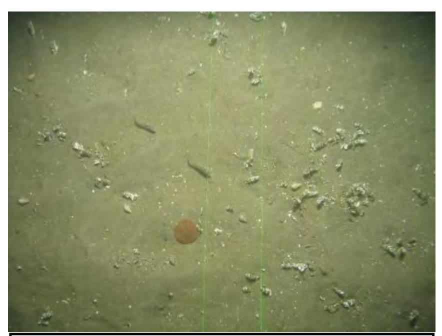
Sediment Description
Fine sand with abundant shells and shell fragments.

Fauna Description
Annelida (Polychaeta Tube A), Arthropoda (Paguroidea), Chordata (Phycidae), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda A, Nudibranchia C)



Station: GRAB_5017 **Fix:** 31 **Easting:** 557549
Northing: 4333727 **Retention:** PSA

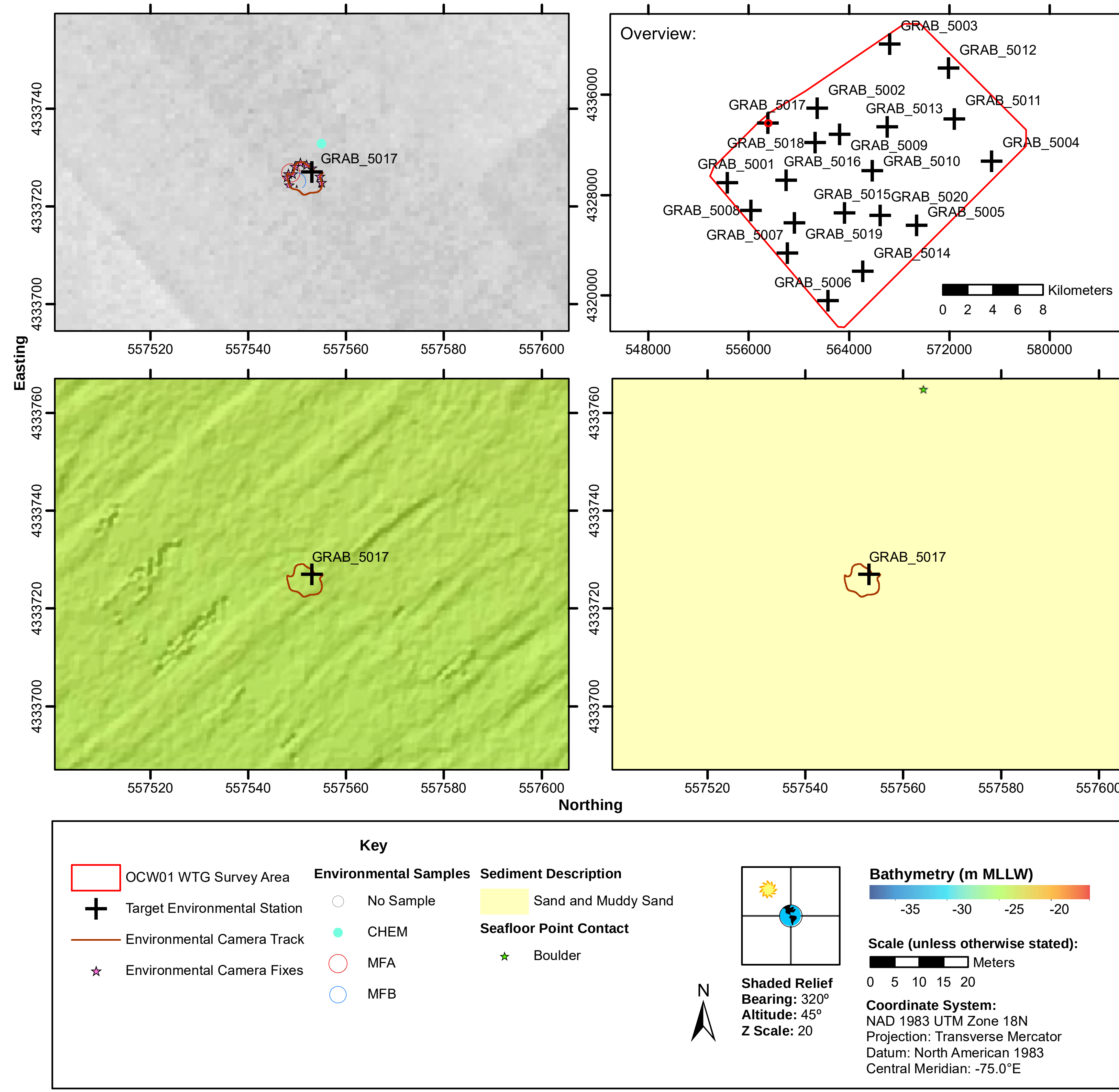
Sediment Description
Slightly gravelly sand



Station: GRAB_5017 **Fix:** 152 **Easting:** 557551
Northing: 4333722 **Depth:** -23m

Sediment Description
Fine sand with abundant shells and shell fragments.

Fauna Description
Annelida (Polychaeta Tube A), Arthropoda (Paguroidea), Chordata (Actinopterygii indeterminate), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda A)



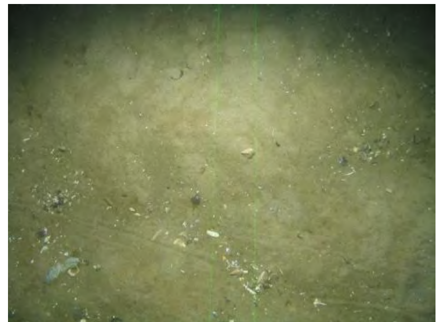
Gardline

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5018 **Fix:** 34 **Easting:** 561312
Northing: 4332171 **Depth:** -25m

Sediment Description
Fine to coarse brown sand

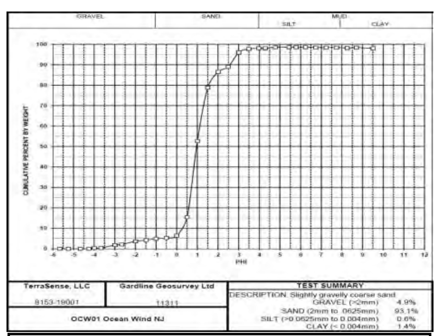
Fauna Description
Arthropoda (Paguroidea)



Station: GRAB_5018 **Fix:** 159 **Easting:** 561313
Northing: 4332167 **Depth:** -25m

Sediment Description
Fine sand with abundant shells and shell fragments.

Fauna Description
Arthropoda (Paguroidea), Mollusca (Gastropoda A)



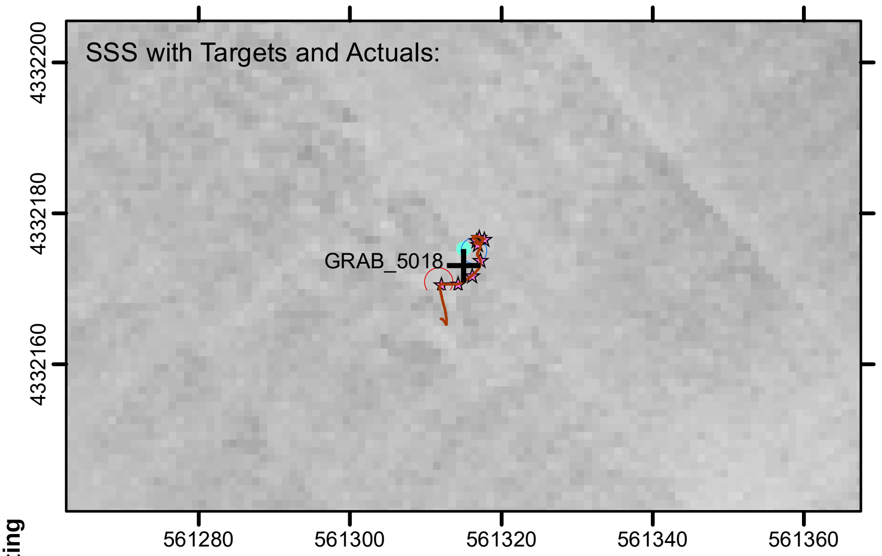
Station: GRAB_5018 **Fix:** 34 **Easting:** 561312
Northing: 4332171 **Retention:** PSA

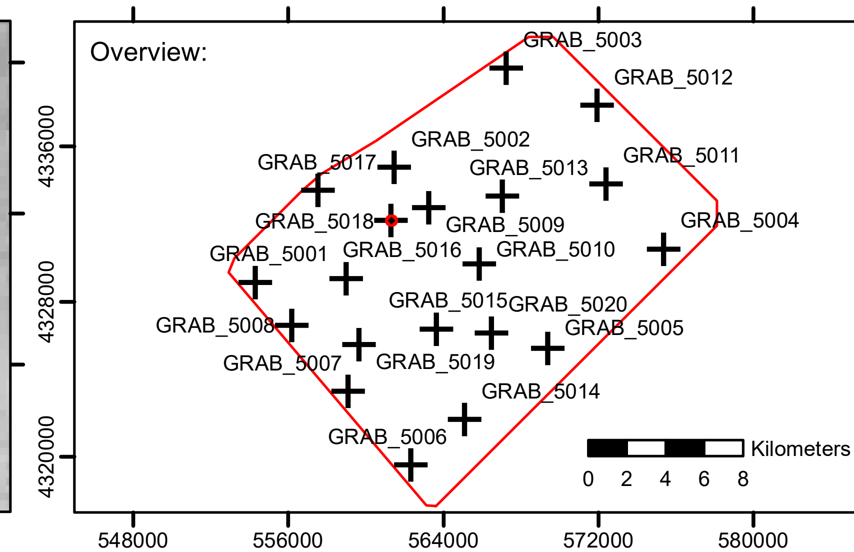
Sediment Description
Slightly gravelly sand

Station: GRAB_5018 **Fix:** 162 **Easting:** 561314
Northing: 4332171 **Depth:** -25m

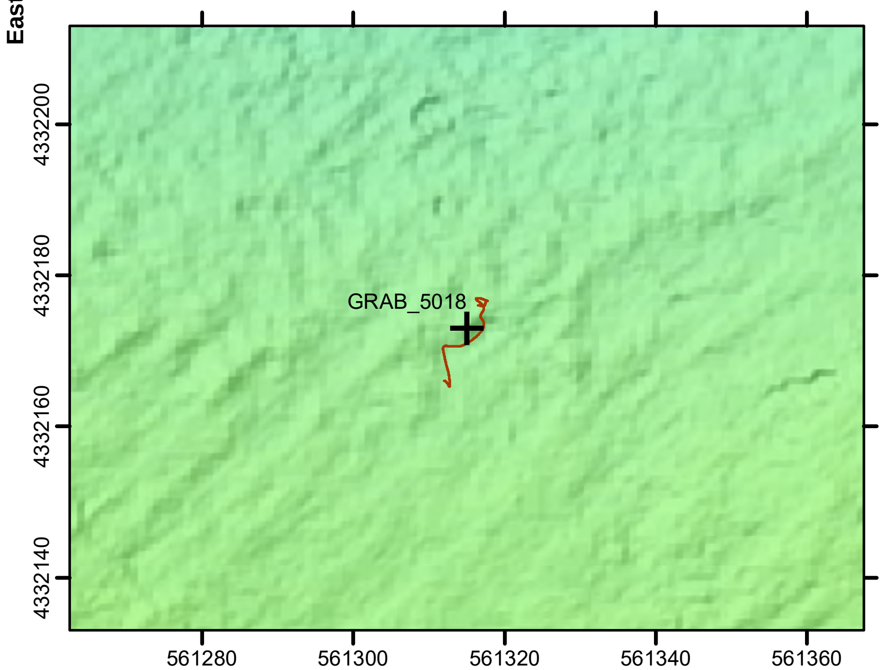
Sediment Description
Fine sand with abundant shells and shell fragments.

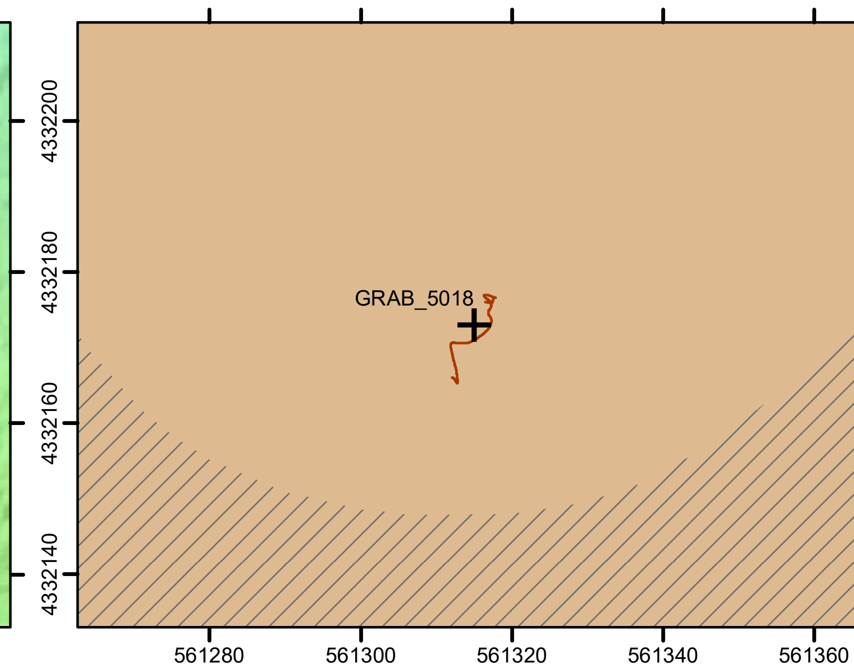
Fauna Description
No visible fauna





Easting





Northing

Key

OCW01 WTG Survey Area
Target Environmental Station
Environmental Camera Track
Environmental Camera Fixes

Environmental Samples
No Sample
CHEM
MFA
MFB

Sediment Description
Coarse Sediment

Seabed Morphology
Megaripples

N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5019 **Fix:** 13 **Easting:** 559103
Northing: 4323347 **Depth:** -30m

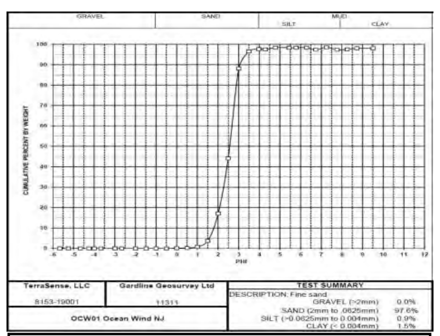
Sediment Description
Fine to medium brown sand

Fauna Description
Annelida (Polychaeta), Arthropoda (Paguroidea), Echinodermata (Clypeasteroida)

Station: GRAB_5019 **Fix:** 38 **Easting:** 559675
Northing: 4325770 **Depth:** -30m

Sediment Description
Gravel with silty fine sand and shell fragments

Fauna Description
Arthropoda (Paguroidea), Mollusca
(*Arctica islandica* - dead, Nudibranchia C)



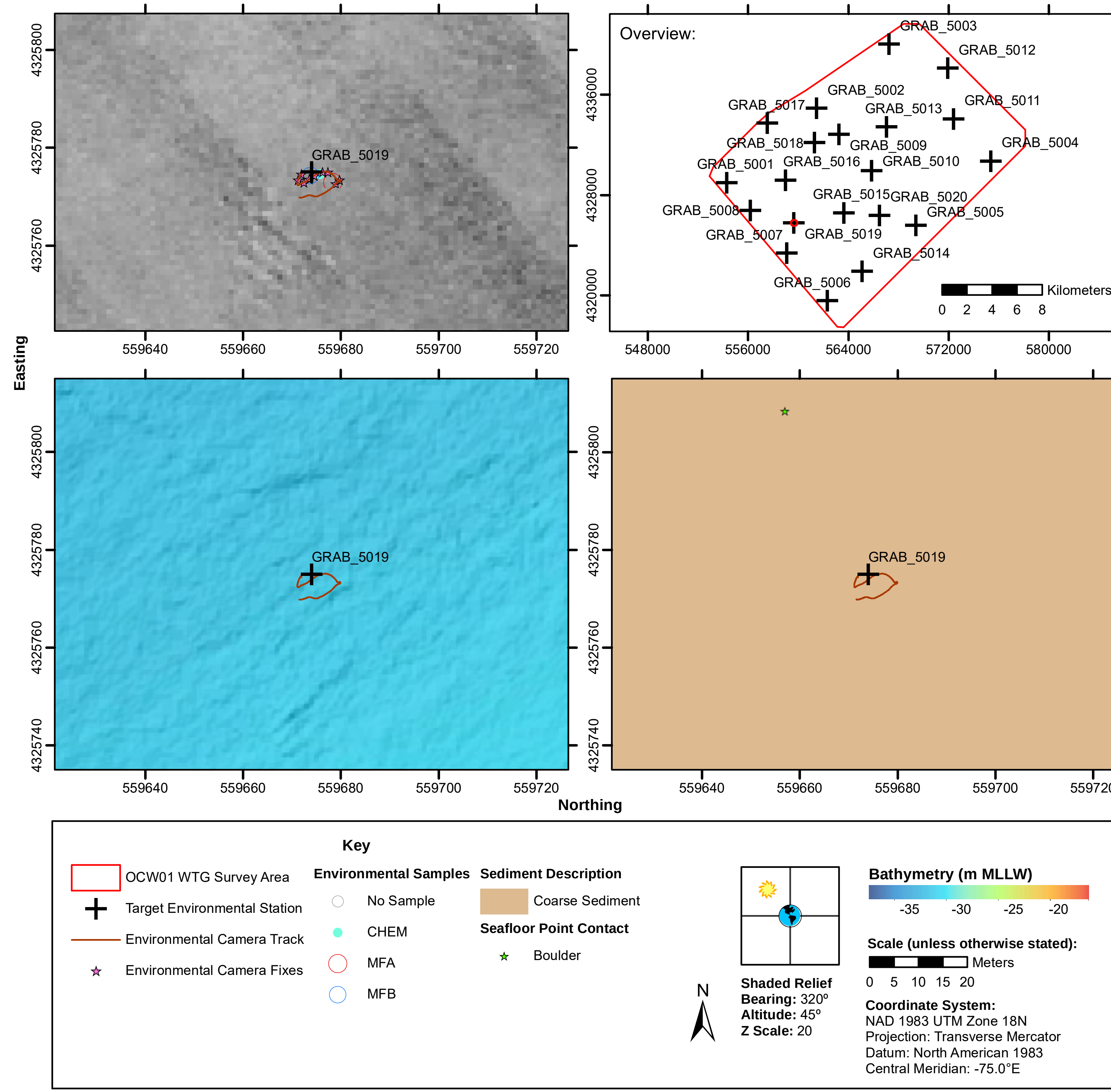
Station: GRAB_5019 **Fix:** 13 **Easting:** 559103
Northing: 4323347 **Retention:** PSA

Sediment Description
Sandy gravel

Station: GRAB_5019 **Fix:** 46 **Easting:** 559672
Northing: 4325773 **Depth:** -30m

Sediment Description
Gravel with fine silty sand and shell fragments

Fauna Description
Arthropoda (Paguroidea), Mollusca
(Cephalopoda 1)

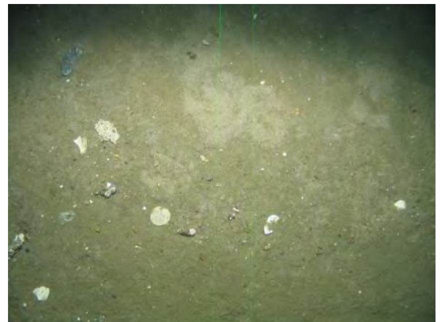


APPENDIX C SAMPLING AND SEABED PHOTOPLATES

Station: GRAB_5020 **Fix:** 49 **Easting:** 566496
Northing: 4326374 **Depth:** -32m

Sediment Description
Medium to coarse brown sand with shell fragments

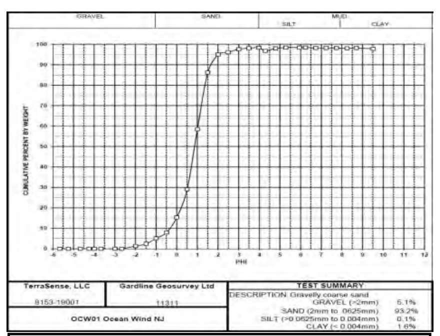
Fauna Description
Annelida (Polychaeta)



Station: GRAB_5020 **Fix:** 224 **Easting:** 566498
Northing: 4326380 **Depth:** -32m

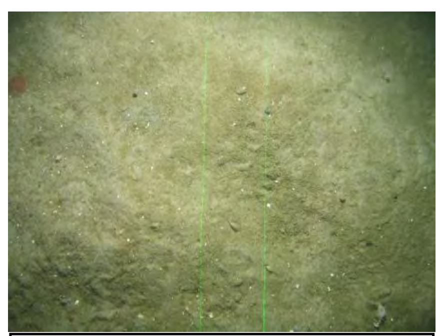
Sediment Description
Fine silty sand with gravel and shell fragments

Fauna Description
Annelida (Polychaeta Tube A), Arthropoda (Paguroidea), Mollusca (Bivalvia Siphons)



Station: GRAB_5020 **Fix:** 49 **Easting:** 566496
Northing: 4326374 **Retention:** PSA

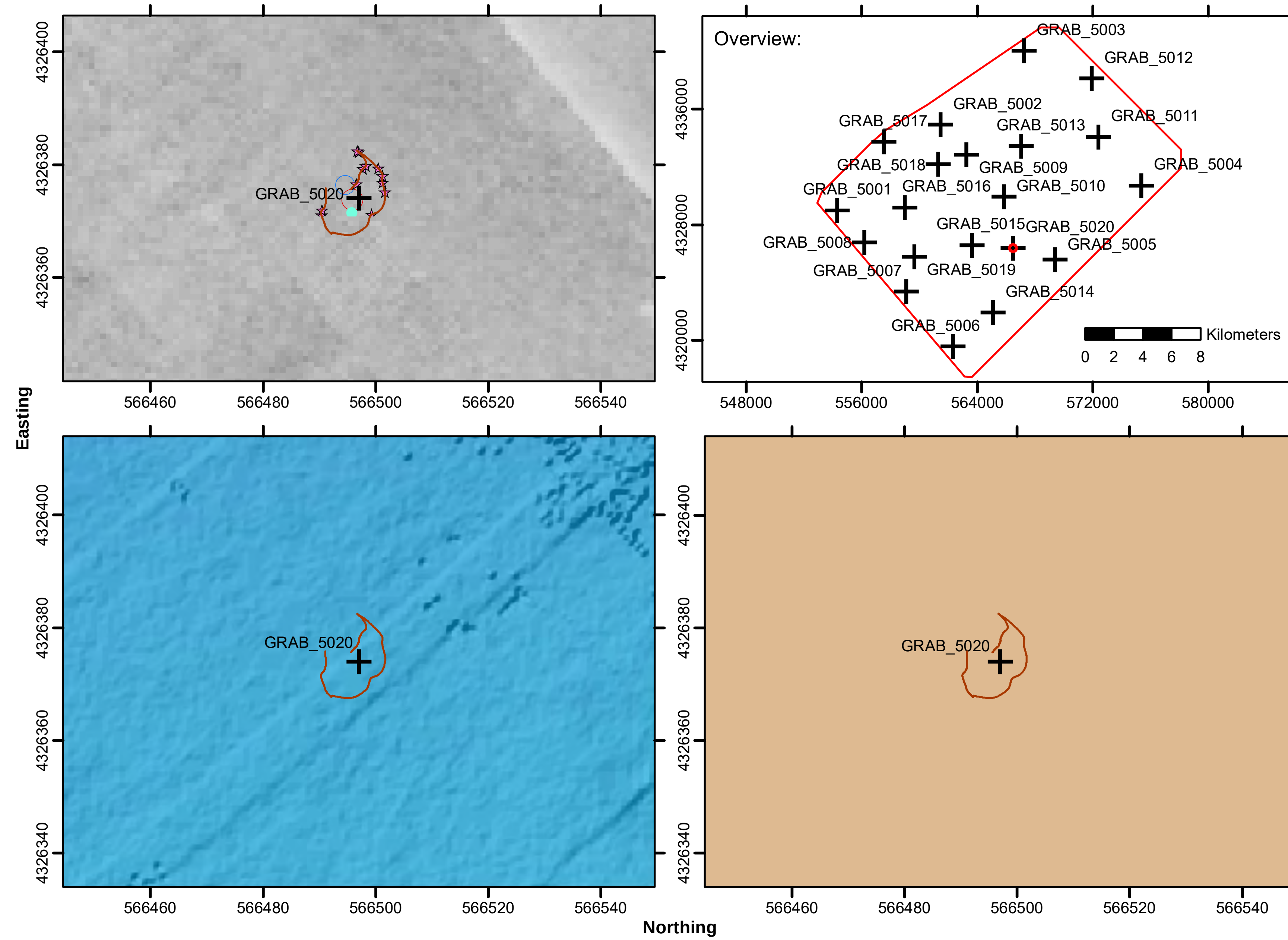
Sediment Description
Gravelly sand



Station: GRAB_5020 **Fix:** 242 **Easting:** 566490
Northing: 4326372 **Depth:** -32m

Sediment Description
Fine sand with shell fragments

Fauna Description
Burrow, Chordata (Blennidae 1), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropod C)



Key

OCW01 WTG Survey Area
Target Environmental Station
Environmental Camera Track
Environmental Camera Fixes

Environmental Samples
No Sample
CHEM
MFA
MFB

Sediment Description
Coarse Sediment

N

Shaded Relief
Bearing: 320°
Altitude: 45°
Z Scale: 20

Bathymetry (m MLLW)
-35 -30 -25 -20

Scale (unless otherwise stated):
Meters
0 5 10 15 20

Coordinate System:
NAD 1983 UTM Zone 18N
Projection: Transverse Mercator
Datum: North American 1983
Central Meridian: -75.0°E

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Gardline

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
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grab5001 fix 3 vlcsnap-2020-01-08-13h01m25s239	GRAB_5001									P			P										P									P											P											
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grab_5003 infill snapshot 7	GRAB_5003																															P																						
grab_5003 snapshot 1	GRAB_5003																											1				P																						

Gardline

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
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grab_5004 fix 264 vlcsnap-2020-01-08-15h32m06s174	GRAB_5004							P										P					P											1																	P			
grab_5004 fix 265 vlcsnap-2020-01-08-15h37m13s997	GRAB_5004							P				P		P			P	P																																				
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grab_5004 fix 267 vlcsnap-2020-01-08-15h38m53s003	GRAB_5004							P										P			P																														P			
grab_5004 fix 268 vlcsnap-2020-01-08-15h41m35s468	GRAB_5004							P										P					P																															

Gardline

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
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grab_5004 fix 270 vlcsnap-2020-01-08-15h44m58s130	GRAB_5004												P					P			P											P										P									P			
grab_5004 fix 271 vlcsnap-2020-01-08-15h45m57s740	GRAB_5004							P					P					P																						P		P									P			
grab_5004 fix 272 vlcsnap-2020-01-08-15h47m30s124	GRAB_5004							P					P					P					P										P																		P			
grab_5004 fix 273 vlcsnap-2020-01-08-15h49m09s336	GRAB_5004							P					P					P																																	P			
grab_5004 fix 274 vlcsnap-2020-01-08-15h50m39s886	GRAB_5004							P										P					P																												P			
grab_5004 fix 275 vlcsnap-2020-01-08-15h53m03s845	GRAB_5004							P										P																1																				
grab_5005 infill snapshot 1	GRAB_5005																															P																						
grab_5005 infill snapshot 2	GRAB_5005																															P																						
grab_5005 infill snapshot 3	GRAB_5005																															P																			P			
grab_5005 snapshot 1	GRAB_5005												P					P		P												P																						
grab_5005 snapshot 2	GRAB_5005														P																	P									P													
grab_5005 snapshot 3	GRAB_5005																	P														P																						
11311_grab_5005_fix(110)_kongsberg14208	GRAB_5005																P				P											P										P												
11311_grab_5005_fix(111)_kongsberg14208	GRAB_5005												P																			P									P			P							P			
11311_grab_5005_fix(112)_kongsberg14208	GRAB_5005			P											P																	P									P													
11311_grab_5005_fix(113)_kongsberg14208	GRAB_5005	P																P														P					1				P	P												
11311_grab_5005_fix(114)_kongsberg14208	GRAB_5005																															P										P												
11311_grab_5005_fix(115)_kongsberg14208	GRAB_5005																															P											P	P										
11311_grab_5005_fix(116)_kongsberg14208	GRAB_5005																	P														P																		P				
11311_grab_5005_fix(117)_kongsberg14208	GRAB_5005																															P										P					P				P			
11311_grab_5005_fix(118)_kongsberg14208	GRAB_5005												P																			P										P												
11311_grab_5005_fix(119)_kongsberg14208	GRAB_5005																				P											P																						
11311_grab_5005_fix(120)_kongsberg14208	GRAB_5005												P																			P																		P				
11311_grab_5005_fix(121)_kongsberg14208	GRAB_5005																															P										P												
11311_grab_5005_fix(122)_kongsberg14208	GRAB_5005												P																			P									P	P	P											
11311_grab_5005_fix(123)_kongsberg14208	GRAB_5005												P								P											P									P													
11311_grab_5005_fix(124)_kongsberg14208	GRAB_5005		P																		P											P											P											
11311_grab_5005_fix(125)_kongsberg14208	GRAB_5005																															P											P							P				
11311_grab_5005_fix(126)_kongsberg14208	GRAB_5005	P																														P										P	P											
grab_5006 infill snapshot 1	GRAB_5006												P																																									
grab_5006 infill snapshot 2	GRAB_5006																																																					
grab_5006 infill snapshot 3	GRAB_5006																	P			P																																	
grab_5006 infill snapshot 4	GRAB_5006																																																					
grab_5006 infill snapshot 5	GRAB_5006												P																																									
grab_5006 infill snapshot 6	GRAB_5006							P										P			P																																	
grab_5006 infill snapshot 7	GRAB_5006																				P																					P												
grab_5006 infill snapshot 8	GRAB_5006																															P																						
grab_5006 snapshot 1	GRAB_5006																	P																															P					
11311_grab_5006_fix(66)_kongsberg14208	GRAB_5006																																									P												
11311_grab_5006_fix(67)_kongsberg14208	GRAB_5006																																																					
11311_grab_5006_fix(68)_kongsberg14208	GRAB_5006				P																																																	
11311_grab_5006_fix(69)_kongsberg14208	GRAB_5006																				P																																	
11311_grab_5006_fix(70)_kongsberg14208	GRAB_5006																																									P	P											

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
11311_grab_5006_fix(71)_kongsberg14208	GRAB_5006																	P																																				
11311_grab_5006_fix(72)_kongsberg14208	GRAB_5006																																									P												
11311_grab_5006_fix(73)_kongsberg14208	GRAB_5006																																									P												
11311_grab_5006_fix(74)_kongsberg14208	GRAB_5006									P																																												
11311_grab_5006_fix(75)_kongsberg14208	GRAB_5006			P																	P											P																P		P				
11311_grab_5006_fix(76)_kongsberg14208	GRAB_5006												P								P																														P			
11311_grab_5006_fix(77)_kongsberg14208	GRAB_5006																																																					
11311_grab_5006_fix(78)_kongsberg14208	GRAB_5006												P					P														P																						
11311_grab_5006_fix(79)_kongsberg14208	GRAB_5006																	P			P																					P		P										
11311_grab_5006_fix(80)_kongsberg14208	GRAB_5006																				P																														P			
11311_grab_5006_fix(81)_kongsberg14208	GRAB_5006												P																																									
11311_grab_5006_fix(82)_kongsberg14208	GRAB_5006																																																		P			
11311_grab_5006_fix(83)_kongsberg14208	GRAB_5006																	P																																				
11311_grab_5006_fix(84)_kongsberg14208	GRAB_5006																																																					
11311_grab_5006_fix(85)_kongsberg14208	GRAB_5006							P													P																														P			
11311_grab_5006_fix(86)_kongsberg14208	GRAB_5006																				P																					P												
11311_grab_5006_fix(87)_kongsberg14208	GRAB_5006																				P																						P											
grab_5007 infill snapshot 1	GRAB_5007																															P																						
11311_grab_5007_fix(49)_kongsberg14208	GRAB_5007																	P														P										P									P			
11311_grab_5007_fix(50)_kongsberg14208	GRAB_5007												P								P											P										P												
11311_grab_5007_fix(51)_kongsberg14208	GRAB_5007																	P			P											P										P												
11311_grab_5007_fix(52)_kongsberg14208	GRAB_5007												P					P														P																			P			
11311_grab_5007_fix(53)_kongsberg14208	GRAB_5007																						P									P										P			P							P			
11311_grab_5007_fix(54)_kongsberg14208	GRAB_5007						P																									P																						
11311_grab_5007_fix(55)_kongsberg14208	GRAB_5007												P								P		P									P																			P			
11311_grab_5007_fix(56)_kongsberg14208	GRAB_5007												P					P														P										P												
11311_grab_5007_fix(57)_kongsberg14208	GRAB_5007												P					P			P											P										P												
11311_grab_5007_fix(58)_kongsberg14208	GRAB_5007																	P														P										P												
11311_grab_5007_fix(59)_kongsberg14208	GRAB_5007																				P											P																						
11311_grab_5007_fix(60)_kongsberg14208	GRAB_5007									P													P									P									P	P												
11311_grab_5007_fix(61)_kongsberg14208	GRAB_5007							P										P			P											P										P									P			
11311_grab_5007_fix(62)_kongsberg14208	GRAB_5007																	P														P																						
11311_grab_5007_fix(63)_kongsberg14208	GRAB_5007																				P											P											P											
11311_grab_5007_fix(64)_kongsberg14208	GRAB_5007																															P										P	P											
11311_grab_5007_fix(65)_kongsberg14208	GRAB_5007																	P														P											P		P									
grab_5008 snapshot 2	GRAB_5008																		P		P		P																															
11311_grab_5008_fix(14)_kongsberg14208	GRAB_5008							P					P								P		P																		P	P		P							P			
11311_grab_5008_fix(15)_kongsberg14208	GRAB_5008						P						P					P														P										P									P			
11311_grab_5008_fix(16)_kongsberg14208	GRAB_5008												P																																						P			
11311_grab_5008_fix(17)_kongsberg14208	GRAB_5008							P					P					P			P		P				P														P	P	P											
11311_grab_5008_fix(18)_kongsberg14208	GRAB_5008												P					P			P		P																			P	P								P			
11311_grab_5008_fix(19)_kongsberg14208	GRAB_5008			P									P					P			P		P																			P	P											
11311_grab_5008_fix(20)_kongsberg14208	GRAB_5008						P						P					P					P																			P	P											
11311_grab_5008_fix(21)_kongsberg14208	GRAB_5008							P					P										P									P										P												

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APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
11311_grab_5008_fix(22)_kongsberg14208	GRAB_5008												P										P									P										P												
11311_grab_5008_fix(23)_kongsberg14208	GRAB_5008												P					P					P																			P												
11311_grab_5008_fix(24)_kongsberg14208	GRAB_5008																	P			P		P																				P							P			
11311_grab_5008_fix(25)_kongsberg14208	GRAB_5008						P	P					P										P																		P													
grab_5009 snapshot 1	GRAB_5009																	P			P											P																	P					
11311_grab_5009_fix(169)_kongsberg14208	GRAB_5009								P														P																															
11311_grab_5009_fix(170)_kongsberg14208	GRAB_5009																	P																																				
11311_grab_5009_fix(171)_kongsberg14208	GRAB_5009																	P					P																															
11311_grab_5009_fix(172)_kongsberg14208	GRAB_5009																																				1																	
11311_grab_5009_fix(173)_kongsberg14208	GRAB_5009																						P																															
11311_grab_5009_fix(174)_kongsberg14208	GRAB_5009																						P								P																							
11311_grab_5009_fix(175)_kongsberg14208	GRAB_5009								P																																													
11311_grab_5009_fix(176)_kongsberg14208	GRAB_5009								P				P										P																				P											
11311_grab_5009_fix(177)_kongsberg14208	GRAB_5009								P														P																			P												
11311_grab_5009_fix(178)_kongsberg14208	GRAB_5009						P		P									P					P																															
11311_grab_5009_fix(179)_kongsberg14208	GRAB_5009																	P			P																																	
11311_grab_5009_fix(180)_kongsberg14208	GRAB_5009								P												P		P									P																						
grab_5010 infill snapshot 1	GRAB_5010																				P																																	
grab_5010 infill snapshot 2	GRAB_5010																	P																																				
grab_5010 snapshot 1	GRAB_5010																	P											1																									
grab_5010 snapshot 2	GRAB_5010																						P								P																							
grab_5010 snapshot 3	GRAB_5010																	P									P																											
11311_grab_5010_fix(181)_kongsberg14208	GRAB_5010																	P																																				
11311_grab_5010_fix(182)_kongsberg14208	GRAB_5010																	P					P																															
11311_grab_5010_fix(183)_kongsberg14208	GRAB_5010																	P																																				
11311_grab_5010_fix(184)_kongsberg14208	GRAB_5010																	P					P																															
11311_grab_5010_fix(185)_kongsberg14208	GRAB_5010																	P																																				
11311_grab_5010_fix(186)_kongsberg14208	GRAB_5010																	P																																				
11311_grab_5010_fix(187)_kongsberg14208	GRAB_5010																	P																																				
11311_grab_5010_fix(188)_kongsberg14208	GRAB_5010																	P					P																															
11311_grab_5010_fix(189)_kongsberg14208	GRAB_5010																	P					P								P																							
11311_grab_5010_fix(190)_kongsberg14208	GRAB_5010																	P			P																																	
11311_grab_5010_fix(191)_kongsberg14208	GRAB_5010																	P			P				P																										P			
11311_grab_5010_fix(192)_kongsberg14208	GRAB_5010																	P			P																																	
11311_grab_5010_fix(193)_kongsberg14208	GRAB_5010																	P					P																															
11311_grab_5010_fix(194)_kongsberg14208	GRAB_5010																	P			P																																	
11311_grab_5010_fix(195)_kongsberg14208	GRAB_5010																						P																			P												
11311_grab_5010_fix(196)_kongsberg14208	GRAB_5010																	P					P																															
11311_grab_5010_fix(197)_kongsberg14208	GRAB_5010																	P			P																																	
11311_grab_5010_fix(198)_kongsberg14208	GRAB_5010																	P										1																										
grab_5011 infill snapshot 1	GRAB_5011												P										P									P																						
grab_5011 infill snapshot 2	GRAB_5011												P										P									P									P													
grab_5011 infill snapshot 3	GRAB_5011												P								P		P									P																						
grab_5011 infill snapshot 4	GRAB_5011												P					P			P		P									P																						

Gardline

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
grab_5011 infill snapshot 5	GRAB_5011							P					P								P		P									P																						
grab_5011 snapshot 1	GRAB_5011												P										P									P																						
grab_5011 fix 276 vlcsnap-2020-01-08-15h59m35s003	GRAB_5011												P										P									P																						
grab_5011 fix 277 vlcsnap-2020-01-08-16h02m28s962	GRAB_5011												P										P									P																						
grab_5011 fix 278 vlcsnap-2020-01-08-16h03m40s850	GRAB_5011												P										P									P																						
grab_5011 fix 279 vlcsnap-2020-01-08-16h04m50s120	GRAB_5011												P					P					P									P																						
grab_5011 fix 280 vlcsnap-2020-01-08-16h06m55s217	GRAB_5011												P					P					P		P							P																			P			
grab_5011 fix 281 vlcsnap-2020-01-08-16h08m01s029	GRAB_5011												P										P									P																						
grab_5011 fix 282 vlcsnap-2020-01-08-16h09m23s200	GRAB_5011												P								P		P									P																						
grab_5011 fix 283 vlcsnap-2020-01-08-16h10m29s935	GRAB_5011												P										P									P									P													
grab_5011 fix 284 vlcsnap-2020-01-08-16h11m14s874	GRAB_5011												P										P									P																						
grab_5011 fix 285 vlcsnap-2020-01-08-16h12m25s420	GRAB_5011												P										P									P																			P			
grab_5011 fix 286 vlcsnap-2020-01-08-16h13m32s395	GRAB_5011												P					P					P									P																						
grab_5011 fix 287 vlcsnap-2020-01-08-16h14m51s097	GRAB_5011												P										P									P																						
grab_5011 fix 288 vlcsnap-2020-01-08-16h16m00s452	GRAB_5011												P								P		P		P							P																			P			
grab_5011 fix 289 vlcsnap-2020-01-08-16h17m40s143	GRAB_5011												P										P		P							P																			P			
grab_5011 fix 290 vlcsnap-2020-01-08-16h18m49s695	GRAB_5011						P																P									P																						
grab_5011 fix 291 vlcsnap-2020-01-08-16h19m54s487	GRAB_5011												P					P					P									P																						
grab_5011 fix 292 vlcsnap-2020-01-08-16h21m26s279	GRAB_5011																	P					P									P																						
grab_5011 fix 293 vlcsnap-2020-01-08-16h22m14s453	GRAB_5011												P										P									P																						
grab_5012 infill snapshot 1	GRAB_5012																				P																					P												
grab_5012 infill snapshot 2	GRAB_5012																				P		P									P																						
grab_5012 infill snapshot 3	GRAB_5012																	P																																				
grab_5012 infill snapshot 4	GRAB_5012																															P																						
grab_5012 snapshot 1	GRAB_5012			P																	P											P										P							P					
grab_5012 snapshot 2	GRAB_5012																															P											P						P					
grab_5012 fix 294 vlcsnap-2020-01-08-16h24m58s175	GRAB_5012												P																			P																						
grab_5012 fix 295 vlcsnap-2020-01-08-16h26m07s496	GRAB_5012																						P									P																						
grab_5012 fix 296 vlcsnap-2020-01-08-16h26m56s878	GRAB_5012																																			P								P										
grab_5012 fix 297 vlcsnap-2020-01-08-16h27m41s021	GRAB_5012																						P																			P												
grab_5012 fix 298 vlcsnap-2020-01-08-16h28m44s760	GRAB_5012												P								P																																	
grab_5012 fix 299 vlcsnap-2020-01-08-16h29m30s636	GRAB_5012												P																			P																						
grab_5012 fix 300 vlcsnap-2020-01-08-16h30m39s844	GRAB_5012																				P																																	
grab_5012 fix 301 vlcsnap-2020-01-08-16h32m08s104	GRAB_5012																						P									P																						
grab_5012 fix 302 vlcsnap-2020-01-08-16h32m49s930	GRAB_5012			P														P														P										P												
grab_5012 fix 303 vlcsnap-2020-01-08-16h34m59s171	GRAB_5012																						P									P										P												
grab_5012 fix 304 vlcsnap-2020-01-08-16h36m24s590	GRAB_5012																																																					
grab_5012 fix 305 vlcsnap-2020-01-08-16h37m20s753	GRAB_5012																															P																						
grab_5012 fix 306 vlcsnap-2020-01-08-16h38m02s787	GRAB_5012																	P														P																						
grab_5012 fix 307 vlcsnap-2020-01-08-16h38m56s186	GRAB_5012																															P																						
grab_5012 fix 308 vlcsnap-2020-01-08-16h39m57s251	GRAB_5012																															P																						
grab_5012 fix 309 vlcsnap-2020-01-08-16h40m31s324	GRAB_5012																	P																							P													
grab_5012 fix 310 vlcsnap-2020-01-08-16h41m43s469	GRAB_5012																						P									P																						
grab_5012 fix 311 vlcsnap-2020-01-08-16h44m12s784	GRAB_5012																															P																						

Gardline

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
grab_5012 fix 312 vlcsnap-2020-01-08-16h45m02s853	GRAB_5012																															P																						
grab_5012 fix 313 vlcsnap-2020-01-08-16h45m50s575	GRAB_5012									P																						P																						
grab_5012 fix 314 vlcsnap-2020-01-08-16h46m40s622	GRAB_5012																															P												P										
grab_5012 fix 315 vlcsnap-2020-01-08-16h47m41s947	GRAB_5012																																																					
grab_5013 infill snapshot 1	GRAB_5013						P														P		P									P																						
grab_5013 infill snapshot 2	GRAB_5013																				P																														P			
grab_5013 infill snapshot 3	GRAB_5013																						P																															
grab_5013 infill snapshot 4	GRAB_5013																						P																															
grab_5013 fix 243 vlcsnap-2020-01-08-16h50m47s987	GRAB_5013																						P																															
grab_5013 fix 244 vlcsnap-2020-01-08-16h52m03s490	GRAB_5013																																																					
grab_5013 fix 245 vlcsnap-2020-01-08-16h53m07s165	GRAB_5013																						P																															
grab_5013 fix 246 vlcsnap-2020-01-08-16h54m14s456	GRAB_5013																						P																															
grab_5013 fix 247 vlcsnap-2020-01-08-16h55m02s180	GRAB_5013																				P		P		P																													
grab_5013 fix 248 vlcsnap-2020-01-08-16h55m53s348	GRAB_5013																								P																													
grab_5013 fix 249 vlcsnap-2020-01-08-16h56m54s092	GRAB_5013																						P									P																						
grab_5013 fix 250 vlcsnap-2020-01-08-16h57m33s127	GRAB_5013																				P		P																															
grab_5013 fix 251 vlcsnap-2020-01-08-16h58m22s010	GRAB_5013																						P																															
grab_5013 fix 252 vlcsnap-2020-01-08-16h59m02s955	GRAB_5013																	P					P																															
grab_5013 fix 253 vlcsnap-2020-01-08-17h00m01s562	GRAB_5013																	P					P																												P			
grab_5013 fix 254 vlcsnap-2020-01-08-17h00m43s973	GRAB_5013																					P	P																												P			
grab_5013 fix 255 vlcsnap-2020-01-08-17h02m16s194	GRAB_5013																																																					
grab_5013 fix 256 vlcsnap-2020-01-08-17h03m07s740	GRAB_5013																	P			P		P																			P		P										
grab_5013 fix 257 vlcsnap-2020-01-08-17h03m52s263	GRAB_5013																						P																															
grab_5013 fix 258 vlcsnap-2020-01-08-17h04m37s885	GRAB_5013																						P																															
grab_5014 infill snapshot 1	GRAB_5014																														P																							
grab_5014 infill snapshot 2	GRAB_5014																																																					
grab_5014 infill snapshot 3	GRAB_5014																	P																																				
grab_5014 infill snapshot 4	GRAB_5014																																																					
grab_5014 infill snapshot 5	GRAB_5014																																																					
grab_5014 infill snapshot 6	GRAB_5014																					P									P																							
grab_5014 infill snapshot 7	GRAB_5014																																	1																				
grab_5014 snapshot 1	GRAB_5014																												1																									
grab_5014 snapshot 2	GRAB_5014																												1			P																						
grab_5014 snapshot 3	GRAB_5014												P															1													P													
11311_grab_5014_fix(88)_kongsberg14208	GRAB_5014				P			P					P					P																																				
11311_grab_5014_fix(89)_kongsberg14208	GRAB_5014															P				P	P																							P										
11311_grab_5014_fix(90)_kongsberg14208	GRAB_5014												P																												P	P												
11311_grab_5014_fix(91)_kongsberg14208	GRAB_5014												P																																									
11311_grab_5014_fix(92)_kongsberg14208	GRAB_5014												P																																									
11311_grab_5014_fix(93)_kongsberg14208	GRAB_5014																															P																			P			
11311_grab_5014_fix(94)_kongsberg14208	GRAB_5014												P																																									
11311_grab_5014_fix(95)_kongsberg14208	GRAB_5014																																																		P			
11311_grab_5014_fix(96)_kongsberg14208	GRAB_5014																														P						1																	
11311_grab_5014_fix(97)_kongsberg14208	GRAB_5014																																										P		P						P			

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
11311_grab_5014_fix(98)_kongsberg14208	GRAB_5014							P										P																																				
11311_grab_5014_fix(99)_kongsberg14208	GRAB_5014																	P																									P											
11311_grab_5014_fix(100)_kongsberg14208	GRAB_5014							P					P					P													P										P													
11311_grab_5014_fix(101)_kongsberg14208	GRAB_5014						P	P																																		P												
11311_grab_5014_fix(102)_kongsberg14208	GRAB_5014																	P																										P							P			
11311_grab_5014_fix(103)_kongsberg14208	GRAB_5014							P										P		P																											P				P			
11311_grab_5014_fix(104)_kongsberg14208	GRAB_5014																	P																								P									P			
11311_grab_5014_fix(105)_kongsberg14208	GRAB_5014							P										P			P																														P			
11311_grab_5014_fix(106)_kongsberg14208	GRAB_5014							P										P			P										P																				P			
11311_grab_5014_fix(107)_kongsberg14208	GRAB_5014							P										P			P																														P			
11311_grab_5014_fix(108)_kongsberg14208	GRAB_5014							P										P			P										P																				P			
11311_grab_5014_fix(109)_kongsberg14208	GRAB_5014												P					P																																	P			
grab_5015 infill snapshot 1	GRAB_5015						P			P								P																																	P			
grab_5015 infill snapshot 2	GRAB_5015																																																					
grab_5015 snapshot 1	GRAB_5015																												1																									
grab_5015 snapshot 2	GRAB_5015																											1																										
grab_5015 snapshot 3	GRAB_5015							P						P				P						P																														
grab_5015 snapshot 4	GRAB_5015						P	P																										1								P									P			
11311_grab_5015_fix(199)_kongsberg14208	GRAB_5015							P										P		P														1								P				P								
11311_grab_5015_fix(200)_kongsberg14208	GRAB_5015																	P																								P								P				
11311_grab_5015_fix(201)_kongsberg14208	GRAB_5015													P							P																																	
11311_grab_5015_fix(202)_kongsberg14208	GRAB_5015																	P																								P	P								P			
11311_grab_5015_fix(203)_kongsberg14208	GRAB_5015																	P					P																			P		P										
11311_grab_5015_fix(204)_kongsberg14208	GRAB_5015							P										P			P																														P			
11311_grab_5015_fix(205)_kongsberg14208	GRAB_5015						P											P					P																			P												
11311_grab_5015_fix(206)_kongsberg14208	GRAB_5015					P												P							P																										P			
11311_grab_5015_fix(207)_kongsberg14208	GRAB_5015															P		P					P																															
11311_grab_5015_fix(208)_kongsberg14208	GRAB_5015						P						P					P																								P									P			
11311_grab_5015_fix(209)_kongsberg14208	GRAB_5015																	P					P																			P									P			
11311_grab_5015_fix(210)_kongsberg14208	GRAB_5015						P				P																															P									P			
11311_grab_5015_fix(211)_kongsberg14208	GRAB_5015																											1													P										P			
11311_grab_5015_fix(212)_kongsberg14208	GRAB_5015																	P					P																												P			
11311_grab_5015_fix(213)_kongsberg14208	GRAB_5015																	P					P																															
11311_grab_5015_fix(214)_kongsberg14208	GRAB_5015										P		P					P																										P										
11311_grab_5015_fix(215)_kongsberg14208	GRAB_5015																	P																																	P			
11311_grab_5015_fix(216)_kongsberg14208	GRAB_5015							P										P																																	P			
11311_grab_5015_fix(217)_kongsberg14208	GRAB_5015																						P																		P										P			
11311_grab_5015_fix(218)_kongsberg14208	GRAB_5015																	P					P											1							P													
11311_grab_5015_fix(219)_kongsberg14208	GRAB_5015														P			P							P																	P									P			
11311_grab_5015_fix(220)_kongsberg14208	GRAB_5015																																								P												P	
11311_grab_5015_fix(221)_kongsberg14208	GRAB_5015																																																		P			
grab_5016 infill snapshot 1	GRAB_5016												P								P		P																			P	P											
grab_5016 infill snapshot 2	GRAB_5016																				P		P																			P	P											
grab_5016 infill snapshot 3	GRAB_5016												P								P																					P	P								P			

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
grab_5016 infill snapshot 4	GRAB_5016												P										P																			P		P						P				
grab_5016 infill snapshot 5	GRAB_5016												P								P		P																			P		P										
grab_5016 infill snapshot 6	GRAB_5016												P					P			P																					P	P											
grab_5016 snapshot 1	GRAB_5016																						P						1													P												
grab_5016 snapshot 2	GRAB_5016																	P			P	P							1												P	P												
11311_grab_5016_fix(26)_kongsberg14208	GRAB_5016																	P																							P	P												
11311_grab_5016_fix(27)_kongsberg14208	GRAB_5016												P					P					P																		P													
11311_grab_5016_fix(28)_kongsberg14208	GRAB_5016												P					P																							P										P			
11311_grab_5016_fix(29)_kongsberg14208	GRAB_5016												P																												P													
11311_grab_5016_fix(30)_kongsberg14208	GRAB_5016																	P																							P													
11311_grab_5016_fix(31)_kongsberg14208	GRAB_5016																	P					P																		P													
11311_grab_5016_fix(32)_kongsberg14208	GRAB_5016																	P					P																		P													
11311_grab_5016_fix(33)_kongsberg14208	GRAB_5016																	P					P																		P													
11311_grab_5016_fix(34)_kongsberg14208	GRAB_5016																	P																							P													
11311_grab_5016_fix(35)_kongsberg14208	GRAB_5016																	P					P																		P													
grab_5017 snapshot 1	GRAB_5017												P					P										1				P																						
grab_5017 snapshot 2	GRAB_5017												P					P			P											P										P												P
11311_grab_5017_fix(142)_kongsberg14208	GRAB_5017												P												P							P																						
11311_grab_5017_fix(143)_kongsberg14208	GRAB_5017												P										P									P																						
11311_grab_5017_fix(144)_kongsberg14208	GRAB_5017												P					P							P							P									P										P			
11311_grab_5017_fix(145)_kongsberg14208	GRAB_5017												P					P														P									P													
11311_grab_5017_fix(146)_kongsberg14208	GRAB_5017												P					P					P									P									P													
11311_grab_5017_fix(147)_kongsberg14208	GRAB_5017												P								P											P									P													
11311_grab_5017_fix(148)_kongsberg14208	GRAB_5017												P					P																																				
11311_grab_5017_fix(149)_kongsberg14208	GRAB_5017												P					P					P									P																						
11311_grab_5017_fix(150)_kongsberg14208	GRAB_5017												P										P									P																						
11311_grab_5017_fix(151)_kongsberg14208	GRAB_5017												P																			P									P													
11311_grab_5017_fix(152)_kongsberg14208	GRAB_5017												P					P				P										P									P													
11311_grab_5017_fix(153)_kongsberg14208	GRAB_5017												P					P			P											P									P													
11311_grab_5017_fix(154)_kongsberg14208	GRAB_5017												P					P					P																															
11311_grab_5017_fix(155)_kongsberg14208	GRAB_5017												P					P					P									P									P													
11311_grab_5017_fix(156)_kongsberg14208	GRAB_5017												P																			P									P													
11311_grab_5017_fix(157)_kongsberg14208	GRAB_5017												P					P					P									P																						
grab_5018 snapshot 1	GRAB_5018																				P		P								P																							
grab_5018 snapshot 2	GRAB_5018																						P						1																									
11311_grab_5018_fix(158)_kongsberg14208	GRAB_5018																	P					P																															
11311_grab_5018_fix(159)_kongsberg14208	GRAB_5018																	P																							P													
11311_grab_5018_fix(160)_kongsberg14208	GRAB_5018																																																					
11311_grab_5018_fix(161)_kongsberg14208	GRAB_5018																	P					P																															
11311_grab_5018_fix(162)_kongsberg14208	GRAB_5018																																																					
11311_grab_5018_fix(163)_kongsberg14208	GRAB_5018																	P			P																						P											
11311_grab_5018_fix(164)_kongsberg14208	GRAB_5018									P								P			P		P																															
11311_grab_5018_fix(165)_kongsberg14208	GRAB_5018																	P			P																		P			P									P			
11311_grab_5018_fix(166)_kongsberg14208	GRAB_5018																	P					P																															

APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polychaeta Tube H	Annelida Polychaeta Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
11311_grab_5018_fix(167)_kongsberg14208	GRAB_5018																	P			P																					P										
11311_grab_5018_fix(168)_kongsberg14208	GRAB_5018																	P																								P										
grab_5019 infill snapshot 1	GRAB_5019																	P			P																																
grab_5019 infill snapshot 2	GRAB_5019													P				P																																			
grab_5019 infill snapshot 3	GRAB_5019																	P			P																													P		
grab_5019 infill snapshot 4	GRAB_5019											P						P			P																													P		
grab_5019 infill snapshot 5	GRAB_5019																	P																																			
grab_5019 snapshot 1	GRAB_5019																	P																1																P		
grab_5019 snapshot 2	GRAB_5019																	P			P								1																								
11311_grab_5019_fix(36)_kongsberg14208	GRAB_5019											P						P			P													1																P		
11311_grab_5019_fix(37)_kongsberg14208	GRAB_5019																	P			P																													P		
11311_grab_5019_fix(38)_kongsberg14208	GRAB_5019																	P																1																P		
11311_grab_5019_fix(39)_kongsberg14208	GRAB_5019																	P			P								1					1																			
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APPENDIX D IMAGERY ANALYSIS RESULTS PER IMAGE

Image	Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polycheata Tube H	Annelida Polycheata Tube J	Annelida Sabellidae	Annelida Serpulidae	Annelida Terebellidae Tube	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda *Squilla*	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blenniidae	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes	Chordata *Raja montagui*	Chordata - Rajidae Egg Case	Chordata - *Squalus acanthias*	Chordata Syngnathinae	Chordata Triglidae	Echinodermata *Echinarachnius parma*	Faunal Turf	Mollusca - *Arctica islandica* - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. *Modiolus modiolus*	Mollusca *Crepidula fornicata*	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
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APPENDIX E IMAGERY ANALYSIS RESULTS PER STATION

Gardline

APPENDIX E IMAGERY ANALYSIS RESULTS PER STATION

Station	Animalia Indeterminate 1	Animalia Indeterminate 2	Animalia Tube	Annelida Indeterminate 1	Annelida Pectinariidae	Annelida Terebellidae Tube	Annelida Polychaeta Tube B	Annelida Polychaeta Tube E	Annelida Polycheata Tube H	Annelida Polycheata Tube J	Annelida Sabellidae	Annelida Serpulidae	Arthropoda Brachyura D	Arthropoda Brachyura G	Arthropoda Caridea	Arthropoda Cirripedia	Arthropoda Paguroidea	Arthropoda Squilla	Arthropoda Indeterminate	Burrow	Chordata Actinopterygii indeterminate	Chordata Blennidae 1	Chordata Elasmobranchii	Chordata Phycidae	Chordata Pleuronectiformes 1	Chordata Raja montagui	Chordata - Rajidae Egg Case	Chordata - Squalus acanthias	Chordata Syngnathinae	Chordata Triglidae 1	Echinodermata Echinarachnius parma	Faunal Turf	Mollusca - Arctica islandica - dead	Mollusca Astarte msp0001	Mollusca Bivalvia F	Mollusca - Bivalvia Siphons	Mollusca Cephalopoda 1	Mollusca cf. Modiolus modiolus	Mollusca Crepidula fornicata	Mollusca Gastropoda A	Mollusca Gastropoda B	Mollusca Gastropoda C	Mollusca Gastropoda D	Mollusca Gastropoda E	Mollusca Gastropoda F	Mollusca Gastropoda G	Mollusca Gastropoda Indeterminate	Mollusca Naticidae B	Mollusca Neogastropoda A	Mollusca Nudibranchia C	Mollusca Nudibranchia D	Mollusca Pectinidae	Mollusca Sepiolida
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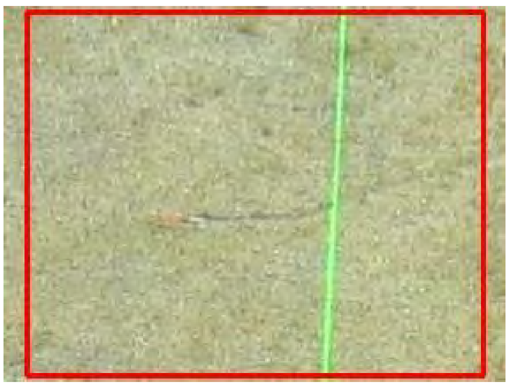
GRAB_5018										P							P			P		P						1		P								P		P	P	P								P			
GRAB_5019												P	P				P			P		P						2		P			5				P													P			
GRAB_5020			P			P	P	P									P			P		P					3	2			P					4				P	P	P	P						P	P			

APPENDIX F EXAMPLE SPECIES OBSERVED

APPENDIX F EXAMPLE SPECIES OBSERVED

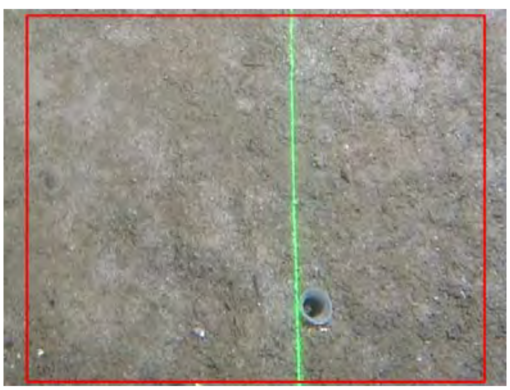
1. Animalia indeterminate 1

Appears to be associated with sand dollars. Possibly Brachyura G.



2. Animalia indeterminate 2

Burrowing organism.



3. Animalia Tube

Burrowed tube. Possible polychaete tube.

4. Annelida - Indeterminate 1

Pink tentacles emerging from sediment.

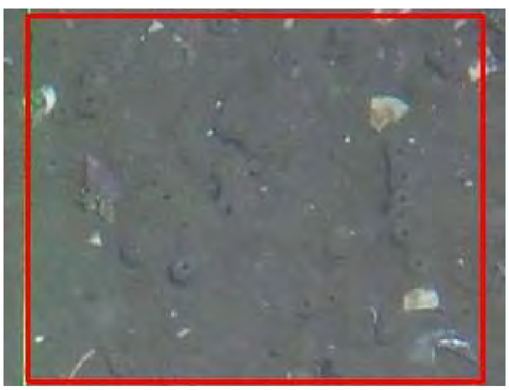
APPENDIX F EXAMPLE SPECIES OBSERVED

5. Annelida - Pectinariidae

Trumpet worms with tubes made of grains of sand.

7. Annelida - Polychaeta Tube B

Small brown tube made of sand and silt particles.



8. Annelida - Polychaeta Tube E

Small, occasionally aggregated tubes, composed of the surrounding sediment.

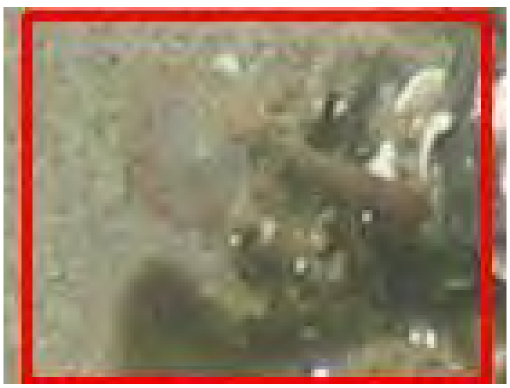
9. Annelida - Polycheata Tube H

Possibly Pectinariadae.

APPENDIX F EXAMPLE SPECIES OBSERVED

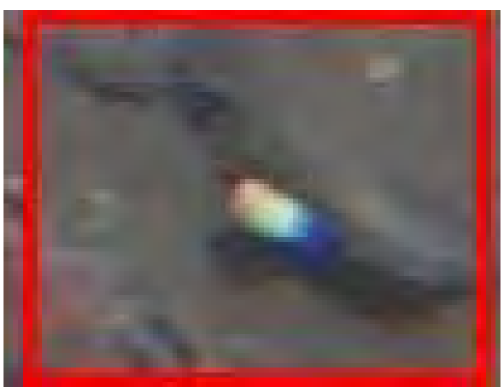
10. Annelida - Polycheata Tube J

Small dark coloured tube.



11. Annelida - Sabellidae

Stiff feathery tentacles emerging from tube.



12. Annelida - Serpulidae

Calcareous encrusting polychaeta.

6. Annelida - Terebellidae Tube

Relatively large tube like built with surrounding sediment and shell.

APPENDIX F EXAMPLE SPECIES OBSERVED

13. Arthropoda - Brachyura D

Brown coloured crab with white claws.

14. Arthropoda - Brachyura G

Small white crab.

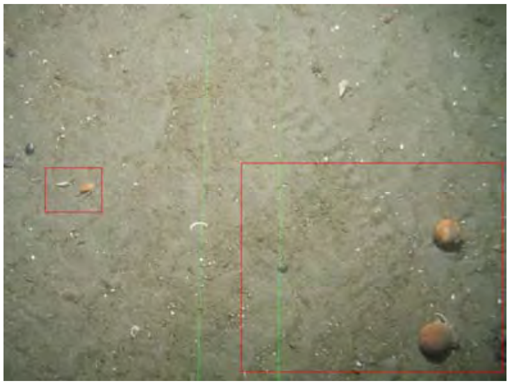
15. Arthropoda - Caridea

Shrimp.

16. Arthropoda - Cirripedia

Barnacles.

APPENDIX F EXAMPLE SPECIES OBSERVED



17. Arthropoda - Paguroidea

Hermit crab.

18. Arthropoda – *Squilla* sp.

Mantis shrimp.

19. Arthropoda Indeterminate

Diagnostic features not visible for further indentification.

20. Chordata - Actinopterygii indeterminate

Ray-finned fish.

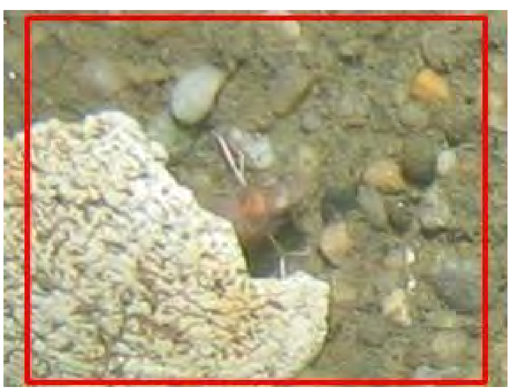
APPENDIX F EXAMPLE SPECIES OBSERVED

21. Chordata - Blennidae

Small, curvy blenny usually seen buried or swimming along the surface of the sediment.

22. Chordata - Elasmobranchii

Fin of a triangular outline.



23. Chordata - Phycidae

Hake family, with two distinctive barbs.

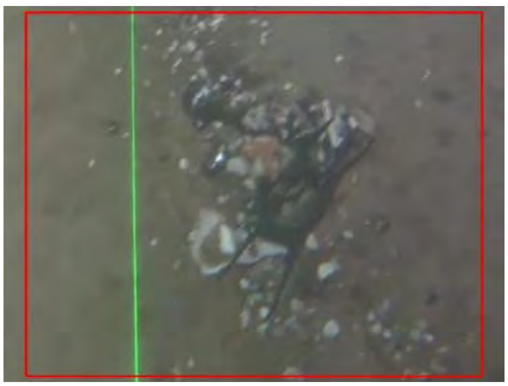
24. Chordata - Pleuronectiformes

Flatfish.

APPENDIX F EXAMPLE SPECIES OBSERVED

25. Chordata - *Raja montagui*

Upper surface brownish with numerous small darker spots which do not reach the margins of the disc or of the pelvic fins.



26. Chordata - Rajidae Egg Case

Dark Rajidae egg case.

27. Chordata - *Squalus acanthias*

Spiny Dogfish has two spines and lacks an anal fin.

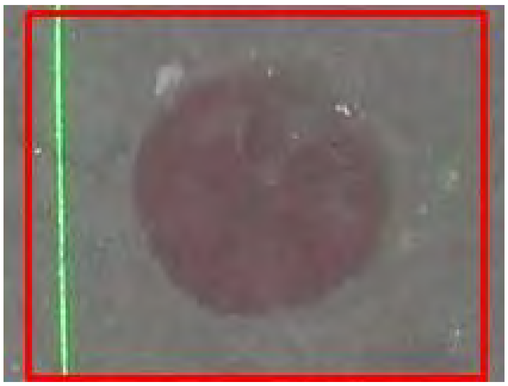
28. Chordata - Syngnathinae

Pipefish - straight-bodied seahorses with tiny mouths.

APPENDIX F EXAMPLE SPECIES OBSERVED

29. Chordata - Triglidae

Gurnard, scorpaeniform fish with large pectoral fins.



30. Echinodermata - *Echinarachnius parma*

Sand dollar.

31. Faunal Turf

Indeterminate turf

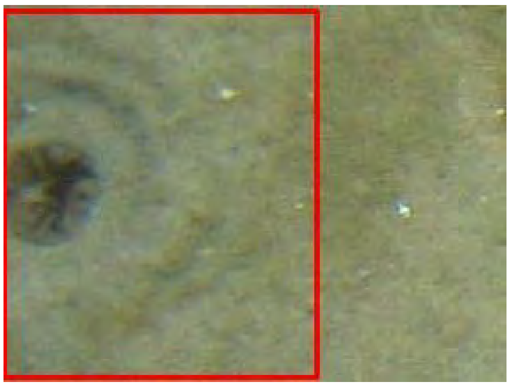
32. Mollusca - Astarte msp0001

Bivalve, orange in colour with concentric ridges.

APPENDIX F EXAMPLE SPECIES OBSERVED

33. Mollusca - Bivalvia F

Reddish brown shell, partially buried, seen with tentacles on video. Similar to scallop tentacles.



34. Mollusca - Bivalvia Siphons

Collection of siphons.

35. Mollusca - Cephalopoda

Pink translucent squid.

36. Mollusca - cf. *Modiolus modiolus*

Deep brown shell and orange mantel.

APPENDIX F EXAMPLE SPECIES OBSERVED

37. Mollusca - *Crepidula fornicata*

The common slipper shell typically found attached to shells and stones.

38. Mollusca - Gastropoda A

Prominent vertical ribs distributed evenly across shell.

39. Mollusca - Gastropoda B

Smooth whelk-like shell with subtle ribs.

40. Mollusca - Gastropoda C

Whelk-like shell, obviously reticulated with thin reddish bands.

APPENDIX F EXAMPLE SPECIES OBSERVED

41. Mollusca - Gastropoda D

Whelk like gastropod with light coloured bands on a dark reddish/brown shell.

42. Mollusca - Gastropoda E

Cream to reddish brown in colour. Vertical ribs. Ribs pronounced on basal part of shell.

43. Mollusca - Gastropoda F

Generally smooth with few knobs.

44. Mollusca - Gastropoda G

Similar shape to an Ancilla/Dwarf Olive (Olividae).

APPENDIX F EXAMPLE SPECIES OBSERVED

45. Mollusca - Gastropoda Indeterminate

Poor visibility preventing further identification.

46. Mollusca - Naticidae B

Cream in colour.

47. Mollusca - Neogastropoda A

Pale, whelk-like shell.

48. Mollusca - Nudibranchia C

Sand coloured.

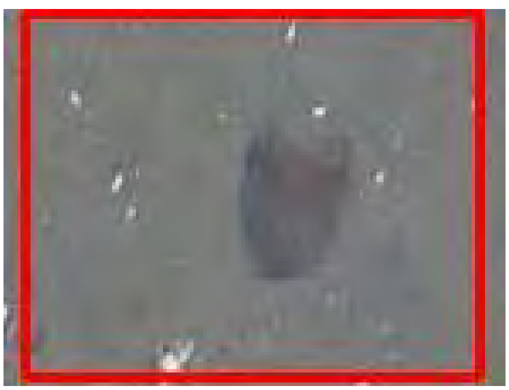
APPENDIX F EXAMPLE SPECIES OBSERVED

49. Mollusca - Nudibranchia D

See-through with a white line down the back.

50. Mollusca - Pectinidae

Scallop.



51. Mollusca - Sepiolida

Bobtail squid.

APPENDIX G BACKGROUND INFORMATION

APPENDIX G BACKGROUND INFORMATION

G.1 Sediment Characteristics

Particle size distributions of sediments in the marine environment are to a large extent determined by hydrodynamic energy at the sediment water interface. Strong current tend to scour the seabed thereby resuspending fine particles and any material associated with them, whilst the finest sediments predominate in areas with the least hydrodynamic energy.

The role of sediment in the transport and retention of chemical pollutants is tied to both particle size and to the amount of particulate organic carbon associated with the sediment. The chemically active fraction of sediment is usually cited as the organic component and the finest size fractions, acts as a sink for many of the persistent compounds, including metals, hydrocarbons and chlorinated compounds. Many of these persistent substances are also inherently bioaccumulative and toxic. The concentrations of many parameters are typically positively correlated with the proportion of fines found in the sediment as a result of fine particles possessing a relatively large surface area. Fine sediment particles are relatively easily resuspended by waves and currents, and may be transported, along with the materials sorbed to them, over large distances, finally being deposited in areas of lower hydrodynamic energy.

Generally speaking, sand and coarser grained materials are often organically deficient. Strong currents tend to resuspend fine material and their associated organic matter. Therefore, in an environment that is not nutrient enriched due to anthropogenic discharges, both total organic matter and total organic carbon will normally be lowest at sites with coarse-grained sediment, where currents are often strongest.

Sediment particle size and organic content are also critical measurements for the categorization of habitat type since to a large extent they control which organisms are capable of living within sediments. Most benthic infaunal organisms exhibit preferences for sediment with particular grain size characteristics. Many organism’s ability to do this may be limited by the range of different size particles available. The distribution and abundance of free-living mobile organisms, i.e. those that do not construct tubes or burrows, are also affected by particle sizes, which influence their ability to move within the sediment. Sand grains of inappropriate sizes may be too big to move or, conversely, too small to be stable.

Feeding guilds are groupings or organisms based upon the feeding strategies the employ (United States Environmental Protection Agency or US EPA, 2008) and, as such, sediment particle size and organic content can greatly affect which species guilds may dominate in any given area. Many deposit feeding organisms, which process sediment through the alimentary tract to obtain nutrition (Gage & Tyler, 1992), are highly selective of the grain sizes that they will ingest, often preferring finer sediments that possess relatively high organic content. Conversely, resuspension of fine particulate matter may clog delicate filtering apparatus used by suspension feeder to obtain their suspended food particles from seawater (Gibson *et al.*, 2005), resulting in their exclusion from muddy sediments. Additionally, the mixtures of particle sizes determine the ease with which water and oxygen move through the sediment. An abundance of fine particles in a stable environment may lead to the formation of substrate with small interstitial spaces through which oxygen diffusion can be restricted. This may lead to anoxic conditions within the sediment, which further affects the range of species that may be present. Determination of sediment particle sizes and organic content is therefore of critical importance to the interpretation of benthic environmental survey data.

APPENDIX H PARTICLE SIZE ANALYSIS

APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5001**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Well Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Coarse Gravelly Fine Sand

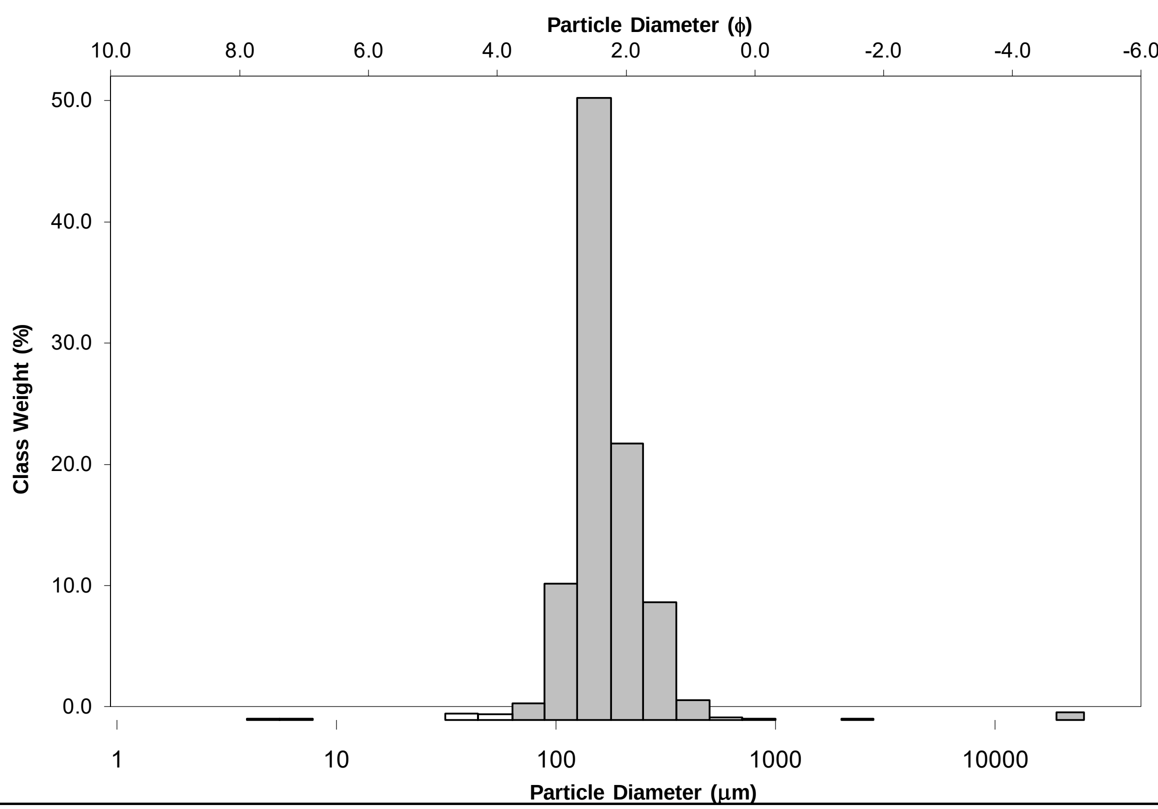
	μm	ϕ
MODE 1:	151.1	2.749
MODE 2:		
MODE 3:		
D_{10}:	108.4	1.896
MEDIAN or D_{50}:	159.0	2.653
D_{90}:	268.7	3.206
(D_{90} / D_{10}):	2.479	1.691
$(D_{90} - D_{10})$:	160.3	1.310
(D_{75} / D_{25}):	1.522	1.264
$(D_{75} - D_{25})$:	69.91	0.606

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.6%	COARSE SAND:	0.3%
SAND:	97.0%	MEDIUM SAND:	11.1%
MUD:	2.4%	FINE SAND:	73.0%
		V FINE SAND:	12.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.0%
COARSE GRAVEL:	0.5%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	0.0%	FINE SILT:	0.2%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.0%
V COARSE SAND:	0.0%	CLAY:	1.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	288.8	159.1	2.652	167.4	2.579	Fine Sand
SORTING (σ):	1558.3	2.116	1.081	1.411	0.497	Well Sorted
SKEWNESS (Sk):	13.95	-2.068	2.068	0.190	-0.190	Coarse Skewed
KURTOSIS (K):	196.4	32.86	32.86	1.217	1.217	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5002**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Moderately Well Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Fine Gravelly Fine Sand

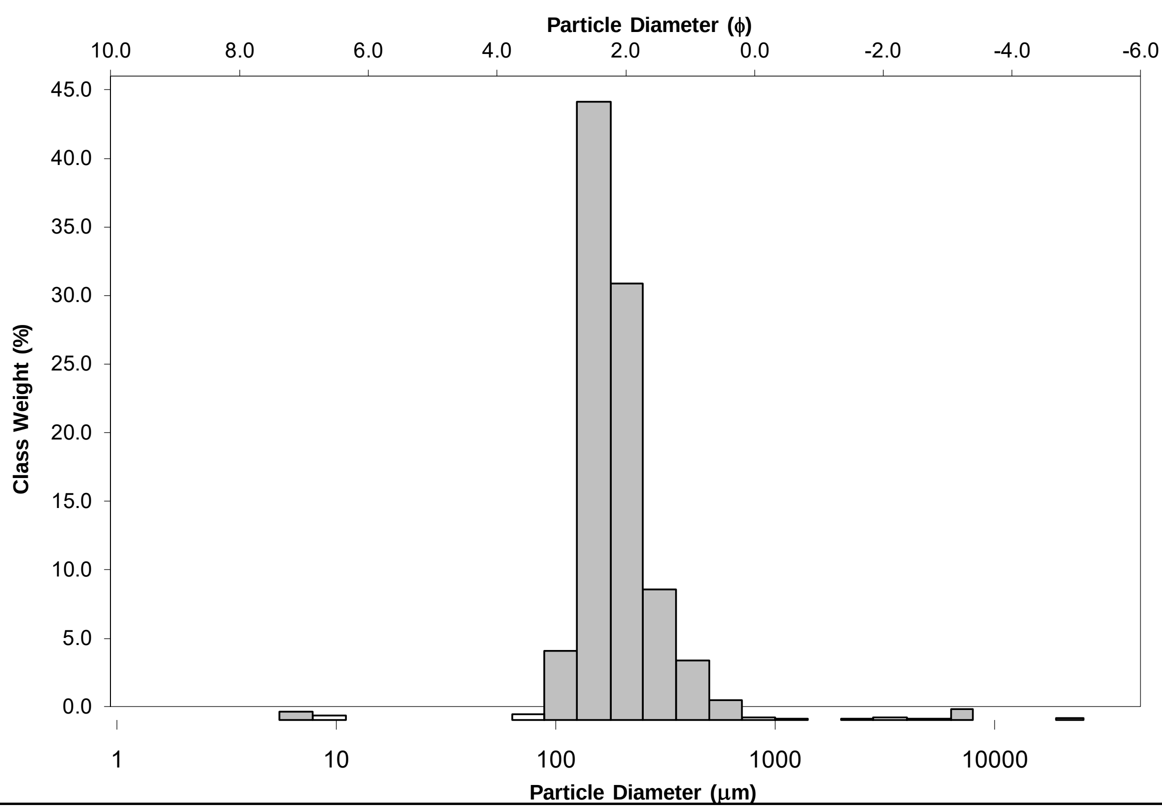
	μm	ϕ
MODE 1:	151.1	2.749
MODE 2:		
MODE 3:		
D_{10}:	126.6	1.663
MEDIAN or D_{50}:	173.3	2.529
D_{90}:	315.8	2.981
(D_{90} / D_{10}):	2.494	1.793
$(D_{90} - D_{10})$:	189.2	1.318
(D_{75} / D_{25}):	1.589	1.311
$(D_{75} - D_{25})$:	83.82	0.668

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.0%	COARSE SAND:	1.6%
SAND:	96.4%	MEDIUM SAND:	13.6%
MUD:	2.6%	FINE SAND:	75.4%
		V FINE SAND:	5.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.1%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.3%
FINE GRAVEL:	0.6%	FINE SILT:	0.6%
V FINE GRAVEL:	0.3%	V FINE SILT:	0.0%
V COARSE SAND:	0.1%	CLAY:	1.7%

	METHOD OF MOMENTS Arithmetic μm	Geometric μm	Logarithmic ϕ	FOLK & WARD METHOD Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	269.2	172.4	2.536	179.8	2.476	Fine Sand
SORTING (σ):	883.9	2.407	1.267	1.452	0.538	Moderately Well Sorted
SKEWNESS (Sk):	17.95	-2.730	2.730	0.210	-0.210	Coarse Skewed
KURTOSIS (K):	400.4	22.63	22.63	1.241	1.241	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5003**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Moderately Well Sorted
TEXTURAL GROUP: Sand
SEDIMENT NAME: Moderately Well Sorted Medium Sand

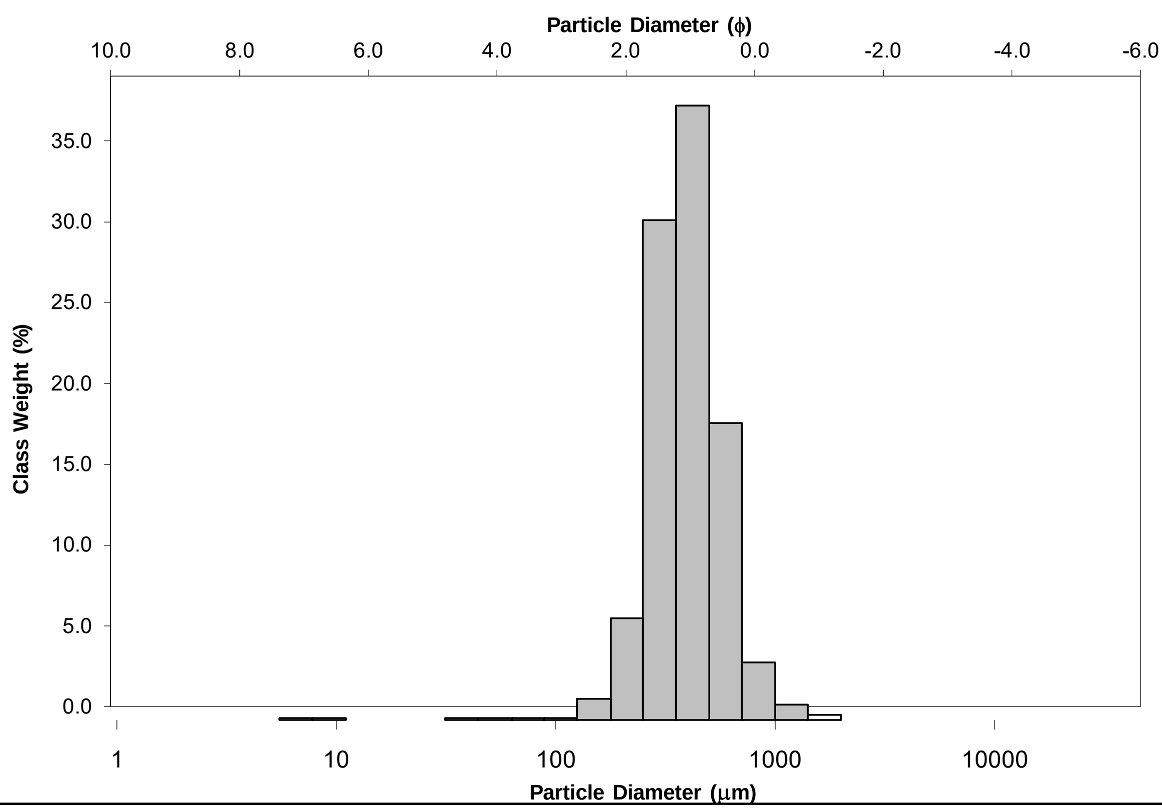
	μm	ϕ
MODE 1:	426.7	1.250
MODE 2:		
MODE 3:		
D_{10}:	250.9	0.649
MEDIAN or D_{50}:	387.8	1.367
D_{90}:	637.7	1.995
(D_{90} / D_{10}):	2.541	3.073
$(D_{90} - D_{10})$:	386.7	1.346
(D_{75} / D_{25}):	1.643	1.695
$(D_{75} - D_{25})$:	191.5	0.716

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	21.5%
SAND:	98.2%	MEDIUM SAND:	67.6%
MUD:	1.8%	FINE SAND:	7.7%
		V FINE SAND:	0.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
FINE GRAVEL:	0.0%	FINE SILT:	0.1%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.0%
V COARSE SAND:	1.2%	CLAY:	1.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	421.0	358.1	1.481	389.8	1.359	Medium Sand
SORTING (σ):	185.0	2.227	1.155	1.463	0.549	Moderately Well Sorted
SKEWNESS (Sk):	1.882	-5.299	5.299	-0.026	0.026	Symmetrical
KURTOSIS (K):	11.75	38.13	38.13	1.055	1.055	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5004**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Moderately Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

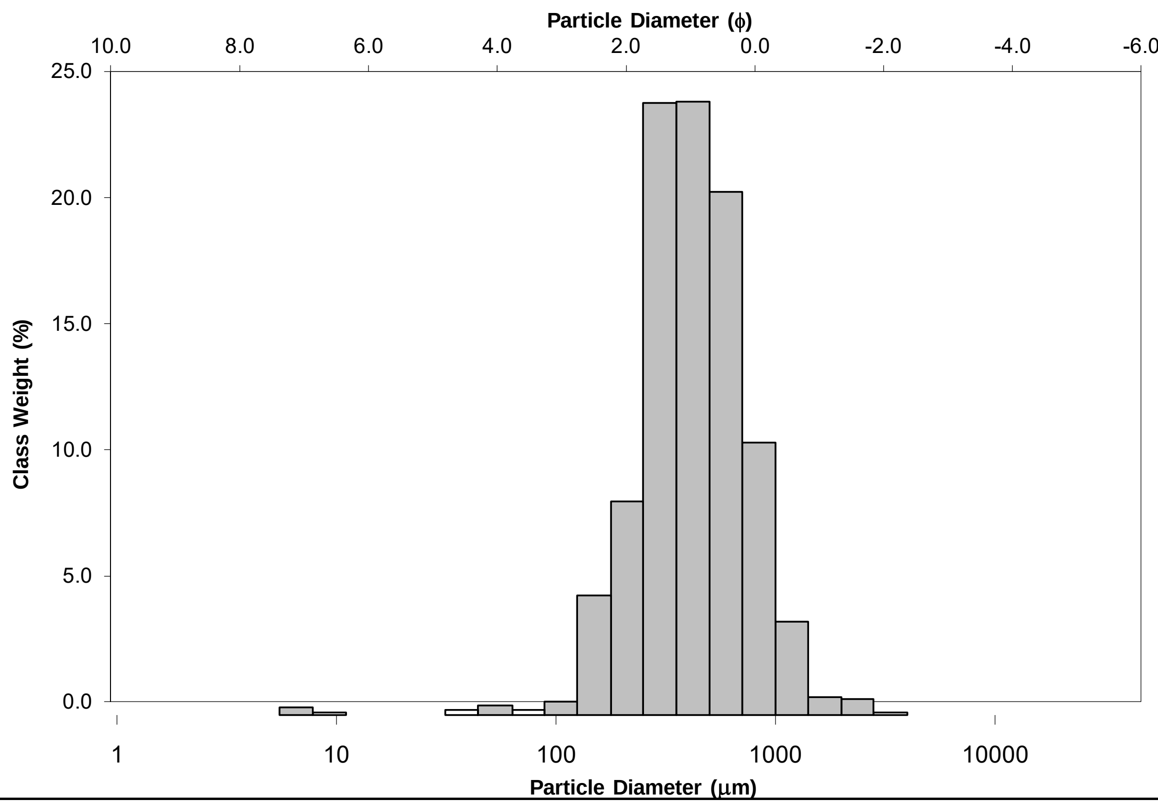
	μm	ϕ
MODE 1:	426.7	1.250
MODE 2:		
MODE 3:		
D_{10}:	195.6	0.234
MEDIAN or D_{50}:	408.6	1.291
D_{90}:	850.3	2.354
(D_{90} / D_{10}):	4.346	10.06
$(D_{90} - D_{10})$:	654.6	2.120
(D_{75} / D_{25}):	2.120	2.486
$(D_{75} - D_{25})$:	318.6	1.084

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.7%	COARSE SAND:	31.0%
SAND:	97.1%	MEDIUM SAND:	47.8%
MUD:	2.2%	FINE SAND:	13.1%
		V FINE SAND:	0.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.6%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
FINE GRAVEL:	0.0%	FINE SILT:	0.3%
V FINE GRAVEL:	0.7%	V FINE SILT:	0.0%
V COARSE SAND:	4.3%	CLAY:	1.2%

	METHOD OF MOMENTS Arithmetic μm	METHOD OF MOMENTS Geometric μm	METHOD OF MOMENTS Logarithmic ϕ	FOLK & WARD METHOD Geometric μm	FOLK & WARD METHOD Logarithmic ϕ	Description
MEAN ($\bar{x}$):	487.8	381.6	1.390	415.4	1.268	Medium Sand
SORTING (σ):	321.0	2.430	1.281	1.735	0.795	Moderately Sorted
SKEWNESS (Sk):	2.714	-3.617	3.617	-0.012	0.012	Symmetrical
KURTOSIS (K):	16.97	24.09	24.09	1.052	1.052	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5005**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Well Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Very Fine Gravelly Fine Sand

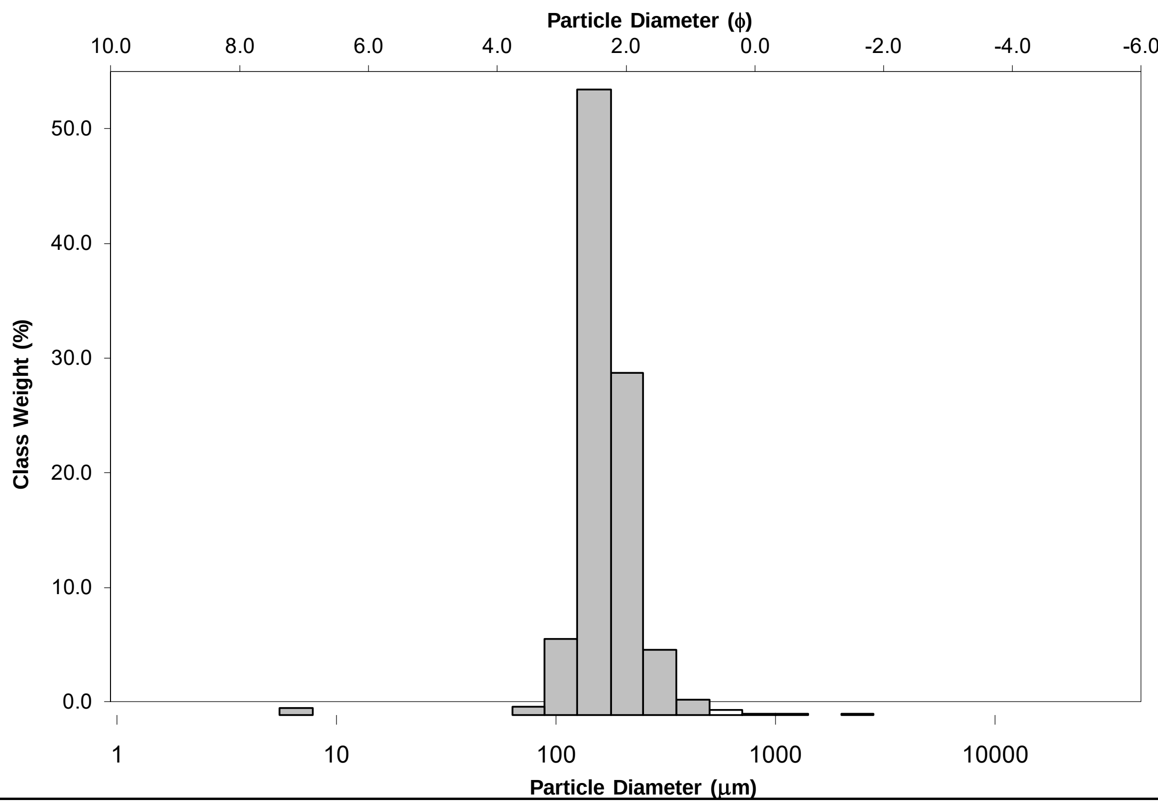
	μm	φ
MODE 1:	151.1	2.749
MODE 2:		
MODE 3:		
D_{10}:	125.0	2.047
MEDIAN or D_{50}:	162.2	2.624
D_{90}:	241.9	3.000
(D_{90} / D_{10}):	1.935	1.465
$(D_{90} - D_{10})$:	116.9	0.952
(D_{75} / D_{25}):	1.468	1.240
$(D_{75} - D_{25})$:	64.55	0.554

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	0.5%
SAND:	97.6%	MEDIUM SAND:	6.8%
MUD:	2.3%	FINE SAND:	82.5%
		V FINE SAND:	7.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	0.0%	FINE SILT:	0.6%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.0%
V COARSE SAND:	0.1%	CLAY:	1.7%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	179.8	154.0	2.699	168.1	2.573	Fine Sand
SORTING (σ):	103.2	2.121	1.085	1.352	0.435	Well Sorted
SKEWNESS (Sk):	11.56	-4.931	4.931	0.142	-0.142	Coarse Skewed
KURTOSIS (K):	226.1	32.55	32.55	1.158	1.158	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5006**

ANALYST & DATE: TerraSense LLC, 1/24/2020

SAMPLE TYPE: Unimodal, Moderately Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

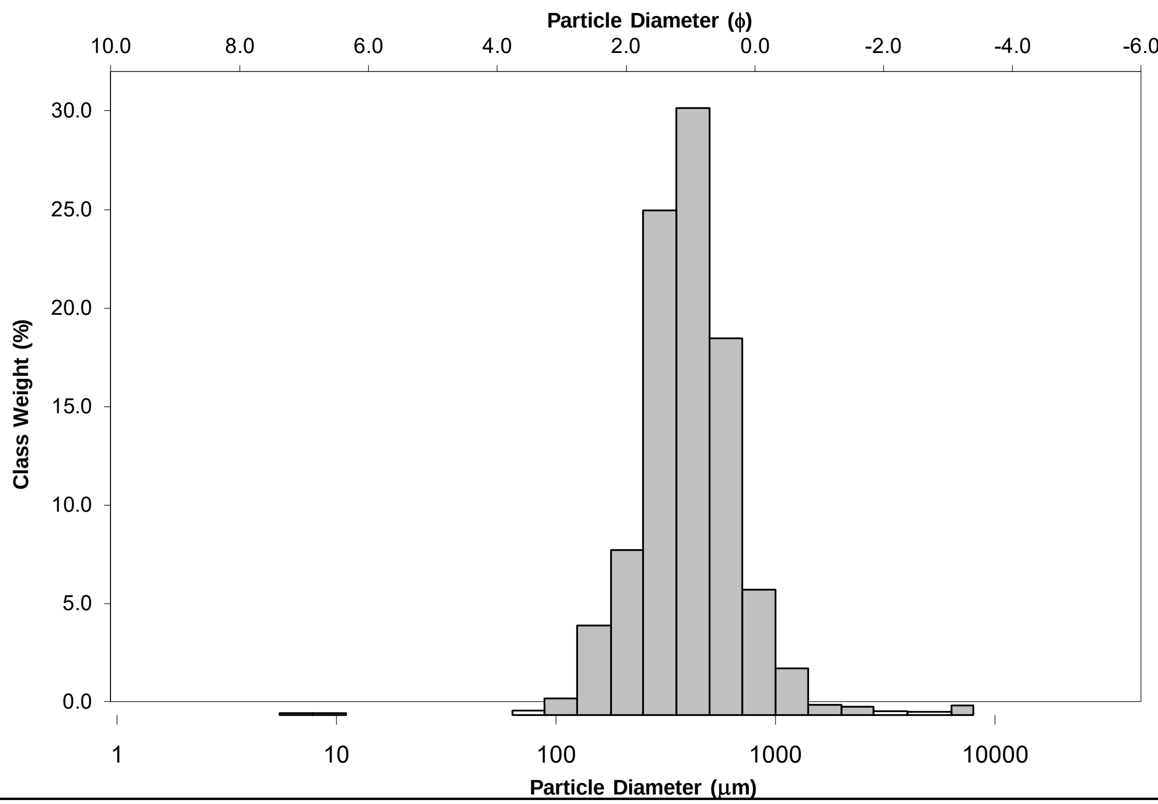
	µm	ϕ
MODE 1:	426.7	1.250
MODE 2:		
MODE 3:		
D_{10}:	200.0	0.486
MEDIAN or D_{50}:	393.1	1.347
D_{90}:	714.0	2.322
(D_{90} / D_{10}):	3.570	4.777
$(D_{90} - D_{10})$:	514.0	1.836
(D_{75} / D_{25}):	1.887	2.024
$(D_{75} - D_{25})$:	252.8	0.916

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.1%	COARSE SAND:	25.1%
SAND:	97.3%	MEDIUM SAND:	55.5%
MUD:	1.6%	FINE SAND:	12.9%
		V FINE SAND:	1.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
FINE GRAVEL:	0.5%	FINE SILT:	0.1%
V FINE GRAVEL:	0.6%	V FINE SILT:	0.0%
V COARSE SAND:	2.8%	CLAY:	1.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic µm	Geometric µm	Logarithmic ϕ	Geometric µm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	482.6	368.0	1.442	397.5	1.331	Medium Sand
SORTING (σ):	514.6	2.424	1.278	1.665	0.735	Moderately Sorted
SKEWNESS (Sk):	8.689	-3.730	3.730	-0.007	0.007	Symmetrical
KURTOSIS (K):	101.1	26.73	26.73	1.186	1.186	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5007**

ANALYST & DATE: TerraSense LLC, 1/24/2020

SAMPLE TYPE: Unimodal, Moderately Well Sorted

TEXTURAL GROUP: Sand

SEDIMENT NAME: Moderately Well Sorted Fine Sand

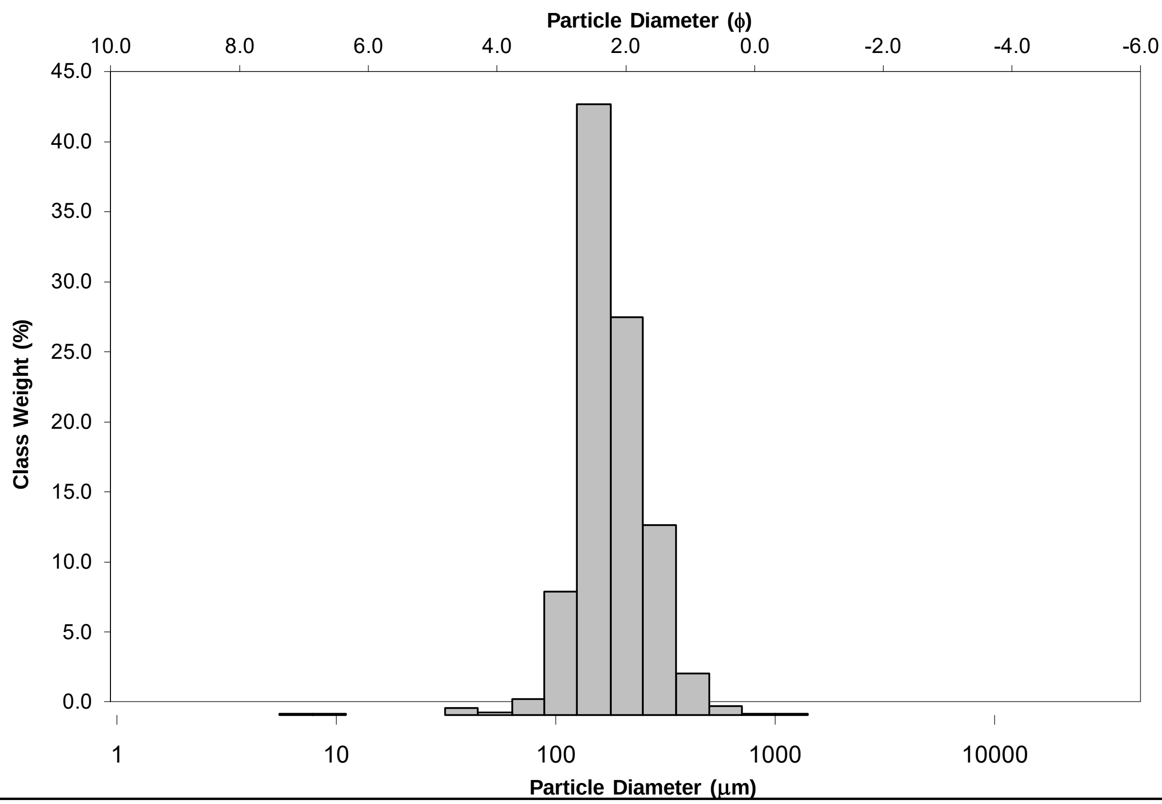
	μm	ϕ
MODE 1:	151.1	2.749
MODE 2:		
MODE 3:		
D_{10}:	115.3	1.739
MEDIAN or D_{50}:	169.5	2.561
D_{90}:	299.6	3.116
(D_{90} / D_{10}):	2.597	1.792
(D_{90} - D_{10}):	184.2	1.377
(D_{75} / D_{25}):	1.630	1.328
(D_{75} - D_{25}):	87.18	0.705

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	0.7%
SAND:	97.6%	MEDIUM SAND:	16.1%
MUD:	2.4%	FINE SAND:	70.6%
		V FINE SAND:	10.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.7%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
FINE GRAVEL:	0.0%	FINE SILT:	0.1%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.0%
V COARSE SAND:	0.1%	CLAY:	1.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	192.6	165.0	2.599	177.4	2.495	Fine Sand
SORTING (σ):	89.76	2.075	1.053	1.443	0.529	Moderately Well Sorted
SKEWNESS (Sk):	2.826	-4.722	4.722	0.144	-0.144	Coarse Skewed
KURTOSIS (K):	23.92	32.88	32.88	1.078	1.078	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5008**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Moderately Well Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Very Fine Gravelly Fine Sand

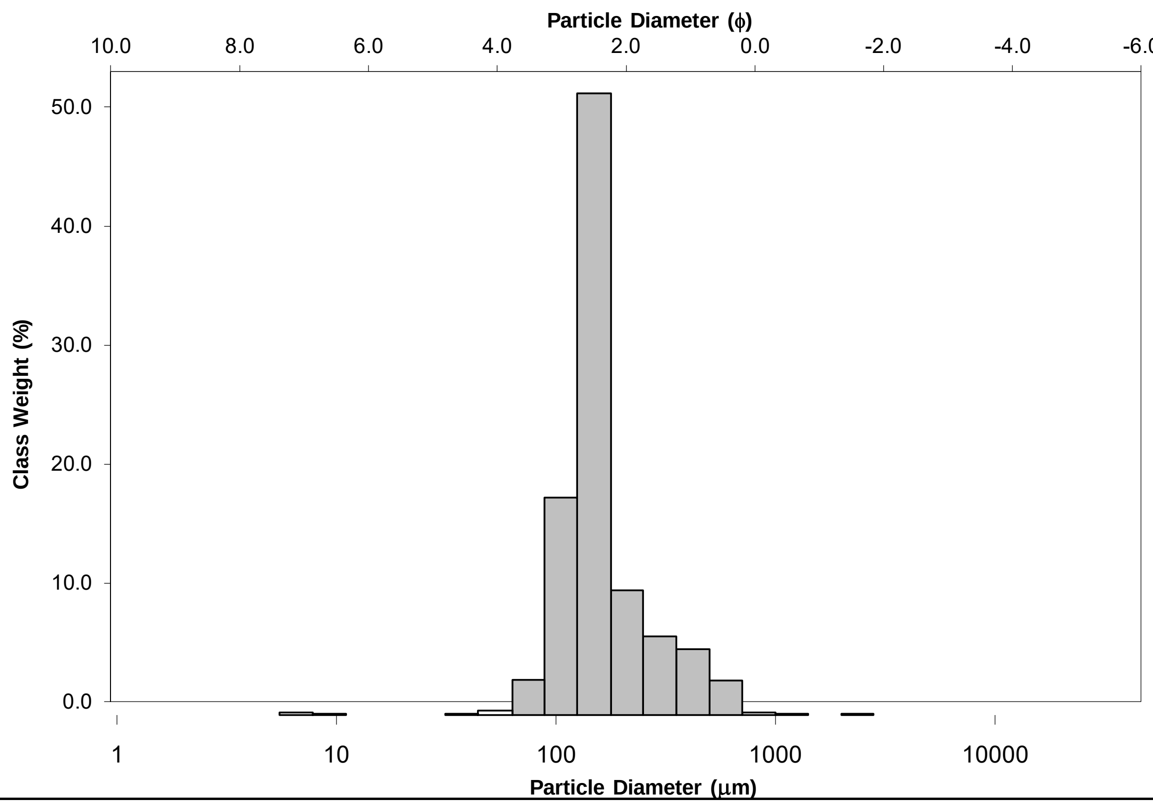
	μm	φ
MODE 1:	151.1	2.749
MODE 2:		
MODE 3:		
D_{10}:	97.41	1.611
MEDIAN or D_{50}:	150.0	2.737
D_{90}:	327.5	3.360
(D_{90} / D_{10}):	3.362	2.086
$(D_{90} - D_{10})$:	230.0	1.749
(D_{75} / D_{25}):	1.405	1.197
$(D_{75} - D_{25})$:	51.29	0.491

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	3.0%
SAND:	97.4%	MEDIUM SAND:	11.8%
MUD:	2.5%	FINE SAND:	61.7%
		V FINE SAND:	20.8%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.5%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
FINE GRAVEL:	0.0%	FINE SILT:	0.2%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.0%
V COARSE SAND:	0.1%	CLAY:	1.7%

	METHOD OF MOMENTS Arithmetic μm	Geometric μm	Logarithmic φ	FOLK & WARD METHOD Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	186.0	149.7	2.740	158.3	2.660	Fine Sand
SORTING (σ):	136.3	2.226	1.154	1.564	0.645	Moderately Well Sorted
SKEWNESS (Sk):	5.944	-3.629	3.629	0.263	-0.263	Coarse Skewed
KURTOSIS (K):	76.52	24.44	24.44	1.984	1.984	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5009**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Bimodal, Poorly Sorted
TEXTURAL GROUP: Gravelly Sand
SEDIMENT NAME: Very Fine Gravelly Coarse Sand

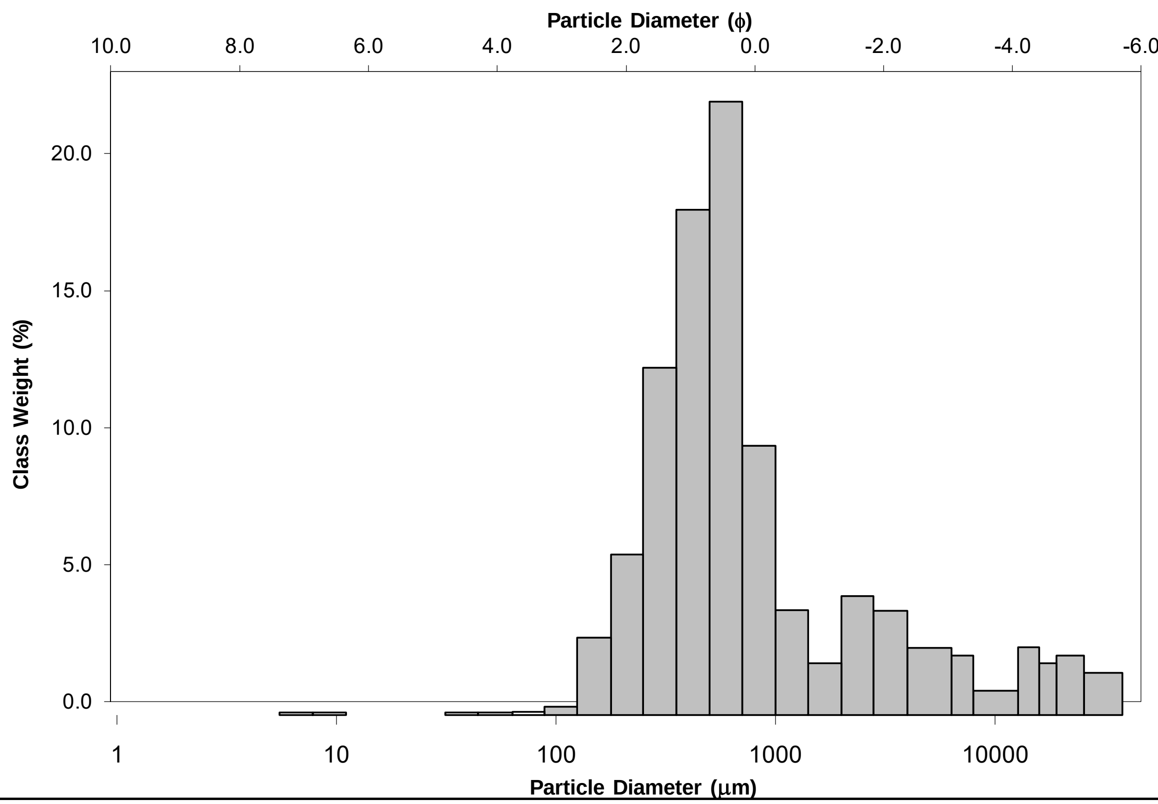
	μm	ϕ
MODE 1:	603.3	0.750
MODE 2:	2396.5	-1.241
MODE 3:		
D_{10}:	241.7	-2.423
MEDIAN or D_{50}:	567.1	0.818
D_{90}:	5361.7	2.049
(D_{90} / D_{10}):	22.19	-0.846
$(D_{90} - D_{10})$:	5120.0	4.472
(D_{75} / D_{25}):	2.978	-12.322
$(D_{75} - D_{25})$:	720.9	1.574

GRAIN SIZE DISTRIBUTION

GRAVEL:	20.2%	COARSE SAND:	32.2%
SAND:	78.3%	MEDIUM SAND:	31.2%
MUD:	1.5%	FINE SAND:	8.7%
		V FINE SAND:	0.4%
V COARSE GRAVEL:	0.8%	V COARSE SILT:	0.2%
COARSE GRAVEL:	3.8%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	2.8%	MEDIUM SILT:	0.1%
FINE GRAVEL:	4.7%	FINE SILT:	0.1%
V FINE GRAVEL:	8.1%	V FINE SILT:	0.0%
V COARSE SAND:	5.7%	CLAY:	1.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	2434.2	742.8	0.429	771.0	0.375	Coarse Sand
SORTING (σ):	5594.8	4.135	2.048	3.446	1.785	Poorly Sorted
SKEWNESS (Sk):	3.745	-0.150	0.150	0.444	-0.444	Very Coarse Skewed
KURTOSIS (K):	17.30	7.486	7.486	1.662	1.662	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5010**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Polymodal, Very Poorly Sorted
TEXTURAL GROUP: Sandy Gravel
SEDIMENT NAME: Sandy Fine Gravel

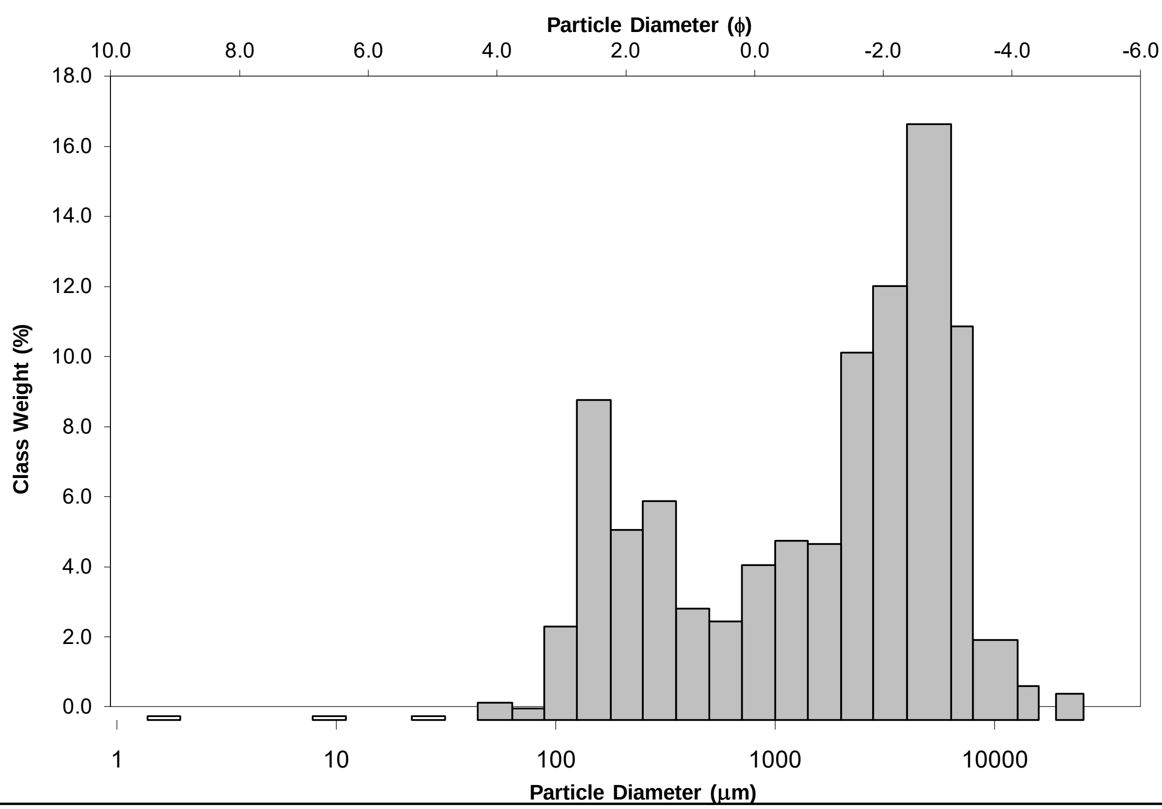
	μm	ϕ
MODE 1:	5168.9	-2.331
MODE 2:	151.1	2.749
MODE 3:	301.0	1.754
D_{10}:	155.0	-2.722
MEDIAN or D_{50}:	2404.0	-1.265
D_{90}:	6597.6	2.690
(D_{90} / D_{10}):	42.56	-0.988
$(D_{90} - D_{10})$:	6442.6	5.412
(D_{75} / D_{25}):	13.00	-0.647
$(D_{75} - D_{25})$:	4383.9	3.701

GRAIN SIZE DISTRIBUTION

GRAVEL:	55.4%	COARSE SAND:	7.0%
SAND:	43.0%	MEDIUM SAND:	9.1%
MUD:	1.6%	FINE SAND:	14.2%
		V FINE SAND:	2.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.5%
COARSE GRAVEL:	0.6%	COARSE SILT:	0.1%
MEDIUM GRAVEL:	3.5%	MEDIUM SILT:	0.1%
FINE GRAVEL:	29.0%	FINE SILT:	0.0%
V FINE GRAVEL:	22.2%	V FINE SILT:	0.0%
V COARSE SAND:	9.8%	CLAY:	0.9%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	3078.0	1406.8	-0.492	1424.9	-0.511	Very Coarse Sand
SORTING (σ):	3103.8	4.803	2.264	4.261	2.091	Very Poorly Sorted
SKEWNESS (Sk):	2.032	-1.155	1.155	-0.452	0.452	Very Fine Skewed
KURTOSIS (K):	11.08	5.071	5.071	0.656	0.656	Very Platykurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5011** ANALYST & DATE: TerraSense LLC, 1/24/2020

SAMPLE TYPE: Unimodal, Well Sorted TEXTURAL GROUP: Sand

SEDIMENT NAME: Well Sorted Fine Sand

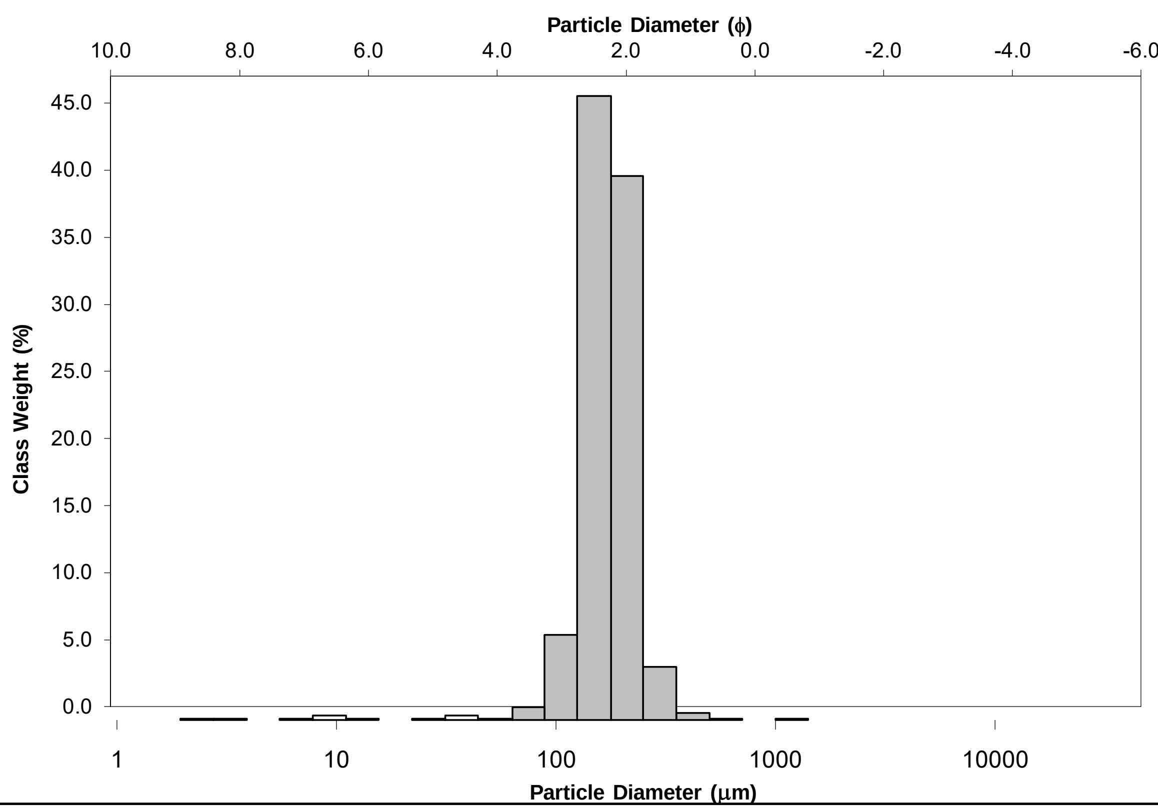
	μm	ϕ
MODE 1:	151.1	2.749
MODE 2:		
MODE 3:		
D_{10}:	123.8	2.074
MEDIAN or D_{50}:	168.7	2.568
D_{90}:	237.4	3.014
(D_{90} / D_{10}):	1.919	1.453
$(D_{90} - D_{10})$:	113.7	0.940
(D_{75} / D_{25}):	1.494	1.256
$(D_{75} - D_{25})$:	68.85	0.579

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	0.1%
SAND:	96.8%	MEDIUM SAND:	4.4%
MUD:	3.2%	FINE SAND:	84.8%
		V FINE SAND:	7.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.4%
FINE GRAVEL:	0.0%	FINE SILT:	0.1%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.2%
V COARSE SAND:	0.1%	CLAY:	2.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	175.9	151.2	2.726	170.4	2.553	Fine Sand
SORTING (σ):	65.38	2.224	1.153	1.330	0.411	Well Sorted
SKEWNESS (Sk):	4.133	-4.947	4.947	-0.077	0.077	Symmetrical
KURTOSIS (K):	66.47	29.73	29.73	0.996	0.996	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5012**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Moderately Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

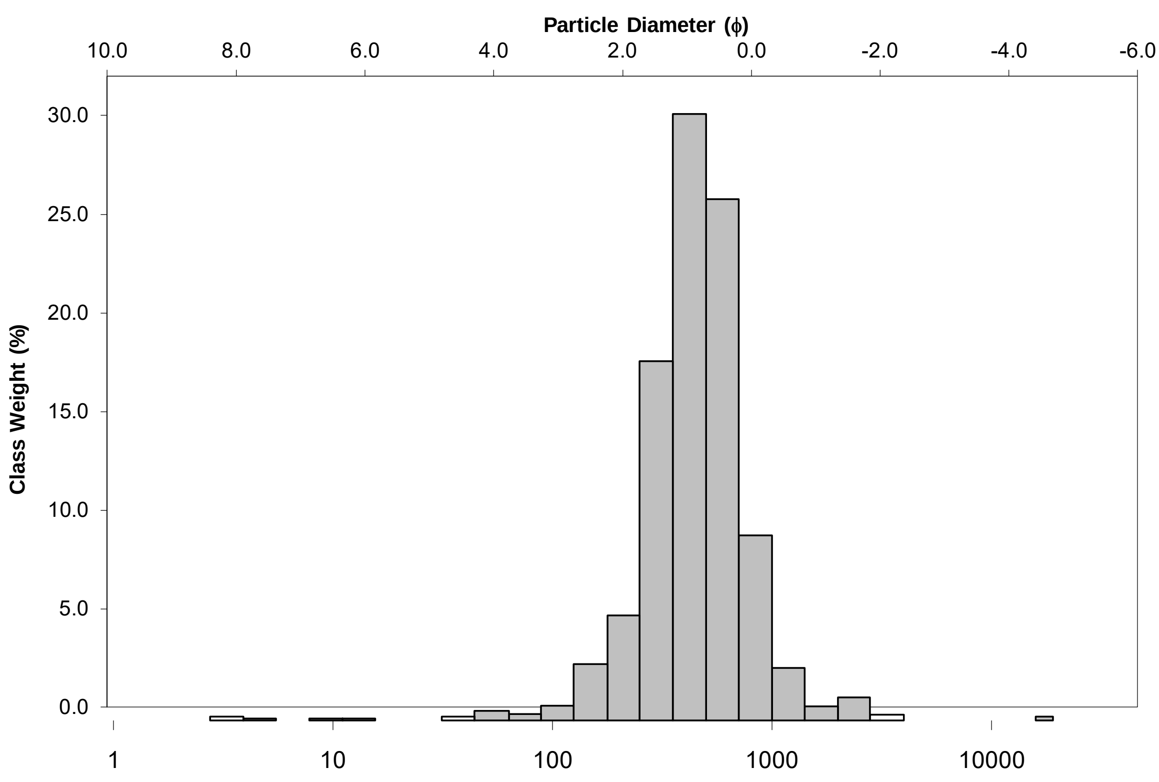
	µm	ϕ
MODE 1:	426.7	1.250
MODE 2:		
MODE 3:		
D_{10}:	227.0	0.280
MEDIAN or D_{50}:	446.3	1.164
D_{90}:	823.5	2.140
(D_{90} / D_{10}):	3.628	7.635
$(D_{90} - D_{10})$:	596.5	1.859
(D_{75} / D_{25}):	1.887	2.288
$(D_{75} - D_{25})$:	287.2	0.916

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.5%	COARSE SAND:	35.2%
SAND:	96.1%	MEDIUM SAND:	48.3%
MUD:	2.4%	FINE SAND:	8.2%
		V FINE SAND:	1.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.7%
COARSE GRAVEL:	0.1%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.2%
FINE GRAVEL:	0.0%	FINE SILT:	0.1%
V FINE GRAVEL:	1.4%	V FINE SILT:	0.2%
V COARSE SAND:	3.3%	CLAY:	1.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic µm	Geometric µm	Logarithmic ϕ	Geometric µm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	534.1	407.5	1.295	437.2	1.193	Medium Sand
SORTING (σ):	642.2	2.473	1.306	1.677	0.746	Moderately Sorted
SKEWNESS (Sk):	18.89	-3.685	3.685	-0.108	0.108	Fine Skewed
KURTOSIS (K):	484.9	24.83	24.83	1.213	1.213	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5013**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Bimodal, Poorly Sorted
TEXTURAL GROUP: Gravelly Sand
SEDIMENT NAME: Very Fine Gravelly Coarse Sand

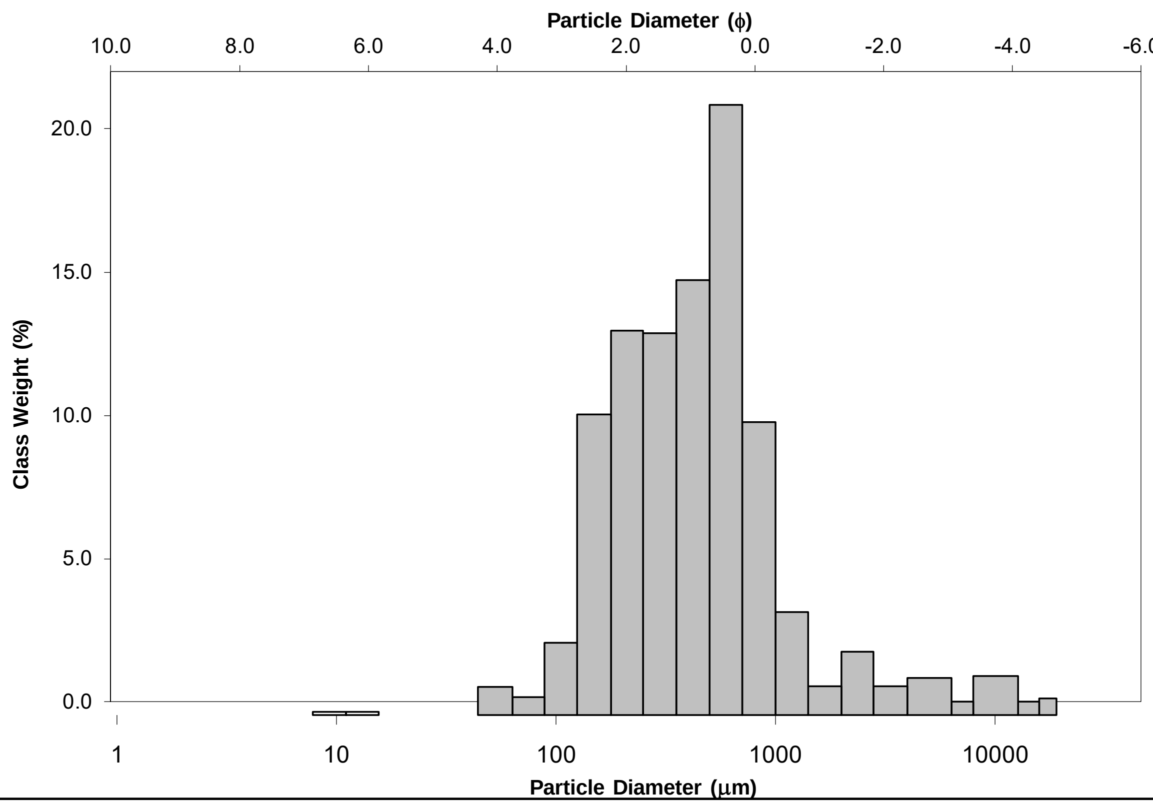
	μm	ϕ
MODE 1:	603.3	0.750
MODE 2:	213.4	2.249
MODE 3:		
D_{10}:	144.8	-0.284
MEDIAN or D_{50}:	424.2	1.237
D_{90}:	1217.2	2.788
(D_{90} / D_{10}):	8.406	-9.832
$(D_{90} - D_{10})$:	1072.4	3.071
(D_{75} / D_{25}):	2.996	3.771
$(D_{75} - D_{25})$:	448.3	1.583

GRAIN SIZE DISTRIBUTION

GRAVEL:	7.5%	COARSE SAND:	30.9%
SAND:	90.0%	MEDIUM SAND:	28.0%
MUD:	2.5%	FINE SAND:	23.4%
		V FINE SAND:	3.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.0%
COARSE GRAVEL:	0.3%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	2.1%	MEDIUM SILT:	0.2%
FINE GRAVEL:	2.0%	FINE SILT:	0.0%
V FINE GRAVEL:	3.1%	V FINE SILT:	0.0%
V COARSE SAND:	4.5%	CLAY:	1.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	896.1	414.4	1.271	403.2	1.311	Medium Sand
SORTING (σ):	1939.3	3.266	1.708	2.464	1.301	Poorly Sorted
SKEWNESS (Sk):	5.214	-0.936	0.936	0.062	-0.062	Symmetrical
KURTOSIS (K):	33.60	10.49	10.49	1.242	1.242	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5014**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Poorly Sorted
TEXTURAL GROUP: Gravelly Sand
SEDIMENT NAME: Fine Gravelly Medium Sand

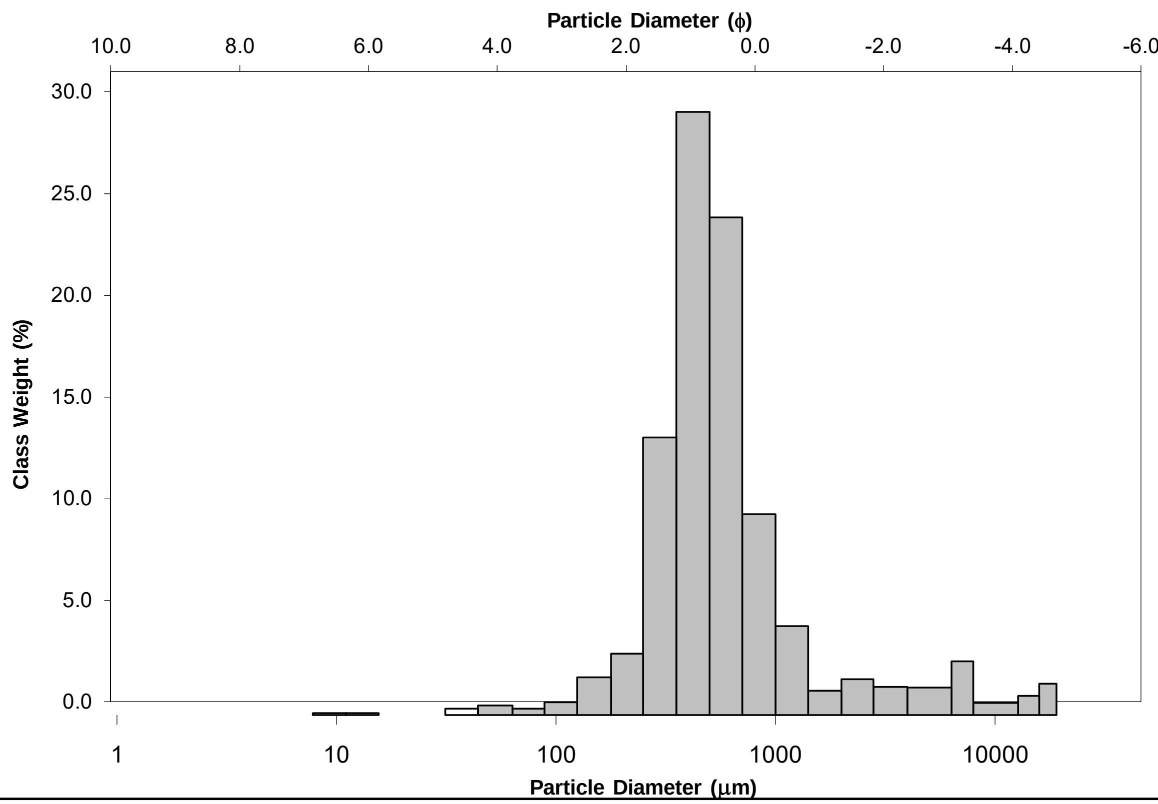
	μm	ϕ
MODE 1:	426.7	1.250
MODE 2:		
MODE 3:		
D_{10}:	260.6	-0.495
MEDIAN or D_{50}:	491.1	1.026
D_{90}:	1409.7	1.940
(D_{90} / D_{10}):	5.409	-3.916
$(D_{90} - D_{10})$:	1149.1	2.435
(D_{75} / D_{25}):	1.907	2.796
$(D_{75} - D_{25})$:	332.0	0.931

GRAIN SIZE DISTRIBUTION

GRAVEL:	8.8%	COARSE SAND:	34.1%
SAND:	88.7%	MEDIUM SAND:	43.2%
MUD:	2.5%	FINE SAND:	4.9%
		V FINE SAND:	0.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.8%
COARSE GRAVEL:	0.8%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	1.4%	MEDIUM SILT:	0.2%
FINE GRAVEL:	3.5%	FINE SILT:	0.0%
V FINE GRAVEL:	3.1%	V FINE SILT:	0.0%
V COARSE SAND:	5.5%	CLAY:	1.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	1091.7	527.3	0.923	520.0	0.943	Coarse Sand
SORTING (σ):	2292.8	3.231	1.692	2.204	1.140	Poorly Sorted
SKEWNESS (Sk):	4.987	-1.452	1.452	0.255	-0.255	Coarse Skewed
KURTOSIS (K):	30.50	13.72	13.72	2.126	2.126	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5016** ANALYST & DATE: TerraSense LLC, 1/24/2020

SAMPLE TYPE: Unimodal, Well Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Fine Sand

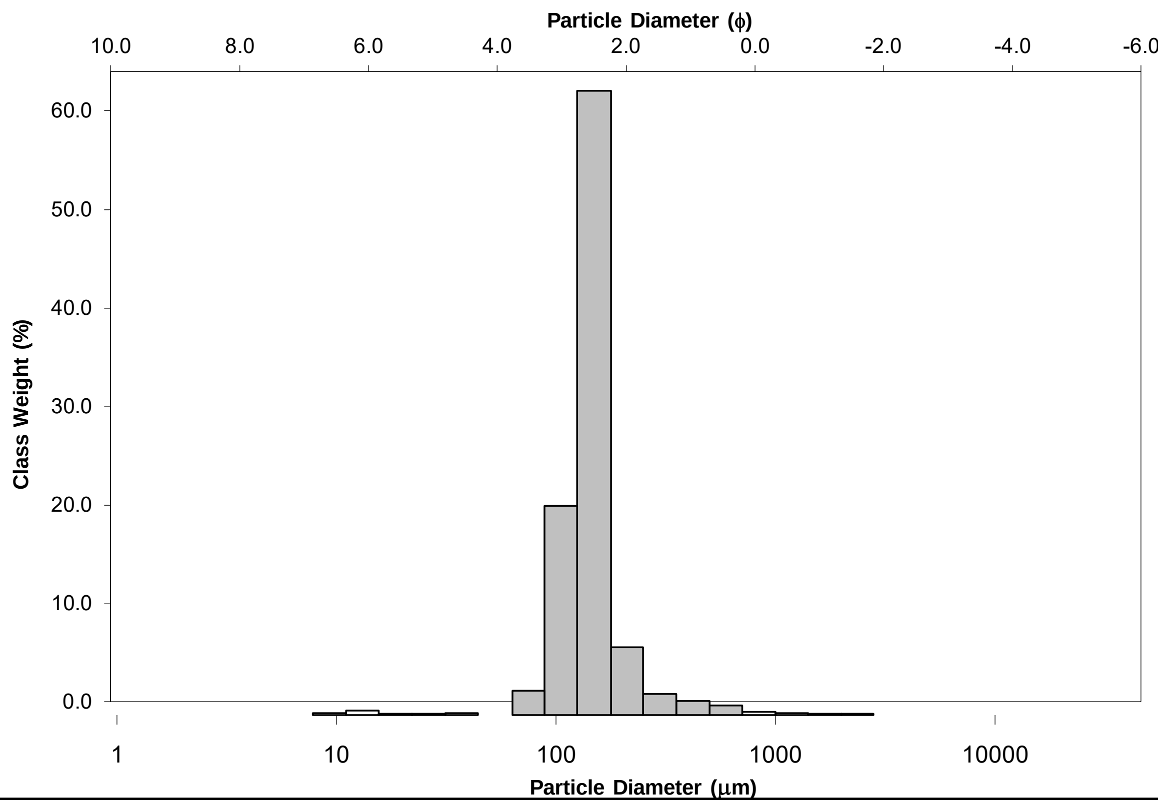
	μm	φ
MODE 1:	151.1	2.749
MODE 2:		
MODE 3:		
D_{10}:	95.15	2.378
MEDIAN or D_{50}:	142.8	2.808
D_{90}:	192.4	3.394
(D_{90} / D_{10}):	2.022	1.427
$(D_{90} - D_{10})$:	97.24	1.016
(D_{75} / D_{25}):	1.341	1.163
$(D_{75} - D_{25})$:	41.88	0.423

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	1.2%
SAND:	96.2%	MEDIUM SAND:	3.5%
MUD:	3.7%	FINE SAND:	68.4%
		V FINE SAND:	22.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.2%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.6%
FINE GRAVEL:	0.0%	FINE SILT:	0.0%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.0%
V COARSE SAND:	0.3%	CLAY:	2.7%

	METHOD OF MOMENTS Arithmetic μm	Geometric μm	Logarithmic φ	FOLK & WARD METHOD Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	158.3	126.9	2.978	137.7	2.861	Fine Sand
SORTING (σ):	126.6	2.414	1.271	1.357	0.440	Well Sorted
SKEWNESS (Sk):	9.448	-3.988	3.988	-0.132	0.132	Fine Skewed
KURTOSIS (K):	133.8	22.62	22.62	1.665	1.665	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5017**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Well Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Very Fine Gravelly Fine Sand

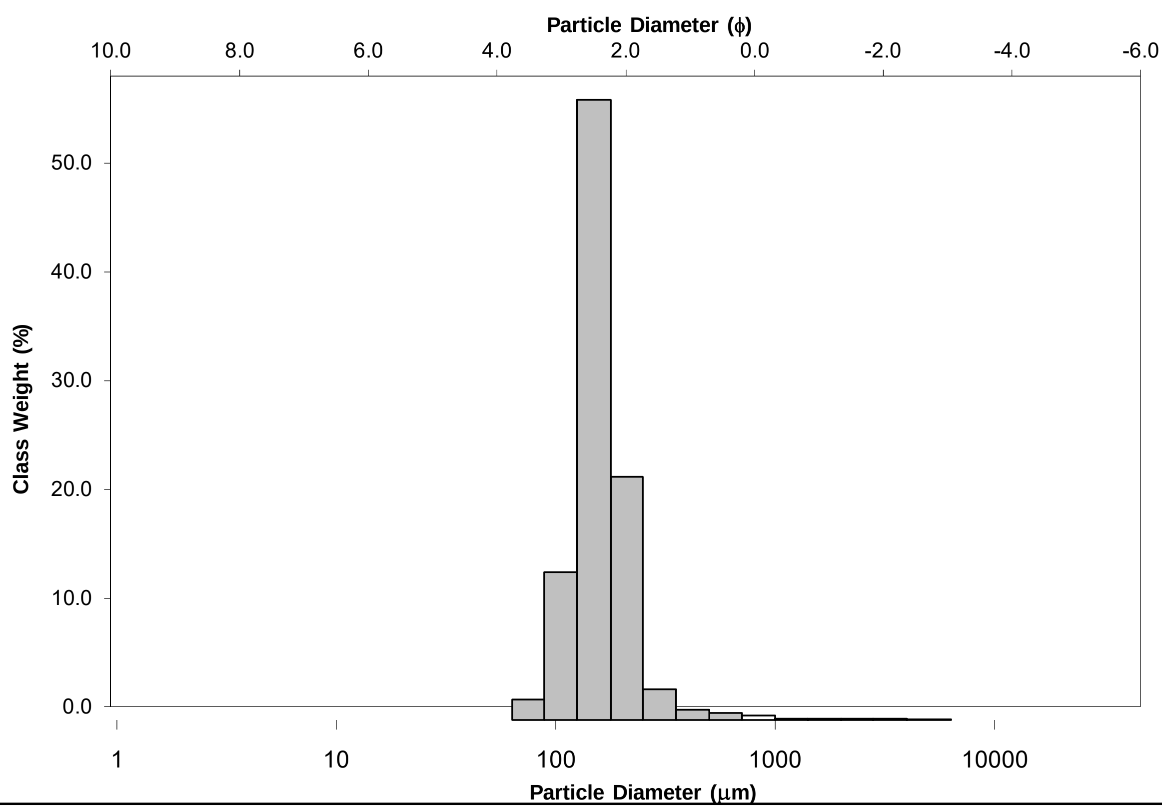
	μm	φ
MODE 1:	151.1	2.749
MODE 2:		
MODE 3:		
D_{10}:	105.6	2.116
MEDIAN or D_{50}:	153.5	2.704
D_{90}:	230.7	3.243
(D_{90} / D_{10}):	2.184	1.533
$(D_{90} - D_{10})$:	125.1	1.127
(D_{75} / D_{25}):	1.384	1.190
$(D_{75} - D_{25})$:	50.41	0.469

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.3%	COARSE SAND:	1.0%
SAND:	98.1%	MEDIUM SAND:	3.7%
MUD:	1.6%	FINE SAND:	77.8%
		V FINE SAND:	15.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	0.1%	FINE SILT:	0.0%
V FINE GRAVEL:	0.2%	V FINE SILT:	0.0%
V COARSE SAND:	0.2%	CLAY:	1.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	180.1	148.3	2.754	158.4	2.658	Fine Sand
SORTING (σ):	222.4	2.046	1.033	1.331	0.412	Well Sorted
SKEWNESS (Sk):	15.87	-4.500	4.500	0.091	-0.091	Symmetrical
KURTOSIS (K):	309.8	35.37	35.37	1.278	1.278	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5018**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Bimodal, Moderately Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Fine Gravelly Coarse Sand

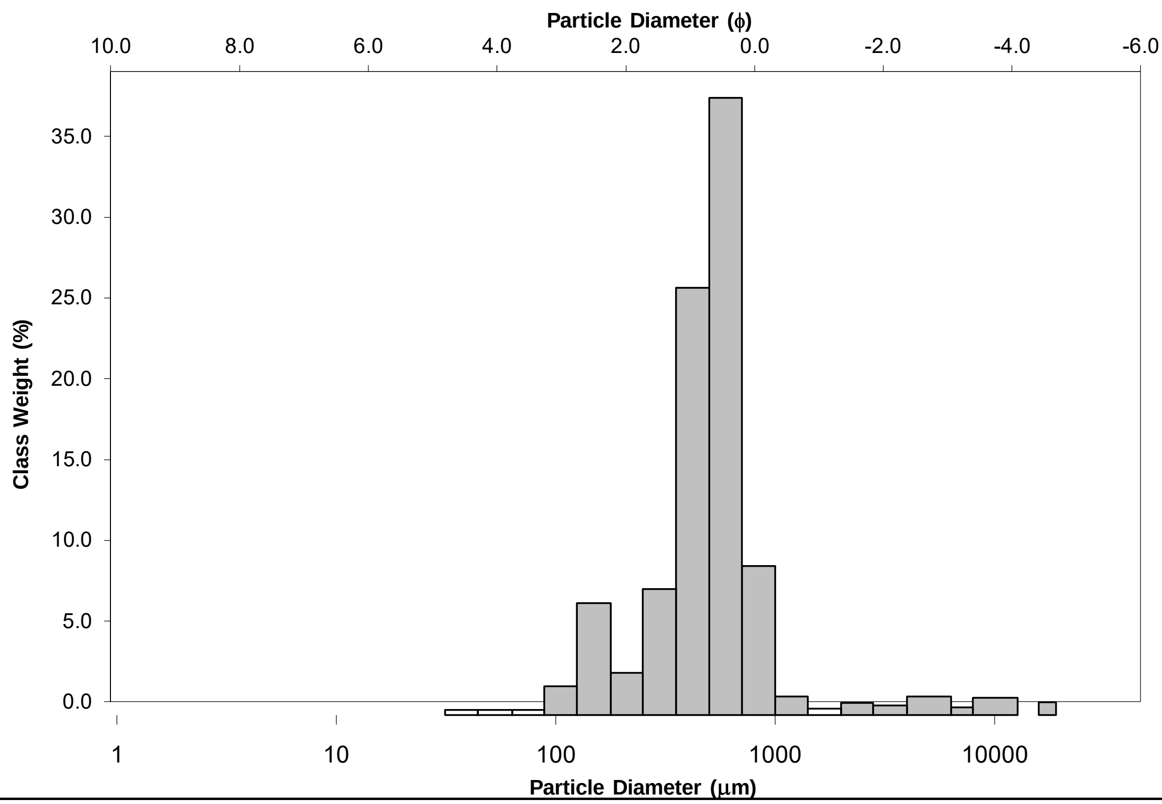
	µm	ϕ
MODE 1:	603.3	0.750
MODE 2:	151.1	2.749
MODE 3:		
D_{10}:	169.0	0.198
MEDIAN or D_{50}:	513.0	0.963
D_{90}:	871.8	2.565
(D_{90} / D_{10}):	5.160	12.96
$(D_{90} - D_{10})$:	702.8	2.367
(D_{75} / D_{25}):	1.741	2.272
$(D_{75} - D_{25})$:	275.2	0.800

GRAIN SIZE DISTRIBUTION

GRAVEL:	4.9%	COARSE SAND:	46.3%
SAND:	93.1%	MEDIUM SAND:	33.6%
MUD:	2.0%	FINE SAND:	9.5%
		V FINE SAND:	2.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.6%
COARSE GRAVEL:	0.4%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	1.4%	MEDIUM SILT:	0.0%
FINE GRAVEL:	1.8%	FINE SILT:	0.0%
V FINE GRAVEL:	1.3%	V FINE SILT:	0.0%
V COARSE SAND:	1.5%	CLAY:	1.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic µm	Geometric µm	Logarithmic ϕ	Geometric µm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	825.3	463.1	1.111	465.0	1.105	Medium Sand
SORTING (σ):	1726.0	2.872	1.522	1.879	0.910	Moderately Sorted
SKEWNESS (Sk):	6.309	-1.958	1.958	-0.177	0.177	Fine Skewed
KURTOSIS (K):	48.53	17.12	17.12	1.950	1.950	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5019**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Trimodal, Poorly Sorted
TEXTURAL GROUP: Sandy Gravel
SEDIMENT NAME: Sandy Fine Gravel

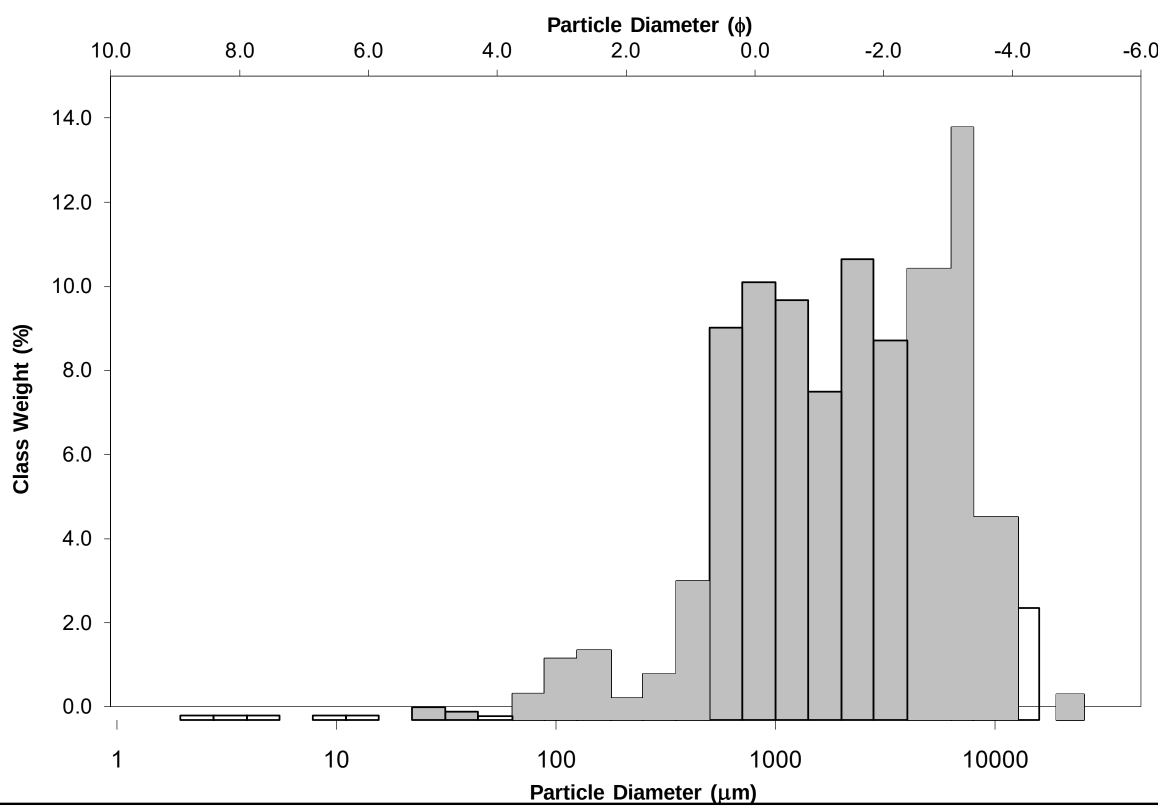
	μm	ϕ
MODE 1:	7143.8	-2.828
MODE 2:	2396.5	-1.241
MODE 3:	853.4	0.250
D_{10}:	445.5	-2.942
MEDIAN or D_{50}:	2110.3	-1.077
D_{90}:	7685.7	1.167
(D_{90} / D_{10}):	17.25	-0.397
$(D_{90} - D_{10})$:	7240.3	4.109
(D_{75} / D_{25}):	6.058	-0.118
$(D_{75} - D_{25})$:	4181.0	2.599

GRAIN SIZE DISTRIBUTION

GRAVEL:	51.7%	COARSE SAND:	19.6%
SAND:	45.8%	MEDIUM SAND:	4.4%
MUD:	2.5%	FINE SAND:	2.2%
		V FINE SAND:	2.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.3%
COARSE GRAVEL:	0.5%	COARSE SILT:	0.3%
MEDIUM GRAVEL:	8.1%	MEDIUM SILT:	0.2%
FINE GRAVEL:	23.3%	FINE SILT:	0.1%
V FINE GRAVEL:	19.8%	V FINE SILT:	0.2%
V COARSE SAND:	17.6%	CLAY:	1.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	3389.0	1716.1	-0.779	2033.0	-1.024	Very Fine Gravel
SORTING (σ):	3454.9	4.524	2.178	3.505	1.809	Poorly Sorted
SKEWNESS (Sk):	1.791	-1.987	1.987	-0.155	0.155	Fine Skewed
KURTOSIS (K):	7.459	9.910	9.910	0.982	0.982	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX H PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **GRAB_5020**
ANALYST & DATE: TerraSense LLC, 1/24/2020
SAMPLE TYPE: Unimodal, Moderately Sorted
TEXTURAL GROUP: Gravelly Sand
SEDIMENT NAME: Very Fine Gravelly Coarse Sand

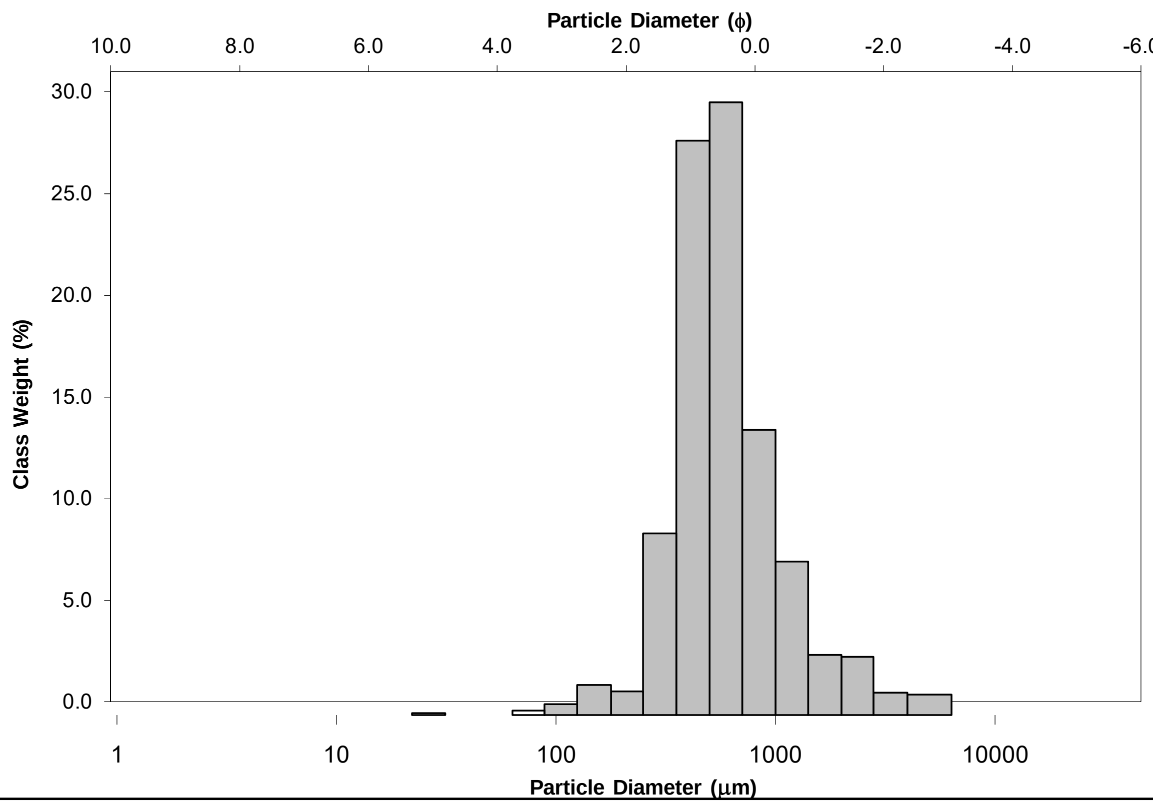
	μm	ϕ
MODE 1:	603.3	0.750
MODE 2:		
MODE 3:		
D_{10}:	303.6	-0.360
MEDIAN or D_{50}:	552.3	0.856
D_{90}:	1283.4	1.720
(D_{90} / D_{10}):	4.227	-4.778
$(D_{90} - D_{10})$:	979.8	2.080
(D_{75} / D_{25}):	1.928	3.686
$(D_{75} - D_{25})$:	376.9	0.947

GRAIN SIZE DISTRIBUTION

GRAVEL:	5.1%	COARSE SAND:	43.1%
SAND:	93.2%	MEDIUM SAND:	36.4%
MUD:	1.7%	FINE SAND:	2.7%
		V FINE SAND:	0.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.1%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	1.3%	FINE SILT:	0.0%
V FINE GRAVEL:	3.8%	V FINE SILT:	0.0%
V COARSE SAND:	10.2%	CLAY:	1.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	751.6	541.6	0.885	582.0	0.781	Coarse Sand
SORTING (σ):	721.7	2.705	1.436	1.762	0.818	Moderately Sorted
SKEWNESS (Sk):	3.837	-3.509	3.509	0.198	-0.198	Coarse Skewed
KURTOSIS (K):	21.10	24.15	24.15	1.309	1.309	Leptokurtic

GRAIN SIZE DISTRIBUTION



Attachment G – Habitat Characterization Report, Lot 3, 2017 Survey, Gardline, October 2017

Survey Report for
DONG E&P AS

Project:
OCW01 – Ocean Wind LLC, New Jersey Geophysical 1A Survey (2017) Lot 3

Description:
Habitat Characterisation Report

Survey Date:
Survey: 18-Jun-2017 to 16-Sep-2017
Environmental: 01-Jul-2017 to 16-Sep -2017

Project Number:
10969.5

Client Reference:
200-15-0981

REPORT AUTHORISATION AND DISTRIBUTION

Compilation	Environmental	D. Reynolds, T. Scott-Heagerty
Authorisation	Checked	…………………. M Milititsky
	Approved	…………………. M Thompson

Revision	Date	Title
0	16-Oct-2017	Habitat Characterisation Report volume 10969.5
1	17-Oct-2017	Habitat Characterisation Report volume 10969.5

Distribution

1 Copy

DONG Energy
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7000 Fredericia
DENMARK

For attention of

Name
Thomas Bojer Kristensen

SERVICE WARRANTY

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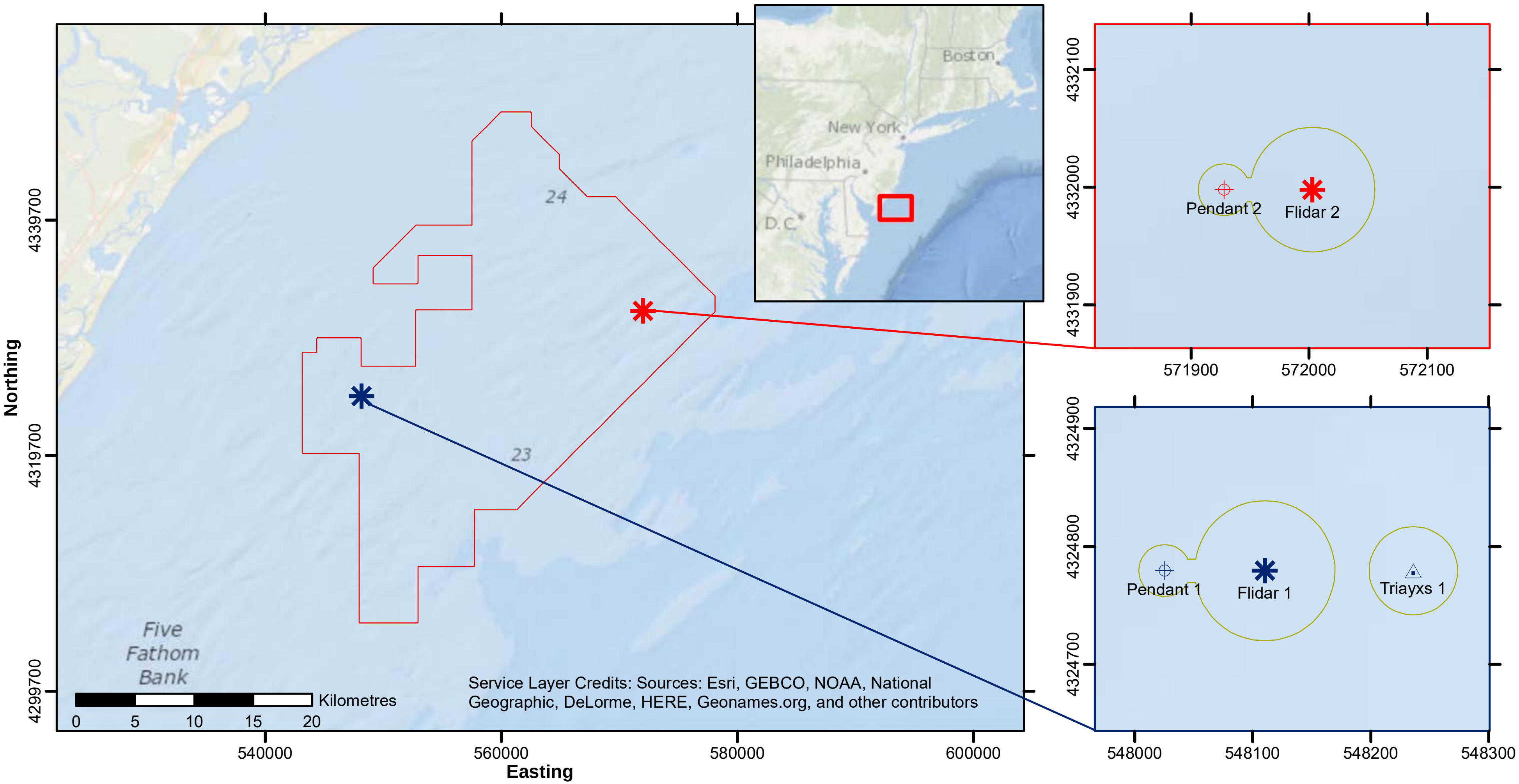
LOCATION MAP



Key

Flidar 1 West	Flidar 2 East	Anchor Sweep
Pendant 1	Pendant 2	OCW01 Survey Area
Triayxs 1		

Coordinate System: NAD 1983 UTM Zone 18N
Projection: Transverse Mercator Datum: North American 1983
Central Meridian: 75.0°W

Inset Map Scale: 0 50 100 150 200 Metres

N

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1 PROJECT SUMMARY

Table 1.1 Survey Details

Item	Details
Type of survey	Geophysical and Environmental Characterisation Survey
Location	Offshore New Jersey, USA
Client	DONG Energy Wind Power AS
Scope of work (SoW) document references and date issued	• Gardline PEP, Rev 3.2 (FINAL), (22-Jun-2017) • Scope of Work and Technical Requirements – OCW01 Ocean Wind Geophysical 1A Survey (2017) [DOK2649606A].pdf (16-Dec-2016) • DONG_MAW01_OCW01_POD_Data Processing_Rev3 (Apr2017) • OCW01 Environmental and Consent Requirements Lot 3 [DOK2636002A].pdf" and BOEM Renewable Energy Lease (Lease number OCS-A 0498). (16-Dec-2016)
Overall object(s) of survey	The OCW01 project required geophysical survey data to be gathered across the planned Ocean Wind site area within the area of the Commercial Lease of Submerged Lands and Renewable Energy Development on the Outer Continental Shelf (OCS-A 0498). The Ocean Wind site was located approximately 20km off the main coast of New Jersey, USA and covered an area of approximately 649km^2. The purpose of the survey was to gather data for: • Consenting requirements • Foundation concept selection • Planning of Geotechnical Investigations • UXO Clearance for Geotechnical Investigations • Geo-hazard assessment • Archaeological restrictions Therefore, a list of main objectives for the survey was identified: • Accurate bathymetry • Seabed classification • Mapping of seabed morphology • Seismic stratigraphic and structural model • Information on ferromagnetic objects • Information on archaeological features • Information on geo-hazards • Obtain information on possible archaeological features • Obtain information on possible geohazard
Sampling strategy in SoW	For the purposes of the OCW01 works, the environmental survey was to be conducted by means of a combined Camera Grab system (Grab-Cam), used to acquire imagery and then a grab sample at the following locations: • Combined camera & grab operations at the 2 x Floating Light Detection and Ranging buoy (FLIDAR) locations (FLIDAR West and FLIDAR East);

Item	Details
	• Combined camera & grab operations at additional locations as requested by client representative (CR) across the Lease Area site. The purpose of the imagery was to insure the seabed was free of obstructions/hazards/protected habitat/archaeological items etc and that the image of the in situ seabed sediments related to the grab sample taken. In addition Gardline was to mobilise the vessel with sufficient spares/consumables so that additional sampling locations could be acquired if necessary at the discretion of the onboard CR. Prior to the collection of a grab sample, the site was to be inspected visually by means of the integrated camera to ensure the site did not contain any sensitive/protected benthic habitats. Sampling was to avoid protected and non-protected wrecks, as well as existing infrastructure such as cables, pipelines etc. and areas of high magnetometer readings from the geophysical survey (at least a 25 metres exclusion or as considered appropriate) to ensure that no damage was caused to either the existing structures or the survey equipment.
Issues raised at pre-job meeting	None
Variations to SoW	It was confirmed that only minimal footage of 30 to 60 seconds was required at each deployment.
Cancellations and/or reductions to environmental sampling programme	Maximum of 25 stations stated in SoW. A total of 21 stations were investigated.
Vessel (s)	MV Ocean Researcher
Onboard environmentalists	Dave Reynolds (ENV/PSO) 18-Jun-2017 – 06-Jul-2017 (nights) Thomas Scott-Heagerty (ENV/PSO) 18-Jun-2017 – 06-Jul-2017 (days) Marc Ferns (ENV) 14-Sep-2017 – 16-Sep-2017
Size of survey area and line orientations	The Ocean Wind site was located approximately 20km off the main coast of New Jersey, USA and covered an area of approximately 649km^2. The FLIDAR locations comprised two 200m by 500m survey areas; FILDAR West and FLIDAR East. Survey Area: Primary lines oriented 45°/225°, Secondary lines oriented 135°/315° 900m spacing Two separate FLIDAR locations: Primary lines oriented 90°/2700° Secondary lines oriented 0°/180° 30m spacing on mainlines, 70 to 125m on the secondary lines.

Any other operations	Analogue survey equipment suite: • Side Scan Sonar (SSS; Edgetech FS4200; 300/600Hz fitted with mini SVS for underway sound velocity profiles) SSS ranges for the analogue site were 50m. • Magnetometer (Geometrics G882) • Single beam echo sounder (SBES; Simrad EA 400 c/w r POS MV 320 AHRS) • Multi beam echo sounder (MBES; Kongsberg Simrad EM2040 dual RX 200- 400kHz 0.5° x 1° and velocity probes (hull mounted) c/w Applanix POS MV 320 AHRS • Caris HIPS/SIPS processing • Hull mounted Pinger (Massa 16 element hull-mounted transducer array. GeoPulse 5430A transmitter operating at 6kHz to 7kHz.) • Sparker (Geo-Spark 2000X, Geo-Source 400LW Multi-tip sparker with Geo Marine 48 channel '1+2' streamer (total active length 100m))

Table 1.2 FLIDAR Locations

FLIDAR Coordinates	GRS 1980, NAD83(2011)		UTM Zone 18 North (75 W)	
	Latitude	Longitude	Easting	Northing
FLIDAR 1 West (initially proposed location)	39° 04' 13.791"" N	74° 26' 40.496" W	548 046.99	4 324 746.60
FLIDAR 1 West (new proposed location)	39° 04' 14.848"" N	74° 26' 37.860" W	548 110.14	4 324 779.57
FLIDAR 2 East	39° 08' 03.075"" N	74° 10' 00.876" W	572 002.79	4 331 998.09

Table 1.3 Intended and Achieved Survey Strategy

Environmental Survey Strategy	Intended	Achieved
Lot 3		
Survey template	Stations intelligently selected over survey area including stations required on FLIDAR locations. Three physiographic areas covered (Ridge and Swale, Shoal Retreat Massif, Great Egg Shelf Valley) and stations assigned accordingly.	Yes
Number of stations	21	21
Equipment	Grabcam	Grabcam
Sieve size	1mm	1mm

2 PRELIMINARY RESULTS

Details of the target locations are summarised in Table 2.1. Actual sampling locations may be slightly offset from the target locations, all presented in Figure 2.2. All positional information is detailed in the surveyor's log sheets in Appendix A. Station L3-ENV18 had to be moved from target after repeated failed sampling attempts as per the survey methods detailed in Section 4, with one more sample take 47m from target before the stations was abandoned. Except for that one sample, all other samples were obtained within 30m of target, with 97% of those obtained within 20m of target and 83% within 10m of target. For further details of sub-samples obtained at each station refer to Table 2.3 below.

Table 2.1 Target Locations

Station	Reason for selecting target or feature	Target Easting	Target Northing	Required Data	Data / Samples Obtained
L3-ENV1	FLIDAR West Terrain: Ridge and Swale Feature Type: Area of megarippled high reflectivity seabed Predicted Sediment Type: Sand	547963	4324838	Camera, Grab	Camera, Grab
L3-ENV2	FLIDAR West Terrain: Ridge and Swale Feature Type: Area of rippled low reflectivity seabed Predicted Sediment Type: Sand	548022	4324687	Camera, Grab	Camera Grab
L3-ENV3	FLIDAR East Terrain: Shoal Retreat Massif Feature Type: Area of low reflectivity seabed Predicted Sediment Type: Sand	572003	4331998	Camera, Grab	Camera, Grab
L3-ENV4	Terrain: Shoal Retreat Massif Feature Type: Area of mottled medium reflectivity seabed with small patches of higher reflectivity and some relic bedforms Predicted Sediment Type: Shelly muddy medium sand	560728	4345081	Camera, Grab	Camera, Grab
L3-ENV5	Terrain: Shoal Retreat Massif Feature Type: Area of rippled high reflectivity Predicted Sediment Type: Coarse shelly sand	565614	4340937	Camera, Grab	Camera Grab
L3-ENV6	Terrain: Shoal Retreat Massif Feature Type: Trough containing medium reflectivity seabed Predicted Sediment Type: Muddy coarse sand	575080	4331481	Camera, Grab	Camera, Grab
L3-ENV7	Terrain: Shoal Retreat Massif Feature Type: Mottled medium reflectivity typical of lag deposit Predicted Sediment Type: Muddy sand to coarser sediment	558881	4341283	Camera, Grab	Camera, Grab
L3-ENV8	Terrain: Shoal Retreat Massif Feature Type: Area of mottled medium reflectivity seabed with some relic low relief bedforms Predicted Sediment Type: Slightly shelly muddy medium sand	561740	4333350	Camera, Grab	Camera Grab
L3-ENV9	Terrain: Shoal Retreat Massif Feature Type: Trough, to investigate potentially differing deposition regime Predicted Sediment Type: sand to coarser sediments	565290	4329822	Camera, Grab	Camera, Grab
L3-ENV10	Terrain: Shoal Retreat Massif	570446	4327912	Camera,	Camera,

Station	Reason for selecting target or feature	Target Easting	Target Northing	Required Data	Data / Samples Obtained
	Feature Type: Area of exposed lag deposits where finer materials have possibly been stripped from the surface Predicted Sediment Type: Medium sand			Grab	Grab
L3-ENV11	Terrain: Great Egg Shelf Valley Feature Type: Area of featureless, medium reflectivity seabed Predicted Sediment Type: Slightly shelly, fine to medium sand	551558	4335896	Camera, Grab	Camera Grab
L3-ENV12	Terrain: Great Egg Shelf Valley Feature Type: Area of featureless, medium high reflectivity Predicted Sediment Type: Coarse sand	555993	4326382	Camera, Grab	Camera, Grab
L3-ENV13	Terrain: Great Egg Shelf Valley Feature Type: Area of featureless, low reflectivity seabed Predicted Sediment Type: Fine to medium sand	557947	4323044	Camera, Grab	Camera, Grab
L3-ENV14	Terrain: Shoal Retreat Massif Feature Type: Area of relic fluvial bedforms Predicted Sediment Type: Fine to medium sand	562434	4319913	Camera, Grab	Camera Grab
L3-ENV15	Terrain: Ridge and Swale Feature Type: Area of low reflectivity Predicted Sediment Type: Muddy fine to medium sand	547164	4327547	Camera, Grab	Camera, Grab
L3-ENV16	Terrain: Ridge and Swale Feature Type: Area of moderate reflectivity seabed with apparent bedforms Predicted Sediment Type: Muddy medium to coarse sand	546447	4321896	Camera, Grab	Camera, Grab
L3-ENV17	Terrain: Ridge and Swale Feature Type: Small ridge in an area of varied medium to high reflectivity on shoal area Predicted Sediment Type: Muddy medium to coarse sand	551638	4316726	Camera, Grab	Camera Grab
L3-ENV18	Terrain: Ridge and Swale Feature Type: Megarippled, strongly reflective seabed Predicted Sediment Type: Muddy medium sand to coarser sediment	555500	4316702	Camera, Grab	Camera, Grab
L3-ENV19	Terrain: Ridge and Swale Feature Type: Area of low to medium reflectivity seabed with low reflectivity bedforms Predicted Sediment Type: Medium to coarse sand	550997	4307187	Camera, Grab	Camera, Grab
L3-ENV20	Terrain: Shoal Retreat Massif Feature Type: Area of featureless low reflectivity seabed on shoal Predicted Sediment Type: Medium sand	562376	4337806	Camera, Grab	Camera Grab
L3-ENV21	Terrain: Ridge and Swale Feature Type: Area of megarippled patchy medium to high reflectivity seabed Predicted Sediment Type: Muddy medium to coarse sand	550307	4323159	Camera, Grab	Camera, Grab

For further details of sub-samples obtained at each station refer to Table 2.3 below

Figure 2.1 Target Locations with Side Scan Sonar

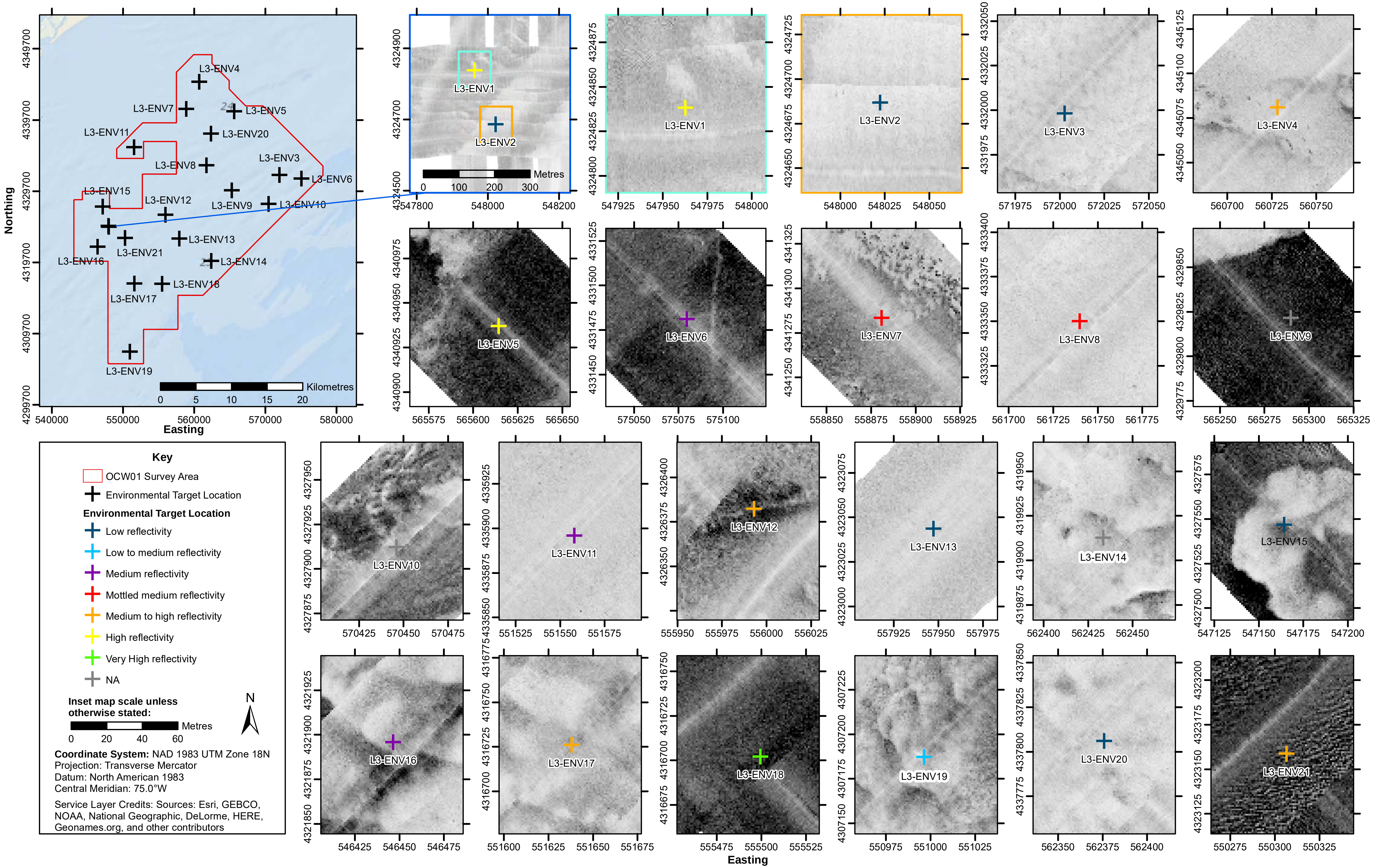


Figure 2.2 Target and Actual Sampling Locations

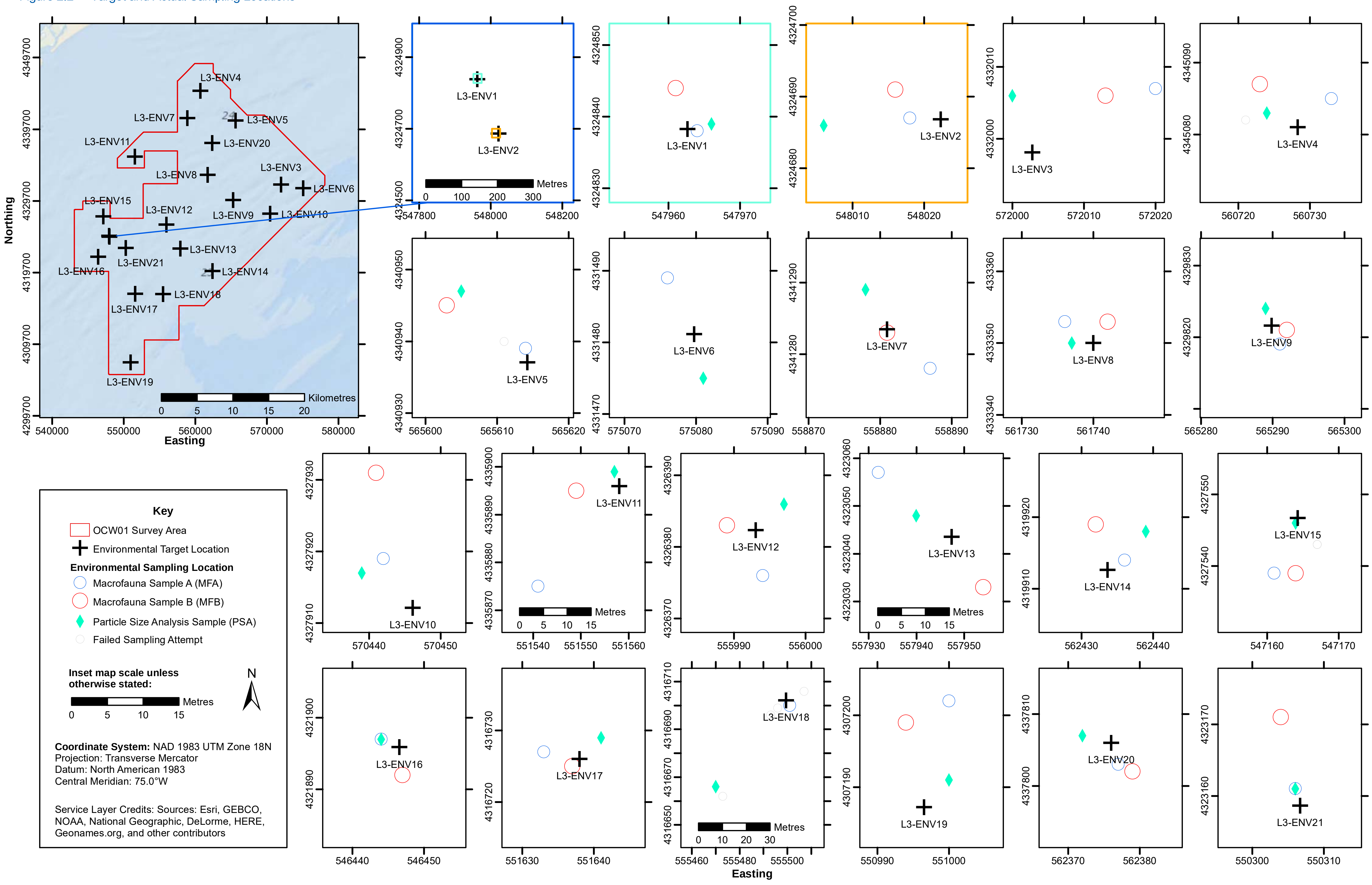


Table 2.2 Initial Interpretation

Item	Detail
Brief summary of sonar and bathy data	The surveyed area showed a lot of variation due its size and the coverage of three physiographic areas (Ridge and Swale, Great Egg Shelf Valley and Shoal Retreat Massif). Broadly, the site consisted of predominantly low to medium reflectivity sediment, interpreted as medium to coarse, shelly sand interspersed with higher reflectivity areas and relic bedforms interpreted as coarser sand, or areas where a different current regime had stripped out the finer sediment fractions. Additionally, and especially to the west of the site coinciding with the Ridge and Swale physiographic area, were patches of very high reflectivity, rippled sediment interpreted as coarser sediment, either coarse sand or fine gravel. FLIDAR West was characterized by large bands of different reflectivity, with a distinct border between a lower reflectivity, rippled area and a high reflectivity, mega rippled area not far from the proposed buoy location. The seabed was interpreted to be sand. FLIDAR East showed a uniformly flat, low reflectivity seabed with some sparse, ill defined possible sandwaves. The seabed was interpreted to be sand.
How did this influence your survey strategy / sampling locations?	Stations were chosen to cover the surveyed area and the depth and reflectivity gradients across the site with extremes of both being investigated. Each of the three physiographic areas was assigned sufficient stations for characterization. For details of each station, see Table 2.1. FLIDAR West: Two stations were chosen to ground truth both the sediment types noted on the SSS data. Please note that all data interpretation and derived classifications apply to the new proposed FLIDAR West location (see Table 1.2). FLIDAR East: One station was chosen to ground truth the sediment at this location. All stations were positioned close to intersections of the proposed geophysical survey lines for optimum ground truthing.
Seabed imagery findings (sediment and fauna)	Survey area predominantly consisted of brown, slightly rippled medium sand with areas of occasionally dense shell hash and areas of coarser sand to gravel and pebbles broadly corresponding to higher reflectivity areas. Fines were present at all locations and seemed slightly more prevalent in lower reflectivity areas and less prevalent in higher reflectivity areas. The western area of the survey, corresponding to the Ridge And Swale physiographic area, was predominantly coarser, while the central area of the site, corresponding with the Great Egg Shelf Valley was predominantly finer. Fauna included Annelida (Polychaeta worm tubes), Arthropoda (Brachyura, Paguroidea), Cnidaria (Ceriantharia), Echinodermata (*Echinarachnius parma*), Mollusca (Gastropoda, *Euspira* sp. egg mass), Pices (including Elasmobranchia egg case, *Prionotus carolinus, Scomber* sp., *Urophycis regia*).

<table>
<tr><th>Item</th><th>Detail</th></tr>
<tr><td></td><td>Based on seabed imagery, Coastal and Marine Ecological Classification Standard (CMECS) biotic components classification (FGDC, 2012) was limited at some stations. Full classification for Lot 3 stations based on macrofauna data is presented in the sampling section of this report. Based on seabed imagery alone all stations were categorized up to Biotic Subclass as ‘Soft Sediment Fauna’. CMECS Biotic classification at Stations L3-ENV3, L3-ENV13, L3-ENV17 and L3-ENV20 was possible at a lower level due to aggregations of the common sand dollar Echinarachnius parma being observed. At these stations the Biotic Community has been categorised as ‘Echinarachnius parma Bed’.

<u>FLIDAR West Only:</u>
The high reflectivity mega rippled area consisted of gravelly sand with shells, shell fragments and occasional cobbles. The lower reflectivity area consisted of medium sand with occasional shell fragments. Sand ripples were also observed.

Fauna observed included; Annelida (Polychaeta worm tubes), Arthropoda (Brachyura), Cnidaria (Ceriantharia), Pisces (Urophycis regia).

Based on seabed imagery CMECS biotic classification of both stations at FLIDAR West was conducted up to Biotic Subclass and categorised as ‘Soft Sediment Fauna’.

<u>FLIDAR East Only:</u>
The low reflectivity seabed consisted of medium sand with occasional shell fragments.

Fauna observed included; Annelida (Polychaeta worm tubes), Echinodermata (E. parma), Pisces (P. carolinus).

As mentioned above, CMECS biotic classification of Station L3-ENV3 was possible at a lower level due to aggregations of the common sand dollar E. parma being observed. At this station, the Biotic Community has been categorised as ‘Echinarachnius parma Bed’.</td></tr>
<tr><td>Seabed sampling findings (sediment and fauna)</td><td>Sediment sampling confirmed seabed imagery findings and were consistent with the geophysical interpretation, with the western area of the survey, corresponding to the Ridge And Swale physiographic area. This area presents predominantly coarser sediments and the central area of the site, corresponding with the Great Egg Shelf Valley presente predominantly finer sediments.

Fauna observed during field observations included ; Annelida (Polychaeta worm tubes), Arthropoda (Amphipoda, Brachyura, Paguroidea), Echinodermata (E. parma) and Mollusca (Bivalvia, Gastropoda).

The analysis of the macrofauna samples revealed a community dominated by Arthropoda (47%) followed by Annelida (33%) and Mollusca (16%), with the remaining Phylum (Nemertea, Echinodermata, Chordata and Cnidaria) representing less than 2% of the community each (Table 2.4). In contrast, the highest total biomass was recorded for Mollusca (108g) followed by</td></tr>
</table>

Item	Detail
	Echinodermata (104g). Annelida had a total biomass of 19g across all stations, Arthropoda 12g and the remaining taxa 4g (see Table 2.7). CMECS biotic classification of stations based on seabed imagery was mostly confirmed by the dominant macrofauna taxa found at each station, which allowed the classification to the lowest possible level at all station except for Station L3-ENV2 (see FLIDAR West section below). The Biotic Communities were mostly distributed by the following Biotic Groups: Small Tube-Building Fauna; Small Surface-Burrowing Fauna; Sand Dollar Bed; Mobile Crustaceans on Soft Sediments and Clam Bed, with details presented in Table 2.9 and biotic sub-class and group displayed in Figure 2.3. Further to this, univariate statistics have been calculated for each station, including the number of individuals, number of taxa (as listed in Appendix C), Pielou's Evenness (J'), Fisher (α) , Shannon Wiener Diversity (H' $\log_2$), presented in Table 2.8, as well as the top ten dominant taxa presented in Table 2.5. Methodologies, calculations and further information on the univariate statistics calculated are described in Section 4.3. **<u>FLIDAR West Only:</u>** The high reflectivity mega rippled area consisted of dark brown gravelly coarse sand. The lower reflectivity area consisted of dark brown medium to coarse sand. Fauna observed in samples during field observations included: Annelida (Polychaeta worm tubes), Arthropoda (Amphipoda, Paguroidea), Mollusca (Gastropoda). The analysis of the macrofauna samples taken at FLIDAR West, when combining both samples, revealed a community dominated by Annelida (67%), followed by Arthropoda (27%), Mollusca (5%) and Echinodermata (2%), with the remaining Phylum (Cnidaria, Chordata and Nemertea) absent from the two stations sampled (see Table 2.4). Again when pooling both samples together, the highest total biomass was recorded for Annelida (0.313g) followed by Mollusca (0.165g), Arthropoda (0.080g) and Echinodermata (0.016g; see Table 2.7). CMECS biotic classification of stations based on seabed imagery was mostly confirmed by the dominant macrofauna taxa found at each station, which allowed the classification to the lowest level at Stations L2-ENV1, categorised as 'Small Tube-Building Fauna' for the Biotic Group and '*Spio* Bed' as the Biotic Community. At the sample taken at Station L3-ENV2, only ten organisms were present belonging to six taxa, four taxa with two individuals each and two taxa with one individual each. As such, it was not possible to establish the dominant taxon at this station which was categorised to Biotic Subclass level as 'Soft Sediment Fauna'. Details of the Biotic Component classification are presented in Table 2.9 and biotic sub-class and group displayed in Figure 2.3. Further to this, univariate statistics have been calculated for each station, including the number of individuals, number of taxa (as listed in Appendix C), Pielou's Evenness (J'), Fisher (α) , Shannon Wiener Diversity (H' log2) and are presented in Table 2.8, as well as the top most abundant taxa presented in Table 2.6. Methodologies, calculations and further information on the univariate statistics calculated are described in Section 4.3.

Item	Detail
	FLIDAR East Only: The lower reflectivity area consisted of dark brown fine to medium sand. Fauna observed in samples during field observations included: Annelida (Polychaeta worm tubes), Arthropoda (Amphipoda), Echinodermata (*E. parma*), Mollusca (Gastropoda). The macrofauna at FLIDAR East, was dominated by Arthropoda (53%), followed by Annelida (32%), Nemertea (6%), Mollusca (4%), Echinodermata and Chordata (2% each; see Table 2.4). The highest total biomass was recorded for Others (0.208g), Arthropoda (Crustacea; 0.070g), Mollusca (0.040g), Annelida (Polychaeta; 0.026g), and Echinodermata (0.004g; see Table 2.7). CMECS Biotic classification of Station L3-ENV3 was based on seabed imagery with the Biotic Community categorised as '*Echinarachnius parma* Bed'. Details of the Biotic Component classification are presented in Table 2.9 and biotic sub-class and group displayed in Figure 2.3. Further to this, univariate statistics have been calculated for each station, including the number of individuals, number of taxa (as listed in Appendix C), Pielou's Evenness (J'), Fisher (α) , Shannon Wiener Diversity (H' log2) and is presented in Table 2.8, as well as the top most abundant taxa presented in Table 2.6. Methodologies, calculations and further information on the univariate statistics calculated are described in Section 4.3.
Any signs of anthropogenic material?	No
Any Protected/Sensitive Species or Habitats.	Sensitive Habitats: There was no evidence from the seabed imagery or sampling of any sensitive habitats within the surveyed area, as defined by BOEM (2013), such as exposed hard bottoms or those covered by ephemeral sand layers, seagrass patches, kelp or other algal beds, or the presence of anthozoan species. Critical Habitats: The survey area did not fall in any final or proposed Critical Habitat as defined by the United States Fish and Wildlife Service (USFWS, 2017). Endangered Species Act: No benthic species or protected fish species listed under this act (NOAA, 2017) were observed during the current survey.
Particle Size Analysis	Full results of the PSA for Lot 3 stations are presented in Table 2.10 and in Appendix D. CMECS substrate subgroups classification (FGDC, 2012) for Lot 3 stations is presented in Table 2.11. CMECS substrate subgroups classification is determined by Folk (1954) mixes for geologic sediments. Results of the particle size analysis were consistent with onboard observations, with the stations located on the western area of the survey, corresponding to the Ridge And Swale physiographic area, generally presenting coarser sediment. The mean grain size (μm) across Lot 3 stations ranged between 135.7μm at Station L3-ENV13 and 2298.6μm at Station L3-ENV20.

Item	Detail
	The sediment at most stations was poorly sorted, with three stations presenting moderately sorted sediments and two other stations very poorly sorted sediments. This was further corroborated by the mud, sand and gravel content in the sediment. Stations L3-ENV2, L3-ENV3, L3-ENV4, L3-ENV7, L3-ENV8, L3-ENV11, L3-ENV12, L3-ENV13, L3-ENV14, L3-ENV16, L3-ENV17, L3-ENV19 and L3-ENV20 were clearly dominated by sand with relative proportions ≥89.8%, with low gravel (≤7.7%) and mud (≤4.9%) contents. Stations L3-ENV1, L3-ENV5, L3-ENV6, L3-ENV9 and L3-ENV15 comprised mixed sand and gravel with varying relative proportion, with the highest gravel content being 24.4% while having low mud content (≤2.1%). Stations L3-ENV18 and L3-ENV21 presented relatively higher proportions of gravel of 48.4% and 70.3% respectively, with negligible amounts of mud (≤0.9%). Finally Station L3-ENV10 consisted of a mixture of gravel, sand and mud, with relative proportions of 3.1%, 86.0% and 10.9% respectively. The modified Folk classifications, and therefore CMECS substrate components classification, across all stations ranged between slightly gravelly muddy sand at Stations L3-ENV10 and L3-ENV17 through to sandy gravel at Stations L3-ENV18 and L3-ENV21. Total organic matter (TOM) concentrations ranged between 0.2% and 0.4% at all stations, except for Station L3-ENV10 which had a TOM content of 0.8%. Water content, measured as a percentage of the dry sample weight, ranged from 6.6% at Station L3-ENV9 to 30.4% at Station L3-ENV16. **FLIDAR West Only:** The high reflectivity Station L3-ENV1 presented a mean grain size of 727.0µm while the lower reflectivity Station L3-ENV2 recorder a slightly smaller mean grain size of 658.7µm. Sediment at both stations was poorly sorted and clearly dominated by sand with a proportion ≥83.0%, while mud content was negligible at both stations (1.5%). Gravel content, however, was higher at Station L3-ENV1 (15.5%) when compared to Station L3-ENV2 which recorded a proportion of gravel of 1.3%. Sediments under the modified Folk classification, and therefore CMECS substrate components classification, were categorised as Gravelly Sand at Station L3-ENV1 and as Slightly Gravelly Sand at Station L3-ENV2. TOM concentrations were 0.3% at Station L3-ENV1 and 0.2% at Station L3-ENV2. Water content, measured as a percentage of the dry sample weight, was 15.9% at Station L3-ENV1 and 17.1% at Station L3-ENV2. **FLIDAR East Only:** The low reflectivity Station L3-ENV3 presented finer sediment than those at FLIDAR West, with a mean grain size of 229.8µm. Sediment was poorly sorted and consisted almost exclusively of sand (98.4%) with small proportions of gravel (0.1%) and mud (1.5%). Under the modified Folk classification, and therefore CMECS substrate components classification, the sediment was categorised as Slightly Gravelly Sand. TOM concentration in the sediment was 0.3% while the water content, measured as a percentage of the dry sample weight, was 18.9%.

Table 2.3 Summary of Sediment Samples/Data Obtained

Station	Water Depth[1]	PSD	SPR	MFA	MFB	VIDEO
L3-ENV1	23	Bag	Bag	1x 5ltr	1x 5ltr	VHS/DVD/FILES
L3-ENV2	22	Bag	Bag	1x 5ltr	1x 5ltr	VHS/DVD/FILES
L3-ENV3	27	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV4	21	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV5	27	Bag	Bag	3x 5ltr	3x 5ltr	VHS/DVD/FILES
L3-ENV6	36	Bag	Bag	1x 5ltr	1x 5ltr	VHS/DVD/FILES
L3-ENV7	21	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV8	22	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV9	31	Bag	Bag	4x 5ltr	4x 5ltr	VHS/DVD/FILES
L3-ENV10	32	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV11	21	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV12	29	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV13	30	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV14	26	Bag	Bag	2x 1ltr	2x 1ltr	VHS/DVD/FILES
L3-ENV15	22	Bag	Bag	1x 5ltr	1x 5ltr	VHS/DVD/FILES
L3-ENV16	20	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV17	20	Bag	Bag	1x 5ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV18	34	Bag	Bag	2x 5ltr	NS	VHS/DVD/FILES
L3-ENV19	31	Bag	Bag	1x 1ltr	1x 5ltr	VHS/DVD/FILES
L3-ENV20	18	Bag	Bag	1x 1ltr	1x 1ltr	VHS/DVD/FILES
L3-ENV21	27	Bag	Bag	3x 5ltr	3x 5ltr	VHS/DVD/FILES

PSD = Particle Size Distribution, SPR = Spare, MFA and MFB = Macrofauna

1 Water depths to nearest m; relate to the physico-chemical grab sample location (or first camera fix location if no grabs were collected) and are not corrected to LAT

Table 2.4 Contribution of Gross Taxonomic Groups

Station	Annelida	Arthropoda	Chordata	Cnidaria	Echinodermata	Mollusca	Nemertea	Total
L3-ENV1	72	28	1	0	0	0	0	101
L3-ENV2	2	2	4	2	0	0	0	10
L3-ENV3	15	25	2	1	0	1	3	47
L3-ENV4	23	102	4	2	0	1	1	133
L3-ENV5	696	55	9	0	0	0	71	831
L3-ENV6	116	17	8	0	0	0	0	141
L3-ENV7	155	101	66	0	0	0	0	322
L3-ENV8	9	137	10	2	0	1	0	159
L3-ENV9	248	32	3	0	1	1	3	288
L3-ENV10	32	36	459	0	0	1	1	529
L3-ENV11	32	112	69	0	0	0	0	213
L3-ENV12	17	23	17	0	0	0	2	59
L3-ENV13	62	72	50	9	0	0	1	194
L3-ENV14	12	52	8	0	0	4	0	76
L3-ENV15	38	324	8	0	0	22	0	392
L3-ENV16	5	24	3	0	0	6	0	38
L3-ENV17	4	20	1	48	0	11	0	84
L3-ENV18	134	14	3	0	1	0	2	154
L3-ENV19	49	49	3	0	0	7	4	112
L3-ENV20	8	81	5	1	0	1	0	96
L3-ENV21	426	212	10	0	0	0	0	648
n Individuals	2155	1518	743	65	2	56	88	4627
% of IndivIduals	46.57	32.81	16.06	1.40	0.04	1.21	1.90	100.00

Table 2.5 Species Ranking

Rank		Species/Taxon	Total Rank Score	Fidelity	Total Abundance
Score	Abundance				
1	3	*Unciola irrorata*	121	0.58	400
2	7	*Pseudoleptocuma minus*	85	0.45	150
3	9	*Rhepoxynius hudsoni*	69	0.41	121
4	5	*Polygordius jouinae*	66	0.45	282
5	23	*Protohaustorius wigleyi*	62	0.49	60
6	26	*Spisula solidissima*	59	0.56	45
7	1	*Spio filicornis*	57	0.68	649
8	15	*Scoletoma fragilis*	48	0.76	78
8	19	*Ameritella versicolor*	48	1.14	67
8	25	*Molgula* sp.	48	2.29	54
12	2	*Nucula proxima*	41		514
13	10	*Hemipodia simplex*	40		105
27	4	*Monocorophium acherusicum*	22		301
32	6	*Polycirrus eximius*	18		154
52	8	*Pisione remota*	10		147

Table 2.6 Species Ranking by Abundance at the FLIDAR priority stations

L3 ENV1		L3 ENV2		L3 ENV3	
Species/Taxon	n Ind.[1]	Species/Taxon	n Ind.[1]	Species/Taxon	n Ind.[1]
Spio filicornis	66	*Periploma leanum*	2	*Ampelisca verrilli*	6
Unciola irrorata	15	*Spisula solidissima*	2	*Protohaustorius wigleyi*	6
Ampelisca vadorum	10	*Echinarachnius parma*	2	*Dipolydora socialis*	6
Phoxocephalus holbolli	2	*Hemipodia simplex*	2	Nemertea	3
Diopatra cuprea	2	*Protohaustorius wigleyi*	1	*Unciola irrorata*	3
Lyonsia arenosa	1	Malacostraca	1	*Rhepoxynius hudsoni*	3
Callopora craticula	1			*Chiridotea tuftsii*	3
Einhornia crustulenta	1			*Astarte castanea*	2
Biflustra tenuis	1			*Clymenella mucosa*	2
Schizoporella unicornis	1			*Magelona rosea*	2
Monocorophium acherusicum	1			*Aricidea (Aricidea) wassi*	2
Marphysa bellii	1				
Hemipodia simplex	1				
Scoletoma fragilis	1				
Ampharetinae	1				

All taxa present at Stations L3-ENV1 and L3-ENV2 have been included, while for station L3-ENV3 only taxa with abundance >1 were presented, with nine remaining taxa with abundance of 1 recorded at this station (See Appendix C for full list).

Table 2.7 Biomass

Station	Wet Weight of Organisms (g)					
	Annelida	Arthropoda	Mollusca	Echinodermata	Other	Total
L3-ENV1	0.311	0.060	0.091			0.462
L3-ENV2	0.002	0.020	0.074	0.016		0.112
L3-ENV3	0.026	0.070	0.040	0.004	0.208	0.348
L3-ENV4	0.297	0.300	0.434	4.803	0.027	5.861
L3-ENV5	4.765	0.100	2.761		0.190	7.816
L3-ENV6	1.191	6.600	0.031			7.822
L3-ENV7	1.596	0.280	8.221			10.097
L3-ENV8	0.735	0.500	1.028	0.199	0.016	2.478
L3-ENV9	1.900	0.100	0.344		0.144	2.488
L3-ENV10	1.014	0.100	4.443		0.054	5.611
L3-ENV11	0.651	0.180	2.316			3.147
L3-ENV12	0.479	0.050	2.294		0.005	2.828
L3-ENV13	1.390	0.240	0.935	47.115	0.005	49.685
L3-ENV14	0.494	0.320	0.156		0.126	1.096
L3-ENV15	0.759	0.350	0.774		2.938	4.821
L3-ENV16	0.085	0.230	7.124		0.099	7.538
L3-ENV17	0.084	0.500	73.310	51.467	0.179	125.540
L3-ENV18	0.659	0.030	0.065		0.026	0.780
L3-ENV19	1.302	0.130	0.123		0.074	1.629
L3-ENV20	0.351	0.460	0.047	0.004	0.005	0.867
L3-ENV21	1.200	1.000	3.302			5.502
Total	19.291	11.620	107.913	103.608	4.096	246.528
Minimum	0.002	0.020	0.031			0.112
Maximun	4.765	6.600	73.310	51.467	2.938	125.540
Mean	0.919	0.553	5.139	4.934	0.195	11.739
±SD	1.035	1.404	15.795	14.800	0.632	28.081

Table 2.8 Faunal Univariate Statistics

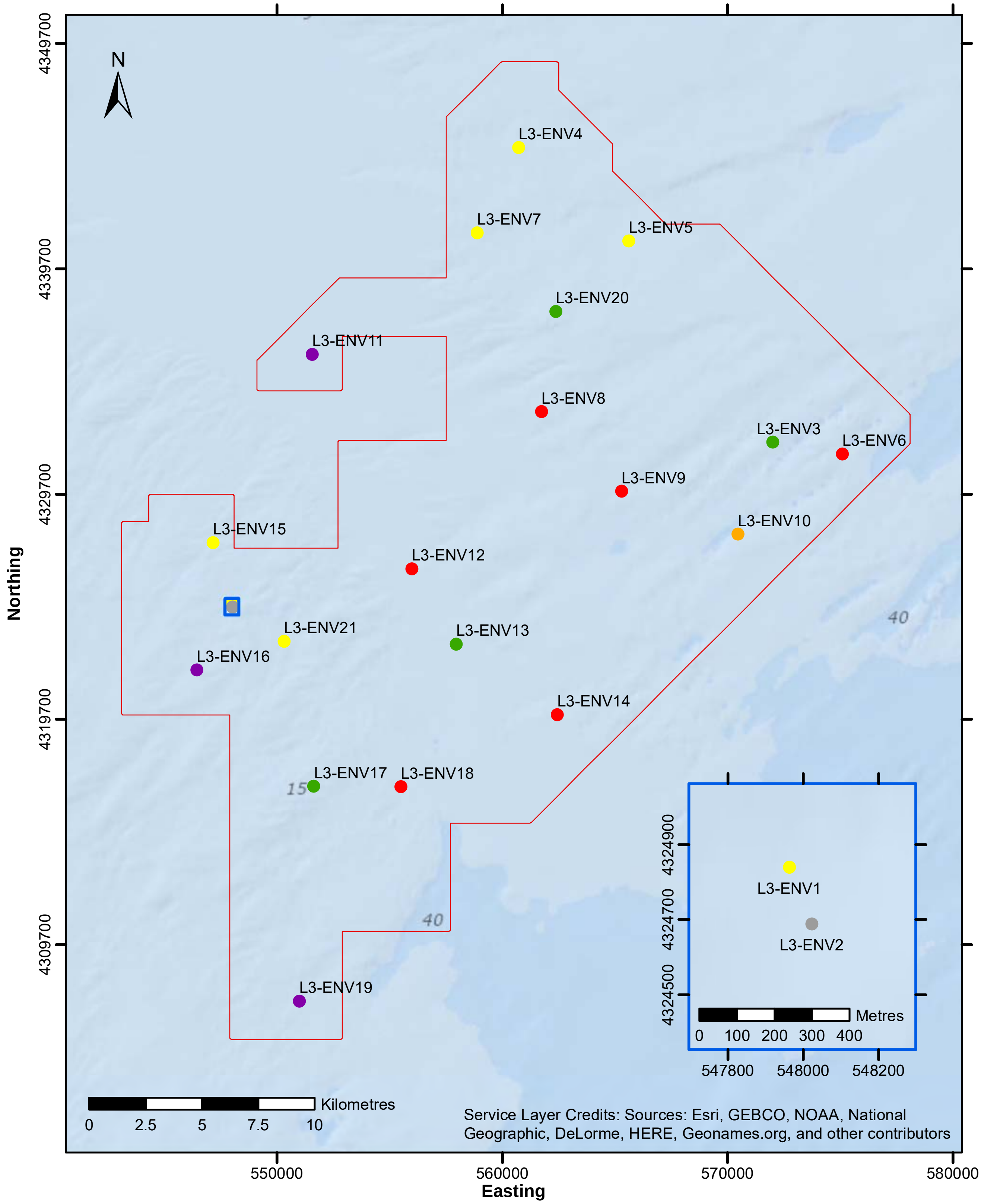
Station	n Individuals	n Taxa	Pielou's Evenness (J)	Fisher (α)	Shannon Wiener Diversity (H log2)
L3-ENV1	11	101	0.51	3.14	1.76
L3-ENV2	6	10	0.98	6.33	2.52
L3-ENV3	20	47	0.92	13.16	3.99
L3-ENV4	31	133	0.72	12.71	3.58
L3-ENV5	41	831	0.53	9.05	2.84
L3-ENV6	26	141	0.76	9.37	3.55
L3-ENV7	35	322	0.71	9.99	3.64
L3-ENV8	27	159	0.73	9.34	3.47
L3-ENV9	26	288	0.66	6.93	3.12
L3-ENV10	28	529	0.28	6.30	1.34
L3-ENV11	29	213	0.75	9.07	3.64
L3-ENV12	22	59	0.92	12.72	4.09
L3-ENV13	22	194	0.85	6.38	3.79
L3-ENV14	25	76	0.87	12.99	4.04
L3-ENV15	28	392	0.36	6.90	1.73
L3-ENV16	12	38	0.83	6.04	2.99
L3-ENV17	9	84	0.62	2.55	1.98
L3-ENV18	25	154	0.69	8.46	3.22
L3-ENV19	29	112	0.89	12.69	4.34
L3-ENV20	23	96	0.73	9.59	3.28
L3-ENV21	37	648	0.56	8.52	2.92
Minimum	6	10	0.28	2.55	1.34
Maximun	41	831	0.98	13.16	4.34
Mean	24	220	0.71	8.68	3.13
±SD	9	216	0.18	3.07	0.85

Table 2.9 CMECS Biotic Component Classification

Station	Biotic Setting	Biotic Class	Biotic Subclass	Biotic Group	Biotic Community
L3-ENV1	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Tube-Building Fauna	*Spio* Bed
L3-ENV2	Benthic Biota	Faunal Bed	Soft Sediment Fauna	NR	NR
L3-ENV3	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
L3-ENV4	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Tube-Building Fauna	Ampeliscidae Bed
L3-ENV5	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Tube-Building Fauna	*Spio* Bed
L3-ENV6	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Surface-Burrowing Fauna	Polygordiidae Bed
L3-ENV7	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Tube-Building Fauna	*Spio* bed
L3-ENV8	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Surface-Burrowing Fauna	Bodotriidae Bed
L3-ENV9	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Surface-Burrowing Fauna	Polygordiidae Bed
L3-ENV10	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Clam Bed	*Nucula* Bed
L3-ENV11	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Mobile Crustaceans on Soft Sediments	Haustoriidae Bed
L3-ENV12	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Surface-Burrowing Fauna	Bodotriidae Bed
L3-ENV13	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
L3-ENV14	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Surface-Burrowing Fauna	Bodotriidae Bed
L3-ENV15	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Tube-Building Fauna	*Monocorophium* Bed
L3-ENV16	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Mobile Crustaceans on Soft Sediments	Haustoriidae Bed
L3-ENV17	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
L3-ENV18	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Surface-Burrowing Fauna	Goniadidae Bed
L3-ENV19	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Mobile Crustaceans on Soft Sediments	Idoteidae Bed
L3-ENV20	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Sand Dollar Bed	*Echinarachnius parma* Bed
L3-ENV21	Benthic Biota	Faunal Bed	Soft Sediment Fauna	Small Tube-Building Fauna	Unciolidae Bed

NR Not reportable. At Station L3-ENV2, only ten organisms were present (four taxa with two individuals and two taxa with one). As such it was not possible to establish the dominant taxon at this station which was categorised to Biotic Subclass level.

Figure 2.3 CMECS Biotic Group Classification



Key

OCW01 Survey Area	Mobile Crustaceans on Soft Sediments	**Coordinate System:** NAD 1983 UTM Zone 18N
CMECS Biotic Group	Sand Dollar Bed	Projection: Transverse Mercator
Indeterminate	Small Surface-Burrowing Fauna	Datum: North American 1983
Clam Bed	Small Tube-Building Fauna	Central Meridian: 75.0°W

Table 2.10 Sediment Characteristics

Station	Mean Diameter (µm) MoM[1]	Mean Diameter (phi) MoM[1]	Mud %	Sand %	Gravel %	Wentworth Classification of Mean Grain Size	Sorting[1]	Modified Folk Classification[2]	Total Organic Matter (%)	Water Content (%)[3]
L3-ENV1	727.0	0.46	1.5	83.0	15.5	Coarse Sand	Poor	gS	0.3	15.9
L3-ENV2	658.7	0.60	1.5	97.2	1.3	Coarse Sand	Poor	(g)S	0.2	17.1
L3-ENV3	229.8	2.12	1.5	98.4	0.1	Fine Sand	Poor	(g)S	0.3	18.9
L3-ENV4	311.1	1.68	1.7	98.2	0.1	Medium Sand	Moderate	(g)S	0.3	22.8
L3-ENV5	777.2	0.36	1.5	88.0	10.5	Coarse Sand	Poor	gS	0.2	16.0
L3-ENV6	607.3	0.72	1.6	81.6	16.8	Coarse Sand	Poor	gS	0.3	15.7
L3-ENV7	201.8	2.31	2.1	97.2	0.7	Fine Sand	Poor	(g)S	0.4	22.1
L3-ENV8	173.2	2.53	1.9	97.8	0.3	Fine Sand	Poor	(g)S	0.3	24.2
L3-ENV9	1155.6	-0.21	0.8	74.8	24.4	Very Coarse Sand	Poor	gS	0.2	6.6
L3-ENV10	236.4	2.08	10.9	86	3.1	Fine Sand	Very Poor	(g)mS	0.8	18.9
L3-ENV11	145.8	2.78	2.2	97.5	0.3	Fine Sand	Moderate	(g)S	0.3	22.9
L3-ENV12	290.4	1.78	2.5	89.8	7.7	Medium Sand	Poor	gS	0.3	19.0
L3-ENV13	135.7	2.88	4.9	95.1	0	Fine Sand	Poor	S	0.3	23.7
L3-ENV14	361.5	1.47	2.8	95.6	1.6	Medium Sand	Poor	(g)S	0.3	17.3
L3-ENV15	674.4	0.57	2.1	81.5	16.4	Coarse Sand	Poor	gS	0.2	17.0
L3-ENV16	322.6	1.63	2.9	95.8	1.3	Medium Sand	Poor	(g)S	0.2	30.4
L3-ENV17	435.9	1.20	1.7	93.2	5.1	Medium Sand	Poor	gS	0.2	20.8
L3-ENV18	2165.9	-1.11	0.9	50.7	48.4	Granule	Very Poor	sG	0.4	9.6
L3-ENV19	389.7	1.36	1.5	95.4	3.1	Medium Sand	Poor	(g)S	0.2	21.7
L3-ENV20	364.4	1.46	1.4	97.7	0.9	Medium Sand	Moderate	(g)S	0.2	21.5
L3-ENV21	2298.6	-1.20	0.3	29.4	70.3	Granule	Poor	sG	0.4	9.7
Minimum	135.7	-1.20	0.3	29.4	0	Fine, Medium, Coarse and Very Coarse Sand, Granule	Moderate, Poor and Very Poor	(g)mS, (g)S, gS, sG	0.2	6.6
Maximum	2298.6	2.88	10.9	98.4	70.3				0.8	30.4
Mean	603.0	1.21	2.3	86.9	10.9				0.3	18.7
±SD	598.9	1.14	2.2	17.3	17.9				0.1	5.5

1 Statistics calculated using Method of Moments (MoM). Sorting coefficients (MoM standard deviation) have had Folk and Ward (1957) descriptors assigned.
2 (g)mS = slightly gravelly muddy sand, (g)S = slightly gravelly sand, gS = gravelly sand, sG = sandy gravel.
3 Water content as a percentage of the dry sample weight.

Table 2.11 CMECS Substrate Component Classification

Station	Substrate Origin	Substrate Class	Substrate Subclass	Substrate Group	Substrate Subgroup
L3-ENV1	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly Sand
L3-ENV2	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV3	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV4	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV5	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly Sand
L3-ENV6	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly Sand
L3-ENV7	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV8	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV9	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly Sand
L3-ENV10	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Muddy Sand
L3-ENV11	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV12	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly Sand
L3-ENV13	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Sand	Fine Sand
L3-ENV14	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV15	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly Sand
L3-ENV16	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV17	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravelly	Gravelly Sand
L3-ENV18	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravel Mixes	Sandy Gravel
L3-ENV19	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV20	Geologic Substrate	Unconsolidated Mineral Substrate	Fine Unconsolidated Substrate	Slightly Gravelly	Slightly Gravelly Sand
L3-ENV21	Geologic Substrate	Unconsolidated Mineral Substrate	Coarse Unconsolidated Substrate	Gravel Mixes	Sandy Gravel

3 SURVEY ISSUES AND ACTIONS

Table 3.1 Issues Arising During Survey and Remedial Action Taken

Issue	Details and Remedial Action
Beacon and Positioning	No beacon used, positional information is based on the starboard A-frame deployment node offset: 8.96x, -3.08y, 6.05z.
Existing infrastructure (e.g. exclusion zones)	No existing infrastructure, all stations were chosen 50+ meters from any magnetometer contact.
Client Requests	Only 30 to 60 seconds of footage required per deployment.
Loss of Samples	Macrofauna samples were initially collected at all stations. However, the samples collected at the priority stations L3-ENV1, L3-ENV2 and L3-ENV3 were lost by the courier prior to analysis and interpretation. The three stations were re-sampled for macrofauna on the 16-Sep-2017. For more details see the surveyor's log sheets in Appendix A.

Table 3.2 Summary of Equipment Success

Equipment Type: Grab Cam	Grab Cam
Successful deployments	61
Attempted deployments	79
% Success	77.2

4 SURVEY METHODS

4.1 Grab-Cam Combined Video and Sediment Sampler Procedure

Benthic sampling and visual investigations were carried out using an in-house constructed, modified, stainless-steel 0.1m^2 Day grab. The grab carried extra weights where appropriate to induce better penetration on impact and an extended bucket lip to reduce sediment washout. Storm feet and elastic straps were used to reduce the likelihood of the instrument pre-triggering in the water column during deployment. An attached, protective enclosure held a SubSea 1Cam HD digital camera with a dedicated video lamp.

Prior to deployment the vessel's sampling area was pre-cleaned using a powerful deck fire-hose and seawater. The grab-cam was thoroughly washed down prior to deployment at every station to prevent cross contamination. A length of 10mm, dry-core, galvanised-steel rope was used to lower the grab-cam to the seabed.

All containers were thoroughly washed with appropriate solvents and labelled externally prior to use. Biology samples were placed in 1-litre polypropylene, screw-top, squat jars / 5-litre buckets and provided with an additional internal waterproof label. Particle size samples were placed in double-lined zip-lock bags.

Communication between the deck, bridge crew and the surveyors was conducted by means of VHF radio. Once directly over the sampling station the Grab-Cam was winched to just above the seabed. The vessel offset of camera deployment was used to represent the position of the system.

Footage was viewed in real time via an umbilical, assisting in the control of the digital stills camera. This allowed for shot selection, in the event that the system recorded a sediment change or feature at the seafloor.

The images and HD video were captured remotely using the surface control unit and stored on the camera's internal memory card. Additionally, SD video footage was overlaid with time, position, and depth, and recorded directly onto VHS video and DVD.

At the completion of the visual survey, the Grab-Cam was landed at the seabed and quickly recovered so that the sample could be obtained and the apparatus returned to the pre-deployment position.

Positional fixes were taken for each grab sample immediately following the grab reaching the sea floor. The precise time that the grab reached the seabed was determined by observations of the tension on the winch cable. The vessel offset of grab deployment was used to represent the position of the sampler.

On recovery of a sample, the grab would first be examined for acceptability following strict Quality Assurance (QA) criteria. In the following cases, a grab sample would be rejected and the instrument returned to the pre-deployment position:

1. Jammed jaws due to a large stone or shell allowing surface sediment washout.
2. One or both of the bucket doors open on recovery, causing possible surface washout.
3. Half sample obtained where the grab has not struck a flat area of bottom, or not hit true, causing a side or half bite of sediment.

4. Disruption of the sample by obvious shaking or contamination (these can occur when a sample is badly handled or if the grab strikes the side of the vessel during operations).
5. The sample represents less than 40% of the grab's total capacity (i.e. less than 6 litres) or totally fills the grab.
6. Sample is an unacceptable distance from the desired position (as determined by the on-board surveyors).
7. The presence of a "Hag Fish" and/or mucus coagulants.
8. Depth of sediment is less than 5 centimetres, unless the sediment is very hard and/or coarse and it is clear that better samples cannot be obtained.
9. Loss of finer fractions of the sediment is suspected

If the case of three consecutive failed sampling attempts, the site was to be moved at least 50m away from the location. This happened at Station L3-ENV18 where the target sampling location was moved 50m from the initial target (see the log files in Appendix A for more details).

Surficial (<2cm depth) sediments were taken directly from the Day grab for particle size determination PSD analysis. A sample of approximately 500g and an addition spare were taken using a plastic scoop and placed into plastic zip-lock bags.

Two separate grab samples from each station were collected for infaunal macroinvertebrate identification. For each faunal sample the entire contents of a single grab were washed into a clean plastic tray using seawater and then transferred to a 1mm sieve. Finer sediment fractions were washed from the sample and the residual sieve contents were transferred to uniquely labelled sample jars using a scoop and/or funnel, making sure that none of the sample was lost or trapped in the sieve mesh. Sieved samples were immediately fixed with a known concentration of formaldehyde solution ('formalin', less than 20%). The formalin in the sample pots was subsequently diluted to a concentration of approximately 4%.

At the end of the survey all of the retained samples were sent directly to TerraSense (PSA) and EcoAnalyst (Fauna) for sorting, checking and analysis.

On completion, photographs and HD footage were downloaded onto a PC via a USB download cable and copied onto DVD-R / HDD. All DVDs, HDDs and videos were labelled with the relevant job details, write-protected and stored.

Main instrumental and acquisition details are as follows:

Equipment	HD Camera System
Manufacturer	SubC Control Ltd.
Model	1CamMkV
Lens	Wide angle (26.3mm), f 3.8 ~ 38.0 mm (5/32 ~ 1 1/2 in.), 10x optical zoom and automatic or manual focus control
Pixels	12.0 M (Picture mode) OR 8.3 M (Video mode)
Video Resolution	1920 x 1080p
Image Resolution (pixels)	4000 x 3000 (Picture mode) 3264 x 2448 (Video mode)
Field of View	47.8° horizontal (β) by 36.2° vertical (α)
Video Overlay	Oceantools VO1 on standard definition feed
Trigger	Remote from deck
Height Control	Video footage
Lighting	1 fixed LED lamp
Scale bar	none.

Table unit definitions: M = megapixels, p = progressive scan, PAL = phase alternating line

4.2 Macrofaunal Analysis

4.2.1 Sorting and Identification

Benthic macrofaunal identification was undertaken by EcoAnalysts, Inc., Moscow, ID, USA. In the laboratory, samples were gently washed across a 1mm sieve to remove any sediment fines and preservative. The retained material was sorted to extract all macrofauna. The organisms were identified and counted to produce a species list for each grab sample.

4.2.2 Data Set Rationalisation

The faunal data set was rationalised according to the standard GGL (2017) procedure, which is largely based on British Standard ISO16665:2005 (BSI, 2005) and OSPAR (2004) guidelines.

Damaged Specimens
Destructive sampling techniques and sieving may damage delicate benthic organisms. It is, therefore, commonplace for fragmented organisms to be found in faunal samples. The following conditions were applied to the recording of damaged specimens and fragments:

- Fragments that constituted a major component of an individual, that unequivocally represented the presence of an entire organism, and that could be identified to species level, were recorded and included with other counts of that species. Examples include: the heads of polychaetes and crustaceans; the complete mouth structure or central disk of brittle stars; the oral area/feeding tentacles of holothurians.
- Fragments that constituted a significant component of an individual, that unequivocally represented the presence of an entire organism, but that could not be identified to species by virtue of their incompleteness, were recorded to the lowest possible taxonomic level.

- Fragments that did not unequivocally represent the presence of an entire organism were ignored, *e.g. Aphiura* arms, *Echinocardium* shell fragments, etc.

Recorded fragments, therefore, represent discrete observations of individuals that were present at the time of sampling and were included in the analysed data set.

Treatment of Specific Groups of Organisms
GGL defines macrofauna as organisms that are normally larger that the mesh size of the sieve used to separate them from the sediment (GGL, 2017). Meiofaunal organisms, such as the Ostracoda and Copepoda, which would not be consistently sampled, were not recorded. Due to their generally small size (in fully marine environments), species from the Oligochaeta, Tardigrada and Gnathostomulida were only enumerated when a sieve with a mesh size of 0.5mm or less was used to separate organisms from sediments. Since on this survey a 1mm mesh size sieve was used, these organisms were noted to be present, but not enumerated or included in the statistical analysis.

Colonial, stoloniferous and encrusting epibenthic species were identified but not enumerated.

With the exception of discrete sea pen (Pennatulacea) colonies, only solitary tunicates and cnidarians were enumerated and included in statistical analyses. Colonial tunicates and cnidarians were identified but not enumerated.

In accordance with our in-house guidelines the following organisms were not identified to species, but were enumerated and included in the data set for analyses at a higher taxonomic level:

- Nemertea – identified to phylum,
- Cephalochordata – identified to subphylum.

4.3 Statistical Analyses

4.3.1 Univariate Macrofauna Indices

Univariate community analyses were undertaken using the PRIMER (version 7) software package. Univariate indices seek, by means of a single number, to summarise information about some aspect of community structure. The two aspects of community structure contributing to the concept of diversity are species richness (a measure related to the total number of species present) and evenness (a measure relating to the pattern of distribution of individuals among the species present).

Diversity indices, as typified by the Shannon-Wiener index, are considered to be a relatively insensitive measure of anthropogenic disturbance. However, benthic ecologists have been able to demonstrate a clear inverse relationship between diversity and total oil concentrations in sediments (e.g. Davies *et al.*, 1984). They are therefore of some practical use for making comparisons between stations and sites.

The following indices were calculated and are presented in the report:

Shannon-Wiener Diversity Index
This is a widely used measure of diversity providing an integrated index of species richness and relative abundance (Clarke & Warwick, 2006). It is basically a measure of the difficulty of predicting

the identity of an individual based on overall community composition. The Shannon-Wiener diversity index is expressed as:

$$H' = -\sum_{i=1}^{s} p_i \log_n p_i$$

where H' = Shannon-Wiener Diversity Index
p_i = proportion of the total number of individuals from the i[th] species.
n = log base value (log base 2 is used during this report; Shannon & Weaver, 1949)

H' integrates the number of species and individual abundance to provide a summary value reflecting the diversity of fauna at a station. This index of diversity is influenced by both species richness (*i.e.* the number of species) and evenness (or equitability) of distribution of individuals between species.

Pielou's Evenness

Evenness (or equitability) is a representation of how uniformly individuals are spread between species in a sample. It is a component of, and calculated using, a theoretical diversity measure (in this instance Shannon-Wiener). Values range from 0 to 1, with high values indicating low dominance and high evenness (*N.B.* the log base that was used to calculate H' must also be used to calculate evenness; log base 2 is used during this report).

$$J = \frac{H'}{\log_n S}$$

where J = Pielou's Evenness
H' = Shannon-Wiener Diversity index
S = total number of species in a sample

Fisher's α

The diversity index α was firstly described mathematically by Fisher *et al.* (1943), under the assumption that the species abundance distribution follows a log series distribution.

The number of species with 1, 2, 3,..., n individual are:

$$\alpha, \frac{\alpha x^2}{2}, \frac{\alpha x^3}{3}, \ldots, \frac{\alpha x^n}{n}$$

x is estimated from the iterative solution of:

$$\frac{S}{N} = \left[\frac{(1-x)}{x}\right].[-ln(1-x)]$$

And the index may be obtained from the following equation:

$$\alpha = \frac{N(1-x)}{x}$$

Since x is almost always >0.9 and often close to 1, α represents the number of extremely rare species, where only a single individual is expected (Magurran, 2004).

Species Ranking

A measure of the overall dominance pattern in the sampling area may be achieved by ranking the top species per station according to abundance, giving a rank score of ten to the most abundant species, decreasing to one for the tenth most abundant species, and summing these scores for all stations to provide an overall dominance score for each species (Eleftheriou & Basford, 1989). For those species ranked in the top ten, the fidelity of the species ranking can be assessed by comparing the actual rank score with the maximum possible score (thus ten multiplied by number of stations for the top rank, etc.) for that rank as a proportion; perfect fidelity is equal to one; values lower than 0.8 or higher than 1.2 represent erratic ranking, as in a species with a patchy distribution.

4.4 Biomass Analysis

The blotted wet weight of all identified organisms from each sample was measured and recorded by major phyla, discriminating organisms belonging to Annelida, Arthropoda, Echinodermata and Mollusca with biomass for the remaining organisms included in the ‘Other’ category.

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APPENDICES

APPENDIX A ENVIRONMENTAL FIELD LOGS

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									**QPRO-0753**
Job No: 10969		**Area:** NJ, USA			**Vessel:** O. Researcher		**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 1 of 17			**Client:** Dong Energy		**Scale bar:** N/A **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
01/07/2017 Wx: SW 4 1m increasing									
1	L3-ENV1	22:51 22:53	1 1	1	00:00 00:02	**Sediment:** Gravelly SAND with shell and fragments. Occasional cobbles. **Fauna:** Annelida (Polychaeta worm tubes). Faunal Burrows		1	1
2	L3-ENV1	23:07 23:10	1 1	2	00:02 00:05	**Sediment:** Gravelly coarse SAND with occasional shells and cobbles. **Fauna:** Pisces. Annelida (Polychaeta worm tubes). Faunal Burrows		1	2
3	L3-ENV1	23:19 23:21	1 1	3	00:05 00:07	**Sediment:** Gravelly coarse SAND **Fauna:** Pisces. Annelida (Polychaeta worm tubes). Faunal Burrows		1	3
02/07/2017 Wx: SW 5-6 1.5-2m increasing									
4	L3-ENV2	00:01 00:03	1 1	4	00:07 00:09	**Sediment:** Medium SAND with occasional shell fragments. **Fauna:** Pisces. Annelida (Polychaeta worm tubes). Faunal Burrows		1	4

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No: 10969		Area: NJ, USA			Vessel: O. Researcher		Operator: DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		Page: 2 of 17			Client: Dong Energy		Scale bar: N/A Equipment: Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
5	L3-ENV2	00:14 00:16	1 1	5	00:09 00:11	**Sediment:** Medium SAND with occasional shell fragments. **Fauna:** Pisces. Annelida (Polychaeta worm tubes). Faunal Burrows		1	5
6	L3-ENV2	00:31 00:32	1 1	6	00:11 00:12	**Sediment:** Rippled medium SAND with occasional shell fragments. **Fauna:** Pisces. Annelida (Polychaeta worm tubes). Faunal Burrows		1	6
7	L3-ENV3	02:28 02:29	1 1	7	00:12 00:13	**Sediment:** Rippled medium SAND with occasional shell fragments. **Fauna:** Sand Dollars. Annelida (Polychaeta worm tubes). Faunal Burrows		1	7
8	L3-ENV3	02:45 02:48	1 1	8	00:13 00:16	**Sediment:** Rippled medium SAND with occasional shell fragments. **Fauna:** Sand Dollars. Annelida (Polychaeta worm tubes). Faunal Burrows		1	8

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No: 10969		**Area:** NJ, USA		**Vessel:** O. Researcher			**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 3 of 17		**Client:** Dong Energy			**Scale bar:** N/A **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
9	L3-ENV3	03:06 03:07	1 1	9	00:16 00:17	**Sediment:** Rippled medium SAND with occasional shell fragments. **Fauna:** Sand Dollars. Annelida Polychaeta worm tubes). Faunal Burrows	No 1Cam internal video	1	9
28/07/2017 Wx: SW 4 1.5m									
10	L3-ENV19	Not recorded				**Sediment:** Slightly rippled medium SAND with shell fragments. **Fauna:** Echinodermata (Sand dollars)	Not Recorded, no video fix	1	10
11	L3-ENV19	03:27 03:30	2 1	1	02:45 02:47	**Sediment:** Slightly rippled medium SAND with shell fragments. **Fauna:** Echinodermata (Sand dollar), Gastropoda, Crustacea (Swimming crab), Pisces (Sand Eel). Anthropogenic debris.		1	11

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No: 10969		**Area:** NJ, USA			**Vessel:** O. Researcher		**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 4 of 17			**Client:** Dong Energy		**Scale bar:** N/A; **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
12	L3-ENV19	03:43	2	2	01:21	**Sediment:** Slightly rippled medium SAND with shell fragments. **Fauna:** Echinodermata (Sand dollar), Annelida (Polychaeta worm tubes).		1	12
		03:44	1		01:23				
13	L3-ENV17	04:54	2	3	00:34	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** Echinodermata (Sand dollar), Annelida (Polychaeta worm tubes).		1	13
		04:54	1		00:35				
14	L3-ENV17	05:05	2	4	02:27	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** Echinodermata (Sand dollar)	Focussed on bubbles - blurred	1	14
		05:07	1		02:28				
15	L3-ENV17	05:17	2	5	02:52	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** Echinodermata (Sand dollar)		1	15
		05:20	1		02:53				

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									**QPRO-0753**
Job No: 10969		**Area:** NJ, USA			**Vessel:** O. Researcher		**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 5 of 17			**Client:** Dong Energy		**Scale bar:** N/A **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
16	L3-ENV18	05:52	2	6	04:03	**Sediment:** Coarse shelly SAND with gravel and shell fragments. **Fauna:** No obvious fauna		1	16
		05:56	1		04:05				
17	L3-ENV18	06:04	2	7	03:47	**Sediment:** Coarse shelly SAND with cobbles, gravel and shell fragments. **Fauna:** Mollusca - Bivalva and Gastropoda, Elasmobranchia (Mermaids Purse - egg sack)		1	17
		06:08	1		03:50				
18	L3-ENV18	06:14	2	8	02:43	**Sediment:** Coarse shelly SAND with gravel and shell fragments. **Fauna:** Pisces (Gurnard)		1	18
		06:17	1		02:46				
19	L3-ENV18	06:24	2	9	01:34	**Sediment:** Coarse shelly SAND with gravel and shell fragments. **Fauna:** No obvious fauna		1	19
		06:25	1		01:36				
20	L3-ENV18	06:36	2	10	02:00	**Sediment:** Coarse shelly SAND with gravel and shell fragments. **Fauna:** No obvious fauna	DVD recorded 16:16 did not stop	1	20
		06:38	1		02:00				

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)							QPRO-0753		
Job No: 10969		**Area:** NJ, USA			**Vessel:** O. Researcher		**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 6 of 17			**Client:** Dong Energy		**Scale bar:** N/A **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
21	L3-ENV18	06:52 06:54	2 1	11	01:57 01:58	**Sediment:** Coarse shelly SAND with gravel and shell fragments. **Fauna:** Pisces, Gastropoda	Extra Fix	1	21,22
22	L3-ENV14	07:45 07:47	2 1	12	02:35 02:36	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** Crustacea (Paguroidea), Echinodermata (Poss Sea Mouse).	Short recording on 1Cam then main recording	2	23
23	L3-ENV14	07:56 07:58	2 1	13	01:58 01:58	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** No obvious fauna		1	24
24	L3-ENV14	08:07 08:09	2 1	14	01:50 01:52	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** Pisces (Dragonet)		1	25

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)							QPRO-0753		
Job No: 10969		Area: NJ, USA			Vessel: O. Researcher		Operator: DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		Page: 7 of 17			Client: Dong Energy		Scale bar: N/A		
Project:							Equipment: Grabcam		
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
25	L3-ENV13	13:55 13:57	3 1	1	02:10 02:11	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes), Echinodermata (Sand Dollar), Crustacea (Swimming crab)	Vessel moving 0.5kt	1	26
26	L3-ENV13	14:15 14:18	3 1	2	02:55 02:54	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes), Echinodermata (Sand Dollar)	Vessel moving 0.5kt	1	27
27	L3-ENV13	14:28 14:29	3 1	3	01:23 01:23	**Sediment:** Fine to medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes), Echinodermata (Sand Dollar)	Vessel moving 0.5kt	1	28
28	L3-ENV21	15:19 15:20	3 1	4	01:33 01:34	**Sediment:** Coarse SAND and fine GRAVEL with shell fragments. **Fauna:** No obvious fauna		1	29

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No: 10969		**Area:** NJ, USA			**Vessel:** O. Researcher		**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 8 of 17			**Client:** Dong Energy		**Scale bar:** N/A **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
29	L3-ENV21	15:27	3	5	02:10	**Sediment:** Coarse SAND and fine GRAVEL with shell fragments. **Fauna:** Gastropoda	Overlay - dept 12	1	30
		15:29	1		02:11				
30	L3-ENV21	15:34	3	6	03:20	**Sediment:** Coarse SAND and fine GRAVEL with shell fragments. **Fauna:** Crustacea		1	31
		15:37	1		03:20				
31	L3-ENV16	16:31	3	7	01:00	**Sediment:** Lightly rippled medium SAND with shell fragments **Fauna:** No obvious fauna		1	32
		16:32	1		01:00				
32	L3-ENV16	16:38	3	8	01:37	**Sediment:** Lightly rippled medium SAND with shell fragments **Fauna:** No obvious fauna		1	33
		16:40	1		01:37				

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No: 10969		**Area:** NJ, USA			**Vessel:** O. Researcher		**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 9 of 17			**Client:** Dong Energy		**Scale bar:** N/A; **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
33	L3-ENV16	16:46 16:47	3 1	9	00:55 00:55	**Sediment:** Lightly rippled medium SAND with shell fragments **Fauna:** No obvious fauna		1	34
34	L3-ENV15	17:27 17:30	3 1	10	02:45 02:45	**Sediment:** Fine to medium SAND with large shells and shell fragments and fine gravel. **Fauna:** No obvious fauna		1	35
35	L3-ENV15	17:35 17:38	3 1	11	02:28 02:28	**Sediment:** Fine to medium SAND with large shells and shell fragments and fine gravel. **Fauna:** Crustacea (Lobster 17:37:49)		1	36
36	L3-ENV15	17:42 17:44	3 1	12	02:10 02:10	**Sediment:** Fine to medium SAND with large shells and shell fragments and fine gravel. **Fauna:** Pisces (Dragonet)	Extra Fix	2	37,38
37	L3-ENV15	17:51 17:54	3 1	13	02:20 02:21	**Sediment:** Fine to medium SAND with large shells and shell fragments and fine gravel. **Fauna:** Crustacea (Crab)		1	39

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									**QPRO-0753**
Job No: 10969		**Area:** NJ, USA			**Vessel:** O. Researcher		**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 10 of 17			**Client:** Dong Energy		**Scale bar:** N/A **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
38	L3-ENV15	17:58 18:00	3 1	14	01:51 01:51	**Sediment:** Fine to medium SAND with large shells and shell fragments and fine gravel. **Fauna:** Pisces (Dragonet)		1	40
39	L3-ENV12	18:57 19:00	3 1	15	02:54 02:55	**Sediment:** Fine to medium SAND with large shells and shell fragments. **Fauna:** Pisces (Dragonet)		1	41
40	L3-ENV12	19:05 19:07	3 1	16	02:23 02:24	**Sediment:** Fine to medium SAND with large shells and shell fragments. **Fauna:** Crustacea (Paguroidea), faunal tubes.		1	42
41	L3-ENV12	19:15 19:17	3 1	17	02:12 02:12	**Sediment:** Fine to medium SAND with large shells and shell fragments. **Fauna:** Crustacea (Paguroidea), faunal tubes.		1	43
42	L3-ENV11	20:12 20:15	3 1	18	03:32 03:32	**Sediment:** Brown fine to medium SAND with rare shell fragments. **Fauna:** Faunal tubes		1	44

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No: 10969		Area: NJ, USA			Vessel: O. Researcher	Operator: DR/TSH			
Date: from: 01-Jul-2017 to: 29-Jul-2017		Page: 11 of 17			Client: Dong Energy	Scale bar: N/A; Equipment: Grabcam			
Project:									
Sample Number	Station Number	Time on overlay	DVD/ Video No	DVD Chapter	Counter (start & end)	Sediment Description	Comments	TOT FIXES	FIXES Nos
43	L3-ENV11	20:22 20:24	3 1	19	02:13 02:13	**Sediment:** Brown fine to medium SAND with rare shell fragments. **Fauna:** Faunal tubes		1	45
44	L3-ENV11	20:31 20:34	3 1	20	02:12 02:13	**Sediment:** Brown fine to medium SAND with rare shell fragments. **Fauna:** Faunal tubes, Gastropoda, Hydrozoa, Crustacea (Paguroidea).		1	46
45	L3-ENV7	21:31 21:34	3 1	21	02:42 02:42	**Sediment:** Brown medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes)		1	47
46	L3-ENV7	21:40 21:42	3 1	22	01:33 01:34	**Sediment:** Brown medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes)		1	48
47	L3-ENV7	21:48 21:50	3 1	23	01:44 01:45	**Sediment:** Brown medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes), Crustacea (Paguroidea)		1	49

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No: 10969		Area: NJ, USA		Vessel: O. Researcher			Operator: DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		Page: 12 of 17		Client: Dong Energy			Scale bar: N/A; Equipment: Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
48	L3-ENV4	22:25	3	24	02:47	**Sediment:** Brown medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes), Crustacea (Paguroidea)		1	50
		22:28	1		02:47				
49	L3-ENV4	22:33	3	25	01:46	**Sediment:** Brown medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes)		1	51
		22:35	1		01:46				
50	L3-ENV4	22:41	3	26	02:15	**Sediment:** Brown medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes)		1	52
		22:43	1		02:15				
51	L3-ENV4	22:47	3	27	01:43	**Sediment:** Brown medium SAND with shell fragments. **Fauna:** Annelida (Polychaeta worm tubes)		1	53
		22:49	1		01:43				

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)							QPRO-0753		
Job No: 10969		Area: NJ, USA			Vessel: O. Researcher		Operator: DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		Page: 13 of 17			Client: Dong Energy		Scale bar: N/A; Equipment: Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
52	L3-ENV5	23:39 23:41	3/4 1	28/1	01:26 01:26	**Sediment:** Brown gravelly, pebbly, coarse SAND with shell hash. **Fauna:** Crustacea (Paguroidea)	DVD footage split over separate DVDs	1	54
53	L3-ENV5	23:46 23:48	4 1	2	01:41 01:41	**Sediment:** Brown gravelly, pebbly, coarse SAND with shell hash. **Fauna:** Crustacea (Paguroidea, crab)		1	55
54	L3-ENV5	23:53 23:56	4 1	3	02:00 02:01	**Sediment:** Brown gravelly, pebbly, coarse SAND with shell hash. **Fauna:** No obvious fauna		1	56
29/07/2017 Wx: ENE 4 1.0m									
55	L3-ENV5	00:01 00:03	4 1	4	01:37 01:37	**Sediment:** Brown gravelly, pebbly, coarse SAND with shell hash. **Fauna:** No obvious fauna	Date incorrect on overlay	1	57

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No:	10969	Area:	NJ, USA		Vessel:	O. Researcher	Operator:	DR/TSH	
Date:	from: 01-Jul-2017 to: 29-Jul-2017	Page:	14 of 17		Client:	Dong Energy	Scale bar:	N/A	
Project:							Equipment:	Grabcam	
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
56	L3-ENV6	01:57	4	5	03:00	**Sediment:** Shell hash overlying medium SAND .	Date incorrect on overlay	1	58
		02:00	1		03:00	**Fauna:** Pisces, Annelida (Polychaeta worm tubes).			
57	L3-ENV6	02:07	4	6	03:19	**Sediment:** Shell hash overlying medium SAND .		1	59
		02:10	1		03:19	**Fauna:** Annelida (Polychaeta worm tubes).			
58	L3-ENV6	02:17	4	7	02:39	**Sediment:** Brown medium SAND with shell.		No Fix	
		02:20	1		02:40	**Fauna:** Annelida (Polychaeta worm tubes), Crustacea (Decapoda), Elasmobranchia (Egg sack)			
59	L3-ENV10	03:36	4	8	02:11	**Sediment:** Brown fine to medium SAND with shell fragments and clay nodules.		1	60
		03:38	1		2:!1	**Fauna:** Annelida (Polychaeta worm tubes)			
60	L3-ENV10	03:43	4	9	01:48	**Sediment:** Brown fine to medium SAND with shell fragments and clay nodules.		1	61
		03:45	1		01:48	**Fauna:** Annelida (Polychaeta worm tubes)			

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)									QPRO-0753
Job No: 10969		Area: NJ, USA			Vessel: O. Researcher		Operator: DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		Page: 15 of 17			Client: Dong Energy		Scale bar: N/A		
Project:							Equipment: Grabcam		
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
61	L3-ENV10	03:51 03:53	4 1	10	02:49 02:49	**Sediment:** Brown fine to medium SAND with shell fragments and clay nodules. **Fauna:** Annelida (Polychaeta worm tubes), Pisces		1	62
62	L3-ENV9	04:51 04:55	4 1	11	03:45 03:45	**Sediment:** Brown coarse SAND and fine GRAVEL. **Fauna:** Pisces (Dragonet), Crustacea (Paguroidea)		1	63
63	L3-ENV9	05:02 05:05	4 1	12	02:55 02:56	**Sediment:** Brown coarse SAND and fine GRAVEL. **Fauna:** Pisces (Dragonet)	2 video files on 1Cam	1	64
64	L3-ENV9	05:10 05:12	4 1	13	02:08 02:09	**Sediment:** Brown coarse SAND and fine GRAVEL. **Fauna:** Pisces (Dragonet)		1	65

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)							QPRO-0753		
Job No: 10969		**Area:** NJ, USA			**Vessel:** O. Researcher		**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 16 of 17			**Client:** Dong Energy		**Scale bar:** N/A **Equipment:** Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
65	L3-ENV8	06:30 06:32	4 1	14	09:02 01:51	**Sediment:** Brown, dense, very fine SAND.. **Fauna:** Annelida, Echinodermata (Sand Dollar)	DVD left recording	1	66
66	L3-ENV8	06:40 06:42	4 1	15	02:43 02:44	**Sediment:** Brown, dense, very fine SAND.. **Fauna:** Annelida, Echinodermata (Sand Dollar)		1	67
67	L3-ENV8	06:48 06:51	4 1	16	02:15 02:17	**Sediment:** Brown, dense, very fine SAND.. **Fauna:** Annelida, Echinodermata (Sand Dollar)	1Cam started recording at seabed	1	68
68	L3-ENV20	07:28 07:30	4 1	17	02:06 02:07	**Sediment:** Brown, dense, rippled, very fine SAND.. **Fauna:** Gastropoda, Echinodermata (Sand Dollar)		1	69
69	L3-ENV20	07:36 07:38	4 1	18	01:54 01:55	**Sediment:** Brown, dense, rippled, very fine SAND.. **Fauna:** Echinodermata (Sand Dollar)		1	70

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.1 Seabed Imagery Deck Logs

SEABED IMAGERY LOG SHEET (Deck)							QPRO-0753		
Job No: 10969		**Area:** NJ, USA		**Vessel:** O. Researcher			**Operator:** DR/TSH		
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 17 of 17		**Client:** Dong Energy			**Scale bar:** N/A		
							Equipment: Grabcam		
Project:									
Sample Number	**Station Number**	**Time on overlay**	**DVD/ Video No**	**DVD Chapter**	**Counter (start & end)**	**Sediment Description**	**Comments**	**TOT FIXES**	**FIXES Nos**
70	L3-ENV20	07:44	4	19	01:48	**Sediment:** Brown, dense, rippled, very fine SAND.. **Fauna:** Echinodermata (Sand Dollar)	Overlay - dept 23	1	71
		07:45	1		01:50				

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.2 Seabed Sampling Positioning Logs

Gardline — Seafloor Sampling Positioning Summary

Job No	10969		Vessel	Ocean Researcher				
Client	DONG ENERGY WIND POWER A/S		Vessel Reference Point (VRP)	COG				
Project Name	OCW01 – Ocean Wind LLC, New Jersey. Geophysical 1A Survey (2017) Lot 3		Deployment Location	Starboard A-frame	x 8.96	y -3.08	z 6.05	
Primary Positioning System	Starpack1		Actual Coordinates derived from	Deployment Location				
Geodetic Reference System	Datum WGS84 - NAD83_2017_5	Ellipsoid GRS 80	Projection	UTM ZONE 18 N (75 W)	Vertical / Tidal Datum			

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
01-Jul-2017	22:52	1	L3-ENV1		60%	PSA	23.30	547966.00	4324839.00	547962.66	4324838.28	3.34	0.72	3.42	257.83		(Raw Nav, 1Cam (1), img#2) (V)
01-Jul-2017	23:09	2	L3-ENV1		70%	NS	23.30	547964.00	4324838.00	547962.66	4324838.28	1.34	-0.28	1.37	281.80		(Raw Nav, 1Cam (1), img#3) (V). Sample acquired but lost in transit by the courrier.
01-Jul-2017	23:21	3	L3-ENV1		75%	NS	23.10	547961.00	4324844.00	547962.66	4324838.28	-1.66	5.72	5.96	163.82		(Raw Nav, 1Cam (1), img#4) (V) Sample acquired but lost in transit by the courrier.
02-Jul-2017	00:02	4	L3-ENV2		70%	PSA	21.90	548006.00	4324686.00	548022.34	4324686.84	-16.30	-0.84	16.36	87.06		(Raw Nav, 1Cam (1), img#5) (V)
02-Jul-2017	00:16	5	L3-ENV2		85%	NS	21.60	548018.00	4324687.00	548022.34	4324686.84	-4.34	0.16	4.34	92.11		(Raw Nav, 1Cam (1), img#6) (V) Sample acquired but lost in transit by the courrier.
02-Jul-2017	00:32	6	L3-ENV2		85%	NS	21.60	548016.00	4324691.00	548022.34	4324686.84	-6.34	4.16	7.58	123.27		(Raw Nav, 1Cam (1), img#7) (V) Sample acquired but lost in transit by the courrier.
02-Jul-2017	02:29	7	L3-ENV3		60%	PSA	27.20	572000.00	4332006.00	572002.79	4331998.09	-2.79	7.91	8.39	160.57		(Raw Nav, 1Cam (1), img#8) (V)
02-Jul-2017	02:48	8	L3-ENV3		65%	NS	27.50	572020.00	4332007.00	572002.79	4331998.09	17.20	8.91	19.38	242.63		(Raw Nav, 1Cam (1), img#9) (V) Sample acquired but lost in transit by the courrier.
02-Jul-2017	03:07	9	L3-ENV3		70%	NS	27.50	572013.00	4332006.00	572002.79	4331998.09	10.20	7.91	12.92	232.23		(Raw Nav, 1Cam (1), img#10) (V) Sample acquired but lost in transit by the courrier.
28-Jul-2017	03:07	10	L3-ENV19		90%	PSA	30.80	551000.00	4307191.00	550996.54	4307187.19	3.46	3.81	5.15	222.24		(Raw Nav, 1Cam (1), img#1) (V)
28-Jul-2017	03:30	11	L3-ENV19		60%	MFA	30.90	551000.00	4307202.00	550996.54	4307187.19	3.46	14.80	15.21	193.15		(Raw Nav, 1Cam (1), img#2) (V)
28-Jul-2017	03:43	12	L3-ENV19		80%	MFB	31.00	550994.00	4307199.00	550996.54	4307187.19	-2.54	11.80	12.08	167.86		(Raw Nav, 1Cam (1), img#3) (V)
28-Jul-2017	04:53	13	L3-ENV17		90%	MFA	20.30	551633.00	4316727.00	551638.00	4316726.00	-5.00	1.00	5.10	101.31		(Raw Nav, 1Cam (1), img#4) (V)
28-Jul-2017	05:07	14	L3-ENV17		80%	PSA	20.40	551641.00	4316729.00	551638.00	4316726.00	3.00	3.00	4.24	225.00		(Raw Nav, 1Cam (1), img#5) (V)
28-Jul-2017	05:19	15	L3-ENV17		80%	MFB	20.20	551637.00	4316725.00	551638.00	4316726.00	-1.00	-1.00	1.41	45.00		(Raw Nav, 1Cam (1), img#6) (V)
28-Jul-2017	05:56	16	L3-ENV18		70%	MFA	33.80	555501.00	4316700.00	555499.52	4316702.14	1.48	-2.14	2.60	325.33		(Raw Nav, 1Cam (1), img#7) (V)
28-Jul-2017	06:07	17	L3-ENV18		60%	NS	33.80	555496.00	4316699.00	555499.52	4316702.14	-3.52	-3.14	4.72	48.27		(Raw Nav, 1Cam (1), img#8) (V) / Sample Washout
28-Jul-2017	06:16	18	L3-ENV18		0%	NS	33.70	555507.00	4316706.00	555499.52	4316702.14	7.48	3.86	8.42	242.70		(Raw Nav, 1Cam (1), img#9) (V)
28-Jul-2017	06:25	19	L3-ENV18		0%	NS	33.70	555493.00	4316696.00	555499.52	4316702.14	-6.52	-6.14	8.96	46.72		(Raw Nav, 1Cam (1), img#10) (V)
28-Jul-2017	06:38	20	L3-ENV18		80%	PSA	33.60	555470.00	4316666.00	555499.52	4316702.14	-29.50	-36.10	46.66	39.24		(Raw Nav, 1Cam (1), img#11) (V)
28-Jul-2017	06:54	21	L3-ENV18		0%	NS	33.50	555473.00	4316662.00	555499.52	4316702.14	-26.50	-40.10	48.11	33.45		(Raw Nav, 1Cam (1), img#12) (V)
28-Jul-2017	07:47	22	L3-ENV14			NA	26.70	562438.00	4319918.00	562433.63	4319912.65	4.37	5.35	6.91	219.24		(Raw Nav, 1Cam (1), img#13) (V) / Double fix
28-Jul-2017	07:47	23	L3-ENV14		60%	PSA	26.70	562439.00	4319918.00	562433.63	4319912.65	5.37	5.35	7.58	225.11		(Raw Nav, 1Cam (1), img#14) (V)
28-Jul-2017	07:58	24	L3-ENV14		70%	MFA	26.40	562436.00	4319914.00	562433.63	4319912.65	2.37	1.35	2.73	240.33		(Raw Nav, 1Cam (1), img#15) (V)
28-Jul-2017	08:09	25	L3-ENV14		70%	MFB	26.40	562432.00	4319919.00	562433.63	4319912.65	-1.63	6.35	6.56	165.60		(Raw Nav, 1Cam (1), img#16) (V)
28-Jul-2017	13:57	26	L3-ENV13		50%	PSA	29.50	557940.00	4323048.00	557947.39	4323043.56	-7.39	4.44	8.62	121.00		(Raw Nav, 1Cam (1), img#1) (V)
28-Jul-2017	14:17	27	L3-ENV13		60%	MFA	29.60	557932.00	4323057.00	557947.39	4323043.56	-15.40	13.40	20.43	131.13		(Raw Nav, 1Cam (1), img#2) (V)
28-Jul-2017	14:29	28	L3-ENV13		60%	MFB	29.70	557954.00	4323033.00	557947.39	4323043.56	6.61	-10.60	12.46	327.96		(Raw Nav, 1Cam (1), img#3) (V)
28-Jul-2017	15:19	29	L3-ENV21		90%	PSA	26.80	550306.00	4323161.00	550306.67	4323158.65	-0.67	2.35	2.44	164.09		(Raw Nav, 1Cam (1), img#1) (V)
28-Jul-2017	15:28	30	L3-ENV21		90%	MFA	26.80	550306.00	4323161.00	550306.67	4323158.65	-0.67	2.35	2.44	164.09		(Raw Nav, 1Cam (1), img#2) (V)
28-Jul-2017	15:36	31	L3-ENV21		90%	MFB	27.00	550304.00	4323171.00	550306.67	4323158.65	-2.67	12.30	12.64	167.80		(Raw Nav, 1Cam (1), img#3) (V)
28-Jul-2017	16:32	32	L3-ENV16		80%	MFA	20.30	546444.00	4321897.00	546446.56	4321895.86	-2.56	1.14	2.80	114.00		(Raw Nav, 1Cam (1), img#4) (V)
28-Jul-2017	16:39	33	L3-ENV16		80%	PSA	20.30	546444.00	4321897.00	546446.56	4321895.86	-2.56	1.14	2.80	114.00		(Raw Nav, 1Cam (1), img#5) (V)
28-Jul-2017	16:46	34	L3-ENV16		80%	MFB	20.20	546447.00	4321892.00	546446.56	4321895.86	0.44	-3.86	3.88	353.50		(Raw Nav, 1Cam (1), img#6) (V)

Checked By:________________________________

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.2 Seabed Sampling Positioning Logs

Gardline — Seafloor Sampling Positioning Summary

Job No	10969			Vessel	Ocean Researcher					
Client	DONG ENERGY WIND POWER A/S			Vessel Reference Point (VRP)	COG					
Project Name	OCW01 – Ocean Wind LLC, New Jersey. Geophysical 1A Survey (2017) Lot 3			Deployment Location	Starboard A-frame	x	8.96	y	-3.08	z 6.05
Primary Positioning System	Starpack1			Actual Coordinates derived from	Deployment Location					
Geodetic Reference System	Datum	WGS84 - NAD83_2017_5	Ellipsoid GRS 80	Projection	UTM ZONE 18 N (75 W)		Vertical / Tidal Datum			

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
28-Jul-2017	17:29	35	L3-ENV15		80%	MFA	22.10	547161.00	4327539.00	547164.31	4327546.71	-3.31	-7.71	8.39	23.23		(Raw Nav, 1Cam (1), img#7) (V)
28-Jul-2017	17:37	36	L3-ENV15		0%	NS	22.10	547167.00	4327543.00	547164.31	4327546.71	2.69	-3.71	4.58	324.06		(Raw Nav, 1Cam (1), img#8) (V)
28-Jul-2017	17:43	37	L3-ENV15		80%	PSA	22.00	547164.00	4327546.00	547164.31	4327546.71	-0.31	-0.71	0.77	23.59		(Raw Nav, 1Cam (1), img#9) (V)
28-Jul-2017	17:44	38	L3-ENV15			NA	22.20	547159.00	4327543.00	547164.31	4327546.71	-5.31	-3.71	6.48	55.06		(Raw Nav, 1Cam (1), img#10) (V) / Extra Fix
28-Jul-2017	17:53	39	L3-ENV15		0%	NS	22.10	547167.00	4327543.00	547164.31	4327546.71	2.69	-3.71	4.58	324.06		(Raw Nav, 1Cam (1), img#11) (V)
28-Jul-2017	17:59	40	L3-ENV15		40%	MFB	22.00	547164.00	4327539.00	547164.31	4327546.71	-0.31	-7.71	7.72	2.30		(Raw Nav, 1Cam (1), img#12) (V)
28-Jul-2017	18:59	41	L3-ENV12		70%	MFA	28.80	555994.00	4326376.00	555993.03	4326382.34	0.97	-6.34	6.41	351.30		(Raw Nav, 1Cam (1), img#13) (V)
28-Jul-2017	19:07	42	L3-ENV12		40%	PSA	28.50	555997.00	4326386.00	555993.03	4326382.34	3.97	3.66	5.40	227.33		(Raw Nav, 1Cam (1), img#14) (V)
28-Jul-2017	19:17	43	L3-ENV12		50%	MFB	28.60	555989.00	4326383.00	555993.03	4326382.34	-4.03	0.66	4.08	99.30		(Raw Nav, 1Cam (1), img#15) (V)
28-Jul-2017	20:14	44	L3-ENV11		60%	MFA	20.80	551541.00	4335875.00	551558.00	4335896.00	-17.00	-21.00	27.02	38.99		(Raw Nav, 1Cam (1), img#16) (V)
28-Jul-2017	20:24	45	L3-ENV11		60%	PSA	20.60	551557.00	4335899.00	551558.00	4335896.00	-1.00	3.00	3.16	161.57		(Raw Nav, 1Cam (1), img#17) (V)
28-Jul-2017	20:33	46	L3-ENV11		60%	MFB	20.60	551549.00	4335895.00	551558.00	4335896.00	-9.00	-1.00	9.06	83.66		(Raw Nav, 1Cam (1), img#18) (V)
28-Jul-2017	21:33	47	L3-ENV7		70%	MFA	21.60	558887.00	4341278.00	558881.01	4341283.49	5.99	-5.49	8.13	312.51		(Raw Nav, 1Cam (1), img#19) (V)
28-Jul-2017	21:41	48	L3-ENV7		70%	PSA	21.10	558878.00	4341289.00	558881.01	4341283.49	-3.01	5.51	6.28	151.35		(Raw Nav, 1Cam (1), img#20) (V)
28-Jul-2017	21:50	49	L3-ENV7		70%	MFB	21.30	558881.00	4341283.00	558881.01	4341283.49	-0.01	-0.49	0.49	1.17		(Raw Nav, 1Cam (1), img#21) (V)
28-Jul-2017	22:28	50	L3-ENV4		70%	MFA	21.10	560733.00	4345085.00	560728.32	4345081.01	4.68	3.99	6.15	229.55		(Raw Nav, 1Cam (1), img#22) (V)
28-Jul-2017	22:35	51	L3-ENV4		70%	PSA	21.00	560724.00	4345083.00	560728.32	4345081.01	-4.32	1.99	4.76	114.73		(Raw Nav, 1Cam (1), img#23) (V)
28-Jul-2017	22:42	52	L3-ENV4		0%	NS	21.00	560721.00	4345082.00	560728.32	4345081.01	-7.32	0.99	7.39	97.70		(Raw Nav, 1Cam (1), img#24) (V)
28-Jul-2017	22:48	53	L3-ENV4		60%	MFB	21.00	560723.00	4345087.00	560728.32	4345081.01	-5.32	5.99	8.01	138.39		(Raw Nav, 1Cam (1), img#25) (V)
28-Jul-2017	23:41	54	L3-ENV5		0%	NS	26.80	565611.00	4340940.00	565614.25	4340937.06	-3.25	2.94	4.38	132.13		(Raw Nav, 1Cam (1), img#26) (V)
28-Jul-2017	23:48	55	L3-ENV5		90%	MFA	26.80	565614.00	4340939.00	565614.25	4340937.06	-0.25	1.94	1.96	172.66		(Raw Nav, 1Cam (1), img#27) (V)
28-Jul-2017	23:55	56	L3-ENV5		90%	PSA	26.90	565605.00	4340947.00	565614.25	4340937.06	-9.25	9.94	13.58	137.06		(Raw Nav, 1Cam (1), img#28) (V)
29-Jul-2017	00:03	57	L3-ENV5		90%	MFB	27.00	565603.00	4340945.00	565614.25	4340937.06	-11.30	7.94	13.77	125.21		(Raw Nav, 1Cam (1), img#29) (V)
29-Jul-2017	01:59	58	L3-ENV6		70%	MFA	36.40	575076.00	4331489.00	575079.76	4331481.15	-3.76	7.85	8.70	154.41		(Raw Nav, 1Cam (1), img#30) (V)
29-Jul-2017	02:09	59	L3-ENV6		40%	PSA	36.10	575081.00	4331475.00	575079.76	4331481.15	1.24	-6.15	6.27	348.60		(Raw Nav, 1Cam (1), img#31) (V)
29-Jul-2017	03:38	60	L3-ENV10		60%	PSA	32.30	570439.00	4327917.00	570446.14	4327912.14	-7.14	4.86	8.64	124.24		(Raw Nav, 1Cam (1), img#32) (V)
29-Jul-2017	03:45	61	L3-ENV10		50%	MFA	32.40	570442.00	4327919.00	570446.14	4327912.14	-4.14	6.86	8.01	148.89		(Raw Nav, 1Cam (1), img#33) (V)
29-Jul-2017	03:53	62	L3-ENV10		40%	MFB	32.60	570441.00	4327931.00	570446.14	4327912.14	-5.14	18.90	19.55	164.76		(Raw Nav, 1Cam (1), img#34) (V)
29-Jul-2017	04:55	63	L3-ENV 9		90%	PSA	31.50	565289.00	4329824.00	565289.87	4329821.59	-0.87	2.41	2.56	160.15		(Raw Nav, 1Cam (1), img#35) (V)
29-Jul-2017	05:04	64	L3-ENV 9		95%	MFA	31.30	565291.00	4329819.00	565289.87	4329821.59	1.13	-2.59	2.83	336.43		(Raw Nav, 1Cam (1), img#36) (V)
29-Jul-2017	05:11	65	L3-ENV 9		95%	MFB	31.30	565292.00	4329821.00	565289.87	4329821.59	2.13	-0.59	2.21	285.48		(Raw Nav, 1Cam (1), img#37) (V)
29-Jul-2017	06:31	66	L3-ENV8		50%	PSA	22.50	561737.00	4333350.00	561740.00	4333350.00	-3.00	0.00	3.00	90.00		(Raw Nav, 1Cam (1), img#38) (V)
29-Jul-2017	06:42	67	L3-ENV8		50%	MFA	22.40	561736.00	4333353.00	561740.00	4333350.00	-4.00	3.00	5.00	126.87		(Raw Nav, 1Cam (1), img#39) (V)
29-Jul-2017	06:50	68	L3-ENV8		50%	MFB	22.30	561742.00	4333353.00	561740.00	4333350.00	2.00	3.00	3.61	213.69		(Raw Nav, 1Cam (1), img#40) (V)
29-Jul-2017	07:30	69	L3-ENV20		70%	PSA	5.00	562372.00	4337807.00	562376.00	4337806.00	-4.00	1.00	4.12	104.04		(Raw Nav, 1Cam (1), img#41) (V)
29-Jul-2017	07:38	70	L3-ENV20		70%	MFA	18.00	562377.00	4337803.00	562376.00	4337806.00	1.00	-3.00	3.16	341.57		(Raw Nav, 1Cam (1), img#42) (V)

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.2 Seabed Sampling Positioning Logs

Gardline — Seafloor Sampling Positioning Summary

Job No	10969		Vessel	Ocean Researcher				
Client	DONG ENERGY WIND POWER A/S		Vessel Reference Point (VRP)	COG				
Project Name	OCW01 – Ocean Wind LLC, New Jersey. Geophysical 1A Survey (2017) Lot 3		Deployment Location	Starboard A-frame	x 8.96	y -3.08	z 6.05	
Primary Positioning System	Starpack1		Actual Coordinates derived from	Deployment Location				
Geodetic Reference System	Datum: WGS84 - NAD83_2017_5	Ellipsoid: GRS 80	Projection	UTM ZONE 18 N (75 W)	Vertical / Tidal Datum			

Date	Time (UTC/GMT)	Fix number	Stn No	Penetration	Sample Retention	Retention	Observed Seafloor Depth (m)	Actual coordinates		Target coordinates		Offset from target				Surveyor	Remarks
								Easting	Northing	Easting	Northing	dE	dN	Range	Bearing		
29-Jul-2017	07:45	71	L3-ENV20		70%	MFB	18.00	562379.00	4337802.00	562376.00	4337806.00	3.00	-4.00	5.00	323.13		(Raw Nav, 1Cam (1), img#43) (V)
16-Sep-2017	08:50	72	L3-ENV3		60%	MFA	27.71	572003.96	4331999.09	572002.79	4331998.09	1.17	1.00	1.54			Acquired by the Shearwater
16-Sep-2017	08:56	73	L3-ENV3		30%	NS	27.69	572002.61	4331998.32	572002.79	4331998.09	-0.18	0.23	0.29			Acquired by the RV Shearwater. Low retention and partial washout.
16-Sep-2017	08:59	74	L3-ENV3		50%	MFB	27.73	572002.78	4331999.65	572002.79	4331998.09	-0.01	1.56	1.56			Acquired by the RV Shearwater
16-Sep-2017	11:49	75	L3-ENV2		80%	MFA	23.22	548022.33	4324687.30	548022.34	4324686.84	-0.01	0.46	0.46			Acquired by the RV Shearwater
16-Sep-2017	11:55	76	L3-ENV2		90%	MFB	23.21	548023.75	4324687.36	548022.34	4324686.84	1.41	0.52	1.50			Acquired by the RV Shearwater
16-Sep-2017	12:44	77	L3-ENV1		30%	NS	22.59	547962.83	4324838.04	547962.66	4324838.28	0.17	-0.24	0.29			Acquired by the RV Shearwater. Stone caught in jaws. Partial washout.
16-Sep-2017	12:47	78	L3-ENV1		40%	NS	22.60	547963.44	4324838.67	547962.66	4324838.28	0.78	0.39	0.87			Acquired by the RV Shearwater. Stone caught in jaws. Partial washout.
16-Sep-2017	12:52	79	L3-ENV1		50%	MFA	22.57	547963.56	4324836.56	547962.66	4324838.28	0.90	-1.72	1.94			Acquired by the RV Shearwater
16-Sep-2017	12:57	80	L3-ENV1		20%	NS	22.53	547964.66	4324837.61	547962.66	4324838.28	2.00	-0.67	2.11			Acquired by the RV Shearwater Stone caught in jaws. Partial washout.
16-Sep-2017	13:01	81	L3-ENV1		40%	MFB	22.55	547963.06	4324835.36	547962.66	4324838.28	0.40	-2.92	2.95			Acquired by the RV Shearwater

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No:	10969	**Area:** NJ, USA			**Vessel:** MV Ocean Researcher		**Operator:** DR/TSH/KS
Date:	from: 01-Jul-2017 to: 29-Jul-2017	**Page:** 1 of 15			**Client:** Dong Energy		**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
01/07/2017 Wx: SW 4 1m increasing							
1	L3-ENV1	22:52	60%	PSA	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown gravelly coarse SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, no noticeable other fauna	Samples retained for PSA and TOM analysis only at all stations.
2	L3-ENV1	23:09	70%	MFA	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown gravelly coarse SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, no noticeable other fauna	1 x 5L
3	L3-ENV1	23:21	75%	MFB	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown gravelly coarse SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, whelk, amphipods and hermit crab.	1 x 5L
02/07/2017 Wx: SW 5-6 1.5-2m increasing							
4	L3-ENV2	00:02	70%	PSA	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown medium to coarse SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, no noticeable other fauna	

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA			**Vessel:** MV Ocean Researcher		**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 2 of 15			**Client:** Dong Energy		**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
5	L3-ENV2	00:16	85%	MFA	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown medium to coarse SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, no noticeable other fauna	1 x 5L
6	L3-ENV2	00:32	85%	MFB	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown slightly gravelly coarse SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, no noticeable other fauna	1 x 5L
7	L3-ENV3	02:29	60%	PSA	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown fine to medium SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, no noticeable other fauna	
8	L3-ENV3	02:48	65%	MFA	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown fine to medium SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, Clypeasteroida	1 x 1L
9	L3-ENV3	03:07	70%	MFB	Shell hash and sparse gravel Annelida	**Sediment:** Dark brown fine to medium SAND. No obvious stratification or odour present. **Fauna:** Some worm tubes present on the surface, whelk and Clypeasteroida	1 x 1L

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 3 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
28/07/2017 Wx: SW 4 1.5m							
10	L3-ENV19	03:07	90%	PSA		**Sediment:** Dark brown medium to coarse SAND. Shell fragments, slightly rippled. No obvious stratification or odour present. **Fauna:** Echinodermata (Clypeasteroida).	
11	L3-ENV19	03:30	60%	MFA	Medium sand and shell hash	**Sediment:** Dark grey brown fine to medium SAND. Shell fragments, slightly rippled. No obvious stratification or odour present. **Fauna:** Annelida	1 x 1L
12	L3-ENV19	03:43	80%	MFB	Medium sand and shell hash	**Sediment:** Dark grey brown fine to medium SAND. Shell fragments, slightly rippled. No obvious stratification, small anoxic areas present. **Fauna:** Annelida	1 x 5L
13	L3-ENV17	04:53	90%	MFA	Coarse Sand, Gravel and shell	**Sediment:** Brown medium shelly SAND. No obvious stratification or odour present. **Fauna:** Echinodermata (Clypeasteroida), Bivalvia (Clam)	1 x 5L
14	L3-ENV17	05:07	80%	PSA		**Sediment:** Brown medium shelly SAND. No obvious stratification or odour present. **Fauna:** Echinodermata (Clypeasteroida), Bivalvia (Clam)	

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 4 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
15	L3-ENV17	05:19	80%	MFB	Coarse Sand, Gravel and shell	Sediment: Brown medium shelly SAND. No obvious stratification or odour present. **Fauna:** Echinodermata (Clypeasteroida), Mollusca Gastropoda (Snail), Bivalvia (Clam).	1 x 1L
16	L3-ENV18	05:56	70%	MFA	Coarse Sand, Gravel and shell	**Sediment:** Grey Brown coarse SAND and GRAVEL. Shell Fragments. No obvious stratification or odour present. **Fauna:** No Obvious Fauna	2 x 5L
17	L3-ENV18	06:07	60%	NS		Jaws open on Gravel - Washout	
18	L3-ENV18	06:16	0%	NS		Jaws open on Gravel - Washout	
19	L3-ENV18	06:25	0%	NS		Jaws open on Gravel - Washout	Station moved 50m
20	L3-ENV18	06:38	80%	PSA		**Sediment:** Grey Brown coarse SAND and GRAVEL. Shell Fragments. No obvious stratification or odour present. **Fauna:** Gastropoda (Snail), Crustacea (Hermit Crab), Elasmobranchia (Egg Sack with live embryo).	
21	L3-ENV18	06:54	0%	NS		Jaws open on Gravel - Washout	Station Abandoned

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 5 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
22	L3-ENV14	07:47	60%	PSA		**Sediment:** Gray Brown fine to medium shelly SAND. No obvious stratification or odour present. **Fauna:** No Obvious Fauna	
23	L3-ENV14	07:58	70%	MFA	Shell hash	**Sediment:** Gray Brown fine to medium shelly SAND. No obvious stratification or odour present. **Fauna:** Annelida (Tube Worm)	2 x 1L Vessel lost power, delay in processing of 2 hours
24	L3-ENV14	08:09	70%	MFB	Coarse Sand and shell hash	**Sediment:** Gray Brown fine to medium shelly SAND. No obvious stratification or odour present. **Fauna:** Gastropoda (Snail)	2 x 1L Vessel lost power, delay in processing of 2 hours No Grab Photo
25	L3-ENV13	13:57	50%	PSA		**Sediment:** Gray brown fine SAND overlying dark gray anoxic fine SAND. **Fauna:** Gastropoda, Annelida, Polychaeta	
26	L3-ENV13	14:17	60%	MFA	Worm tubes and shell fragments	Sediment: Gray brown fine SAND overlying dark gray anoxic fine SAND. Fauna: Gastropoda, Echinodermata (Clypeasteroida), Crustacea (Paguroidea).	1 x 1L

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 6 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
27	L3-ENV13	14:29	60%	MFB	Worm tubes and shell fragments	**Sediment:** Gray brown fine SAND overlying dark gray anoxic fine SAND. **Fauna:** Gastropoda, Crustacea (Paguroidea and crab).	1 x 1L
28	L3-ENV21	15:19	90%	PSA		**Sediment:** Coarse SAND and fine GRAVEL. No obvious stratification or odour present. **Fauna:** No obvious fauna	
29	L3-ENV21	15:28	90%	MFA	Gravel	**Sediment:** Coarse SAND and fine GRAVEL. No obvious stratification or odour present. **Fauna:** No obvious fauna	3 x 5L
30	L3-ENV21	15:36	90%	MFB	Gravel	**Sediment:** Coarse SAND and fine GRAVEL. No obvious stratification or odour present. **Fauna:** No obvious fauna	3 x 5L
31	L3-ENV16	16:32	80%	MFA	Coarse sand, gravel and shell fragments	**Sediment:** Brown medium shelly SAND and fine Gravel. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 1L

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No:	10969	**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date:	from: 01-Jul-2017 to: 29-Jul-2017	**Page:** 7 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
32	L3-ENV16	16:39	80%	PSA		**Sediment:** Brown medium shelly SAND and fine Gravel. No obvious stratification or odour present. **Fauna:** No obvious fauna	
33	L3-ENV16	16:46	80%	MFB	Coarse sand, gravel and shell fragments	**Sediment:** Brown medium shelly SAND and fine Gravel. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 1L
34	L3-ENV15	17:29	80%	MFA	Coarse sand, gravel and shell fragments	**Sediment:** Brown medium to coarse shelly SAND and fine Gravel. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 5L
35	L3-ENV15	17:37	0%	NS		No Sample	
36	L3-ENV15	17:43	80%	PSA		**Sediment:** Brown medium to coarse shelly SAND and fine Gravel. No obvious stratification or odour present. **Fauna:** No obvious fauna	
37	L3-ENV15	17:53	0%	NS		No Sample	

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 8 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
38	L3-ENV15	17:59	40%	MFB	Coarse sand, gravel and shell fragments	**Sediment:** Brown medium to coarse shelly SAND and fine Gravel. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 5L
39	L3-ENV12	18:59	70%	MFA	Shell hash	**Sediment:** Brown fine to medium shelly SAND. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 1L
40	L3-ENV12	19:07	40%	PSA		**Sediment:** Brown fine to medium shelly SAND. No obvious stratification or odour present. **Fauna:** No obvious fauna	
41	L3-ENV12	19:17	50%	MFB	Shell hash	**Sediment:** Brown fine to medium shelly SAND. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 1L
42	L3-ENV11	20:14	60%	MFA	Worm tubes and shell fragments	**Sediment:** Brown fine to medium SAND. Rare shell fragments. No obvious stratification or odour present. **Fauna:** Annelida, Gastropoda	1 x 1L

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 9 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
43	L3-ENV11	20:24	60%	PSA		**Sediment:** Brown fine to medium SAND. Rare shell fragments. No obvious stratification or odour present. **Fauna:** Annelida, Gastropoda	
44	L3-ENV11	20:33	60%	MFB	Worm tubes and shell fragments	**Sediment:** Brown fine to medium SAND. Rare shell fragments. No obvious stratification or odour present. **Fauna:** Annelida, Bivalvia	1 x 1L
45	L3-ENV7	21:33	70%	MFA	Worm tubes and shell fragments	**Sediment:** Brown fine to medium shelly SAND. Shell fragments. No obvious stratification or odour present. **Fauna:** Annelida, Gastropoda, Bivalvia	1 x 1L
46	L3-ENV7	21:41	70%	PSA		**Sediment:** Brown fine to medium SAND. Shell fragments. No obvious stratification or odour present. **Fauna:** Annelida, Gastropoda	
47	L3-ENV7	21:50	70%	MFB	Worm tubes and shell fragments	**Sediment:** Brown fine to medium shelly SAND. Shell fragments. No obvious stratification or odour present. **Fauna:** Annelida, Gastropoda, Bivalvia, Echinodermata (Clypeasteroida)	1 x 1L

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 10 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
48	L3-ENV4	22:28	70%	MFA	Shell Hash	**Sediment:** Brown fine to medium shelly SAND. Shell fragments. No obvious stratification or odour present. **Fauna:** Annelida, Echinodermata (Clypeasteroida)	1 x 1L
49	L3-ENV4	22:35	70%	PSA		**Sediment:** Brown fine to medium SAND. Shell fragments. No obvious stratification or odour present. **Fauna:** Echinodermata (Clypeasteroida)	
50	L3-ENV4	22:42	0%	NS		No Sample	
51	L3-ENV4	22:48	60%	MFB	Shell Hash	**Sediment:** Brown fine to medium shelly SAND. Shell fragments. No obvious stratification or odour present. **Fauna:** Annelida, Echinodermata (Clypeasteroida)	1 x 1L
52	L3-ENV5	23:41	0%	NS		No Sample	
53	L3-ENV5	23:48	90%	MFA		**Sediment:** Brown gravelly SAND. No obvious stratification or odour present. **Fauna:** No obvious fauna	3 x 5L No sieve photo
54	L3-ENV5	23:55	90%	PSA		**Sediment:** Brown gravelly SAND. No obvious stratification or odour present. **Fauna:** No obvious fauna	
29/07/2017 Wx: ENE 4 1.0m							

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Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA			**Vessel:** MV Ocean Researcher		**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 11 of 15			**Client:** Dong Energy		**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
55	L3-ENV5	00:03	90%	MFB		**Sediment:** Brown gravelly SAND. No obvious stratification or odour present.	3 x 5L No sieve photo
56	L3-ENV6	01:59	70%	MFA		**Sediment:** Gray/**b**rown medium SAND. Large shell fragments. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 5L No sieve photo
57	L3-ENV6	02:09	40%	PSA		**Sediment:** Gray/**b**rown medium SAND. Large shell fragments. No obvious stratification or odour present. **Fauna:** No obvious fauna	
58	L3-ENV6	02:22	60%	MFB		**Sediment:** Gray/**b**rown medium SAND. Large shell fragments. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 5L No sieve photo, No fix
59	L3-ENV10	03:38	60%	PSA		**Sediment:** Gray/brown fine to medium SAND. Clay nodules, shell debris and small amount of fines. No obvious stratification or odour present. **Fauna:** No obvious fauna	

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 12 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
60	L3-ENV10	03:45	50%	MFA		**Sediment:** Gray/brown fine to medium SAND. Clay nodules, shell debris and small amount of fines. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 1L No sieve photo
61	L3-ENV10	03:53	40%	MFB		**Sediment:** Gray/brown fine to medium SAND. Clay nodules, shell debris and small amount of fines. No obvious stratification or odour present. **Fauna:** No obvious fauna	1 x 1L No sieve photo
62	L3-ENV9	04:55	90%	PSA		**Sediment:** Brown coarse SAND and fine GRAVEL. Some Shell. No obvious stratification or odour present. **Fauna:** No obvious fauna	
63	L3-ENV9	05:04	95%	MFA	Gravel	**Sediment:** Brown coarse SAND and fine GRAVEL. Some Shell. No obvious stratification or odour present. **Fauna:** Polychaeta	4 x 5L

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 13 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
64	L3-ENV9	05:11	95%	MFB	Gravel	**Sediment:** Brown coarse SAND and fine GRAVEL. Some Shell. No obvious stratification or odour present. **Fauna:** Polychaeta	4 x 5L
65	L3-ENV8	06:31	50%	PSA		**Sediment:** Brown fine shelly SAND. No obvious stratification or odour present. **Fauna:** Gastropoda	
66	L3-ENV8	06:42	50%	MFA	Shell hash	**Sediment:** Brown fine shelly SAND. No obvious stratification or odour present. **Fauna:** Annelida, Gastropoda	1 x 1L
67	L3-ENV8	06:50	50%	MFB	Shell hash	**Sediment:** Brown fine shelly SAND. No obvious stratification or odour present. **Fauna:** Gastropoda	1 x 1L
68	L3-ENV20	07:30	70%	PSA		**Sediment:** Brown fine shelly SAND. No obvious stratification or odour present. **Fauna:** Echinodermata (Clypeasteroida)	
69	L3-ENV20	07:38	70%	MFA	Shell hash	**Sediment:** Brown fine shelly SAND. No obvious stratification or odour present. **Fauna:** Echinodermata (Clypeasteroida)	1 x 1L

APPENDIX A ENVIRONMENTAL FIELD LOGS

Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							**QPRO-0755**
Job No:	10969	**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date:	from: 01-Jul-2017 to: 29-Jul-2017	**Page:** 14 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
70	L3-ENV20	07:45	70%	MFB	Shell hash	**Sediment:** Brown fine shelly SAND. No obvious stratification or odour present. **Fauna:** Echinodermata (Clypeasteroida)	1 x 1L
16-Sep-17							
71	L3-ENV3	08:50	60	MFA		**Sediment:** Fine silty sand with occasional shell hash and very occasional large shell fragements, brown **Fauna:** Annelida	
72	L3-ENV3	08:56	30	NS		Low retention	
73	L3-ENV3	08:59	50	MFB	3 sieves required	**Sediment:** Fine silty sand with occasional shell hash and very occasional large shell fragements, brown **Fauna:** Annelida	
74	L3-ENV2	11:49	80		3 sieves required	**Sediment:** Coarse and medium sands, with occasional small gravel, yellow **Fauna:** None	
75	L3-ENV2	11:55	90	MFB		**Sediment:** Coarse and medium sands, with occasional small gravel, yellow **Fauna:** None	
76	L3-ENV1	12:44	30	NS		Washout-Stone in Jaws	
77	L3-ENV1	12:47	40	NS		Washout-Stone in Jaws	

APPENDIX A ENVIRONMENTAL FIELD LOGS

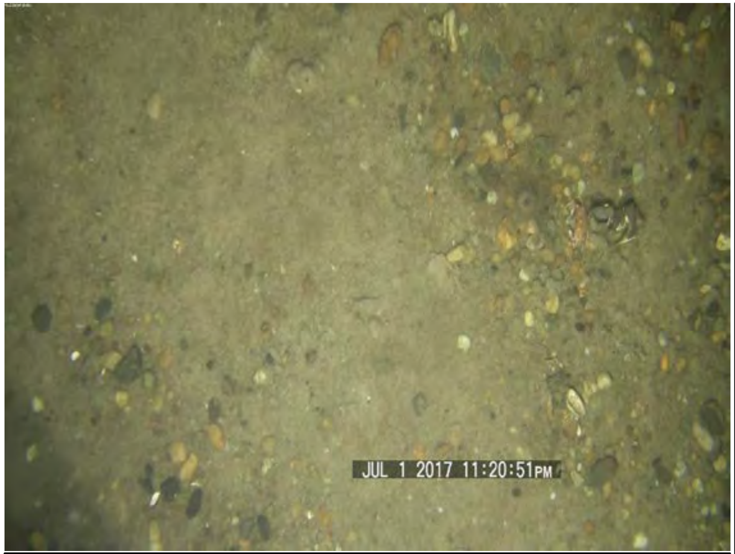
Table A.3 Seabed Sampling Deck Logs

SEABED SAMPLING LOG SHEET (Deck)							QPRO-0755
Job No: 10969		**Area:** NJ, USA				**Vessel:** MV Ocean Researcher	**Operator:** DR/TSH/KS
Date: from: 01-Jul-2017 to: 29-Jul-2017		**Page:** 15 of 15				**Client:** Dong Energy	**Sieve Size:** 1mm **Equipment:** Grabcam
Project:							
Sample Number	**Station Number**	**Time**	**Load**	**Retention**	**Sieving Comments**	**Sediment Description**	**Comments**
78	L3-ENV1	12:52	50	MFA		**Sediment:** Silty sandy gravel (brown) with coarse sand and frequent small and medium shell fragments over grey coarse sands **Fauna:** Annelida	
79	L3-ENV1	12:57	20	NS		Washout-Stone in Jaws	
80	L3-ENV1	13:01	40	MFB		**Sediment:** Silty sandy gravel (brown) with coarse sand and frequent small and medium shell fragments over grey coarse sands **Fauna:** Annelida	

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 547963 **N:** 4324838 **Depth:** 23m



Station Target: **E:** 547963 **N:** 4324838 **Depth:** 23m

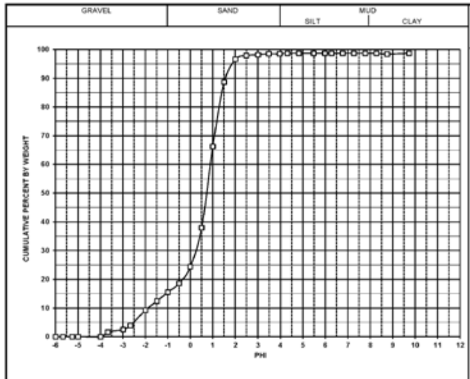
Station: L3-ENV1
Sediment Description:
Fix2: Coarse sand with pebbles.

Fix3: Coarse sand with pebbles.

Fauna Description:
Fix2: Pisces (*Urophycis regia*).

Fix3: Arthropoda (Brachyura), Cnidaria (Ceriantharia).

Fix: 1 **E:** 547966 **N:** 4324839 **Depth:** 23m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	1.6
5/16"	7.9	-3.0	2.5
1/4"	6.4	-2.7	3.9
5	4.0	-2.0	9.3
7	2.8	-1.5	12.4
10	2.0	-1.0	15.5
14	1.4	-0.5	18.6
18	1.00	0.0	24.4
25	0.71	0.5	38.0
35	0.50	1.0	66.2
45	0.353	1.5	88.7
60	0.249	2.0	96.6
80	0.178	2.5	97.9
120	0.124	3.0	98.2
170	0.089	3.5	98.5
230	0.064	4.0	98.5
		4.5	98.7
		5.0	98.7
		5.5	98.7
		6.0	98.7
		6.5	98.7
		7.0	98.7
		7.5	98.7
		8.0	98.7
		8.5	98.7
		9.0	98.7
		9.5	98.7

TerraSense, LLC
8153-17001

Gardline Geosurvey Ltd
10966

MAW Lot3

TEST SUMMARY
DESCRIPTION: Gravelly coarse sand
GRAVEL (>2mm) 15.5%
SAND (2mm to .0625mm) 83.0%
SILT (>0.0625mm to 0.004mm) 0.2%
CLAY (< 0.004mm) 1.3%

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV1

Analysis file: FolkV3 (2/15) Siev3a.xlsx 7/27/2017

Fix: 1 **E:** 547966 **N:** 4324839 **Retention:** PSA

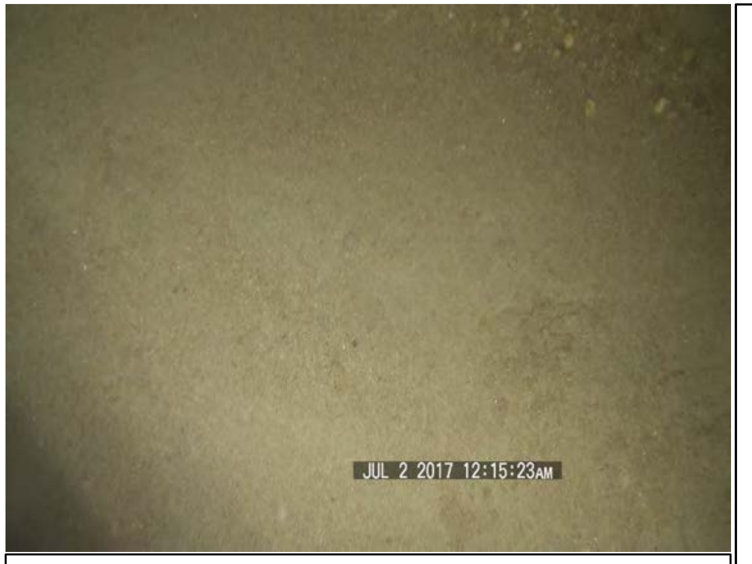
Station: L3-ENV1
Sediment Description:
Grab: Dark brown gravelly coarse sand.

CMECS Susbtrate Component Subgroup: Gravelly Sand.

Fauna Description:
Grab: No visible fauna.

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 548022 **N:** 4324687 **Depth:** 22m



Station Target: **E:** 548022 **N:** 4324687 **Depth:** 22m

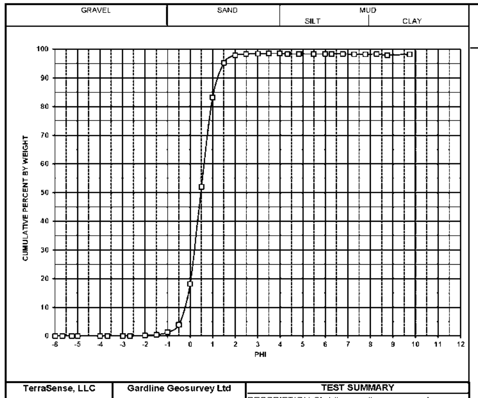
Station: L3-ENV2
Sediment Description:
Fix4: Sand with occasional pebbles.

Fix5: Sand with occasional pebbles.

Fauna Description:
Fix4: Pisces (*Urophycis regia*).

Fix5: No visible fauna.

Fix: 4 **E:** 548006 **N:** 4324686 **Depth:** 22m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.0
5	4.0	-2.0	0.2
7	2.8	-1.5	0.4
10	2.0	-1.0	1.3
14	1.4	-0.5	3.9
18	1.00	0.0	18.1
25	0.71	0.5	52.0
35	0.50	1.0	83.2
45	0.353	1.5	95.2
60	0.249	2.0	97.9
80	0.178	2.5	98.3
120	0.124	3.0	98.4
170	0.089	3.5	98.5
230	0.064	4.0	98.5
		4.5	98.5
		5.0	98.5
		5.5	98.5
		6.0	98.5
		6.5	98.5
		7.0	98.5
		7.5	98.5
		8.0	98.5
		8.5	98.5
		9.0	98.5
		9.5	98.5

PARTICLE SIZE DISTRIBUTION (Wentworth/Folk)
Sample: L3-ENV2

TerraSense, LLC	Gardline Geosurvey Ltd	TEST SUMMARY	
8153-17001	10966	DESCRIPTION: Slightly gravelly coarse sand	
MAW Lot3		GRAVEL (>2mm)	1.3%
		SAND (2mm to .0625mm)	97.2%
		SILT (>0.0625mm to 0.004mm)	0.0%
		CLAY (< 0.004mm)	1.5%

Analysis file: FolkV3 (2/15) Siev3b.xlsx 7/27/2017

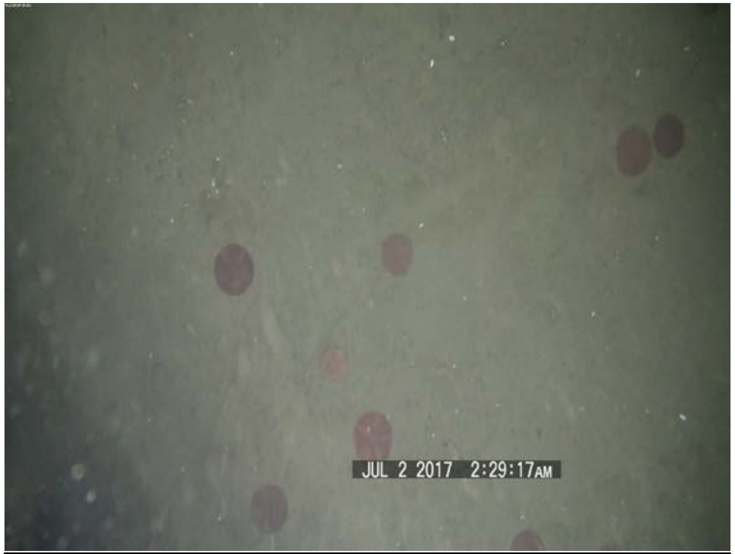
Fix: 4 **E:** 548006 **N:** 4324686 **Retention:** PSA

Station: L3-ENV2
Sediment Description:
Grab: Dark brown medium to coarse sand.

CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: Anellida (Polychaeta worm tube).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS



Station Target: **E:** 572003 **N:** 4331998 **Depth:** 27m

Station Target: **E:** 572003 **N:** 4331998 **Depth:** 28m

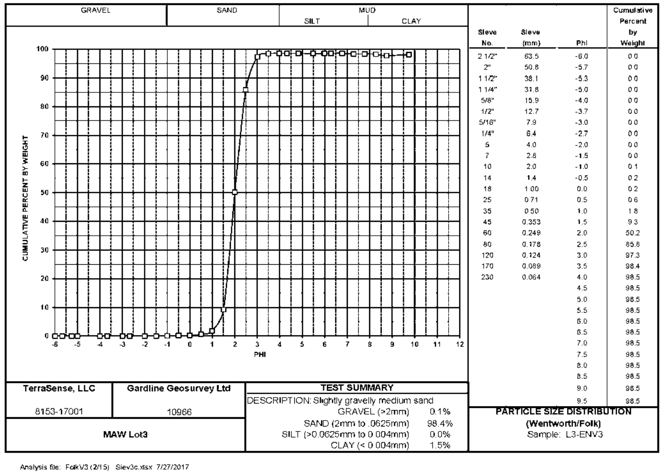
Station: L3-ENV3
Sediment Description:
Fix7: Sand with occasional shell fragments.

Fix8: Sand with occasional shell fragments.

Fauna Description:
Fix7: Echinodermata (*Echinarachnius parma*).

Fix8: Echinodermata (*Echinarachnius parma*), Pisces (*Prionotus carolinus*).

Fix: 8 **E:** 572020 **N:** 4332007 **Depth:** 28m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.0
5	4.0	-2.0	0.0
7	2.8	-1.5	0.0
10	2.0	-1.0	0.1
14	1.4	-0.5	0.2
18	1.00	0.0	0.2
25	0.71	0.5	0.6
35	0.50	1.0	1.8
45	0.353	1.5	9.3
60	0.249	2.0	50.2
80	0.178	2.5	85.8
120	0.124	3.0	97.3
170	0.089	3.5	98.4
230	0.064	4.0	98.5
		4.5	98.5
		5.0	98.5
		5.5	98.5
		6.0	98.5
		6.5	98.5
		7.0	98.5
		7.5	98.5
		8.0	98.5
		8.5	98.5
		9.0	98.5
		9.5	98.5

TerraSense, LLC 8153-17001
Gardline Geosurvey Ltd 10966
MAW Lot3

TEST SUMMARY
DESCRIPTION: Slightly gravelly medium sand
GRAVEL (>2mm) 0.1%
SAND (2mm to .0625mm) 98.4%
SILT (>0.0625mm to 0.004mm) 0.0%
CLAY (< 0.004mm) 1.5%

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV3

Analysis file: FolkV3 (2/15) Siev3c.xlsx 7/27/2017

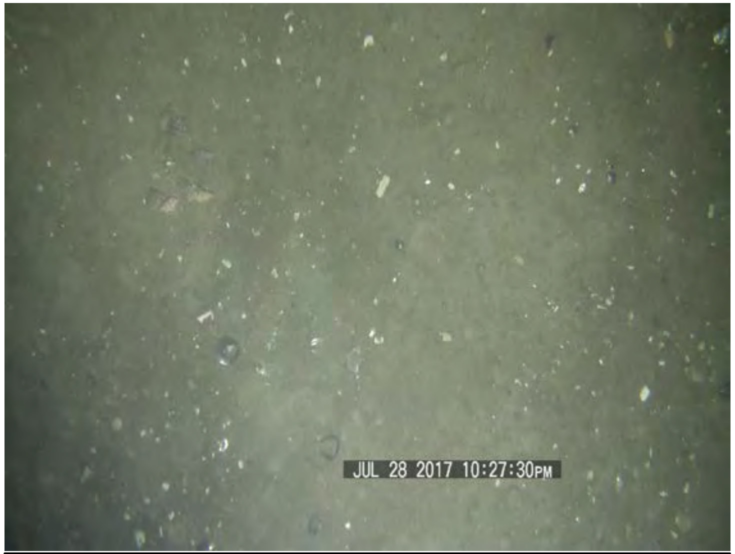
Fix: 7 **E:** 572000 **N:** 4332006 **Retention:** PSA

Station: L3-ENV3
Sediment Description:
Grab: Dark brown fine to medium sand.

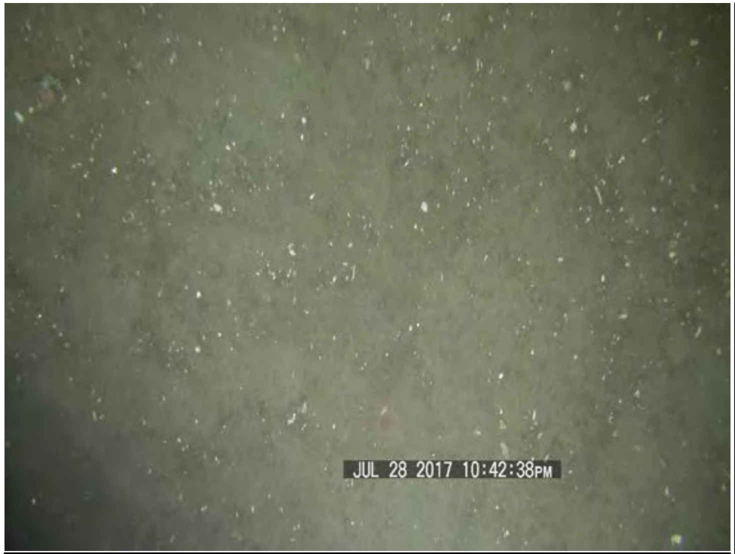
CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: Echinodermata (*Echinarachnius parma*).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS



Station Target: **E:** 560728 **N:** 4345081 **Depth:** 21m



Station Target: **E:** 560728 **N:** 4345081 **Depth:** 21m

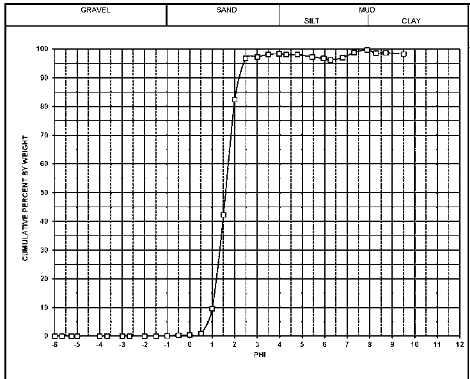
Station: L3-ENV4
Sediment Description:
Fix50: Sand with shells and shell fragments.

Fix53: Sand with shells and shell fragments.

Fauna Description:
Fix50: Arthropoda (Paguridae), Mollusca (Gastropoda).

Fix53: Arthropoda (Paguridae), Echinodermata (*Echinarachnius parma*).

Fix: 51 **E:** 560724 **N:** 4345083 **Depth:** 21m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.0
5	4.0	-2.0	0.0
7	2.8	-1.5	0.0
10	2.0	-1.0	0.1
14	1.4	-0.5	0.3
18	1.00	0.0	0.4
25	0.71	0.5	0.8
35	0.50	1.0	9.6
45	0.353	1.5	42.2
60	0.249	2.0	82.4
80	0.178	2.5	96.7
120	0.124	3.0	97.2
170	0.089	3.5	98.1
230	0.064	4.0	98.3
		4.5	98.3
		5.0	98.3
		5.5	98.3
		6.0	98.3
		6.5	98.3
		7.0	98.4
		7.5	99.0
		8.0	99.6
		8.5	99.6
		9.0	99.6
		9.5	99.6

TerraSense, LLC	Gardline Geosurvey Ltd	TEST SUMMARY	
8153-17002	10969	DESCRIPTION: Slightly gravelly medium sand	
Dong Energy		GRAVEL (>2mm)	0.1%
		SAND (2mm to .0625mm)	98.2%
		SILT (>0.0625mm to 0.004mm)	1.3%
		CLAY (< 0.004mm)	0.4%

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV4

Analysis file: FolkV3 (2/15) Siev2a.xlsx 8/25/2017

Fix: 51 **E:** 560724 **N:** 4345083 **Retention:** PSA

Station: L3-ENV4
Sediment Description:
Grab: Brown fine to medium sand.

CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: Echinodermata (*Echinarachnius parma*).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 565614 **N:** 4340937 **Depth:** 27m

Station Target: **E:** 565614 **N:** 4340937 **Depth:** 27m

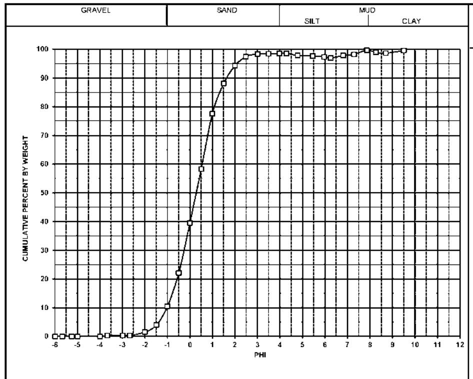
Station: L3-ENV5
Sediment Description:
Fix55: Sand and gravel with shell fragments.

Fix57: Sand and gravel with shells and shell fragments.

Fauna Description:
Fix55: Arthropoda (Paguridae).

Fix57: No visible fauna.

Fix: 56 **E:** 565605 **N:** 4340947 **Depth:** 27m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	0 3
5/16"	7.9	-3.0	0 3
1/4"	6.4	-2.7	0 3
5	4.0	-2.0	1 5
7	2.8	-1.5	4 0
10	2.0	-1.0	10.5
14	1.4	-0.5	22.1
18	1 00	0.0	39.5
25	0 71	0.5	58.3
35	0 50	1.0	77.5
45	0.353	1.5	88.1
60	0.249	2.0	94.2
80	0.178	2.5	97.4
120	0.124	3.0	98.3
170	0.089	3.5	98.4
230	0.064	4.0	98.5
		4.5	98.5
		5.0	98.5
		5.5	98.5
		6.0	98.5
		6.5	98.5
		7.0	98.5
		7.5	98.8
		8.0	99.6
		8.5	99.6
		9.0	99.6
		9.5	99.6

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV5

TerraSense, LLC 8153-17002
Gardline Geosurvey Ltd 10969
Dong Energy

TEST SUMMARY
DESCRIPTION: Gravelly coarse sand
GRAVEL (>2mm) 10.5%
SAND (2mm to .0625mm) 88.0%
SILT (>0.0625mm to 0.004mm) 1.1%
CLAY (< 0.004mm) 0.4%

Analysis file: FolkV3 (2/15) Siev2b.xlsx 8/25/2017

Fix: 56 **E:** 565605 **N:** 4340947 **Retention:** PSA

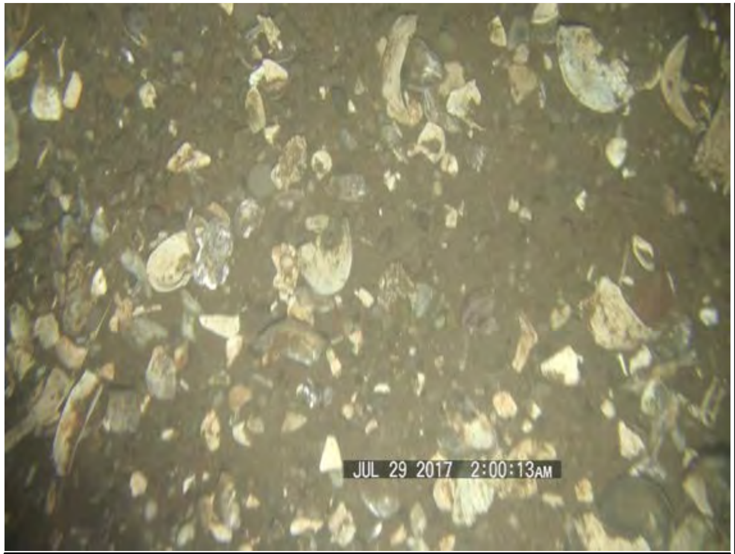
Station: L3-ENV5
Sediment Description:
Grab: Brown gravelly sand.

CMECS Susbtrate Component Subgroup: Gravelly Sand.

Fauna Description:
Grab: No visible fauna.

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 575080 **N:** 4331481 **Depth:** 36m



Station Target: **E:** 575080 **N:** 4331481 **Depth:** 36m

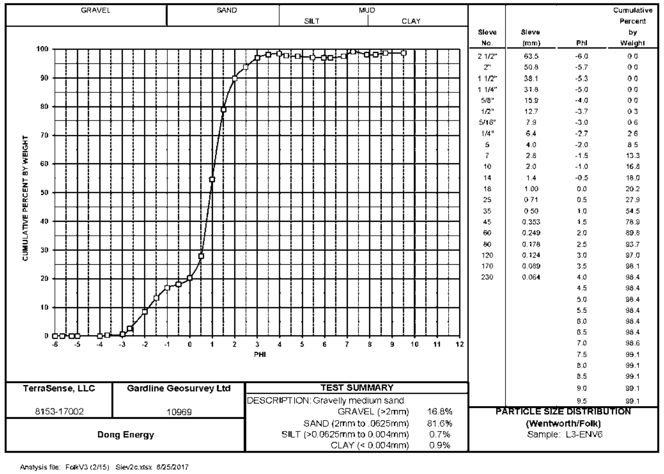
Station: L3-ENV6
Sediment Description:
Fix58: Sand and gravel with shell hash.

Fix59: Sand and gravel with shell hash.

Fauna Description:
Fix58: No visible fauna.

Fix59: No visible fauna.

Fix: 58 **E:** 575076 **N:** 4331489 **Depth:** 36m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	0 3
5/16"	7.9	-3.0	0 6
1/4"	6.4	-2.7	2 6
5	4.0	-2.0	8 5
7	2.8	-1.5	13.3
10	2.0	-1.0	16.8
14	1.4	-0.5	18.0
18	1 00	0.0	20.2
25	0 71	0.5	27.9
35	0 50	1.0	54.5
45	0.353	1.5	78.9
60	0.249	2.0	89.8
80	0.178	2.5	93.7
120	0.124	3.0	97.0
170	0.089	3.5	98.1
230	0.064	4.0	98.4
		4.5	98.4
		5.0	98.4
		5.5	98.4
		6.0	98.4
		6.5	98.4
		7.0	98.6
		7.5	99.1
		8.0	99.1
		8.5	99.1
		9.0	99.1
		9.5	99.1

TerraSense, LLC	Gardline Geosurvey Ltd	TEST SUMMARY	
8153-17002	10969	DESCRIPTION: Gravelly medium sand	
Dong Energy		GRAVEL (>2mm)	16.8%
		SAND (2mm to .0625mm)	81.6%
		SILT (>0.0625mm to 0.004mm)	0.7%
		CLAY (< 0.004mm)	0.9%

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV6

Analysis file: FolkV3 (2/15) Siev2c.xlsx 8/25/2017

Fix: 59 **E:** 575081 **N:** 4331475 **Retention:** PSA

Station: L3-ENV6
Sediment Description:
Grab: Gray/brown medium sand.

CMECS Susbtrate Component Subgroup: Gravelly Sand.

Fauna Description:
Grab: No visible fauna.

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 558881 **N:** 4341283 **Depth:** 22m

Station Target: **E:** 558881 **N:** 4341283 **Depth:** 21m

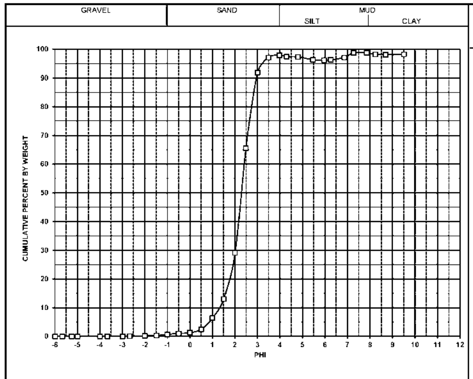
Station: L3-ENV7
Sediment Description:
Fix47: Sand with shells and shell fragments.

Fix49: Sand with shells and shell fragments.

Fauna Description:
Fix47: Arthropoda (Paguridae), Mollusca (Gastropoda).

Fix49: Arthropoda (Paguridae), Mollusca (Gastropoda).

Fix: 48 **E:** 558878 **N:** 4341289 **Depth:** 21m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.1
5	4.0	-2.0	0.2
7	2.8	-1.5	0.3
10	2.0	-1.0	0.7
14	1.4	-0.5	1.0
18	1.00	0.0	1.3
25	0.71	0.5	2.4
35	0.50	1.0	6.4
45	0.353	1.5	13.1
60	0.249	2.0	29.1
80	0.178	2.5	65.6
120	0.124	3.0	91.8
170	0.089	3.5	97.1
230	0.064	4.0	97.9
		4.5	97.9
		5.0	97.9
		5.5	97.9
		6.0	97.9
		6.5	97.9
		7.0	98.1
		7.5	98.7
		8.0	98.7
		8.5	98.7
		9.0	98.7
		9.5	98.7

TerraSense, LLC	Gardline Geosurvey Ltd
8153-17002	10969
Dong Energy	

TEST SUMMARY
DESCRIPTION: Slightly gravelly fine sand

GRAVEL (>2mm)	0.7%
SAND (2mm to .0625mm)	97.2%
SILT (>0.0625mm to 0.004mm)	0.8%
CLAY (< 0.004mm)	1.3%

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV7

Analysis file: FolkV3 (2/15) Siev2d.xlsx 8/25/2017

Fix: 48 **E:** 558878 **N:** 4341289 **Retention:** PSA

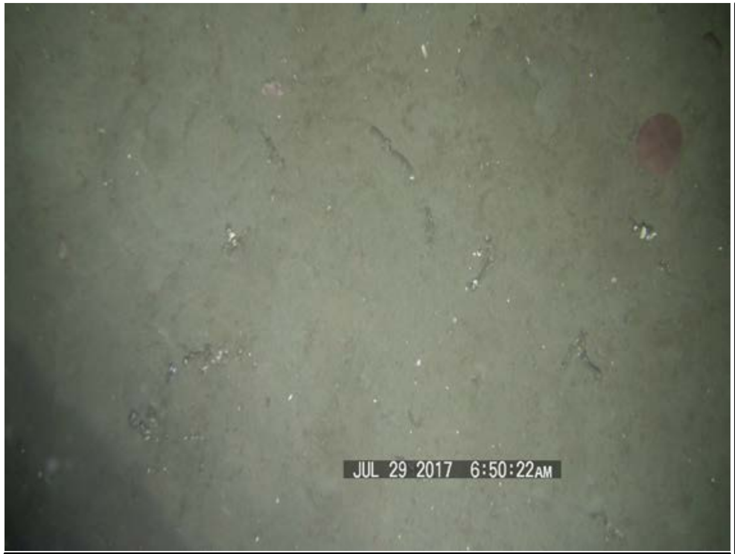
Station: L3-ENV7
Sediment Description:
Grab: Brown fine to medium sand.

CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: Mollusca (*Tritia trivittata*).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 561740 **N:** 4333350 **Depth:** 23m



Station Target: **E:** 561740 **N:** 4333350 **Depth:** 22m

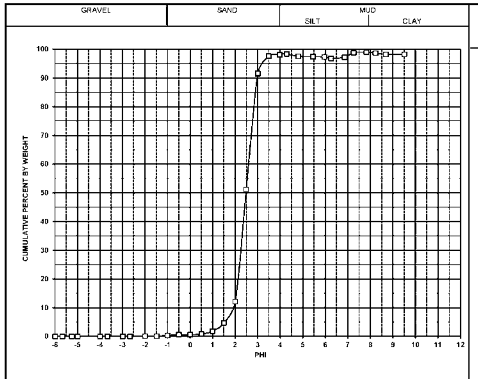
Station: L3-ENV8
Sediment Description:
Fix66: Sand with occasional shell fragments.

Fix68: Sand with occasional shell fragments.

Fauna Description:
Fix66: Arthropoda (Paguridae), Echinodermata (*Echinarachnius parma*).

Fix68: Arthropoda (Paguridae), Echinodermata (*Echinarachnius parma*).

Fix: 67 **E:** 561736 **N:** 4333353 **Depth:** 22m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.0
5	4.0	-2.0	0.1
7	2.8	-1.5	0.1
10	2.0	-1.0	0.3
14	1.4	-0.5	0.6
18	1.00	0.0	0.6
25	0.71	0.5	0.8
35	0.50	1.0	1.8
45	0.353	1.5	4.7
60	0.249	2.0	12.2
80	0.178	2.5	51.2
120	0.124	3.0	91.5
170	0.089	3.5	97.6
230	0.064	4.0	98.1
		4.5	98.3
		5.0	98.3
		5.5	98.3
		6.0	98.3
		6.5	98.3
		7.0	98.4
		7.5	98.9
		8.0	98.9
		8.5	98.9
		9.0	98.9
		9.5	98.9

PARTICLE SIZE DISTRIBUTION (Wentworth/Folk)
Sample: L3-ENV8

TerraSense, LLC 8153-17002
Gardline Geosurvey Ltd 10969
Dong Energy

TEST SUMMARY
DESCRIPTION: Slightly gravelly fine sand
GRAVEL (>2mm) 0.3%
SAND (2mm to .0625mm) 97.8%
SILT (>0.0625mm to 0.004mm) 0.8%
CLAY (< 0.004mm) 1.1%

Analysis file: FolkV3 (2/15) Siev2e.xlsx 8/25/2017

Fix: 66 **E:** 561737 **N:** 4333350 **Retention:** PSA

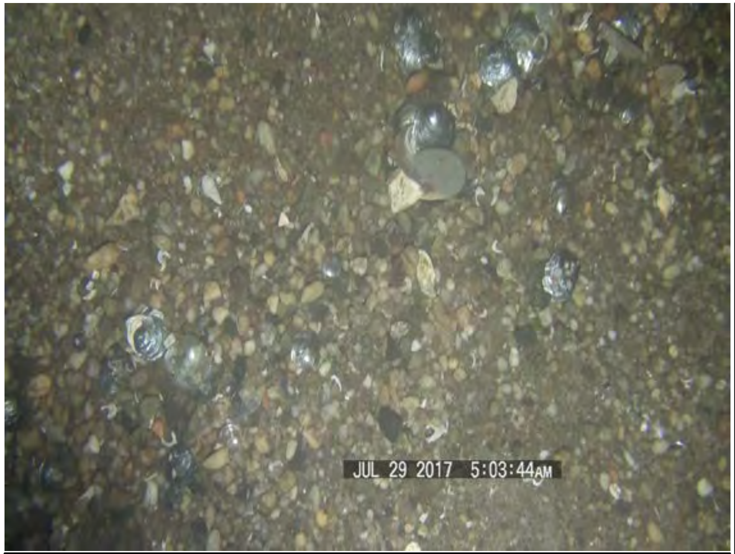
Station: L3-ENV8
Sediment Description:
Grab: Brown fine shelly sand.

CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: Mollusca (*Tritia trivittata*).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 565290 **N:** 4329822 **Depth:** 32m



Station Target: **E:** 565290 **N:** 4329822 **Depth:** 31m

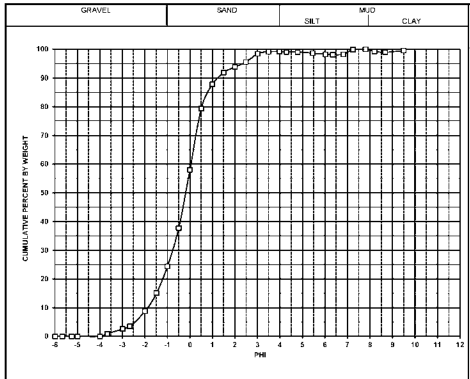
Station: L3-ENV9
Sediment Description:
Fix63: Gravel with shells and shell fragments.

Fix64: Gravel with shells and shell fragments.

Fauna Description:
Fix63: Pisces (*Prionotus carolinus*).

Fix64: Arthropoda (Paguridae).

Fix: 63 **E:** 565289 **N:** 4329824 **Depth:** 32m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	0 9
5/16"	7.9	-3.0	2 6
1/4"	6.4	-2.7	3 5
5	4.0	-2.0	8 8
7	2.8	-1.5	15.1
10	2.0	-1.0	24.4
14	1.4	-0.5	37.7
18	1 00	0.0	58.0
25	0 71	0.5	79.3
35	0 50	1.0	87.8
45	0.353	1.5	91.8
60	0.249	2.0	93.8
80	0.178	2.5	95.5
120	0.124	3.0	98.4
170	0.089	3.5	99.1
230	0.064	4.0	99.2
		4.5	99.2
		5.0	99.2
		5.5	99.2
		6.0	99.2
		6.5	99.2
		7.0	99.4
		7.5	99.9
		8.0	99.9
		8.5	99.9
		9.0	99.9
		9.5	99.9

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV9

TerraSense, LLC	Gardline Geosurvey Ltd
8153-17002	10969
Dong Energy	

TEST SUMMARY

DESCRIPTION: Gravelly very coarse sand

GRAVEL (>2mm)	24.4%
SAND (2mm to .0625mm)	74.8%
SILT (>0.0625mm to 0.004mm)	0.7%
CLAY (< 0.004mm)	0.1%

Analysis file: FolkV3 (2/15) Siev2f.xlsx 9/20/2017

Fix: 63 **E:** 565289 **N:** 4329824 **Retention:** PSA

Station: L3-ENV9
Sediment Description:
Grab: Brown coarse sand and fine gravel.

CMECS Susbtrate Component Subgroup: Gravelly Sand.

Fauna Description:
Grab: No visible fauna.

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 570446 **N:** 4327912 **Depth:** 32m

Station Target: **E:** 570446 **N:** 4327912 **Depth:** 33m

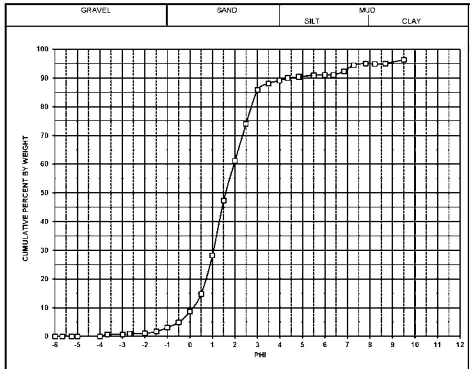
Station: L3-ENV10
Sediment Description:
Fix60: Fine sand with mud clumps, shells and shell fragments.

Fix62: Sand with occasional shell fragments.

Fauna Description:
Fix60: No visible fauna.

Fix62: Annelida (Polychaeta worm tubes).

Fix: 60 **E:** 570439 **N:** 4327917 **Depth:** 32m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.7
5/16"	7.9	-3.0	0.7
1/4"	6.4	-2.7	1.0
5	4.0	-2.0	1.1
7	2.8	-1.5	1.7
10	2.0	-1.0	3.1
14	1.4	-0.5	4.9
18	1.00	0.0	8.7
25	0.71	0.5	14.8
35	0.50	1.0	28.2
45	0.353	1.5	47.3
60	0.249	2.0	61.2
80	0.178	2.5	73.9
120	0.124	3.0	85.8
170	0.089	3.5	88.1
230	0.064	4.0	89.1
		4.5	90.2
		5.0	90.5
		5.5	90.9
		6.0	91.0
		6.5	91.2
		7.0	92.9
		7.5	94.9
		8.0	95.0
		8.5	95.0
		9.0	95.4
		9.5	96.3

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV10

TerraSense, LLC	Gardline Geosurvey Ltd
8153-17002	10969
Dong Energy	

TEST SUMMARY

DESCRIPTION: Slightly gravelly muddy medium sand

GRAVEL (>2mm)	3.1%
SAND (2mm to .0625mm)	86.0%
SILT (>0.0625mm to 0.004mm)	5.9%
CLAY (< 0.004mm)	5.0%

Analysis file: FolkV3 (2/15) Siev2g.xlsx 8/25/2017

Fix: 60 **E:** 570439 **N:** 4327917 **Retention:** PSA

Station: L3-ENV10
Sediment Description:
Grab: Gray/brown fine to medium sand.

CMECS Susbtrate Component Subgroup: Slightly Gravelly Muddy Sand.

Fauna Description:
Grab: No visible fauna.

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 551558 **N:** 4335896 **Depth:** 21m

Station Target: **E:** 551558 **N:** 4335896 **Depth:** 21m

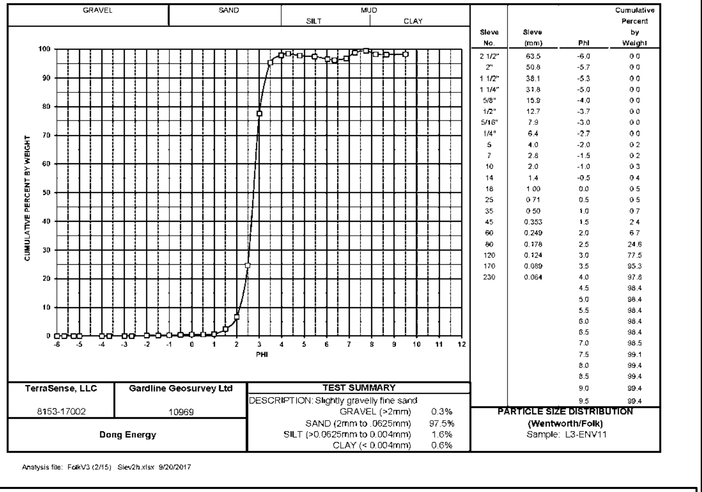
Station: L3-ENV11
Sediment Description:
Fix44: Sand with occasional shell fragments.

Fix45: Sand with occasional shell fragments.

Fauna Description:
Fix44: Arthropoda (Paguridae), Mollusca (Gastropoda).

Fix45: Mollusca (*Euspira* sp. egg mass).

Fix: 45 **E:** 551557 **N:** 4335899 **Depth:** 21m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.0
5	4.0	-2.0	0.2
7	2.8	-1.5	0.2
10	2.0	-1.0	0.3
14	1.4	-0.5	0.4
18	1.00	0.0	0.5
25	0.71	0.5	0.5
35	0.50	1.0	0.7
45	0.353	1.5	2.4
60	0.249	2.0	6.7
80	0.178	2.5	24.6
120	0.124	3.0	77.5
170	0.089	3.5	95.3
230	0.064	4.0	97.8
		4.5	98.4
		5.0	98.4
		5.5	98.4
		6.0	98.4
		6.5	98.4
		7.0	98.5
		7.5	99.1
		8.0	99.4
		8.5	99.4
		9.0	99.4
		9.5	99.4

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV11

TerraSense, LLC	Gardline Geosurvey Ltd
8153-17002	10969
Dong Energy	

TEST SUMMARY
DESCRIPTION: Slightly gravelly fine sand

GRAVEL (>2mm)	0.3%
SAND (2mm to .0625mm)	97.5%
SILT (>0.0625mm to 0.004mm)	1.6%
CLAY (< 0.004mm)	0.6%

Analysis file: FolkV3 (2/15) Siev2h.xlsx 9/20/2017

Fix: 45 **E:** 551557 **N:** 4335899 **Retention:** PSA

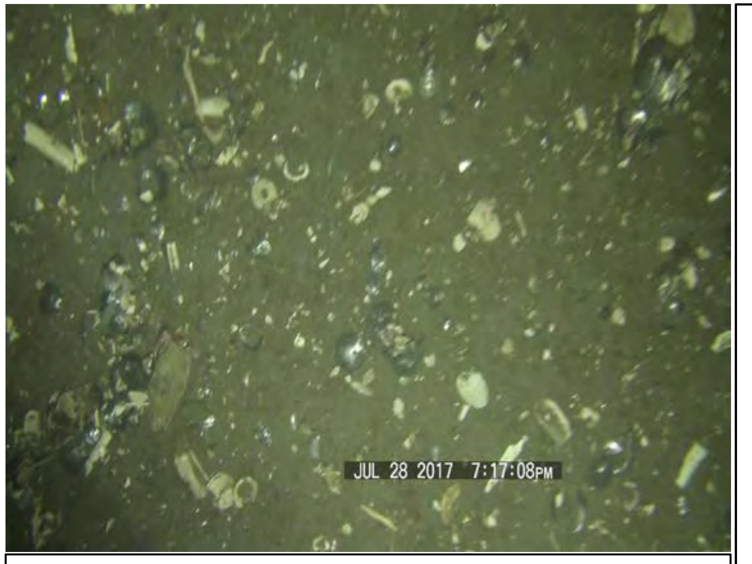
Station: L3-ENV11
Sediment Description:
Grab: Brown fine to medium sand.

CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: Anellida (Polychaeta worm tube), Mollusca (*Tritia trivittata*).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 555993 **N:** 4326382 **Depth:** 29m



Station Target: **E:** 555993 **N:** 4326382 **Depth:** 29m

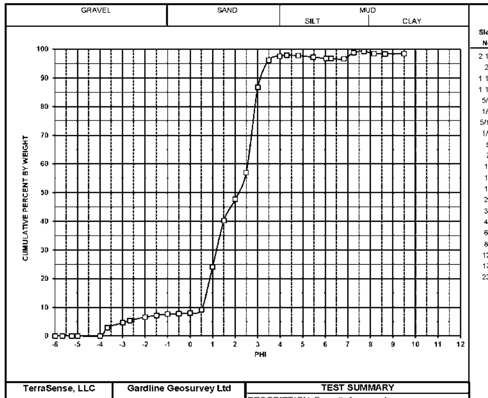
Station: L3-ENV12
Sediment Description:
Fix41: Sand with shell hash.

Fix43: Sand with shell hash.

Fauna Description:
Fix41: Pisces (*Prionotus carolinus*).

Fix43: Arthropoda (Brachyura).

Fix: 42 **E:** 555997 **N:** 4326386 **Depth:** 29m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	2 9
5/16"	7.9	-3.0	4 6
1/4"	6.4	-2.7	5 4
5	4.0	-2.0	6 6
7	2.8	-1.5	7 2
10	2.0	-1.0	7 7
14	1.4	-0.5	7 8
18	1 00	0.0	8 0
25	0 71	0.5	9 1
35	0 50	1.0	24.1
45	0.353	1.5	40.2
60	0.249	2.0	47.7
80	0.178	2.5	56.9
120	0.124	3.0	86.7
170	0.089	3.5	96.2
230	0.064	4.0	97.5
		4.5	97.9
		5.0	97.9
		5.5	97.9
		6.0	97.9
		6.5	97.9
		7.0	98.1
		7.5	99.1
		8.0	99.2
		8.5	99.2
		9.0	99.2
		9.5	99.2

TerraSense, LLC	Gardline Geosurvey Ltd	TEST SUMMARY	
8153-17002	10969	DESCRIPTION: Gravelly fine sand	
Dong Energy		GRAVEL (>2mm)	7.7%
		SAND (2mm to .0625mm)	89.8%
		SILT (>0.0625mm to 0.004mm)	1.7%
		CLAY (< 0.004mm)	0.8%

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV12

Analysis file: FolkV3 (2/15) Siev2i.xlsx 9/20/2017

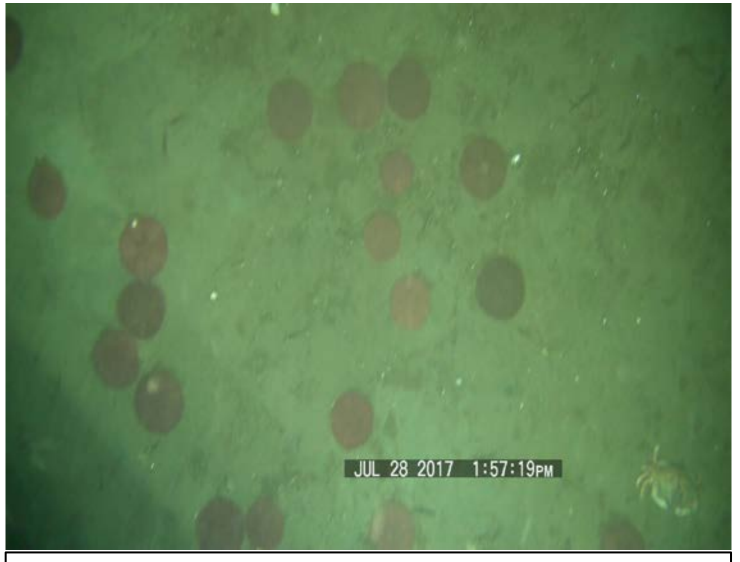
Fix: 42 **E:** 555997 **N:** 4326386 **Retention:** PSA

Station: L3-ENV12
Sediment Description:
Grab: Brown fine to medium shelly sand.

CMECS Susbtrate Component Subgroup: Gravelly Sand.

Fauna Description:
Grab: Arthropoda (Paguridae).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS



Station Target: **E:** 557947 **N:** 4323044 **Depth:** 30m

Station Target: **E:** 557947 **N:** 4323044 **Depth:** 30m

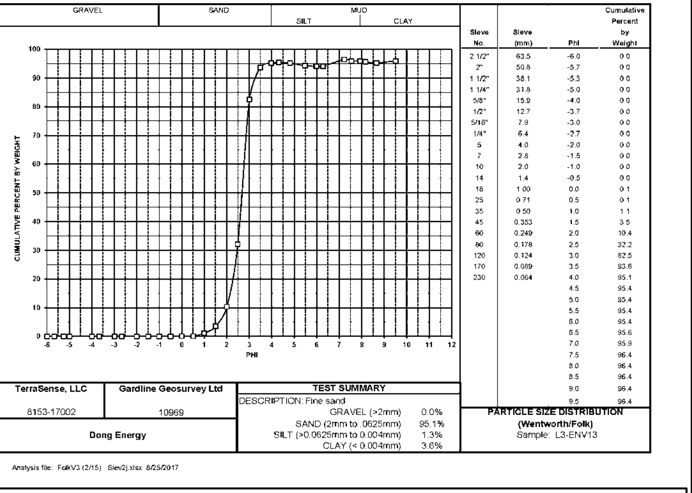
Station: L3-ENV13
Sediment Description:
Fix26: Sand with occasional shell fragments.

Fix27: Sand with occasional shell fragments.

Fauna Description:
Fix26: Arthropoda (Brachyura), Echinodermata (*Echinarachnius parma*).

Fix27: Arthropoda (Paguridae), Echinodermata (*Echinarachnius parma*).

Fix: 26 **E:** 557940 **N:** 4323048 **Depth:** 30m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.0
5	4.0	-2.0	0.0
7	2.8	-1.5	0.0
10	2.0	-1.0	0.0
14	1.4	-0.5	0.0
18	1.00	0.0	0.1
25	0.71	0.5	0.1
35	0.50	1.0	1.1
45	0.353	1.5	3.5
60	0.249	2.0	10.4
80	0.178	2.5	32.2
120	0.124	3.0	82.5
170	0.089	3.5	93.6
230	0.064	4.0	95.1
		4.5	95.4
		5.0	95.4
		5.5	95.4
		6.0	95.4
		6.5	95.6
		7.0	95.9
		7.5	96.4
		8.0	96.4
		8.5	96.4
		9.0	96.4
		9.5	96.4

PARTICLE SIZE DISTRIBUTION (Wentworth/Folk)
Sample: L3-ENV13

TerraSense, LLC	Gardline Geosurvey Ltd
8153-17002	10969
Dong Energy	

TEST SUMMARY
DESCRIPTION: Fine sand

GRAVEL (>2mm)	0.0%
SAND (2mm to .0625mm)	95.1%
SILT (>0.0625mm to 0.004mm)	1.3%
CLAY (< 0.004mm)	3.6%

Analysis file: FolkV3 (2/15) Siev2j.xlsx 8/25/2017

Fix: 26 **E:** 557940 **N:** 4323048 **Retention:** PSA

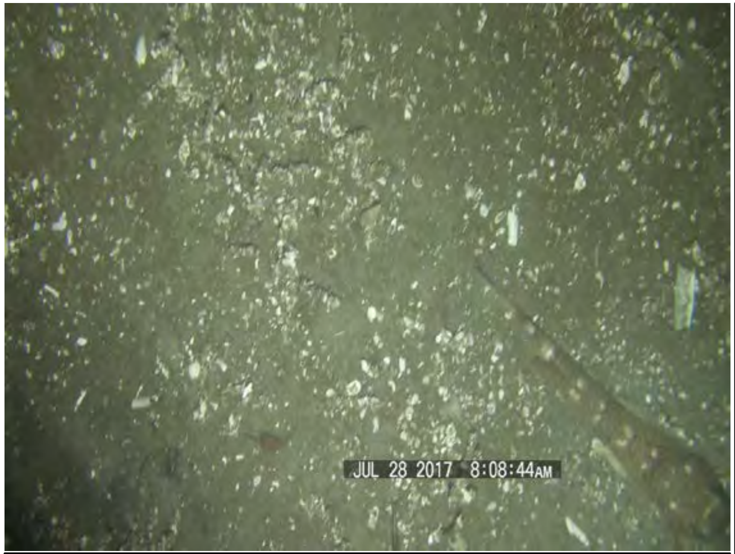
Station: L3-ENV13
Sediment Description:
Grab: Gray brown fine sand.

CMECS Susbtrate Component Subgroup: Fine Sand.

Fauna Description:
Grab: Echinodermata (*Echinarachnius parma*), Mollusca (*Tritia trivittata*).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 562434 **N:** 4319913 **Depth:** 27m



Station Target: **E:** 562434 **N:** 4319913 **Depth:** 26m

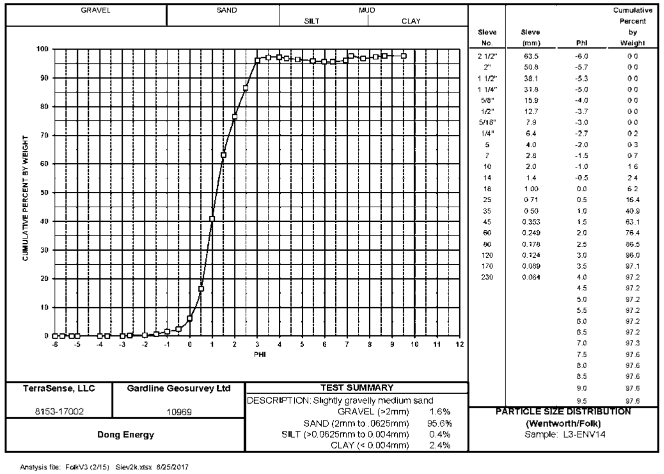
Station: L3-ENV14
Sediment Description:
Fix23: Sand with shell fragments.

Fix25: Sand with abundant shell fragments.

Fauna Description:
Fix23: Mollusca (Gastropoda).

Fix25: Mollusca (Gastropoda), Pisces (*Prionotus carolinus*).

Fix: 23 **E:** 562439 **N:** 4319918 **Depth:** 27m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.2
5	4.0	-2.0	0.3
7	2.8	-1.5	0.7
10	2.0	-1.0	1.6
14	1.4	-0.5	2.4
18	1.00	0.0	6.2
25	0.71	0.5	16.4
35	0.50	1.0	40.9
45	0.353	1.5	63.1
60	0.249	2.0	76.4
80	0.178	2.5	86.5
120	0.124	3.0	96.0
170	0.089	3.5	97.1
230	0.064	4.0	97.2
		4.5	97.2
		5.0	97.2
		5.5	97.2
		6.0	97.2
		6.5	97.2
		7.0	97.3
		7.5	97.6
		8.0	97.6
		8.5	97.6
		9.0	97.6
		9.5	97.6

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV14

TerraSense, LLC 8153-17002
Gardline Geosurvey Ltd 10969
Dong Energy

TEST SUMMARY
DESCRIPTION: Slightly gravelly medium sand
GRAVEL (>2mm) 1.6%
SAND (2mm to .0625mm) 95.6%
SILT (>0.0625mm to 0.004mm) 0.4%
CLAY (< 0.004mm) 2.4%

Analysis file: FolkV3 (2/15) Siev2k.xlsx 8/25/2017

Fix: 23 **E:** 562439 **N:** 4319918 **Retention:** PSA

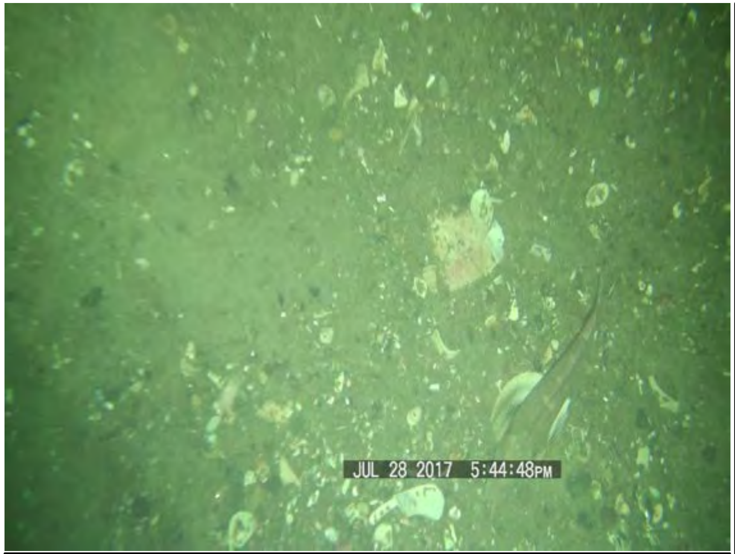
Station: L3-ENV14
Sediment Description:
Grab: Gray/brown fine to medium shelly sand.

CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: No visible fauna.

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 547164 **N:** 4327547 **Depth:** 22m



Station Target: **E:** 547164 **N:** 4327547 **Depth:** 22m

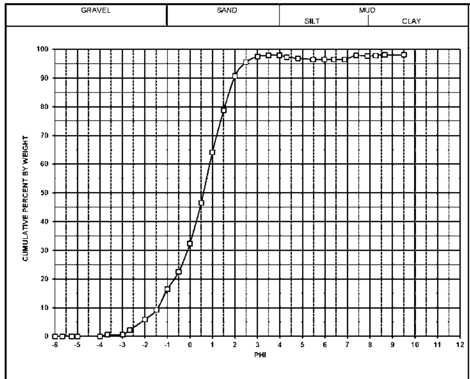
Station: L3-ENV15
Sediment Description:
Fix35: Sand with shells and shell fragments.

Fix37: Sand with abundant shell fragments.

Fauna Description:
Fix35: Cnidaria (Ceriantharia).

Fix37: Pisces (*Prionotus carolinus*).

Fix: 37 **E:** 547164 **N:** 4327546 **Depth:** 22m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	0 6
5/16"	7.9	-3.0	0 6
1/4"	6.4	-2.7	2 2
5	4.0	-2.0	5 9
7	2.8	-1.5	9 3
10	2.0	-1.0	16.4
14	1.4	-0.5	22.5
18	1 00	0.0	32.4
25	0 71	0.5	46.5
35	0 50	1.0	64.1
45	0.353	1.5	78.7
60	0.249	2.0	90.7
80	0.178	2.5	95.5
120	0.124	3.0	97.4
170	0.089	3.5	97.8
230	0.064	4.0	97.9
		4.5	97.9
		5.0	97.9
		5.5	97.9
		6.0	97.9
		6.5	97.9
		7.0	97.9
		7.5	97.9
		8.0	97.9
		8.5	97.9
		9.0	98.0
		9.5	98.0

TerraSense, LLC	Gardline Geosurvey Ltd	TEST SUMMARY	
8153-17002	10969	DESCRIPTION: Gravelly coarse sand	
Dong Energy		GRAVEL (>2mm)	16.4%
		SAND (2mm to .0625mm)	81.5%
		SILT (>0.0625mm to 0.004mm)	0.0%
		CLAY (< 0.004mm)	2.1%

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV15

Analysis file: FolkV3 (2/15) Siev2l.xlsx 8/25/2017

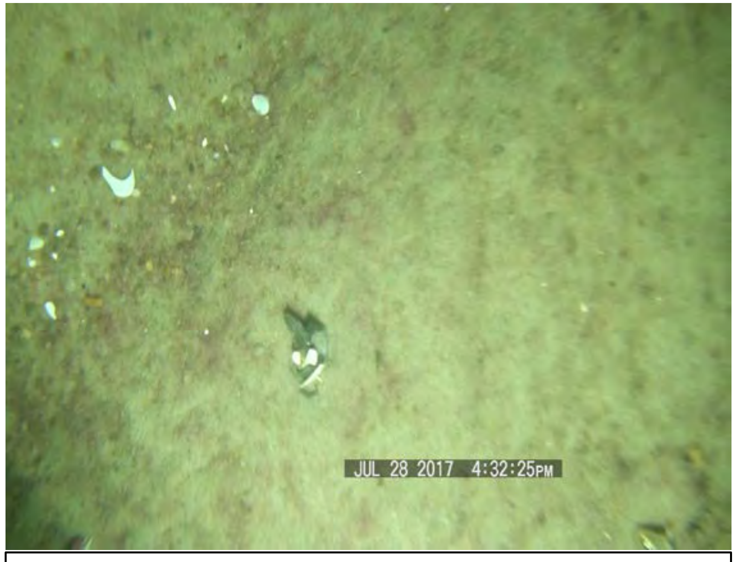
Fix: 37 **E:** 547164 **N:** 4327546 **Retention:** PSA

Station: L3-ENV15
Sediment Description:
Grab: Brown medium to coarse shelly sand and fine Gravel.

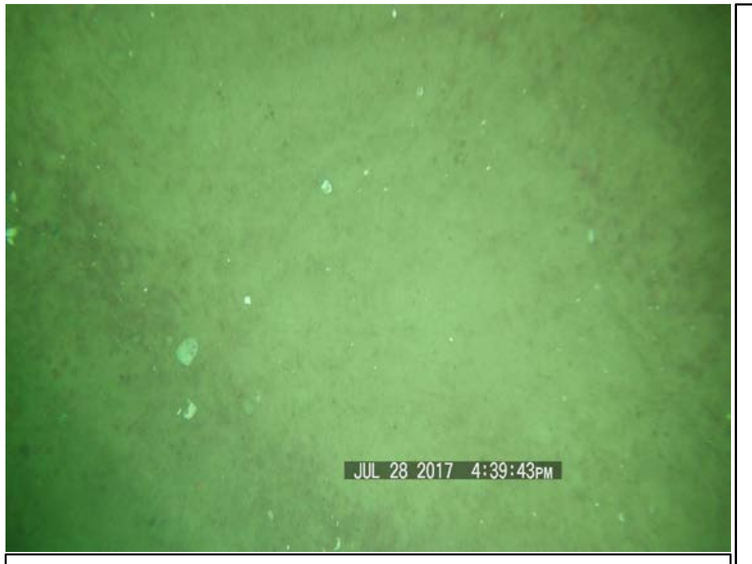
CMECS Susbtrate Component Subgroup: Gravelly Sand.

Fauna Description:
Grab: Arthropoda (Paguridae).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS



Station Target: **E:** 546447 **N:** 4321896 **Depth:** 20m



Station Target: **E:** 546447 **N:** 4321896 **Depth:** 20m

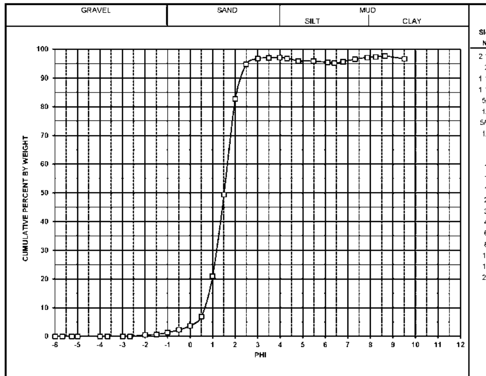
Station: L3-ENV16
Sediment Description:
Fix32: Sand with occasional shell fragments.

Fix33: Sand with occasional shell fragments.

Fauna Description:
Fix32: No visible fauna.

Fix33: No visible fauna.

Fix: 33 **E:** 546444 **N:** 4321897 **Depth:** 20m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0.0
2"	50.8	-5.7	0.0
1 1/2"	38.1	-5.3	0.0
1 1/4"	31.8	-5.0	0.0
5/8"	15.9	-4.0	0.0
1/2"	12.7	-3.7	0.0
5/16"	7.9	-3.0	0.0
1/4"	6.4	-2.7	0.0
5	4.0	-2.0	0.5
7	2.8	-1.5	0.7
10	2.0	-1.0	1.3
14	1.4	-0.5	2.3
18	1.00	0.0	3.7
25	0.71	0.5	6.9
35	0.50	1.0	21.0
45	0.353	1.5	49.4
60	0.249	2.0	82.7
80	0.178	2.5	94.7
120	0.124	3.0	96.7
170	0.089	3.5	97.0
230	0.064	4.0	97.1
		4.5	97.1
		5.0	97.1
		5.5	97.1
		6.0	97.1
		6.5	97.1
		7.0	97.1
		7.5	97.1
		8.0	97.2
		8.5	97.5
		9.0	97.6
		9.5	97.6

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV16

TerraSense, LLC	Gardline Geosurvey Ltd
8153-17002	10969
Dong Energy	

TEST SUMMARY
DESCRIPTION: Slightly gravelly medium sand

GRAVEL (>2mm)	1.3%
SAND (2mm to .0625mm)	95.8%
SILT (>0.0625mm to 0.004mm)	0.1%
CLAY (< 0.004mm)	2.8%

Analysis file: FolkV3 (2/15) Siev2m.xlsx 8/25/2017

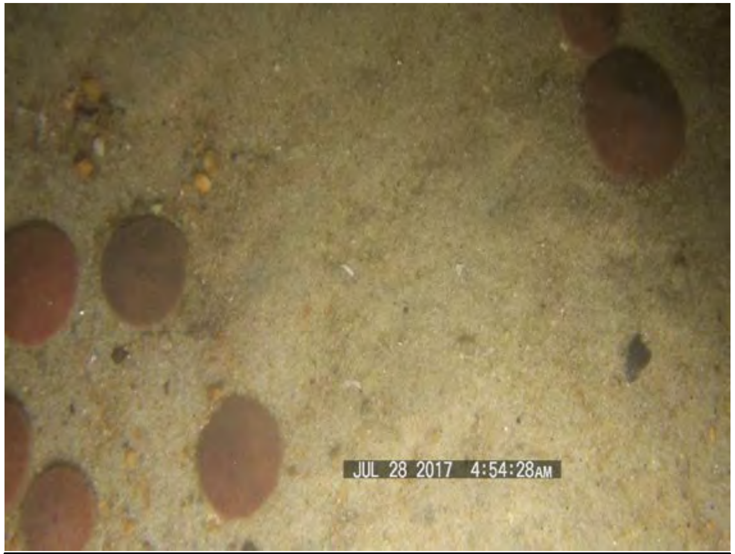
Fix: 33 **E:** 546444 **N:** 4321897 **Retention:** PSA

Station: L3-ENV16
Sediment Description:
Grab: Brown medium shelly sand and fine Gravel.

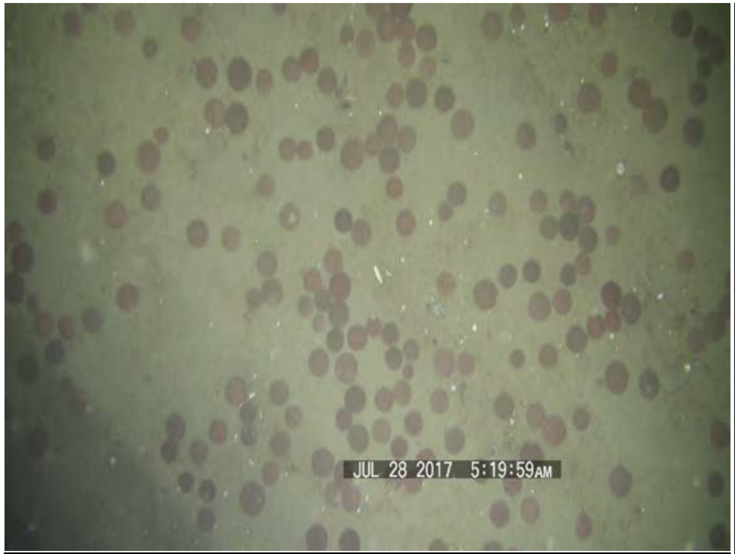
CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: No visible fauna.

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS



Station Target: **E:** 551638 **N:** 4316726 **Depth:** 20m



Station Target: **E:** 551638 **N:** 4316726 **Depth:** 20m

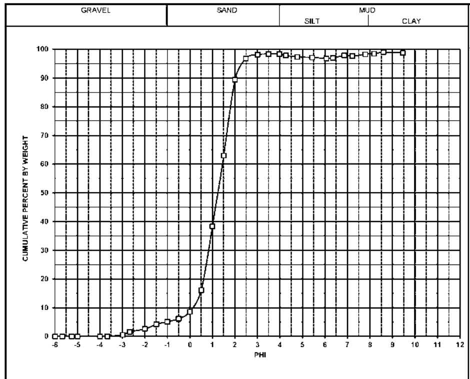
Station: L3-ENV17
Sediment Description:
Fix13: Sand with occasional gravel.

Fix15: Sand with occasional shell fragments.

Fauna Description:
Fix13: Echinodermata (*Echinarachnius parma*).

Fix15: Echinodermata (*Echinarachnius parma*).

Fix: 14 **E:** 551641 **N:** 4316729 **Depth:** 20m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	0 0
5/16"	7.9	-3.0	0 5
1/4"	6.4	-2.7	1 6
5	4.0	-2.0	2 6
7	2.8	-1.5	4 2
10	2.0	-1.0	5 1
14	1.4	-0.5	6 2
18	1 00	0.0	8 6
25	0 71	0.5	16.1
35	0 50	1.0	38.3
45	0.353	1.5	63.0
60	0.249	2.0	89.5
80	0.178	2.5	96.8
120	0.124	3.0	98.1
170	0.089	3.5	98.3
230	0.064	4.0	98.3
		4.5	98.3
		5.0	98.3
		5.5	98.3
		6.0	98.3
		6.5	98.3
		7.0	98.3
		7.5	98.3
		8.0	98.3
		8.5	98.7
		9.0	98.9
		9.5	98.9

PARTICLE SIZE DISTRIBUTION (Wentworth/Folk)
Sample: L3-ENV17

TerraSense, LLC	Gardline Geosurvey Ltd
8153-17002	10969
Dong Energy	

TEST SUMMARY
DESCRIPTION: Gravelly medium sand

GRAVEL (>2mm)	5.1%
SAND (2mm to .0625mm)	93.2%
SILT (>0.0625mm to 0.004mm)	0.0%
CLAY (< 0.004mm)	1.7%

Analysis file: FolkV3 (2/15) Siev2n.xlsx 9/20/2017

Fix: 14 **E:** 551641 **N:** 4316729 **Retention:** PSA

Station: L3-ENV17
Sediment Description:
Grab: Brown medium shelly sand.

CMECS Susbtrate Component Subgroup: Gravelly Sand.

Fauna Description:
Grab: Echinodermata (*Echinarachnius parma*).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 555500 **N:** 4316702 **Depth:** 34m

Station Target: **E:** 555500 **N:** 4316702 **Depth:** 34m

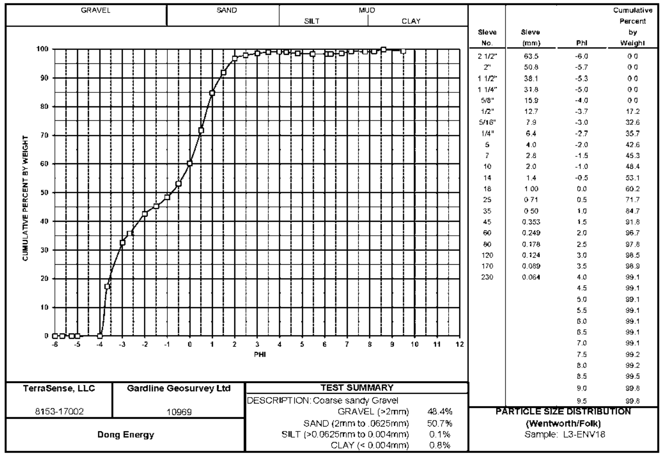
Station: L3-ENV18
Sediment Description:
Fix16: Gravel with shells and shell fragments.

Fix20: Gravel with shells and shell fragments.

Fauna Description:
Fix16: Arthropoda (Brachyura).

Fix20: Pisces (*Urophycis regia*).

Fix: 20 **E:** 555470 **N:** 4316666 **Depth:** 34m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	17.2
5/16"	7.9	-3.0	32.6
1/4"	6.4	-2.7	35.7
5	4.0	-2.0	42.6
7	2.8	-1.5	45.3
10	2.0	-1.0	48.4
14	1.4	-0.5	53.1
18	1 00	0.0	60.2
25	0 71	0.5	71.7
35	0 50	1.0	84.7
45	0.353	1.5	91.8
60	0.249	2.0	96.7
80	0.178	2.5	97.8
120	0.124	3.0	98.5
170	0.089	3.5	98.9
230	0.064	4.0	99.1
		4.5	99.1
		5.0	99.1
		5.5	99.1
		6.0	99.1
		6.5	99.1
		7.0	99.1
		7.5	99.2
		8.0	99.2
		8.5	99.5
		9.0	99.8
		9.5	99.8

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV18

TerraSense, LLC 8153-17002
Gardline Geosurvey Ltd 10969
Dong Energy

TEST SUMMARY
DESCRIPTION: Coarse sandy Gravel
GRAVEL (>2mm) 48.4%
SAND (2mm to .0625mm) 50.7%
SILT (>0.0625mm to 0.004mm) 0.1%
CLAY (< 0.004mm) 0.8%

Analysis file: FolkV3 (2/15) Siev2o.xlsx 9/20/2017

Fix: 20 **E:** 555470 **N:** 4316666 **Retention:** PSA

Station: L3-ENV18
Sediment Description:
Grab: Grey Brown coarse sand and gravel.

CMECS Susbtrate Component Subgroup: Sandy Gravel

Fauna Description:
Grab: Arthropoda (Cirripedia, Paguridae), Chordata (Elasmobranchii egg case).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 550997 **N:** 4307187 **Depth:** 31m

Station Target: **E:** 550997 **N:** 4307187 **Depth:** 31m

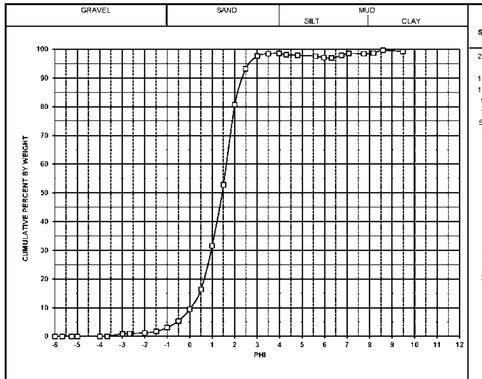
Station: L3-ENV19
Sediment Description:
Fix10: Sand with occasional shell fragments.

Fix11: Sand with occasional shell fragments.

Fauna Description:
Fix10: Arthropoda (Brachyura), Echinodermata (*Echinarachnius parma*).

Fix11: Pisces (*Scomber* sp.).

Fix: 10 **E:** 551000 **N:** 4307191 **Depth:** 31m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	0 0
5/16"	7.9	-3.0	0 9
1/4"	6.4	-2.7	1 0
5	4.0	-2.0	1 2
7	2.8	-1.5	1 7
10	2.0	-1.0	3 1
14	1.4	-0.5	5 4
18	1 00	0.0	9 5
25	0 71	0.5	16.3
35	0 50	1.0	31.6
45	0.353	1.5	52.8
60	0.249	2.0	80.7
80	0.178	2.5	93.1
120	0.124	3.0	97.6
170	0.089	3.5	98.4
230	0.064	4.0	98.5
		4.5	98.5
		5.0	98.5
		5.5	98.5
		6.0	98.5
		6.5	98.5
		7.0	98.5
		7.5	98.5
		8.0	98.5
		8.5	99.1
		9.0	99.6
		9.5	99.6

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV19

TerraSense, LLC 8153-17002
Gardline Geosurvey Ltd 10969
Dong Energy

TEST SUMMARY
DESCRIPTION: Slightly gravelly medium sand
GRAVEL (>2mm) 3.1%
SAND (2mm to .0625mm) 95.4%
SILT (>0.0625mm to 0.004mm) 0.0%
CLAY (< 0.004mm) 1.5%

Analysis file: FolkV3 (2/15) Siev2p.xlsx 9/20/2017

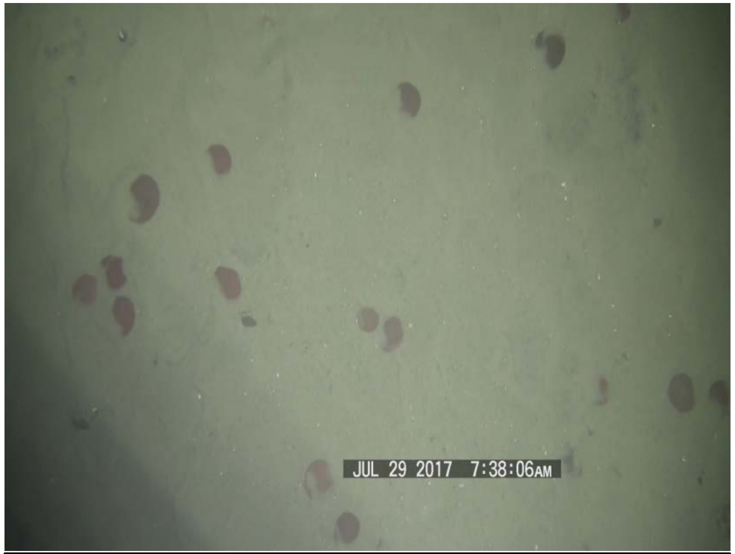
Fix: 10 **E:** 551000 **N:** 4307191 **Retention:** PSA

Station: L3-ENV19
Sediment Description:
Grab: Dark brown medium to coarse sand.

CMECS Susbstrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: No visible fauna.

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS



Station Target: **E:** 562376 **N:** 4337806 **Depth:** 18m

Station Target: **E:** 562376 **N:** 4337806 **Depth:** 18m

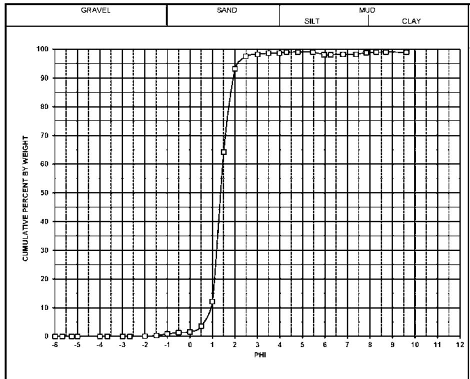
Station: L3-ENV20
Sediment Description:
Fix70: Sand with occasional shell fragments.

Fix71: Sand with occasional shell fragments.

Fauna Description:
Fix70: Arthropoda (Paguridae), Echinodermata (*Echinarachnius parma*).

Fix71: Echinodermata (*Echinarachnius parma*).

Fix: 71 **E:** 562379 **N:** 4337802 **Depth:** 18m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	0 0
5/16"	7.9	-3.0	0 0
1/4"	6.4	-2.7	0 0
5	4.0	-2.0	0 1
7	2.8	-1.5	0 3
10	2.0	-1.0	0 9
14	1.4	-0.5	1 3
18	1 00	0.0	1 5
25	0 71	0.5	3 5
35	0 50	1.0	12.2
45	0.353	1.5	64.2
60	0.249	2.0	93.1
80	0.178	2.5	97.5
120	0.124	3.0	98.2
170	0.089	3.5	98.6
230	0.064	4.0	98.6
		4.5	99.0
		5.0	99.0
		5.5	99.0
		6.0	99.0
		6.5	99.0
		7.0	99.0
		7.5	99.0
		8.0	99.0
		8.5	99.0
		9.0	99.0
		9.5	99.0

TerraSense, LLC	Gardline Geosurvey Ltd	TEST SUMMARY	
8153-17002	10969	DESCRIPTION: Slightly gravelly medium sand	
Dong Energy		GRAVEL (>2mm)	0.9%
		SAND (2mm to .0625mm)	97.7%
		SILT (>0.0625mm to 0.004mm)	0.4%
		CLAY (< 0.004mm)	1.0%

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV20

Analysis file: FolkV3 (2/15) Siev2q.xlsx 8/25/2017

Fix: 69 **E:** 562372 **N:** 4337807 **Retention:** PSA

Station: L3-ENV20
Sediment Description:
Grab: Brown fine shelly sand.

CMECS Susbtrate Component Subgroup: Slightly Gravelly Sand.

Fauna Description:
Grab: Echinodermata (*Echinarachnius parma*).

APPENDIX B SAMPLING AND SEABED PHOTOGRAPHS

Station Target: **E:** 550307 **N:** 4323159 **Depth:** 27m

Station Target: **E:** 550307 **N:** 4323159 **Depth:** 27m

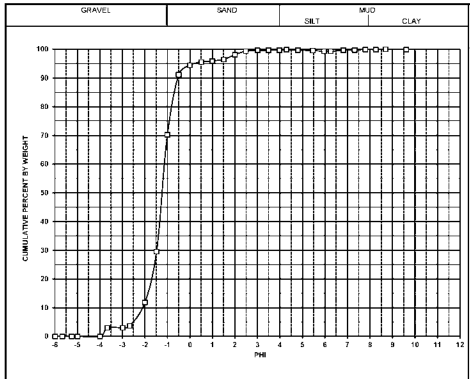
Station: L3-ENV21
Sediment Description:
Fix30: Gravel with shell fragments.

Fix31: Gravel with shells and shell fragments.

Fauna Description:
Fix30: Mollusca (Gastropoda).

Fix31: Pisces (*Prionotus carolinus*).

Fix: 29 **E:** 550306 **N:** 4323161 **Depth:** 27m



Sieve No.	Sieve (mm)	Phi	Cumulative Percent by Weight
2 1/2"	63.5	-6.0	0 0
2"	50.8	-5.7	0 0
1 1/2"	38.1	-5.3	0 0
1 1/4"	31.8	-5.0	0 0
5/8"	15.9	-4.0	0 0
1/2"	12.7	-3.7	3 0
5/16"	7.9	-3.0	3 0
1/4"	6.4	-2.7	3 7
5	4.0	-2.0	11.9
7	2.8	-1.5	29.6
10	2.0	-1.0	70.3
14	1.4	-0.5	91.1
18	1 00	0.0	94.4
25	0 71	0.5	95.5
35	0 50	1.0	95.9
45	0.353	1.5	96.4
60	0.249	2.0	98.1
80	0.178	2.5	99.3
120	0.124	3.0	99.6
170	0.089	3.5	99.6
230	0.064	4.0	99.7
		4.5	99.8
		5.0	99.8
		5.5	99.8
		6.0	99.8
		6.5	99.8
		7.0	99.8
		7.5	99.8
		8.0	99.9
		8.5	99.9
		9.0	99.9
		9.5	99.9

PARTICLE SIZE DISTRIBUTION
(Wentworth/Folk)
Sample: L3-ENV21

TerraSense, LLC	**Gardline Geosurvey Ltd**
8153-17002	10969
Dong Energy	

TEST SUMMARY
DESCRIPTION: Very coarse sandy Gravel

GRAVEL (>2mm)	70.3%
SAND (2mm to .0625mm)	29.4%
SILT (>0.0625mm to 0.004mm)	0.2%
CLAY (< 0.004mm)	0.1%

Analysis file: FolkV3 (2/15) Siev2r.xlsx 8/25/2017

Fix: 29 **E:** 550306 **N:** 4323161 **Retention:** PSA

Station: L3-ENV21
Sediment Description:
Grab: Coarse sand and fine gravel.

CMECS Susbtrate Component Subgroup: Sandy Gravel

Fauna Description:
Grab: Arthropoda (Paguridae).

APPENDIX C MACROFAUNA ANALYSIS

APPENDIX C MACROFAUNA ANALYSIS

Table C.1 Macrofauna Analysis for Lot 3

AphiaID	Phylum	Class	Family	Genus	Species	Taxon	L3-ENV1	L3-ENV2	L3-ENV3	L3-ENV4	L3-ENV5	L3-ENV6	L3-ENV7	L3-ENV8	L3-ENV9	L3-ENV10	L3-ENV11	L3-ENV12	L3-ENV13	L3-ENV14	L3-ENV15	L3-ENV16	L3-ENV17	L3-ENV18	L3-ENV19	L3-ENV20	L3-ENV21	Toltal Individuals	% of Individuals	Number of Stations
131183	Annelida	Polychaeta	Spionidae	Spio	filicornis	*Spio filicornis*	66				407	23	102		38						2			9	1		1	649	14.03%	9
156916	Mollusca	Bivalvia	Nuculidae	Nucula	proxima	*Nucula proxima*						3	5			444	32	6	22					2				514	11.11%	7
158156	Arthropoda	Malacostraca	Unciolidae	Unciola	irrorata	*Unciola irrorata*	15		3	3	34	5	40	19	20	6	7	4	14	10	19			8	6	1	186	400	8.64%	18
225814	Arthropoda	Malacostraca	Corophiidae	Monocorophium	acherusicum	*Monocorophium acherusicum*	1								1						297	1					1	301	6.51%	5
390168	Annelida	Polychaeta	Polygordiidae	Polygordius	jouinae	*Polygordius jouinae*				1	110	41	2		72	4		1			8			6	5	1	31	282	6.09%	12
157533	Annelida	Polychaeta	Terebellidae	Polycirrus	eximius	*Polycirrus eximius*					10	4			2						3						135	154	3.33%	5
157836	Arthropoda	Malacostraca	Bodotriidae	Pseudoleptocuma	minus	*Pseudoleptocuma minus*				4	3	2	2	54	2	10	19	8	9	13		3	1	3	4	11	2	150	3.24%	17
130707	Annelida	Polychaeta	Sigalionidae	Pisione	remota	*Pisione remota*					3													1			143	147	3.18%	3
549011	Arthropoda	Malacostraca	Phoxocephalidae	Rhepoxynius	hudsoni	*Rhepoxynius hudsoni*			3	9			36	10		1	19		26			2			5	9	1	121	2.62%	11
333592	Annelida	Polychaeta	Glyceridae	Hemipodia	simplex	*Hemipodia simplex*	1	2			45				50	1								4		1	1	105	2.27%	8
155098	Annelida	Polychaeta	Goniadidae	Glycinde	multidens	*Glycinde multidens*					2	16												68	10	2		98	2.12%	5
152391	Nemertea					Nemertea			3	1	71				3	1		2	1					2	4			88	1.90%	9
333034	Annelida	Polychaeta	Paraonidae	Aricidea	catherinae	*Aricidea (Acmira) catherinae*				4	13				53	1				1				7			6	85	1.84%	7
326311	Annelida	Polychaeta	Ampharetidae	Ampharete	americana	*Ampharete americana*							21				16	1	41									79	1.71%	4
130261	Annelida	Polychaeta	Lumbrineridae	Scoletoma	fragilis	*Scoletoma fragilis*	1			1	4	12		1	25	2	1	2	3		1			19	3	1	2	78	1.69%	15
157583	Annelida	Polychaeta	Syllidae	Syllis	cornuta	*Syllis cornuta*																					76	76	1.64%	1
158136	Arthropoda	Malacostraca	Haustoriidae	Protohaustorius	deichmannae	*Protohaustorius deichmannae*							2	8			56		7								2	75	1.62%	5
158015	Arthropoda	Malacostraca	Haustoriidae	Acanthohaustorius	millsi	*Acanthohaustorius millsi*			1	11				23												36	1	72	1.56%	5
849119	Mollusca	Bivalvia	Tellinidae	Ameritella	versicolor	*Ameritella versicolor*				2	1		25	4		6	6	5	11	3	3				1			67	1.45%	11
158062	Echinodermata	Echinoidea	Echinarachniidae	Echinarachnius	parma	*Echinarachnius parma*		2	1	2				2					9				48			1		65	1.40%	7
130585	Annelida	Polychaeta	Paraonidae	Paradoneis	lyra	*Paradoneis lyra*					56	1									1			3	2		1	64	1.38%	6
157885	Arthropoda	Malacostraca	Idoteidae	Edotia	triloba	*Edotia triloba*					11			5	1	6		1	10	9				1	15		2	61	1.32%	10
158137	Arthropoda	Malacostraca	Haustoriidae	Protohaustorius	wigleyi	*Protohaustorius wigleyi*		1	6	9										7		13	12			12		60	1.30%	7
101946	Arthropoda	Malacostraca	Ampeliscidae	Byblis	serrata	*Byblis serrata*				53				2			1				1							57	1.23%	4
103509	Chordata	Ascidiacea	Molgulidae	Molgula		*Molgula* sp.				1				1		1				4	22	6	11		7	1		54	1.17%	9
156996	Mollusca	Bivalvia	Mactridae	Spisula	solidissima	*Spisula solidissima*		2		1	2			2	1	2	14	4		3	3	2	1	1	1	1	5	45	0.97%	16
130355	Annelida	Polychaeta	Nephtyidae	Nephtys	caeca	*Nephtys caeca*					1	1	9	1	3	6	2	5			3	1		2		1		35	0.76%	12
131187	Annelida	Polychaeta	Spionidae	Spiophanes	bombyx	*Spiophanes bombyx* Complex			1	2			15			3	4	3			1	1						30	0.65%	8
157392	Annelida	Polychaeta	Glyceridae	Glycera	dibranchiata	*Glycera dibranchiata*					1	6	2			6		1	11								1	28	0.61%	7
156963	Mollusca	Bivalvia	Veneridae	Pitar	morrhuanus	*Pitar morrhuanus*							6				13	1	6									26	0.56%	4
130762	Annelida	Polychaeta	Polynoidae	Harmothoe	extenuata	*Harmothoe extenuata*						7								1				1			14	23	0.50%	4
119031	Arthropoda	Malacostraca	Chaetiliidae	Chiridotea	tuftsii	*Chiridotea tuftsii*			3	2			4	4		1	2	5								1	1	23	0.50%	9
129778	Annelida	Polychaeta	Ampharetidae	Ampharete	finmarchica	Ampharete finmarchica					4									1	1				13		1	20	0.43%	5
101582	Arthropoda	Malacostraca	Liljeborgiidae	Liljeborgia		*Liljeborgia* sp.					2	3						3									12	20	0.43%	4
158022	Arthropoda	Malacostraca	Ampeliscidae	Ampelisca	vadorum	*Ampelisca vadorum*	10						5			1				3								19	0.41%	4
157168	Annelida	Polychaeta	Pilargidae	Ancistrosyllis	hartmanae	*Ancistrosyllis hartmanae*					14				2									1			1	18	0.39%	4
158023	Arthropoda	Malacostraca	Ampeliscidae	Ampelisca	verrilli	*Ampelisca verrilli*			6	5			1	2		1					1							16	0.35%	6
491531	Arthropoda	Malacostraca	Haustoriidae	Parahaustorius	attenuatus	*Parahaustorius attenuatus*																5	7			4		16	0.35%	3
737284	Mollusca	Gastropoda	Nassariidae	Tritia	trivittata	*Tritia trivittata*							4	2	1	2	2	1	2		1				1			16	0.35%	9
158102	Arthropoda	Malacostraca	Lysianassidae	Hippomedon	serratus	*Hippomedon serratus*						1			4	6	1			1					2			15	0.32%	6
157567	Annelida	Polychaeta	Sigalionidae	Sigalion	arenicola	*Sigalion arenicola*				1								1		2	2	2	1		4	1		14	0.30%	8
156744	Mollusca	Bivalvia	Astartidae	Astarte	castanea	*Astarte castanea*			2		2		9									1						14	0.30%	4
156932	Mollusca	Bivalvia	Pandoridae	Pandora	gouldiana	*Pandora gouldiana*							7			1			6									14	0.30%	3
131124	Annelida	Polychaeta	Spionidae	Dipolydora	socialis	*Dipolydora socialis*			6								1				6							13	0.28%	3
158144	Arthropoda	Malacostraca	Unciolidae	Pseudunciola	obliquua	*Pseudunciola obliquua*			1	2				1						2	4				3			13	0.28%	6
567253	Annelida	Polychaeta	Cirratulidae	Caulleriella	venefica	*Caulleriella venefica*			1											4	4				3			12	0.26%	4
157815	Arthropoda	Malacostraca	Diastylidae	Diastylis	polita	*Diastylis polita*								1		3	1		2						4		1	12	0.26%	6
130228	Annelida	Polychaeta	Lumbrineridae	Lumbrinerides	acuta	*Lumbrinerides acuta*					6							1		1			1		2			11	0.24%	5
129789	Annelida	Polychaeta	Ampharetidae	Anobothrus	gracilis	*Anobothrus gracilis*				1	1			4		5												11	0.24%	4
332712	Annelida	Polychaeta	Maldanidae	Clymenella	mucosa	*Clymenella mucosa*			2		2	2				2								2	1			11	0.24%	6
158355	Arthropoda	Malacostraca	Crangonidae	Crangon	septemspinosa	*Crangon septemspinosa*							1	4	1		1		1	1				2				11	0.24%	7
326605	Annelida	Polychaeta	Paraonidae	Aricidea	wassi	*Aricidea (Aricidea) wassi*			2								4				1		2			1		10	0.22%	5
157817	Arthropoda	Malacostraca	Diastylidae	Diastylis	sculpta	*Diastylis sculpta*											2								8			10	0.22%	2
489646	Arthropoda	Malacostraca	Dulichiidae	Dyopedos	monacanthus	*Dyopedos monacanthus*							5				1		1	2								9	0.19%	4
878521	Mollusca	Bivalvia	Tellinidae	Ameritella	tenella	*Ameritella tenella*							5							1						3		9	0.19%	3
157501	Annelida	Polychaeta	Nephtyidae	Nephtys	picta	*Nephtys picta*				7																		7	0.15%	1
131074	Annelida	Polychaeta	Sigalionidae	Sthenelais	boa	*Sthenelais boa*								1					5									6	0.13%	2

APPENDIX C MACROFAUNA ANALYSIS

Table C.1 Macrofauna Analysis for Lot 3

AphiaID	Phylum	Class	Family	Genus	Species	Taxon	L3-ENV1	L3-ENV2	L3-ENV3	L3-ENV4	L3-ENV5	L3-ENV6	L3-ENV7	L3-ENV8	L3-ENV9	L3-ENV10	L3-ENV11	L3-ENV12	L3-ENV13	L3-ENV14	L3-ENV15	L3-ENV16	L3-ENV17	L3-ENV18	L3-ENV19	L3-ENV20	L3-ENV21	Toltal Individuals	% of Individuals	Number of Stations
919	Annelida	Polychaeta	Cirratulidae			Cirratulidae				1	1														2		2	6	0.13%	4
421529	Arthropoda	Malacostraca	Oedicerotidae	Americhelidium	americanum	*Americhelidium americanum*							1	2			1	2										6	0.13%	4
158057	Arthropoda	Malacostraca	Cancridae	Cancer	irroratus	*Cancer irroratus*						3			1					1							1	6	0.13%	4
130649	Annelida	Polychaeta	Phyllodocidae	Hesionura	elongata	*Hesionura elongata*					4										1							5	0.11%	2
130273	Annelida	Polychaeta	Magelonidae	Magelona	rosea	*Magelona rosea*			2	1											1				1			5	0.11%	4
130512	Annelida	Polychaeta	Travisiidae	Travisia	forbesii	*Travisia forbesii*					2			1							2							5	0.11%	3
157903	Arthropoda	Malacostraca	Cirolanidae	Politolana	polita	*Politolana polita*										1				2	1					1		5	0.11%	4
933783	Mollusca	Bivalvia	Pharidae	Ensis	directus	*Ensis directus*							1			4												5	0.11%	2
130072	Annelida	Polychaeta	Eunicidae	Marphysa	bellii	*Marphysa bellii*	1																	2			1	4	0.09%	3
157339	Annelida	Polychaeta	Onuphidae	Diopatra	cuprea	*Diopatra cuprea*	2			1										1								4	0.09%	3
157388	Annelida	Polychaeta	Glyceridae	Glycera	americana	*Glycera americana*					1				1									2				4	0.09%	3
130174	Annelida	Polychaeta	Hesionidae	Microphthalmus	sczelkowii	*Microphthalmus sczelkowii*					2				1												1	4	0.09%	3
130362	Annelida	Polychaeta	Nephtyidae	Nephtys	incisa	*Nephtys incisa*							1											2	1			4	0.09%	3
327357	Annelida	Polychaeta	Spionidae	Carazziella	hobsonae	*Carazziella hobsonae*																		4				4	0.09%	1
157297	Annelida	Polychaeta	Cirratulidae	Cirratulus	grandis	*Cirratulus grandis*																					4	4	0.09%	1
157447	Annelida	Polychaeta	Orbiniidae	Leitoscoloplos	fragilis	*Leitoscoloplos fragilis*										2			2									4	0.09%	2
101445	Arthropoda	Malacostraca	Ampeliscidae	Ampelisca		*Ampelisca* sp.					2				1										1			4	0.09%	3
211	Mollusca	Bivalvia	Mytilidae			Mytilidae							1	2												1		4	0.09%	3
138154	Mollusca	Bivalvia	Lyonsiidae	Lyonsia		*Lyonsia* sp.											1				1						2	4	0.09%	3
156940	Mollusca	Bivalvia	Periplomatidae	Periploma	leanum	*Periploma leanum*		2			2																	4	0.09%	2
138421	Mollusca	Gastropoda	Pyramidellidae	Turbonilla		*Turbonilla* sp.							1						3									4	0.09%	2
157499	Annelida	Polychaeta	Nephtyidae	Nephtys	bucera	*Nephtys bucera*					1										1	1						3	0.06%	3
130644	Annelida	Polychaeta	Phyllodocidae	Eumida	sanguinea	*Eumida sanguinea*																					3	3	0.06%	1
157530	Annelida	Polychaeta	Phyllodocidae	Phyllodoce	arenae	*Phyllodoce arenae*							1	1				1										3	0.06%	3
158034	Arthropoda	Malacostraca	Bathyporeiidae	Bathyporeia	quoddyensis	*Bathyporeia quoddyensis*			1																	2		3	0.06%	2
421475	Arthropoda	Malacostraca	Haustoriidae	Parahaustorius	longimerus	*Parahaustorius longimerus*																				3		3	0.06%	1
491534	Arthropoda	Malacostraca	Haustoriidae	Pseudohaustorius	caroliniensis	*Pseudohaustorius caroliniensis*			1				2															3	0.06%	2
102989	Arthropoda	Malacostraca	Phoxocephalidae	Phoxocephalus	holbolli	*Phoxocephalus holbolli*	2						1															3	0.06%	2
106854	Arthropoda	Malacostraca	Paguridae	Pagurus		*Pagurus* sp.													2	1								3	0.06%	2
154127	Annelida	Polychaeta	Dorvilleidae	Schistomeringos	rudolphi	*Schistomeringos rudolphi*									1												1	2	0.04%	2
382375	Annelida	Polychaeta	Lumbrineridae	Scoletoma	tenuis	*Scoletoma tenuis*						1															1	2	0.04%	2
129620	Annelida	Polychaeta	Spionidae	Prionospio		*Prionospio* sp.											2											2	0.04%	1
152252	Annelida	Polychaeta	Ampharetidae			Ampharetinae	1		1																			2	0.04%	2
129249	Annelida	Polychaeta	Cirratulidae	Tharyx		*Tharyx* sp. A sensu MWRA 2007				1								1										2	0.04%	2
130980	Annelida	Polychaeta	Scalibregmatidae	Scalibregma	inflatum	*Scalibregma inflatum*					1		1															2	0.04%	2
102064	Arthropoda	Malacostraca	Argissidae	Argissa	hamatipes	*Argissa hamatipes*								1											1			2	0.04%	2
754189	Arthropoda	Malacostraca	Liljeborgiidae	Idunella	barnardi	*Idunella barnardi*				2																		2	0.04%	1
103196	Arthropoda	Malacostraca	Synopiidae	Tiron	spiniferus	*Tiron spiniferus*				1							1											2	0.04%	2
158434	Arthropoda	Malacostraca	Ovalipidae	Ovalipes	ocellatus	*Ovalipes ocellatus*								1												1		2	0.04%	2
158404	Arthropoda	Malacostraca	Paguridae	Pagurus	politus	*Pagurus politus*																					2	2	0.04%	1
106674	Arthropoda	Malacostraca				Caridea						2																2	0.04%	1
257332	Arthropoda	Malacostraca	Chaetiliidae	Chiridotea	arenicola	*Chiridotea arenicola*					1										1							2	0.04%	2
157839	Arthropoda	Malacostraca	Tanaissuidae	Tanaissus	psammophilus	*Tanaissus psammophilus*					2																	2	0.04%	1
159998	Mollusca	Bivalvia	Pharidae	Siliqua	costata	*Siliqua costata*				1							1											2	0.04%	2
140440	Mollusca	Bivalvia	Mytilidae	Crenella	decussata	*Crenella decussata*					2																	2	0.04%	1
213	Mollusca	Bivalvia	Pectinidae			Pectinidae						1								1								2	0.04%	2
266219	Chordata	Leptocardii	Branchiostomatidae	Branchiostoma	virginiae	*Branchiostoma virginiae*			1						1													2	0.04%	2
158235	Cnidaria	Anthozoa	Edwardsiidae	Edwardsia	elegans	*Edwardsia elegans*									1									1				2	0.04%	2
130036	Annelida	Polychaeta	Dorvilleidae	Parougia	caeca	*Parougia caeca*					1																	1	0.02%	1
129856	Annelida	Polychaeta	Oenonidae	Drilonereis	filum	*Drilonereis filum*																		1				1	0.02%	1
130470	Annelida	Polychaeta	Onuphidae	Onuphis	eremita	*Onuphis eremita*											1											1	0.02%	1
240448	Annelida	Polychaeta	Goniadidae	Goniada	bifida	*Goniada bifida*						1																1	0.02%	1
330826	Annelida	Polychaeta	Hesionidae	Podarkeopsis	levifuscina	*Podarkeopsis levifuscina*					1																	1	0.02%	1
155207	Annelida	Polychaeta	Nereididae	Websterinereis	tridentata	*Websterinereis tridentata*						1																1	0.02%	1
157288	Annelida	Polychaeta	Syllidae	Brania	wellfleetensis	*Brania wellfleetensis*																			1			1	0.02%	1
195986	Annelida	Polychaeta	Syllidae	Salvatoria	clavata	*Salvatoria clavata*					1																	1	0.02%	1
131398	Annelida	Polychaeta	Syllidae	Streptosyllis	arenae	*Streptosyllis arenae*				1																		1	0.02%	1

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AphiaID	Phylum	Class	Family	Genus	Species	Taxon	L3-ENV1	L3-ENV2	L3-ENV3	L3-ENV4	L3-ENV5	L3-ENV6	L3-ENV7	L3-ENV8	L3-ENV9	L3-ENV10	L3-ENV11	L3-ENV12	L3-ENV13	L3-ENV14	L3-ENV15	L3-ENV16	L3-ENV17	L3-ENV18	L3-ENV19	L3-ENV20	L3-ENV21	Toltal Individuals	% of Individuals	Number of Stations
884702	Annelida	Polychaeta	Cirratulidae	Kirkegaardia	dorsobranchialis	cf. *Kirkegaardia dorsobranchialis*					1																	1	0.02%	1
334541	Annelida	Polychaeta	Terebellidae	Pista	palmata	*Pista palmata*					1																	1	0.02%	1
129218	Annelida	Polychaeta	Capitellidae	Mediomastus		*Mediomastus* sp.							1															1	0.02%	1
129898	Annelida	Polychaeta	Capitellidae	Notomastus	latericeus	*Notomastus latericeus*														1								1	0.02%	1
244666	Annelida	Polychaeta	Orbiniidae	Phylo	felix	*Phylo felix*											1											1	0.02%	1
146932	Annelida	Polychaeta	Paraonidae	Paraonis	fulgens	*Paraonis fulgens*				1																		1	0.02%	1
101820	Arthropoda	Malacostraca	Caprellidae	Aeginina	longicornis	*Aeginina longicornis*							1															1	0.02%	1
148591	Arthropoda	Malacostraca	Corophiidae	Monocorophium		Monocorophium sp.				1																		1	0.02%	1
158149	Arthropoda	Malacostraca	Stenothoidae	Stenothoe	minuta	*Stenothoe minuta*						1																1	0.02%	1
106738	Arthropoda	Malacostraca	Paguridae			Paguridae									1													1	0.02%	1
1071	Arthropoda	Malacostraca				Malacostraca		1																				1	0.02%	1
156734	Mollusca	Bivalvia	Arcidae	Anadara	transversa	*Anadara transversa*									1													1	0.02%	1
420843	Mollusca	Bivalvia	Crassatellidae	Crassinella	lunulata	*Crassinella lunulata*							1															1	0.02%	1
506189	Mollusca	Bivalvia	Mytilidae	Solamen	glandula	*Solamen glandula*																					1	1	0.02%	1
156737	Mollusca	Bivalvia	Anomiidae	Anomia	simplex	*Anomia simplex*						1																1	0.02%	1
138749	Mollusca	Bivalvia	Anomiidae	Heteranomia	squamula	*Heteranomia squamula*						1																1	0.02%	1
138802	Mollusca	Bivalvia	Arcticidae	Arctica	islandica	*Arctica islandica*							1															1	0.02%	1
140290	Mollusca	Bivalvia	Lyonsiidae	Lyonsia	arenosa	*Lyonsia arenosa*	1																					1	0.02%	1
876416	Mollusca	Bivalvia	Montacutidae	Kelliopsis	elevata	*Kelliopsis elevata*						1																1	0.02%	1
138310	Mollusca	Bivalvia	Pandoridae	Pandora		*Pandora* sp.																					1	1	0.02%	1
160063	Mollusca	Gastropoda	Naticidae	Tectonatica	pusilla	*Tectonatica pusilla*																					1	1	0.02%	1
1762	Mollusca	Gastropoda				Nudibranchia						1																1	0.02%	1
						Individuals	101	10	47	133	831	141	322	159	288	529	213	59	194	76	392	38	84	154	112	96	648	4627	100.00%	
						Taxa	11	6	20	31	41	26	35	27	26	28	29	22	22	25	28	12	9	25	29	23	37	136	136	

APPENDIX C MACROFAUNA ANALYSIS

Table C.1 Macrofauna Analysis for Lot 3

AphialD	Phylum	Class	Family	Genus	Species	Taxon	L3-ENV1	L3-ENV2	L3-ENV3	L3-ENV4	L3-ENV5	L3-ENV6	L3-ENV7	L3-ENV8	L3-ENV9	L3-ENV10	L3-ENV11	L3-ENV12	L3-ENV13	L3-ENV14	L3-ENV15	L3-ENV16	L3-ENV17	L3-ENV18	L3-ENV19	L3-ENV20	L3-ENV21	Toltal Individuals	% of Individuals	Number of Stations
Taxa excluded from the statistical analysis																														
2038	Annelida	Clitellata	Enchytraeidae			Enchytraeidae					106																6	112		2
2039	Annelida	Clitellata	Naididae			Naididae				1	3	1			1									1			15	22		6
771447	Arthropoda	Ostracoda		Astarte		*Astarte* sp.				1				1		2											1	5		4
111193	Bryozoa	Gymnolaemata	Calloporidae	Callopora	craticula	*Callopora craticula*	1																				1	2		2
110993	Bryozoa	Gymnolaemata	Alcyonidiidae	Alcyonidium		*Alcyonidium*											1				1							2		2
106215	Arthropoda	Hexanauplia	Balanidae	Balanus	crenatus	*Balanus crenatus*						1																1		1
467577	Bryozoa	Gymnolaemata	Electridae	Einhornia	crustulenta	*Einhornia crustulenta*	1																					1		1
878544	Bryozoa	Gymnolaemata	Membraniporidae	Biflustra	tenuis	*Biflustra tenuis*	1																					1		1
111538	Bryozoa	Gymnolaemata	Schizoporellidae	Schizoporella	unicornis	*Schizoporella unicornis*	1																					1		1
117015	Cnidaria	Hydrozoa	Bougainvilliidae	Bougainvillia		*Bougainvillia* sp.											1											1		1

APPENDIX D PARTICLE SIZE ANALYSIS

APPENDIX D PARTICLE SIZE ANALYSIS

Table D.2 Particle Size Analysis for Lot 3

Station	Gravel (%)	Sand (%)	Mud (%)	Gravel			Sand					Mud		Modified Folk Classification[2]	Mean Diameter MoM[1]		Wentworth Classification of Mean Grain Size	Mode 1 MoM[1]		Mode 2 MoM[1]		Mode 3 MoM[1]		Wentworth Classification of Mode	Sorting MoM[1]		Skewness MoM[1]		Kurtosis MoM[1]		Total Organic Matter (%)	Water Content (%)[3]
				Cobble & Boulder (%)	Pebble (%)	Granule (%)	Very Coarse Sand (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Very Fine Sand (%)	Silt (%)	Clay (%)		(µm)	(phi)		(µm)	(phi)	(µm)	(phi)	(µm)	(phi)		(µm)	(phi)	(µm)	(phi)	(µm)	(phi)		
L3-ENV1	15.5	83.0	1.5	0.0	9.3	6.2	8.9	41.8	30.4	1.6	0.3	0.2	1.3	gS	727.0	0.46	Coarse Sand	605.0	0.75					Coarse Sand	3.22	1.69	-1.45	1.45	13.71	13.71	0.3	15.9
L3-ENV2	1.3	97.2	1.5	0.0	0.2	1.1	16.8	65.1	14.7	0.5	0.1	0.0	1.5	(g)S	658.7	0.60	Coarse Sand	855.0	0.25					Coarse Sand	2.41	1.27	-5.48	5.48	40.20	40.20	0.2	17.1
L3-ENV3	0.1	98.4	1.5	0.0	0.0	0.1	0.1	1.6	48.4	47.1	1.2	0.0	1.5	(g)S	229.8	2.12	Fine Sand	301.0	1.75					Medium Sand	2.07	1.05	-5.58	5.58	41.57	41.57	0.3	18.9
L3-ENV4	0.1	98.2	1.7	0.0	0.0	0.1	0.3	9.2	72.8	14.8	1.1	1.3	0.4	(g)S	311.1	1.68	Medium Sand	301.0	1.75					Medium Sand	1.96	0.97	-4.90	4.90	35.46	35.46	0.3	22.8
L3-ENV5	10.5	88.0	1.5	0.0	1.5	9.0	29.0	38.0	16.7	4.1	0.2	1.1	0.4	gS	777.2	0.36	Coarse Sand	855.0	0.25					Coarse Sand	2.65	1.40	-2.53	2.53	16.81	16.81	0.2	16.0
L3-ENV6	16.8	81.6	1.6	0.0	8.5	8.3	3.4	34.3	35.3	7.2	1.4	0.7	0.9	gS	607.3	0.72	Coarse Sand	605.0	0.75	3400.0	-1.74			Coarse Sand, Granule	3.28	1.71	-1.03	1.03	9.97	9.97	0.3	15.7
L3-ENV7	0.7	97.2	2.1	0.0	0.2	0.5	0.6	5.1	22.7	62.7	6.1	0.8	1.3	(g)S	201.8	2.31	Fine Sand	213.5	2.25					Fine Sand	2.30	1.20	-3.06	3.06	22.37	22.37	0.4	22.1
L3-ENV8	0.3	97.8	1.9	0.0	0.1	0.2	0.3	1.2	10.4	79.3	6.6	0.8	1.1	(g)S	173.2	2.53	Fine Sand	213.5	2.25					Fine Sand	2.01	1.01	-4.16	4.16	33.11	33.11	0.3	24.2
L3-ENV9	24.4	74.8	0.8	0.0	8.8	15.6	33.6	29.8	6.0	4.6	0.8	0.7	0.1	gS	1155.6	-0.21	Very Coarse Sand	855.0	0.25					Coarse Sand	2.72	1.44	-1.16	1.16	9.15	9.15	0.2	6.6
L3-ENV10	3.1	86.0	10.9	0.0	1.1	2.0	5.6	19.5	33.0	24.6	3.3	5.9	5.0	(g)mS	236.4	2.08	Fine Sand	426.5	1.25					Medium Sand	5.11	2.35	-1.68	1.68	6.55	6.55	0.8	18.9
L3-ENV11	0.3	97.5	2.2	0.0	0.2	0.1	0.2	0.2	6.0	70.8	20.3	1.6	0.6	(g)S	145.8	2.78	Fine Sand	151.0	2.75					Fine Sand	1.87	0.90	-3.43	3.43	31.57	31.57	0.3	22.9
L3-ENV12	7.7	89.8	2.5	0.0	6.6	1.1	0.3	16.1	23.6	39.0	10.8	1.7	0.8	gS	290.4	1.78	Medium Sand	151.0	2.75	426.5	1.25			Fine Sand, Medium Sand	3.70	1.89	0.42	-0.42	7.36	7.36	0.3	19.0
L3-ENV13	0.0	95.1	4.9	0.0	0.0	0.0	0.1	1.0	9.3	72.1	12.6	1.3	3.6	S	135.7	2.88	Fine Sand	151.0	2.75					Fine Sand	2.79	1.48	-3.68	3.68	17.30	17.30	0.3	23.7
L3-ENV14	1.6	95.6	2.8	0.0	0.3	1.3	4.6	34.7	35.5	19.6	1.2	0.4	2.4	(g)S	361.5	1.47	Medium Sand	605.0	0.75					Coarse Sand	3.08	1.62	-3.16	3.16	17.18	17.18	0.3	17.3
L3-ENV15	16.4	81.5	2.1	0.0	5.9	10.5	16.0	31.7	26.6	6.7	0.5	0.0	2.1	gS	674.4	0.57	Coarse Sand	605.0	0.75	2400.0	-1.24			Coarse Sand, Granule	3.64	1.86	-2.12	2.12	12.99	12.99	0.2	17.0
L3-ENV16	1.3	95.8	2.9	0.0	0.5	0.8	2.4	17.3	61.7	14.0	0.4	0.1	2.8	(g)S	322.6	1.63	Medium Sand	301.0	1.75					Medium Sand	2.90	1.53	-3.70	3.70	20.94	20.94	0.2	30.4
L3-ENV17	5.1	93.2	1.7	0.0	2.6	2.5	3.5	29.7	51.2	8.6	0.2	0.0	1.7	gS	435.9	1.20	Medium Sand	301.0	1.75					Medium Sand	2.74	1.46	-2.24	2.24	18.58	18.58	0.2	20.8
L3-ENV18	48.4	50.7	0.9	0.0	42.6	5.8	11.8	24.5	12.0	1.8	0.6	0.1	0.8	sG	2165.9	-1.11	Granule	14300.0	-3.83	605.0	0.75			Pebble, Coarse Sand	4.68	2.23	-0.70	0.70	4.48	4.48	0.4	9.6
L3-ENV19	3.1	95.4	1.5	0.0	1.2	1.9	6.4	22.1	49.1	16.9	0.9	0.0	1.5	(g)S	389.7	1.36	Medium Sand	301.0	1.75					Medium Sand	2.56	1.35	-1.85	1.85	16.40	16.40	0.2	21.7
L3-ENV20	0.9	97.7	1.4	0.0	0.1	0.8	0.6	10.7	80.9	5.1	0.4	0.4	1.0	(g)S	364.4	1.46	Medium Sand	426.5	1.25					Medium Sand	2.00	1.00	-5.53	5.53	48.95	48.95	0.2	21.5
L3-ENV21	70.3	29.4	0.3	0.0	11.9	58.4	24.1	1.5	2.2	1.5	0.1	0.2	0.1	sG	2298.6	-1.20	Granule	2400.0	-1.24					Granule	2.08	1.06	-2.44	2.44	22.30	22.30	0.4	9.7

1 Statistics calculated using Method of Moments (MoM).

2 S = Sand, (g)mS = slightly gravelly muddy sand, (g)S = slightly gravelly sand, gS = gravelly sand, sG = sandy gravel.

3 Water content as a percentage of the dry sample weight.

APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV1**
ANALYST & DATE: ,
SAMPLE TYPE: Unimodal, Poorly Sorted
TEXTURAL GROUP: Gravelly Sand
SEDIMENT NAME: Fine Gravelly Coarse Sand

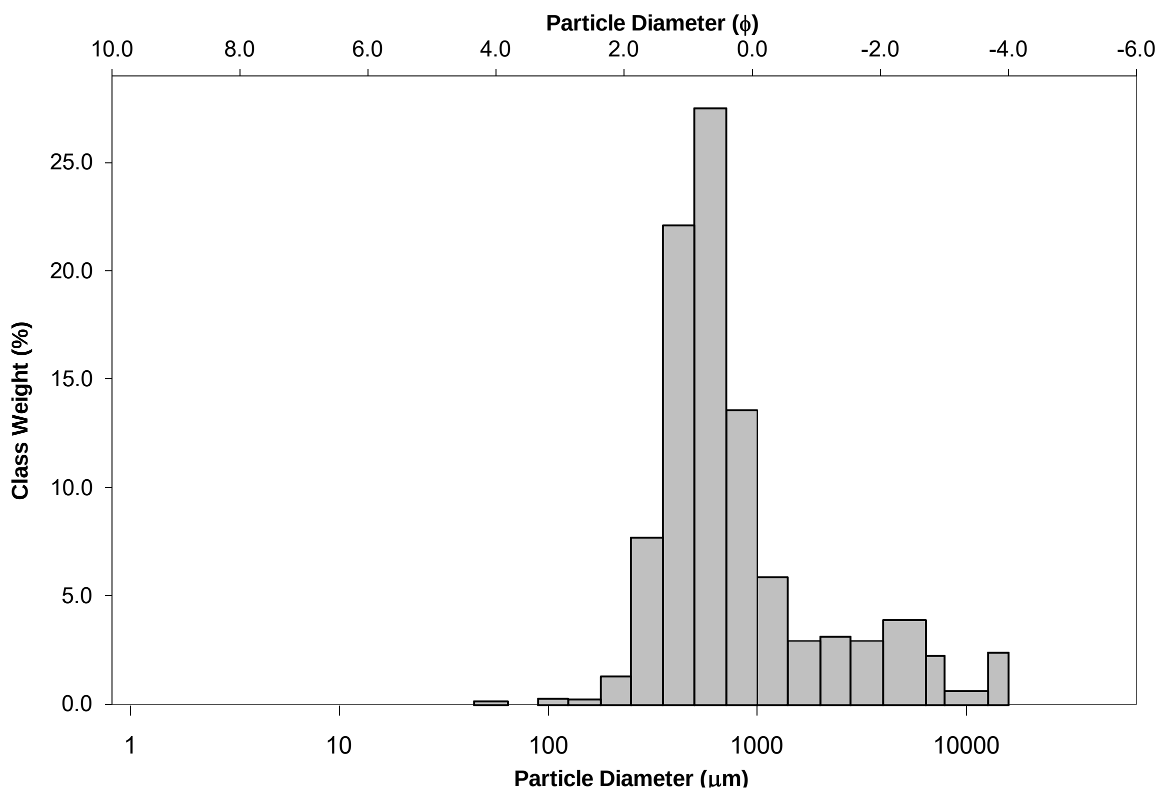
	μm	φ
MODE 1:	605.0	0.747
MODE 2:		
MODE 3:		
D_{10}:	333.3	-1.884
MEDIAN or D_{50}:	611.6	0.709
D_{90}:	3690.5	1.585
(D_{90} / D_{10}):	11.07	-0.841
(D_{90} - D_{10}):	3357.2	3.469
(D_{75} / D_{25}):	2.257	54.89
(D_{75} - D_{25}):	548.7	1.175

GRAIN SIZE DISTRIBUTION

GRAVEL:	15.5%	COARSE SAND:	41.8%
SAND:	83.0%	MEDIUM SAND:	30.3%
MUD:	1.5%	FINE SAND:	1.7%
		V FINE SAND:	0.3%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	2.5%	MEDIUM SILT:	0.0%
FINE GRAVEL:	6.8%	FINE SILT:	0.0%
V FINE GRAVEL:	6.2%	V FINE SILT:	0.0%
V COARSE SAND:	8.9%	CLAY:	1.3%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	1414.8	727.0	0.460	759.7	0.397	Coarse Sand
SORTING (σ):	2315.7	3.218	1.686	2.382	1.252	Poorly Sorted
SKEWNESS (Sk):	3.689	-1.454	1.454	0.434	-0.434	Very Coarse Skewed
KURTOSIS (K):	18.24	13.71	13.71	1.550	1.550	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV2** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Moderately Well Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Coarse Sand

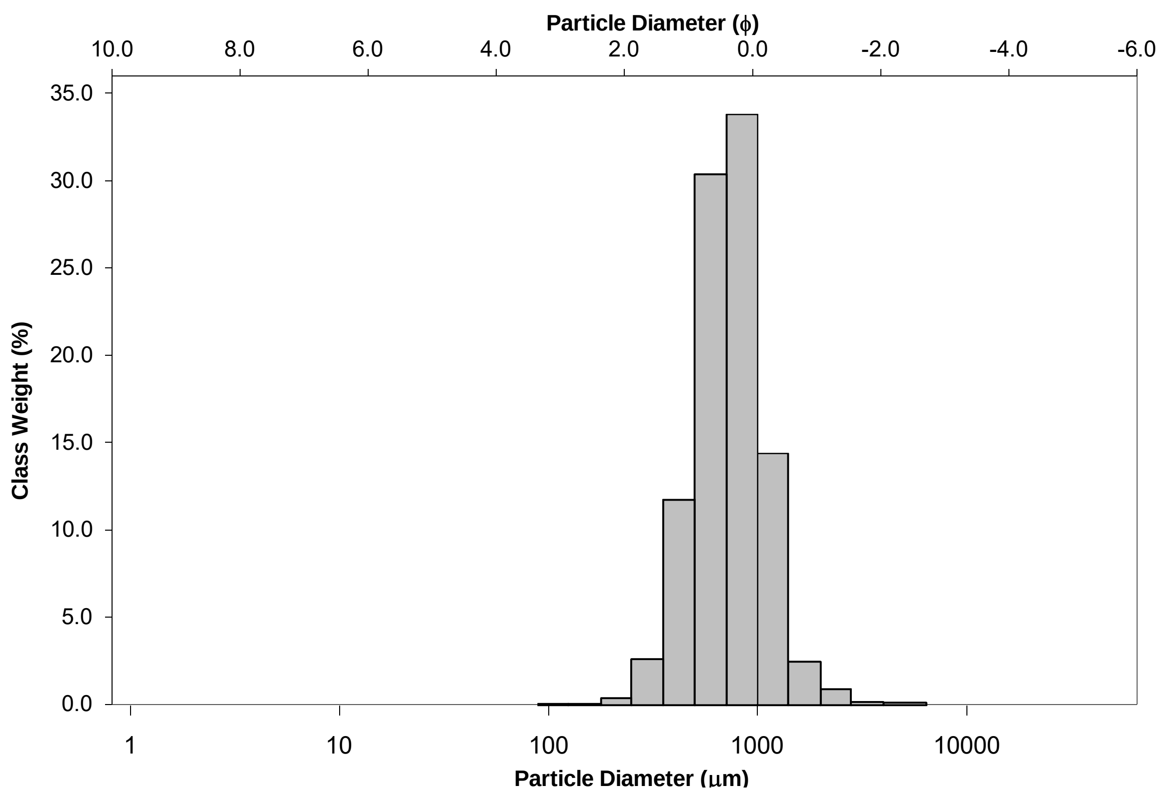
	μm	φ
MODE 1:	855.0	0.247
MODE 2:		
MODE 3:		
D_{10}:	410.5	-0.277
MEDIAN or D_{50}:	724.5	0.465
D_{90}:	1211.6	1.285
(D_{90} / D_{10}):	2.952	-4.639
(D_{90} - D_{10}):	801.1	1.562
(D_{75} / D_{25}):	1.701	8.621
(D_{75} - D_{25}):	384.4	0.766

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.3%	COARSE SAND:	65.1%
SAND:	97.2%	MEDIUM SAND:	14.7%
MUD:	1.5%	FINE SAND:	0.5%
		V FINE SAND:	0.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	0.2%	FINE SILT:	0.0%
V FINE GRAVEL:	1.1%	V FINE SILT:	0.0%
V COARSE SAND:	16.8%	CLAY:	1.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	792.4	658.7	0.602	719.2	0.476	Coarse Sand
SORTING (σ):	408.9	2.415	1.272	1.485	0.571	Moderately Well Sorted
SKEWNESS (Sk):	3.705	-5.476	5.476	-0.044	0.044	Symmetrical
KURTOSIS (K):	33.61	40.20	40.20	1.038	1.038	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV3** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Well Sorted TEXTURAL GROUP: Slightly Gravelly Sand

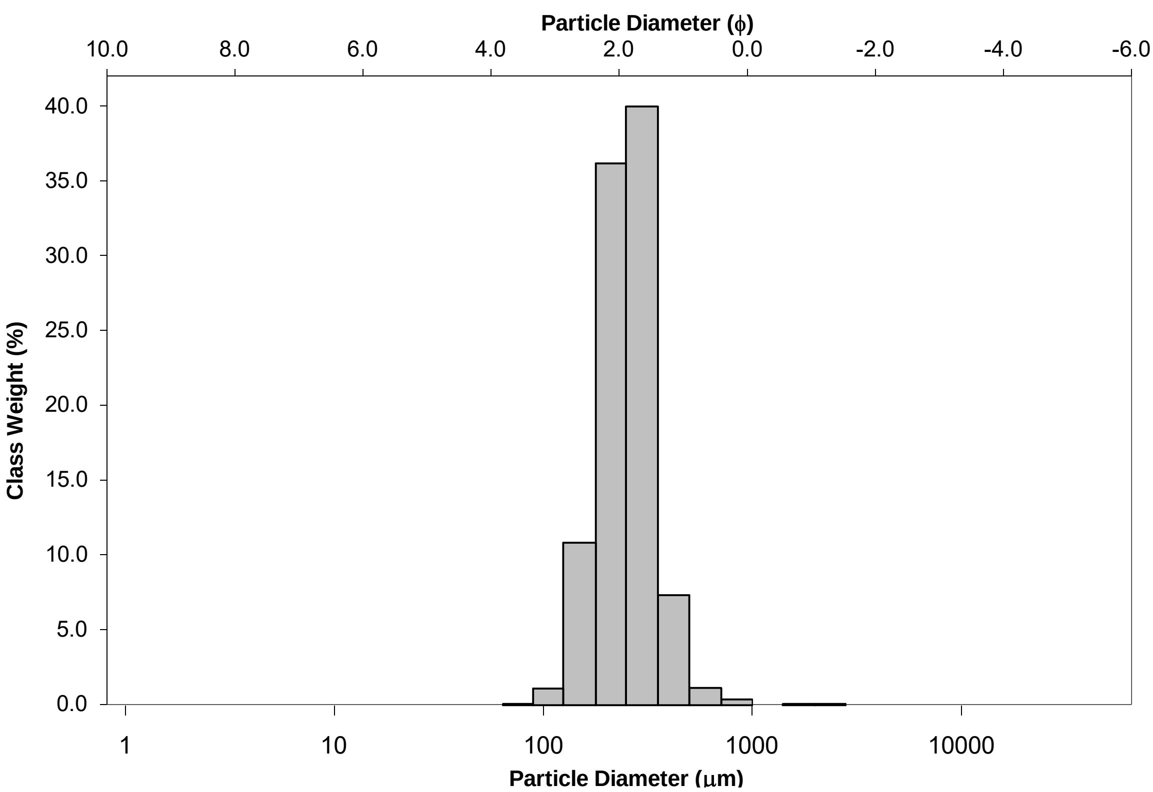
SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

	μm	ϕ
MODE 1:	301.0	1.754
MODE 2:		
MODE 3:		
D_{10}:	156.0	1.511
MEDIAN or D_{50}:	249.4	2.003
D_{90}:	350.9	2.681
(D_{90} / D_{10}):	2.250	1.774
$(D_{90} - D_{10})$:	194.9	1.170
(D_{75} / D_{25}):	1.567	1.382
$(D_{75} - D_{25})$:	111.7	0.648

GRAIN SIZE DISTRIBUTION			
GRAVEL:	0.1%	COARSE SAND:	1.6%
SAND:	98.4%	MEDIUM SAND:	47.9%
MUD:	1.5%	FINE SAND:	47.3%
		V FINE SAND:	1.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	0.0%	FINE SILT:	0.0%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.0%
V COARSE SAND:	0.1%	CLAY:	1.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	264.5	229.8	2.121	246.9	2.018	Fine Sand
SORTING (σ):	125.2	2.073	1.052	1.392	0.477	Well Sorted
SKEWNESS (Sk):	7.026	-5.577	5.577	-0.059	0.059	Symmetrical
KURTOSIS (K):	105.1	41.57	41.57	1.071	1.071	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV4** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Well Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

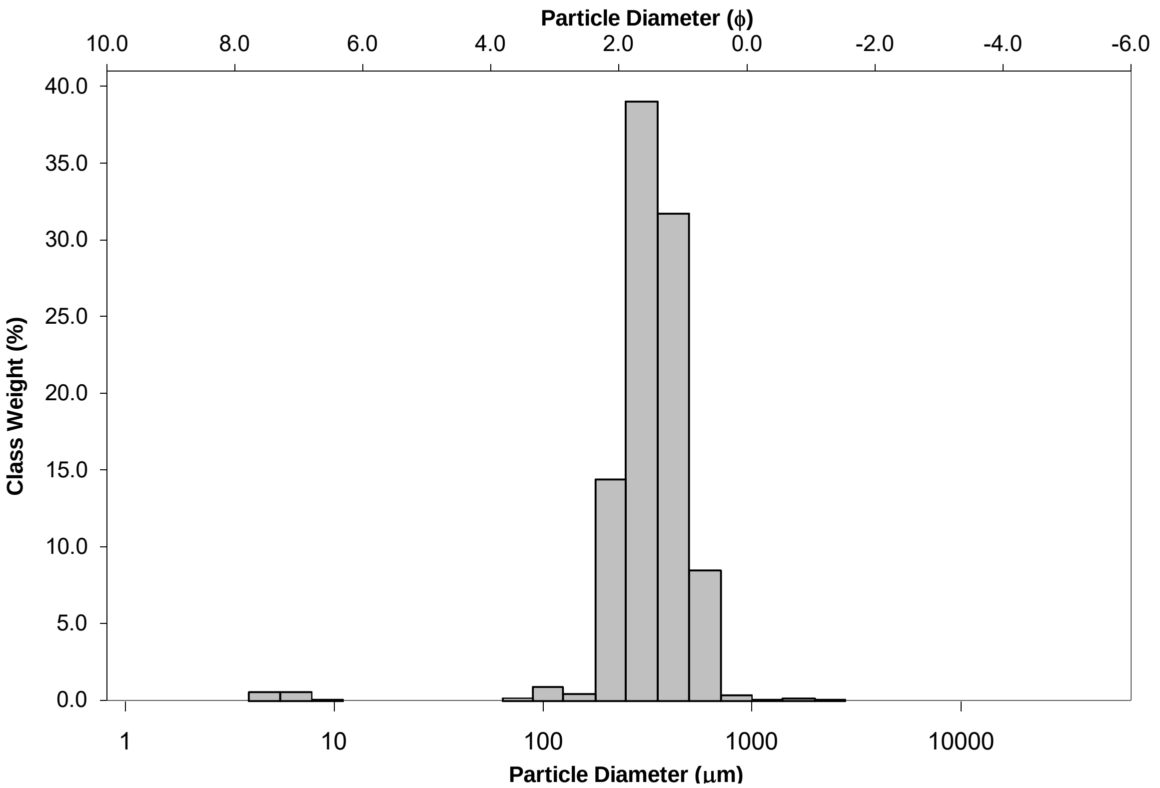
	μm	φ
MODE 1:	301.0	1.754
MODE 2:		
MODE 3:		
D_{10}:	208.3	1.006
MEDIAN or D_{50}:	329.9	1.600
D_{90}:	497.9	2.263
(D_{90} / D_{10}):	2.390	2.249
$(D_{90} - D_{10})$:	289.6	1.257
(D_{75} / D_{25}):	1.598	1.546
$(D_{75} - D_{25})$:	158.7	0.676

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.1%	COARSE SAND:	9.2%
SAND:	98.2%	MEDIUM SAND:	72.3%
MUD:	1.7%	FINE SAND:	15.3%
		V FINE SAND:	1.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
FINE GRAVEL:	0.0%	FINE SILT:	1.2%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.0%
V COARSE SAND:	0.3%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	356.2	311.1	1.684	333.1	1.586	Medium Sand
SORTING (σ):	154.0	1.963	0.973	1.412	0.497	Well Sorted
SKEWNESS (Sk):	3.972	-4.897	4.897	0.031	-0.031	Symmetrical
KURTOSIS (K):	45.24	35.46	35.46	1.029	1.029	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV5** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Gravelly Sand

SEDIMENT NAME: Very Fine Gravelly Coarse Sand

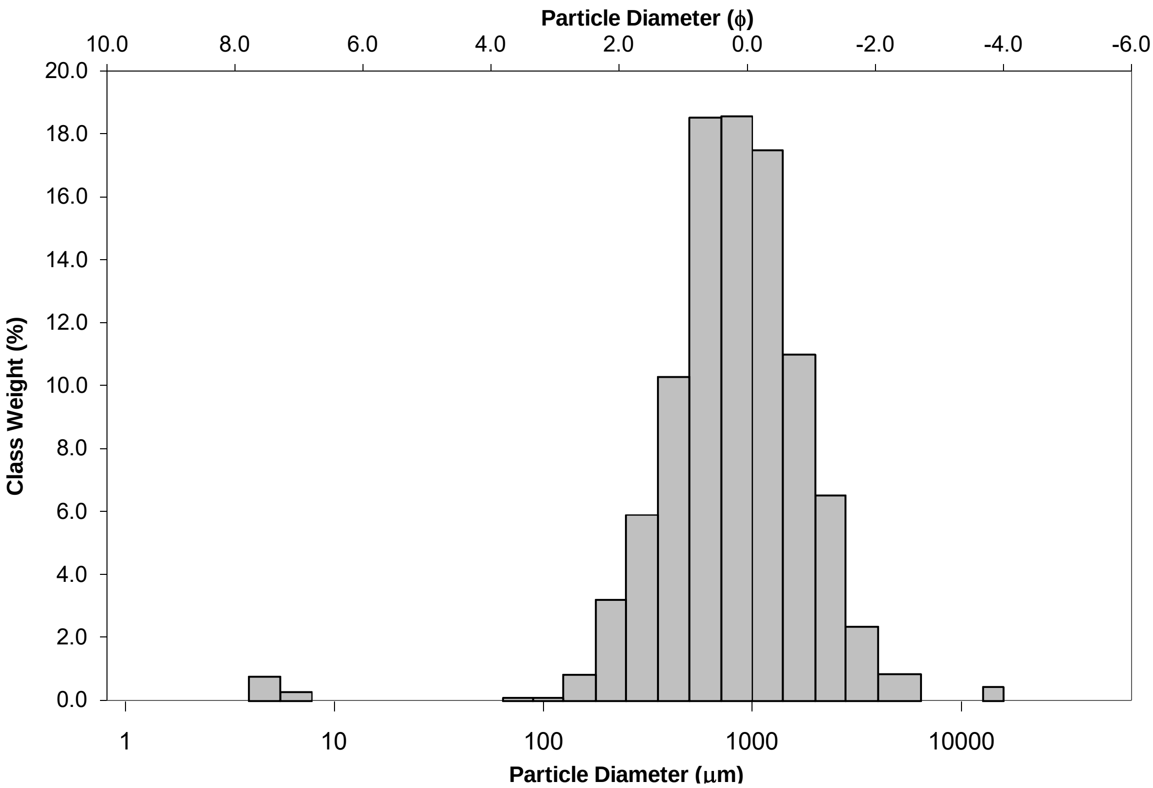
	μm	ϕ
MODE 1:	855.0	0.247
MODE 2:		
MODE 3:		
D_{10}:	316.6	-1.037
MEDIAN or D_{50}:	825.9	0.276
D_{90}:	2052.4	1.659
(D_{90} / D_{10}):	6.482	-1.599
$(D_{90} - D_{10})$:	1735.8	2.696
(D_{75} / D_{25}):	2.529	-2.309
$(D_{75} - D_{25})$:	800.3	1.339

GRAIN SIZE DISTRIBUTION

GRAVEL:	10.5%	COARSE SAND:	38.0%
SAND:	88.0%	MEDIUM SAND:	16.6%
MUD:	1.5%	FINE SAND:	4.2%
		V FINE SAND:	0.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.3%	MEDIUM SILT:	0.0%
FINE GRAVEL:	1.2%	FINE SILT:	1.1%
V FINE GRAVEL:	9.0%	V FINE SILT:	0.0%
V COARSE SAND:	29.0%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	1101.2	777.2	0.364	825.9	0.276	Coarse Sand
SORTING (σ):	1099.4	2.647	1.405	2.073	1.052	Poorly Sorted
SKEWNESS (Sk):	6.060	-2.526	2.526	-0.023	0.023	Symmetrical
KURTOSIS (K):	65.33	16.81	16.81	1.083	1.083	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV6** ANALYST & DATE: ,

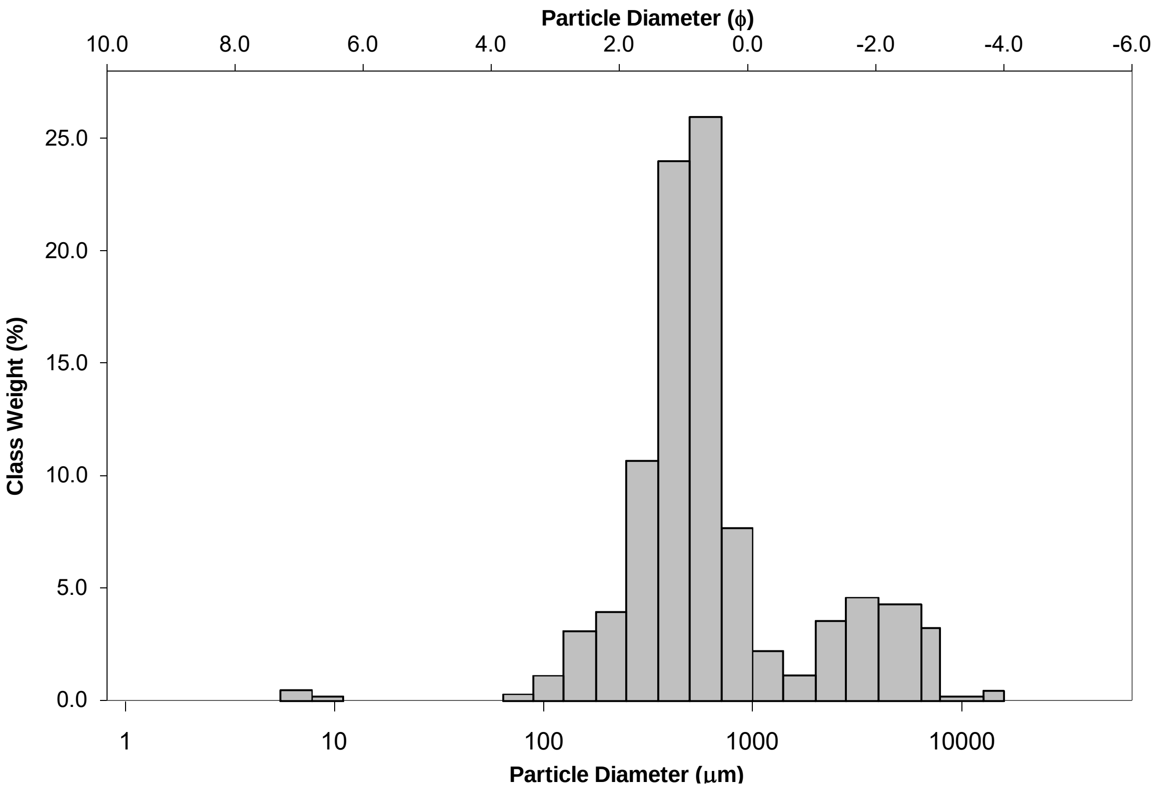
SAMPLE TYPE: Bimodal, Poorly Sorted TEXTURAL GROUP: Gravelly Sand

SEDIMENT NAME: Very Fine Gravelly Medium Sand

	μm	ϕ	GRAIN SIZE DISTRIBUTION			
MODE 1:	605.0	0.747	GRAVEL:	16.8%	COARSE SAND:	34.3%
MODE 2:	3400.0	-1.743	SAND:	81.6%	MEDIUM SAND:	35.2%
MODE 3:			MUD:	1.6%	FINE SAND:	7.3%
D_{10}:	244.8	-1.839			V FINE SAND:	1.5%
MEDIAN or D_{50}:	530.6	0.914	V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
D_{90}:	3578.1	2.031	COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
(D_{90} / D_{10}):	14.62	-1.104	MEDIUM GRAVEL:	0.6%	MEDIUM SILT:	0.2%
$(D_{90} - D_{10})$:	3333.4	3.870	FINE GRAVEL:	7.9%	FINE SILT:	0.5%
(D_{75} / D_{25}):	2.164	4.617	V FINE GRAVEL:	8.3%	V FINE SILT:	0.0%
$(D_{75} - D_{25})$:	434.6	1.114	V COARSE SAND:	3.4%	CLAY:	0.9%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	1196.0	607.3	0.720	700.4	0.514	Coarse Sand
SORTING (σ):	1775.5	3.278	1.713	2.798	1.485	Poorly Sorted
SKEWNESS (Sk):	3.079	-1.028	1.028	0.362	-0.362	Very Coarse Skewed
KURTOSIS (K):	15.18	9.967	9.967	1.876	1.876	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV7** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Moderately Well Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Fine Sand

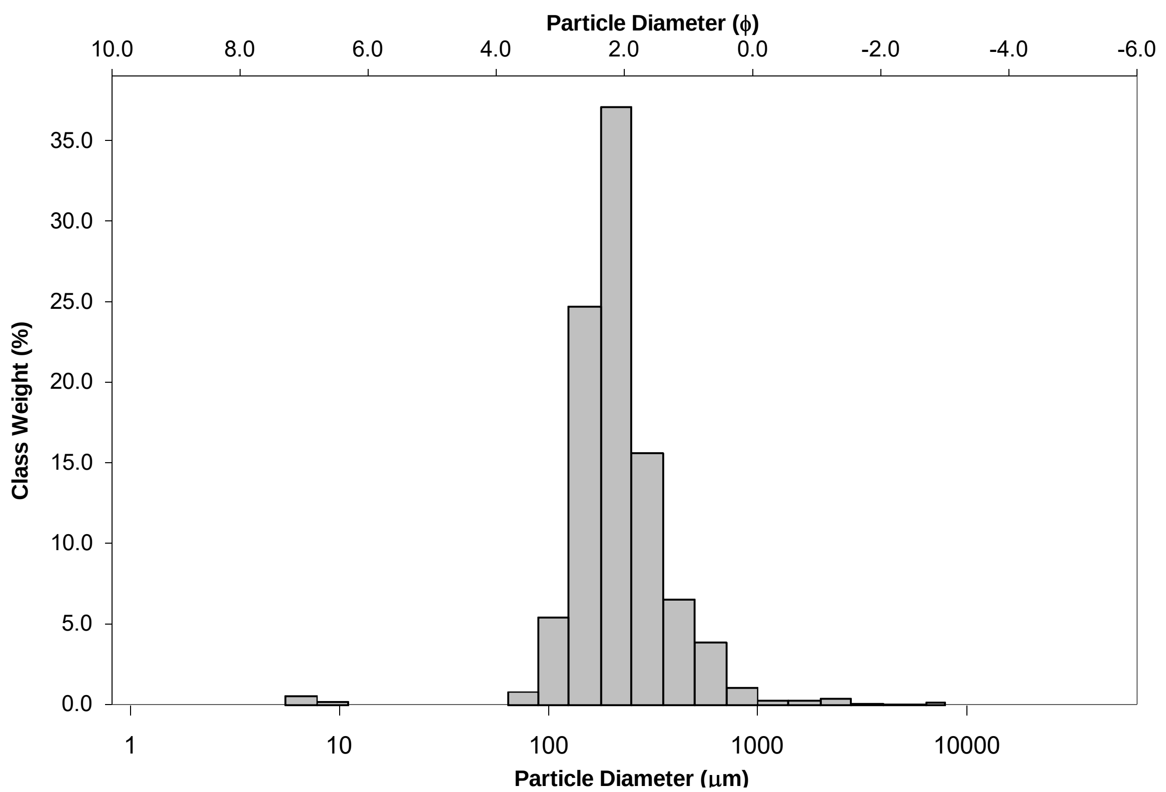
	μm	ϕ
MODE 1:	213.5	2.248
MODE 2:		
MODE 3:		
D_{10}:	127.1	1.270
MEDIAN or D_{50}:	205.5	2.283
D_{90}:	414.7	2.976
(D_{90} / D_{10}):	3.262	2.343
$(D_{90} - D_{10})$:	287.6	1.706
(D_{75} / D_{25}):	1.742	1.426
$(D_{75} - D_{25})$:	115.9	0.800

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.7%	COARSE SAND:	5.1%
SAND:	97.2%	MEDIUM SAND:	22.5%
MUD:	2.1%	FINE SAND:	62.3%
		V FINE SAND:	6.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.2%
FINE GRAVEL:	0.2%	FINE SILT:	0.6%
V FINE GRAVEL:	0.5%	V FINE SILT:	0.0%
V COARSE SAND:	0.6%	CLAY:	1.3%

	METHOD OF MOMENTS Arithmetic μm	Geometric μm	Logarithmic ϕ	FOLK & WARD METHOD Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	268.2	201.8	2.309	211.1	2.244	Fine Sand
SORTING (σ):	355.6	2.305	1.204	1.614	0.691	Moderately Well Sorted
SKEWNESS (Sk):	11.78	-3.063	3.063	0.135	-0.135	Coarse Skewed
KURTOSIS (K):	189.5	22.37	22.37	1.269	1.269	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV8** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Well Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Fine Sand

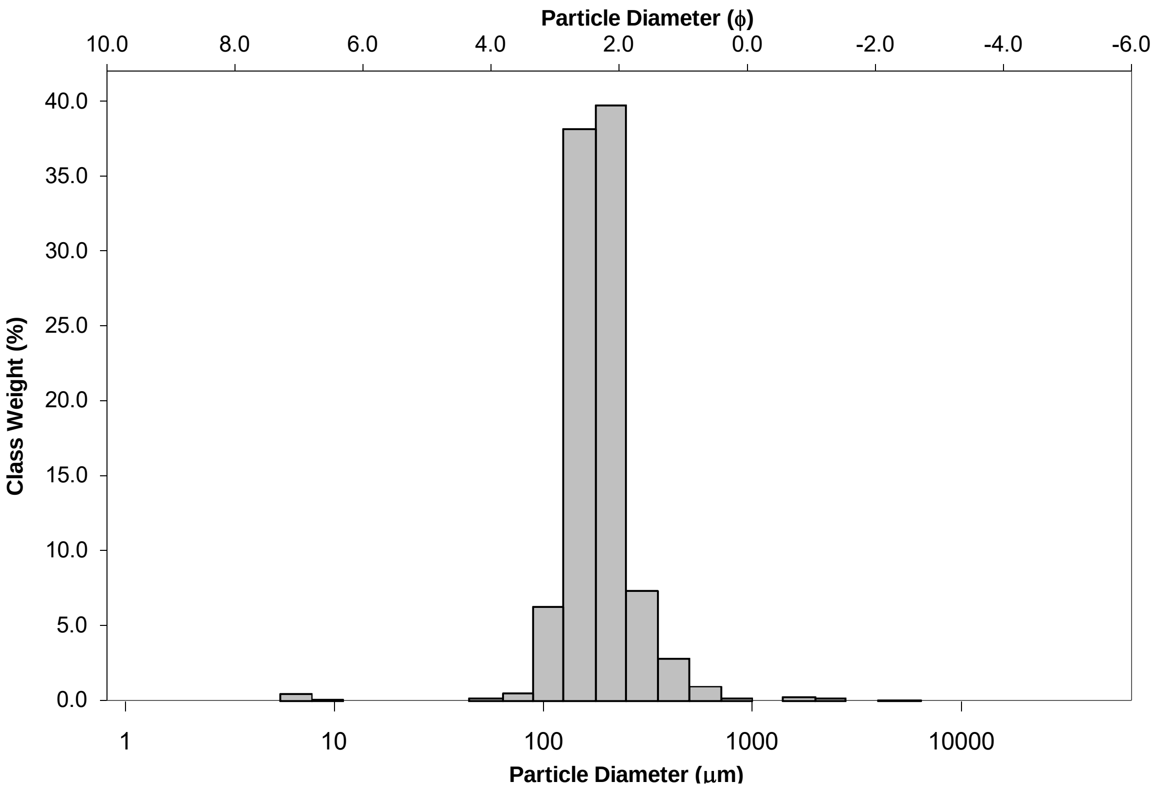
	μm	ϕ
MODE 1:	213.5	2.248
MODE 2:		
MODE 3:		
D_{10}:	125.7	1.858
MEDIAN or D_{50}:	179.8	2.475
D_{90}:	275.8	2.992
(D_{90} / D_{10}):	2.195	1.610
$(D_{90} - D_{10})$:	150.2	1.134
(D_{75} / D_{25}):	1.551	1.293
$(D_{75} - D_{25})$:	79.24	0.633

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.3%	COARSE SAND:	1.2%
SAND:	97.8%	MEDIUM SAND:	10.3%
MUD:	1.9%	FINE SAND:	78.5%
		V FINE SAND:	7.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.2%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
FINE GRAVEL:	0.1%	FINE SILT:	0.5%
V FINE GRAVEL:	0.2%	V FINE SILT:	0.0%
V COARSE SAND:	0.3%	CLAY:	1.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	209.0	173.2	2.530	179.1	2.481	Fine Sand
SORTING (σ):	220.1	2.011	1.008	1.397	0.483	Well Sorted
SKEWNESS (Sk):	14.68	-4.161	4.161	0.030	-0.030	Symmetrical
KURTOSIS (K):	290.6	33.11	33.11	1.141	1.141	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV9**
ANALYST & DATE: ,
SAMPLE TYPE: Unimodal, Poorly Sorted
TEXTURAL GROUP: Gravelly Sand
SEDIMENT NAME: Very Fine Gravelly Very Coarse Sand

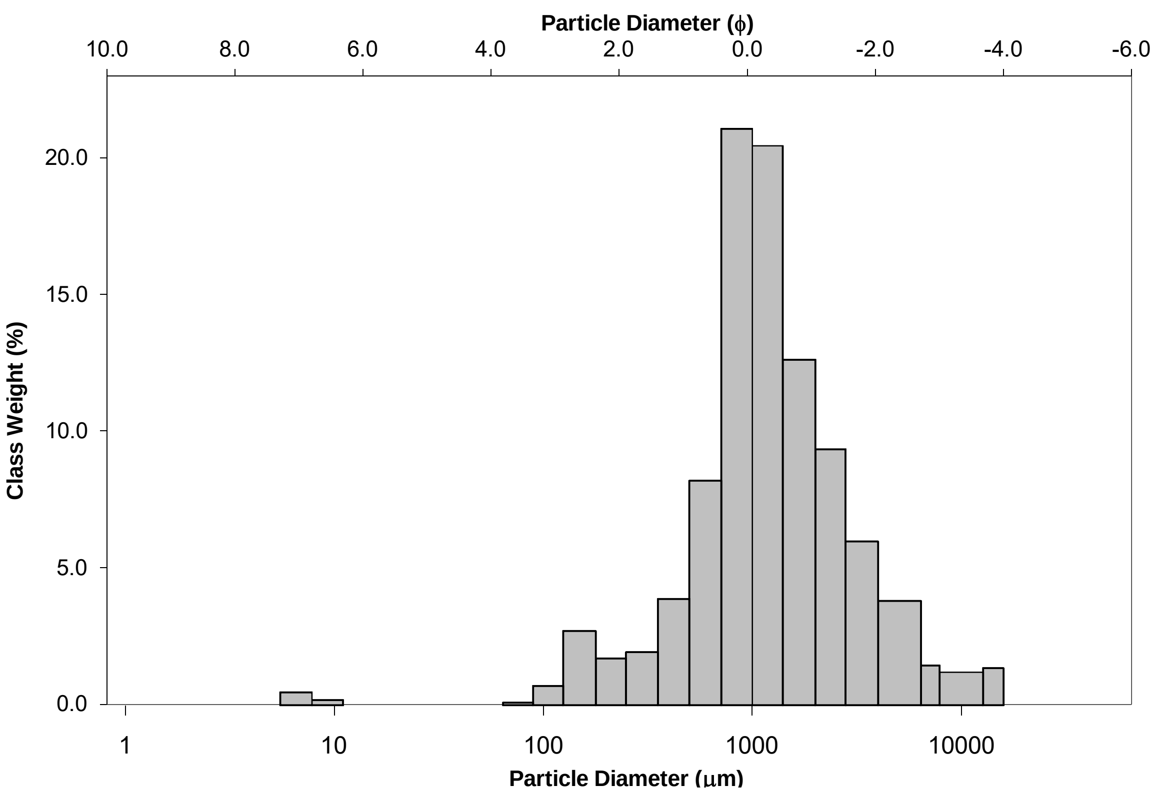
	μm	φ
MODE 1:	855.0	0.247
MODE 2:		
MODE 3:		
D_{10}:	412.9	-1.902
MEDIAN or D_{50}:	1141.8	-0.191
D_{90}:	3737.3	1.276
(D_{90} / D_{10}):	9.052	-0.671
$(D_{90} - D_{10})$:	3324.4	3.178
(D_{75} / D_{25}):	2.587	-0.404
$(D_{75} - D_{25})$:	1207.2	1.371

GRAIN SIZE DISTRIBUTION

GRAVEL:	24.4%	COARSE SAND:	29.8%
SAND:	74.8%	MEDIUM SAND:	6.0%
MUD:	0.8%	FINE SAND:	4.6%
		V FINE SAND:	0.9%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	2.6%	MEDIUM SILT:	0.2%
FINE GRAVEL:	6.2%	FINE SILT:	0.5%
V FINE GRAVEL:	15.6%	V FINE SILT:	0.0%
V COARSE SAND:	33.6%	CLAY:	0.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	1816.4	1155.6	-0.209	1218.7	-0.285	Very Coarse Sand
SORTING (σ):	2091.9	2.721	1.444	2.438	1.285	Poorly Sorted
SKEWNESS (Sk):	3.356	-1.161	1.161	0.038	-0.038	Symmetrical
KURTOSIS (K):	16.84	9.145	9.145	1.445	1.445	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV10** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Poorly Sorted TEXTURAL GROUP: Slightly Gravelly Muddy Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Muddy Medium Sand

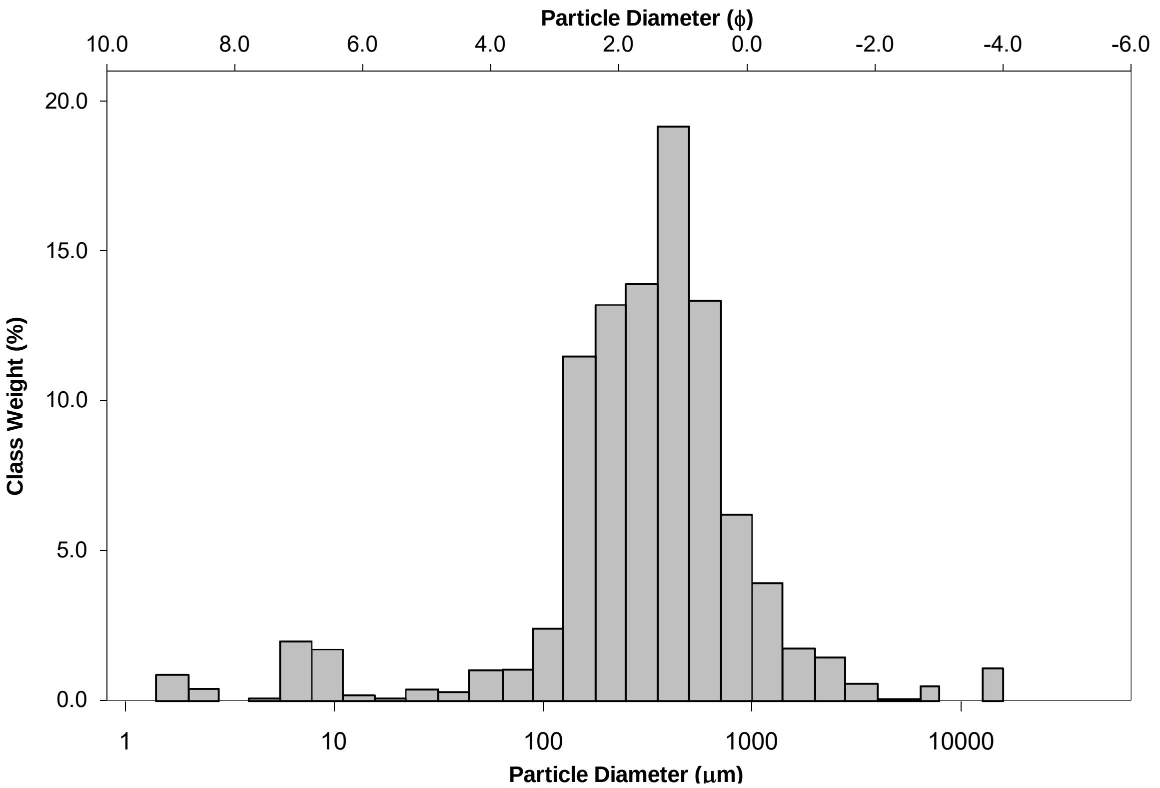
	μm	ϕ
MODE 1:	426.5	1.251
MODE 2:		
MODE 3:		
D_{10}:	47.10	0.105
MEDIAN or D_{50}:	329.9	1.600
D_{90}:	929.6	4.408
(D_{90} / D_{10}):	19.74	41.86
$(D_{90} - D_{10})$:	882.5	4.303
(D_{75} / D_{25}):	3.158	2.887
$(D_{75} - D_{25})$:	371.5	1.659

GRAIN SIZE DISTRIBUTION

GRAVEL:	3.1%	COARSE SAND:	19.5%
SAND:	86.1%	MEDIUM SAND:	32.8%
MUD:	10.8%	FINE SAND:	24.5%
		V FINE SAND:	3.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	1.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.5%
MEDIUM GRAVEL:	0.7%	MEDIUM SILT:	1.9%
FINE GRAVEL:	0.4%	FINE SILT:	2.1%
V FINE GRAVEL:	2.0%	V FINE SILT:	0.5%
V COARSE SAND:	5.6%	CLAY:	4.5%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	563.0	236.4	2.081	309.8	1.691	Medium Sand
SORTING (σ):	1304.4	5.110	2.353	3.687	1.882	Poorly Sorted
SKEWNESS (Sk):	8.708	-1.684	1.684	-0.312	0.312	Very Fine Skewed
KURTOSIS (K):	88.42	6.548	6.548	2.094	2.094	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV11**
ANALYST & DATE: ,
SAMPLE TYPE: Unimodal, Well Sorted
TEXTURAL GROUP: Slightly Gravelly Sand
SEDIMENT NAME: Slightly Fine Gravelly Fine Sand

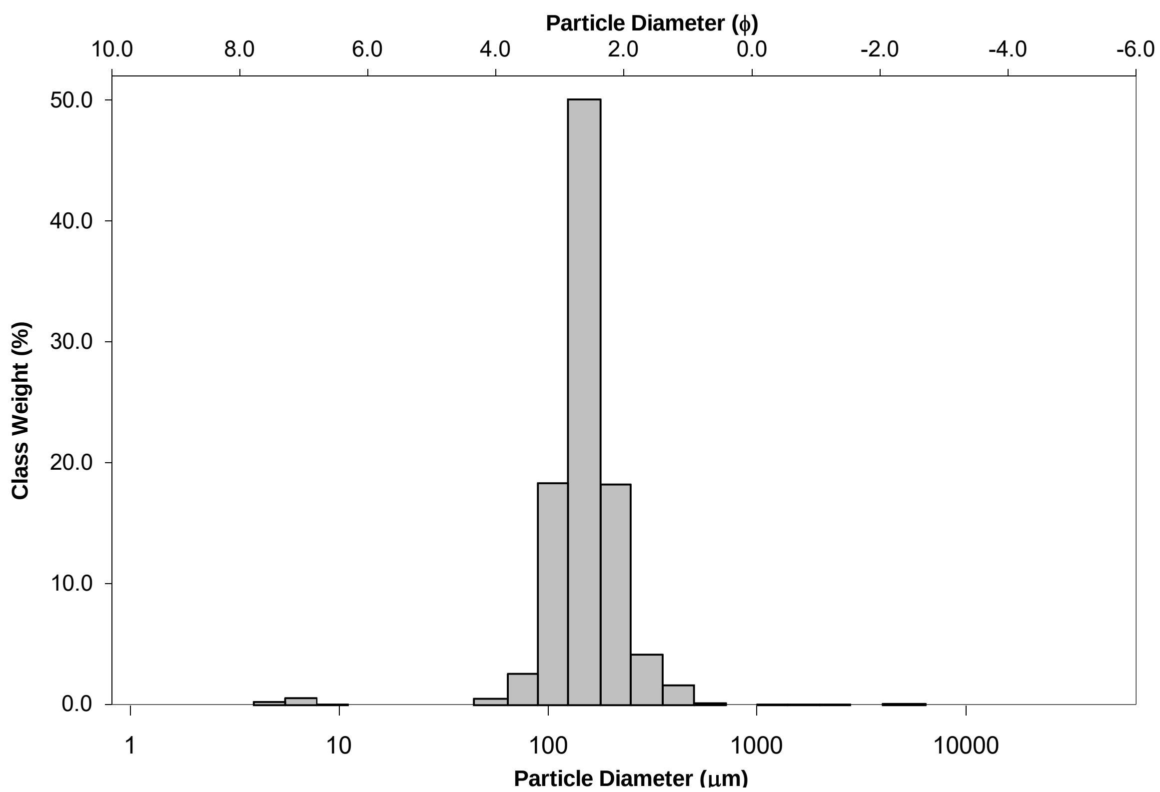
	μm	φ
MODE 1:	151.0	2.751
MODE 2:		
MODE 3:		
D_{10}:	98.24	2.095
MEDIAN or D_{50}:	149.6	2.740
D_{90}:	234.1	3.348
(D_{90} / D_{10}):	2.383	1.598
$(D_{90} - D_{10})$:	135.8	1.253
(D_{75} / D_{25}):	1.407	1.198
$(D_{75} - D_{25})$:	51.38	0.493

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.3%	COARSE SAND:	0.2%
SAND:	97.5%	MEDIUM SAND:	6.0%
MUD:	2.2%	FINE SAND:	69.7%
		V FINE SAND:	21.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.6%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
FINE GRAVEL:	0.2%	FINE SILT:	0.9%
V FINE GRAVEL:	0.1%	V FINE SILT:	0.0%
V COARSE SAND:	0.2%	CLAY:	0.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic	Geometric	Logarithmic	Geometric	Logarithmic	Description
	μm	μm	φ	μm	φ	
MEAN ($\bar{x}$):	176.5	145.8	2.778	150.9	2.728	Fine Sand
SORTING (σ):	251.3	1.866	0.900	1.401	0.486	Well Sorted
SKEWNESS (Sk):	16.98	-3.429	3.429	0.077	-0.077	Symmetrical
KURTOSIS (K):	327.1	31.57	31.57	1.393	1.393	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV12**
ANALYST & DATE: ,
SAMPLE TYPE: Trimodal, Poorly Sorted
TEXTURAL GROUP: Gravelly Sand
SEDIMENT NAME: Medium Gravelly Fine Sand

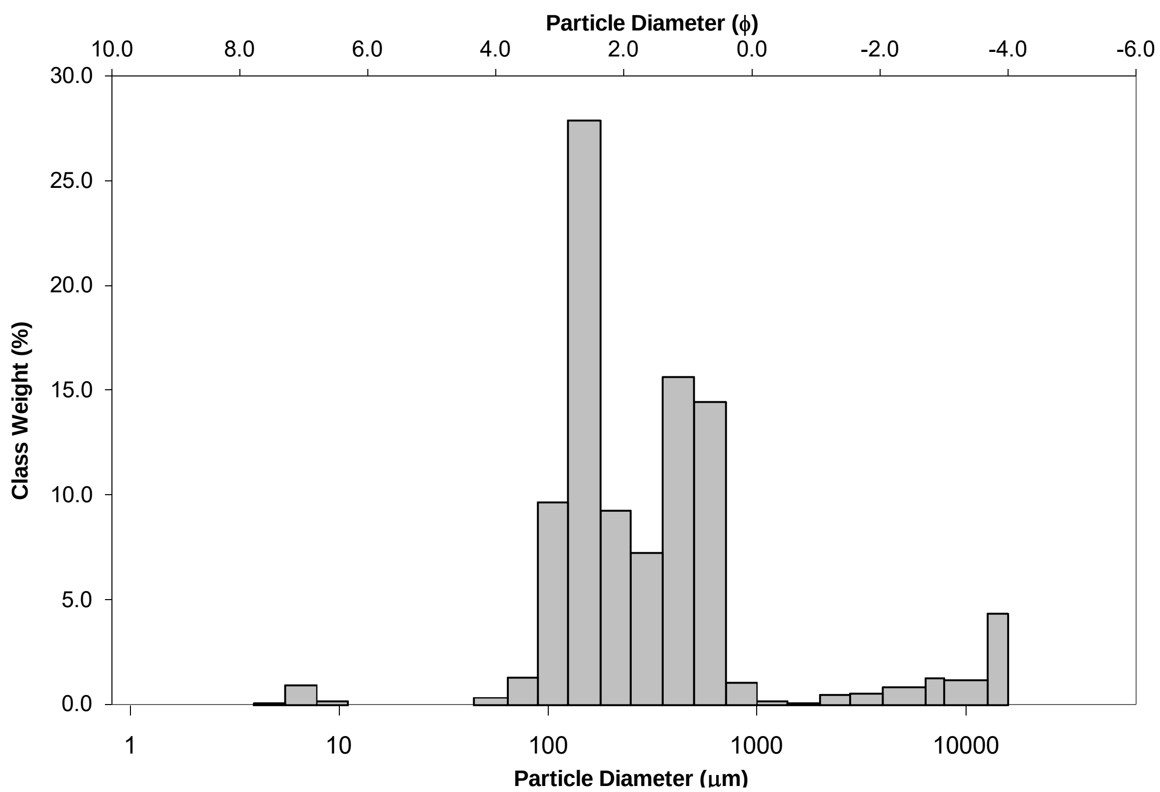
	μm	ϕ
MODE 1:	151.0	2.751
MODE 2:	426.5	1.251
MODE 3:	14300.0	-3.829
D_{10}:	110.5	0.524
MEDIAN or D_{50}:	229.0	2.127
D_{90}:	695.2	3.178
(D_{90} / D_{10}):	6.291	6.059
$(D_{90} - D_{10})$:	584.7	2.653
(D_{75} / D_{25}):	3.431	2.730
$(D_{75} - D_{25})$:	347.5	1.779

GRAIN SIZE DISTRIBUTION

GRAVEL:	7.7%	COARSE SAND:	16.1%
SAND:	89.8%	MEDIUM SAND:	23.5%
MUD:	2.5%	FINE SAND:	38.4%
		V FINE SAND:	11.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	4.6%	MEDIUM SILT:	0.2%
FINE GRAVEL:	2.0%	FINE SILT:	1.1%
V FINE GRAVEL:	1.1%	V FINE SILT:	0.0%
V COARSE SAND:	0.3%	CLAY:	0.8%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	1013.4	290.4	1.784	260.7	1.939	Medium Sand
SORTING (σ):	2766.8	3.702	1.888	2.844	1.508	Poorly Sorted
SKEWNESS (Sk):	3.968	0.420	-0.420	0.418	-0.418	Very Coarse Skewed
KURTOSIS (K):	17.84	7.364	7.364	1.442	1.442	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV13**
ANALYST & DATE: ,
SAMPLE TYPE: Unimodal, Moderately Well Sorted
TEXTURAL GROUP: Sand
SEDIMENT NAME: Moderately Well Sorted Fine Sand

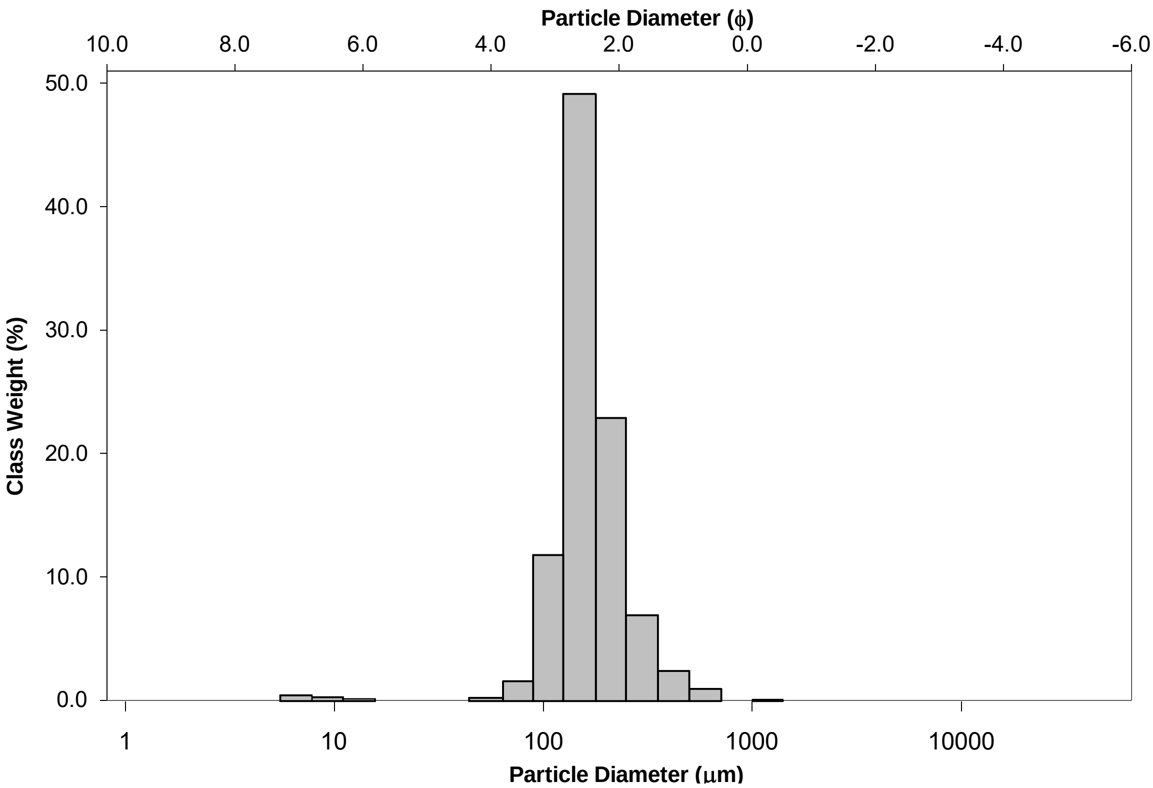
	μm	ϕ
MODE 1:	151.0	2.751
MODE 2:		
MODE 3:		
D_{10}:	99.11	1.977
MEDIAN or D_{50}:	156.6	2.675
D_{90}:	254.1	3.335
(D_{90} / D_{10}):	2.564	1.687
$(D_{90} - D_{10})$:	155.0	1.358
(D_{75} / D_{25}):	1.520	1.259
$(D_{75} - D_{25})$:	68.00	0.604

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.0%	COARSE SAND:	1.0%
SAND:	95.1%	MEDIUM SAND:	9.2%
MUD:	4.9%	FINE SAND:	71.1%
		V FINE SAND:	13.7%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.3%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.5%
FINE GRAVEL:	0.0%	FINE SILT:	0.5%
V FINE GRAVEL:	0.0%	V FINE SILT:	0.0%
V COARSE SAND:	0.1%	CLAY:	3.6%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	174.0	135.7	2.881	161.9	2.627	Fine Sand
SORTING (σ):	90.55	2.790	1.480	1.504	0.588	Moderately Well Sorted
SKEWNESS (Sk):	2.871	-3.675	3.675	0.033	-0.033	Symmetrical
KURTOSIS (K):	24.00	17.30	17.30	1.577	1.577	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV14** ANALYST & DATE: ,

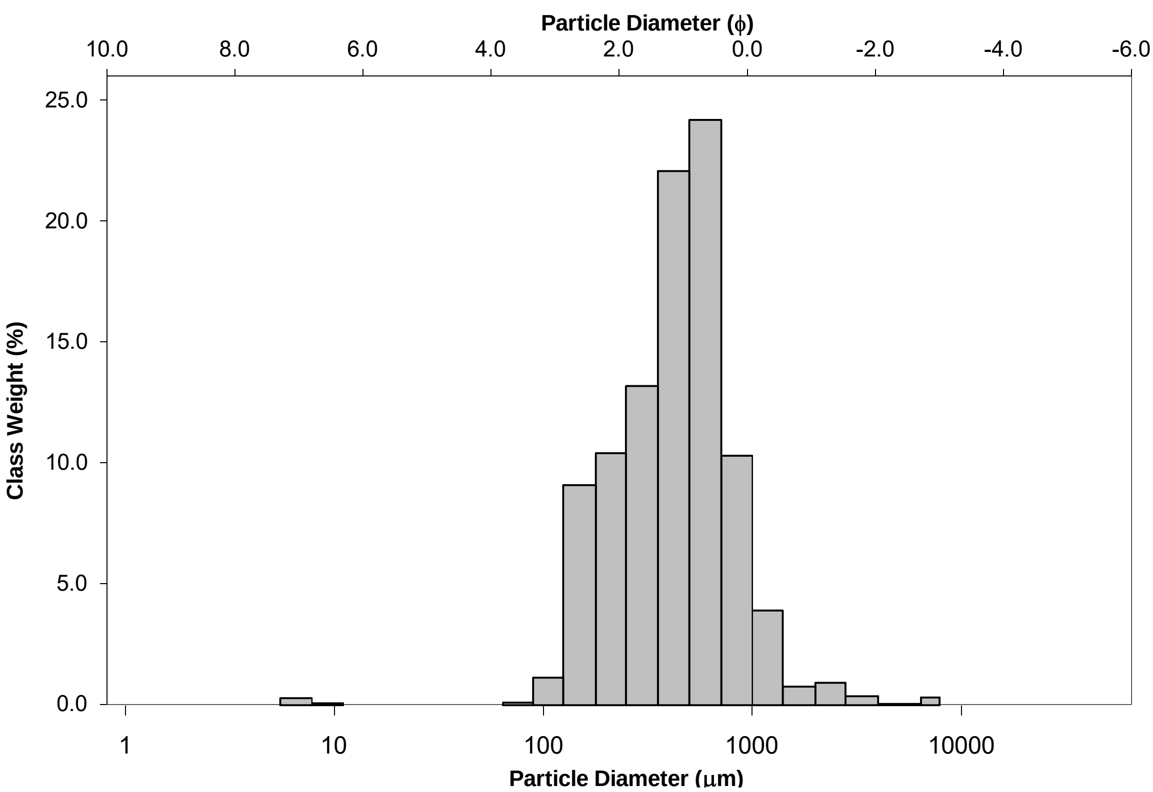
SAMPLE TYPE: Unimodal, Moderately Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

	μm	ϕ	GRAIN SIZE DISTRIBUTION			
MODE 1:	605.0	0.747	GRAVEL:	1.6%	COARSE SAND:	34.7%
MODE 2:			SAND:	95.6%	MEDIUM SAND:	35.3%
MODE 3:			MUD:	2.8%	FINE SAND:	19.5%
D_{10}:	155.8	0.184			V FINE SAND:	1.4%
MEDIAN or D_{50}:	433.5	1.206	V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
D_{90}:	880.2	2.682	COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
(D_{90} / D_{10}):	5.649	14.57	MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.1%
$(D_{90} - D_{10})$:	724.4	2.498	FINE GRAVEL:	0.3%	FINE SILT:	0.3%
(D_{75} / D_{25}):	2.430	2.907	V FINE GRAVEL:	1.3%	V FINE SILT:	0.0%
$(D_{75} - D_{25})$:	369.5	1.281	V COARSE SAND:	4.6%	CLAY:	2.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	521.3	361.5	1.468	392.2	1.350	Medium Sand
SORTING (σ):	507.0	3.083	1.624	1.925	0.945	Moderately Sorted
SKEWNESS (Sk):	6.559	-3.163	3.163	-0.177	0.177	Fine Skewed
KURTOSIS (K):	72.00	17.18	17.18	0.995	0.995	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV15**

ANALYST & DATE: ,

SAMPLE TYPE: Bimodal, Poorly Sorted

TEXTURAL GROUP: Gravelly Sand

SEDIMENT NAME: Very Fine Gravelly Coarse Sand

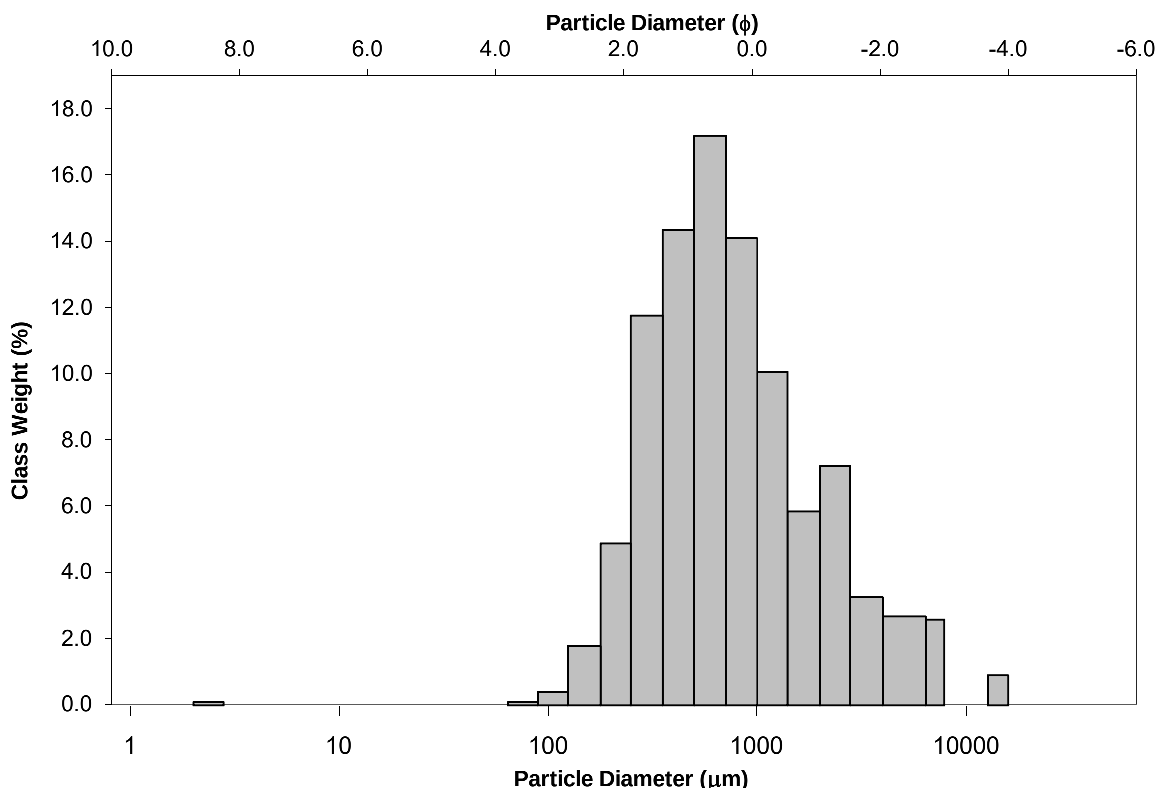
	μm	ϕ
MODE 1:	605.0	0.747
MODE 2:	2400.0	-1.243
MODE 3:		
D_{10}:	254.1	-1.438
MEDIAN or D_{50}:	662.2	0.595
D_{90}:	2708.6	1.976
(D_{90} / D_{10}):	10.66	-1.375
$(D_{90} - D_{10})$:	2454.5	3.414
(D_{75} / D_{25}):	3.335	-3.789
$(D_{75} - D_{25})$:	900.4	1.738

GRAIN SIZE DISTRIBUTION

GRAVEL:	16.4%	COARSE SAND:	31.7%
SAND:	81.5%	MEDIUM SAND:	26.5%
MUD:	2.1%	FINE SAND:	6.8%
		V FINE SAND:	0.5%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.6%	MEDIUM SILT:	0.0%
FINE GRAVEL:	5.3%	FINE SILT:	0.0%
V FINE GRAVEL:	10.5%	V FINE SILT:	0.1%
V COARSE SAND:	16.0%	CLAY:	2.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	1240.2	674.4	0.568	741.9	0.431	Coarse Sand
SORTING (σ):	1684.0	3.636	1.862	2.613	1.386	Poorly Sorted
SKEWNESS (Sk):	3.993	-2.116	2.116	0.189	-0.189	Coarse Skewed
KURTOSIS (K):	25.41	12.99	12.99	1.086	1.086	Mesokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV16** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Moderately Well Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

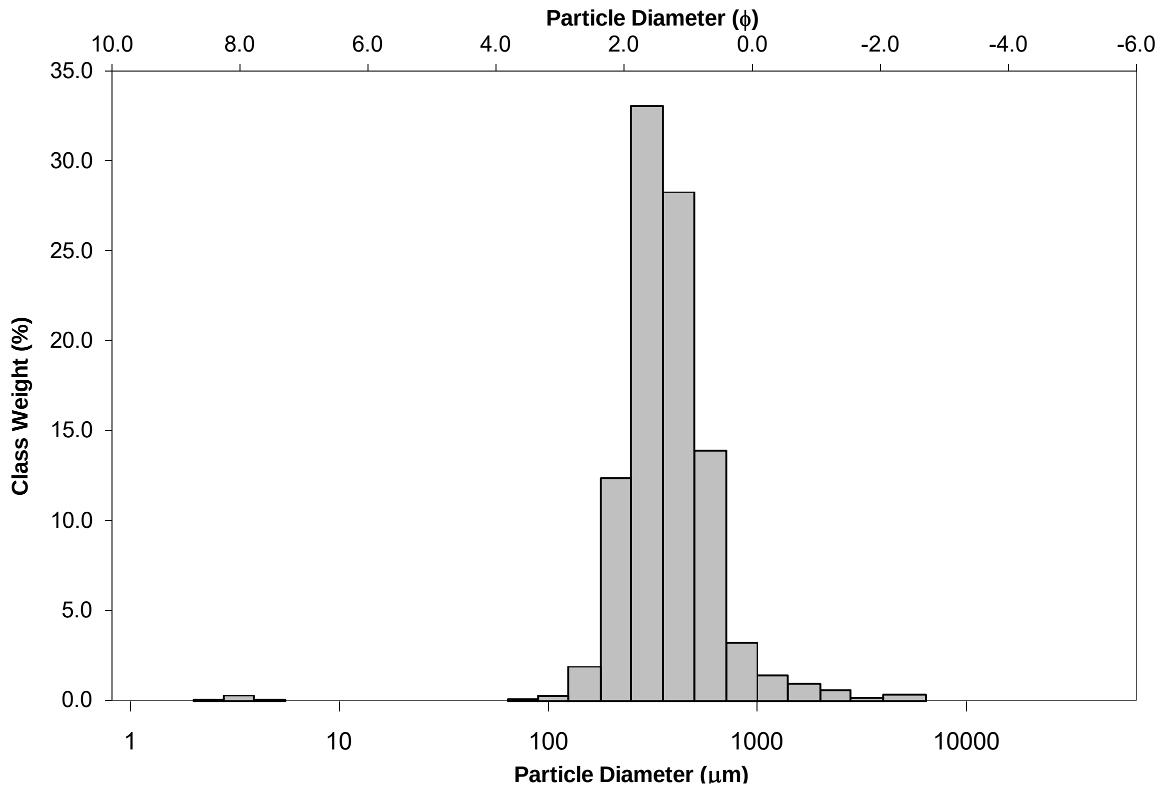
	μm	ϕ
MODE 1:	301.0	1.754
MODE 2:		
MODE 3:		
D_{10}:	203.0	0.605
MEDIAN or D_{50}:	350.8	1.511
D_{90}:	657.3	2.300
(D_{90} / D_{10}):	3.238	3.800
$(D_{90} - D_{10})$:	454.3	1.695
(D_{75} / D_{25}):	1.764	1.765
$(D_{75} - D_{25})$:	206.1	0.819

GRAIN SIZE DISTRIBUTION

GRAVEL:	1.3%	COARSE SAND:	17.3%
SAND:	95.8%	MEDIUM SAND:	61.3%
MUD:	2.9%	FINE SAND:	14.3%
		V FINE SAND:	0.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	0.5%	FINE SILT:	0.1%
V FINE GRAVEL:	0.8%	V FINE SILT:	0.4%
V COARSE SAND:	2.4%	CLAY:	2.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	444.1	322.6	1.632	362.6	1.463	Medium Sand
SORTING (σ):	455.5	2.897	1.534	1.589	0.668	Moderately Well Sorted
SKEWNESS (Sk):	6.955	-3.700	3.700	0.112	-0.112	Coarse Skewed
KURTOSIS (K):	65.74	20.94	20.94	1.185	1.185	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV17** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Moderately Sorted TEXTURAL GROUP: Gravelly Sand

SEDIMENT NAME: Very Fine Gravelly Medium Sand

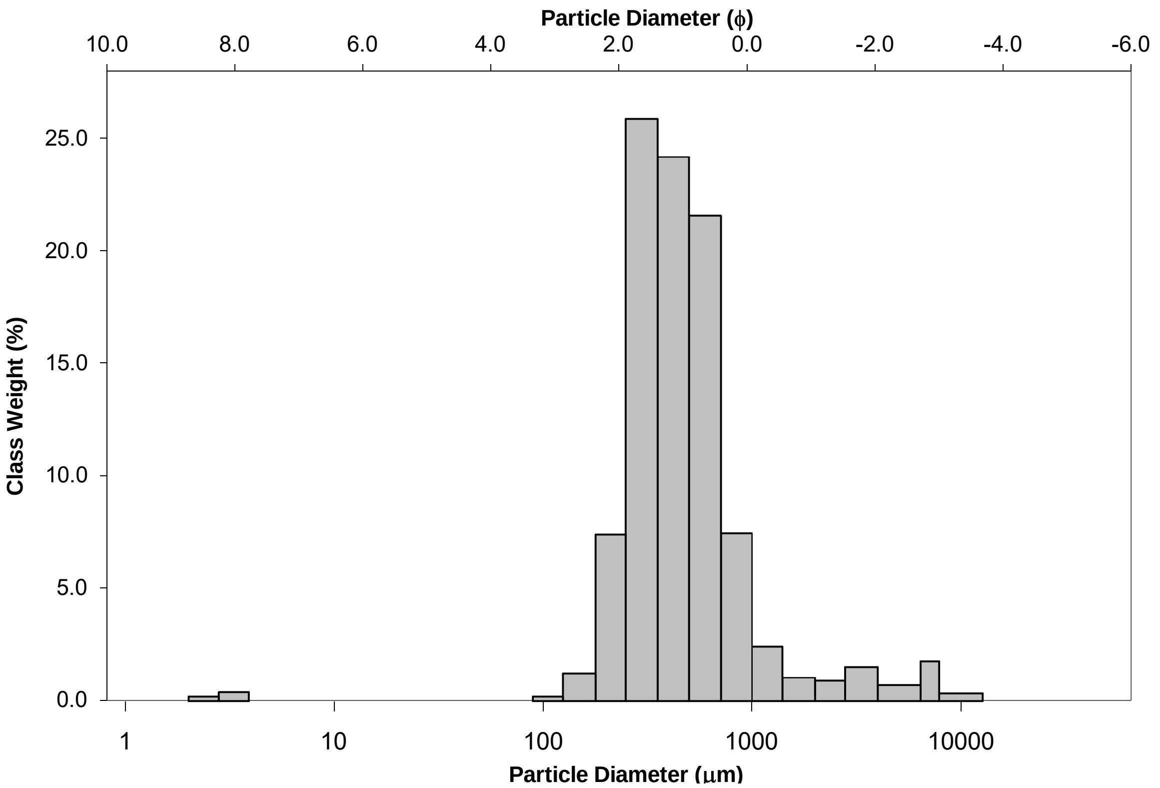
	μm	φ		
MODE 1:	301.0	1.754		
MODE 2:				
MODE 3:				
D_{10}:	243.3	0.092		
MEDIAN or D_{50}:	424.0	1.238		
D_{90}:	938.1	2.039		
(D_{90} / D_{10}):	3.855	22.11		
$(D_{90} - D_{10})$:	694.7	1.947		
(D_{75} / D_{25}):	2.047	2.483		
$(D_{75} - D_{25})$:	315.5	1.033		

GRAIN SIZE DISTRIBUTION

GRAVEL:	5.1%	COARSE SAND:	29.7%
SAND:	93.2%	MEDIUM SAND:	50.9%
MUD:	1.7%	FINE SAND:	8.9%
		V FINE SAND:	0.2%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.5%	MEDIUM SILT:	0.0%
FINE GRAVEL:	2.1%	FINE SILT:	0.0%
V FINE GRAVEL:	2.5%	V FINE SILT:	0.6%
V COARSE SAND:	3.5%	CLAY:	1.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	707.0	435.9	1.198	432.6	1.209	Medium Sand
SORTING (σ):	1172.7	2.743	1.456	1.831	0.872	Moderately Sorted
SKEWNESS (Sk):	5.328	-2.238	2.238	0.200	-0.200	Coarse Skewed
KURTOSIS (K):	35.07	18.58	18.58	1.358	1.358	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV18** ANALYST & DATE: ,

SAMPLE TYPE: Bimodal, Very Poorly Sorted TEXTURAL GROUP: Sandy Gravel

SEDIMENT NAME: Sandy Medium Gravel

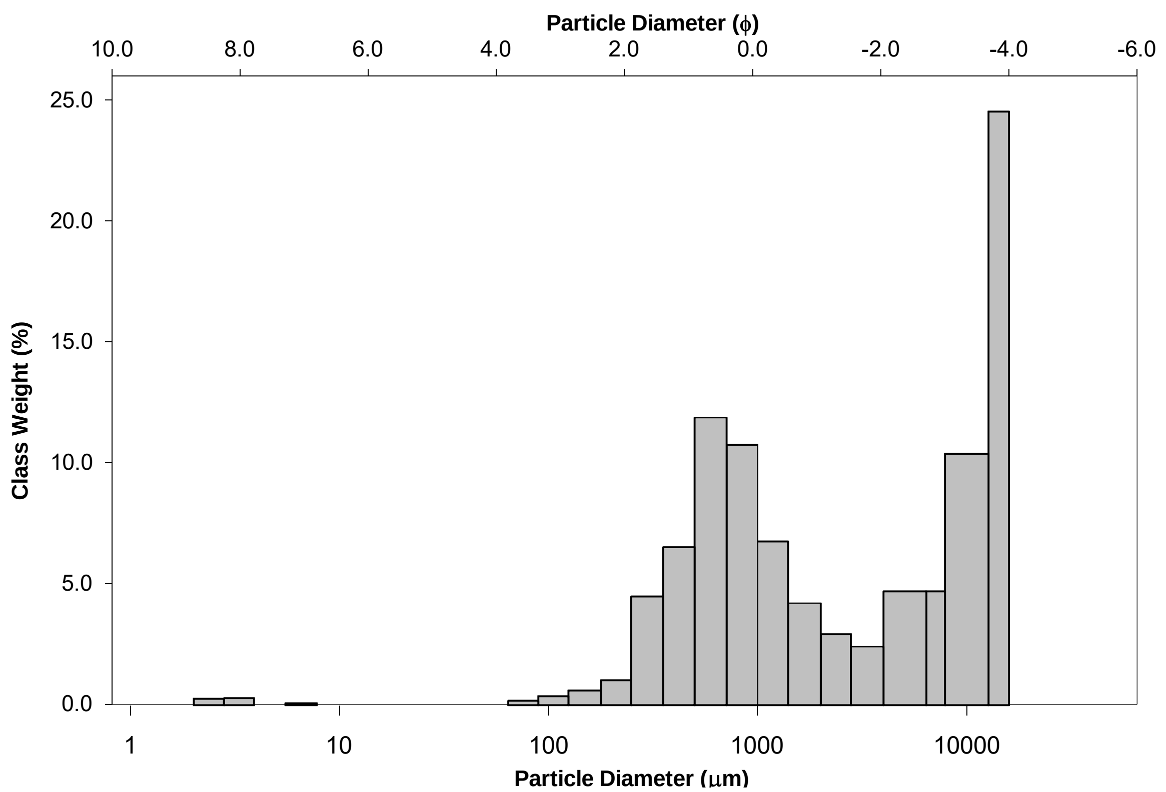
	μm	ϕ
MODE 1:	14300.0	-3.829
MODE 2:	605.0	0.747
MODE 3:		
D_{10}:	385.6	-3.802
MEDIAN or D_{50}:	1771.3	-0.825
D_{90}:	13952.7	1.375
(D_{90} / D_{10}):	36.19	-0.362
(D_{90} - D_{10}):	13567.1	5.177
(D_{75} / D_{25}):	15.37	-0.188
(D_{75} - D_{25}):	9336.1	3.942

GRAIN SIZE DISTRIBUTION

GRAVEL:	48.4%	COARSE SAND:	24.5%
SAND:	50.7%	MEDIUM SAND:	11.9%
MUD:	0.9%	FINE SAND:	1.8%
		V FINE SAND:	0.6%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	32.2%	MEDIUM SILT:	0.0%
FINE GRAVEL:	10.4%	FINE SILT:	0.1%
V FINE GRAVEL:	5.8%	V FINE SILT:	0.6%
V COARSE SAND:	11.8%	CLAY:	0.2%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	5183.6	2165.9	-1.115	2266.5	-1.180	Very Fine Gravel
SORTING (σ):	5382.4	4.682	2.227	4.094	2.033	Very Poorly Sorted
SKEWNESS (Sk):	0.670	-0.700	0.700	0.151	-0.151	Coarse Skewed
KURTOSIS (K):	1.793	4.481	4.481	0.595	0.595	Very Platykurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV19**

ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Moderately Sorted

TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

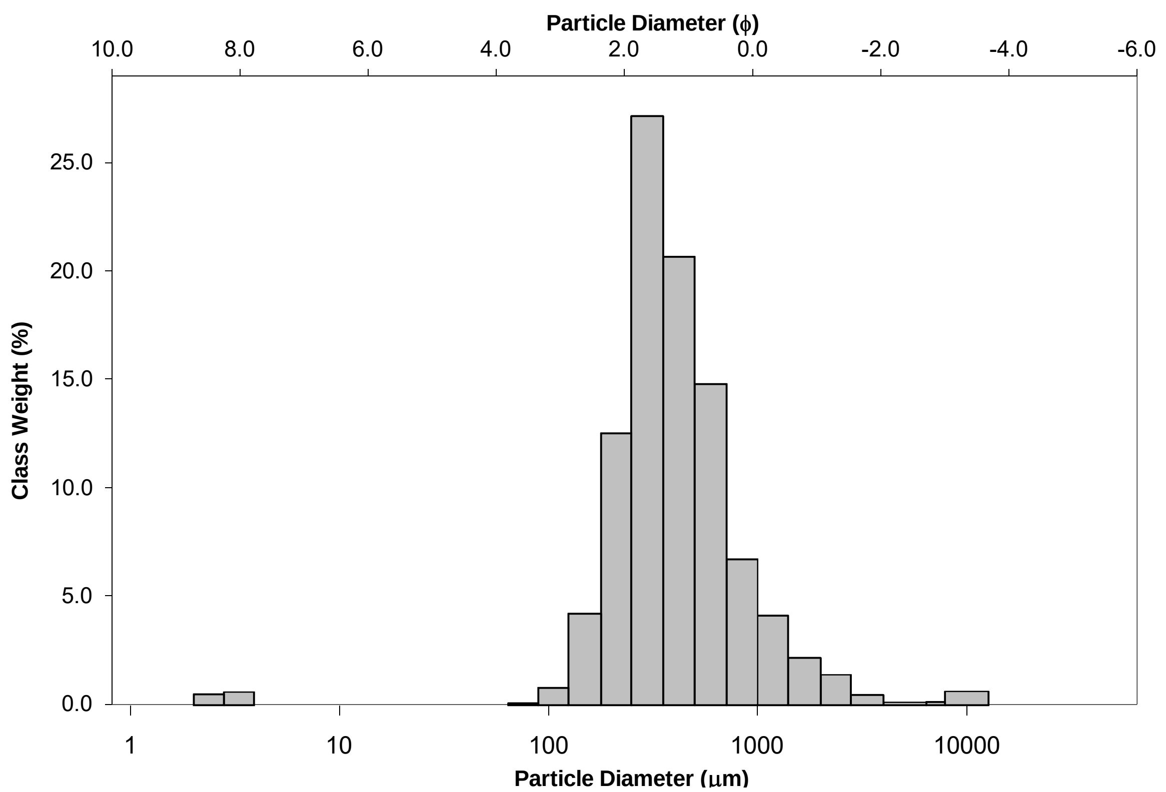
	μm	ϕ
MODE 1:	301.0	1.754
MODE 2:		
MODE 3:		
D_{10}:	193.6	0.036
MEDIAN or D_{50}:	369.6	1.436
D_{90}:	975.1	2.369
(D_{90} / D_{10}):	5.037	65.20
$(D_{90} - D_{10})$:	781.5	2.333
(D_{75} / D_{25}):	2.175	2.434
$(D_{75} - D_{25})$:	314.2	1.121

GRAIN SIZE DISTRIBUTION

GRAVEL:	3.1%	COARSE SAND:	22.1%
SAND:	95.4%	MEDIUM SAND:	48.8%
MUD:	1.5%	FINE SAND:	17.1%
		V FINE SAND:	1.0%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.0%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.9%	MEDIUM SILT:	0.0%
FINE GRAVEL:	0.3%	FINE SILT:	0.0%
V FINE GRAVEL:	1.9%	V FINE SILT:	1.1%
V COARSE SAND:	6.4%	CLAY:	0.4%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic ϕ	Geometric μm	Logarithmic ϕ	Description
MEAN ($\bar{x}$):	608.5	389.7	1.359	392.9	1.348	Medium Sand
SORTING (σ):	1063.0	2.557	1.355	1.883	0.913	Moderately Sorted
SKEWNESS (Sk):	7.383	-1.848	1.848	0.192	-0.192	Coarse Skewed
KURTOSIS (K):	64.69	16.40	16.40	1.201	1.201	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV20** ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Well Sorted TEXTURAL GROUP: Slightly Gravelly Sand

SEDIMENT NAME: Slightly Very Fine Gravelly Medium Sand

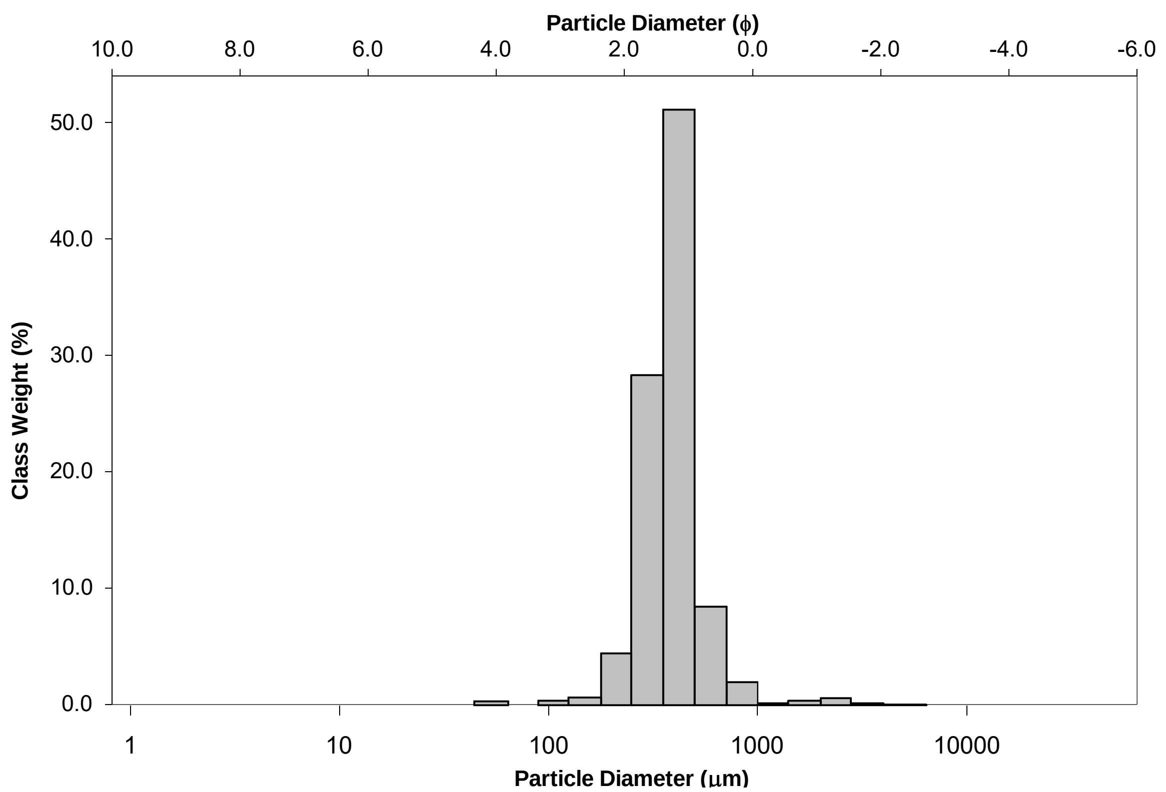
	μm	φ
MODE 1:	426.5	1.251
MODE 2:		
MODE 3:		
D_{10}:	258.5	0.872
MEDIAN or D_{50}:	388.2	1.365
D_{90}:	546.4	1.952
(D_{90} / D_{10}):	2.114	2.238
(D_{90} - D_{10}):	287.9	1.080
(D_{75} / D_{25}):	1.481	1.504
(D_{75} - D_{25}):	149.1	0.567

GRAIN SIZE DISTRIBUTION

GRAVEL:	0.9%	COARSE SAND:	10.7%
SAND:	97.7%	MEDIUM SAND:	80.6%
MUD:	1.4%	FINE SAND:	5.4%
		V FINE SAND:	0.4%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.4%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	0.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	0.1%	FINE SILT:	0.0%
V FINE GRAVEL:	0.8%	V FINE SILT:	0.0%
V COARSE SAND:	0.6%	CLAY:	1.0%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	425.2	364.4	1.456	374.7	1.416	Medium Sand
SORTING (σ):	296.3	1.996	0.997	1.366	0.450	Well Sorted
SKEWNESS (Sk):	8.331	-5.531	5.531	-0.115	0.115	Fine Skewed
KURTOSIS (K):	101.2	48.95	48.95	1.181	1.181	Leptokurtic

GRAIN SIZE DISTRIBUTION



APPENDIX D PARTICLE SIZE ANALYSIS

SAMPLE STATISTICS

SAMPLE IDENTITY: **L3-ENV21**

ANALYST & DATE: ,

SAMPLE TYPE: Unimodal, Moderately Sorted

TEXTURAL GROUP: Sandy Gravel

SEDIMENT NAME: Sandy Very Fine Gravel

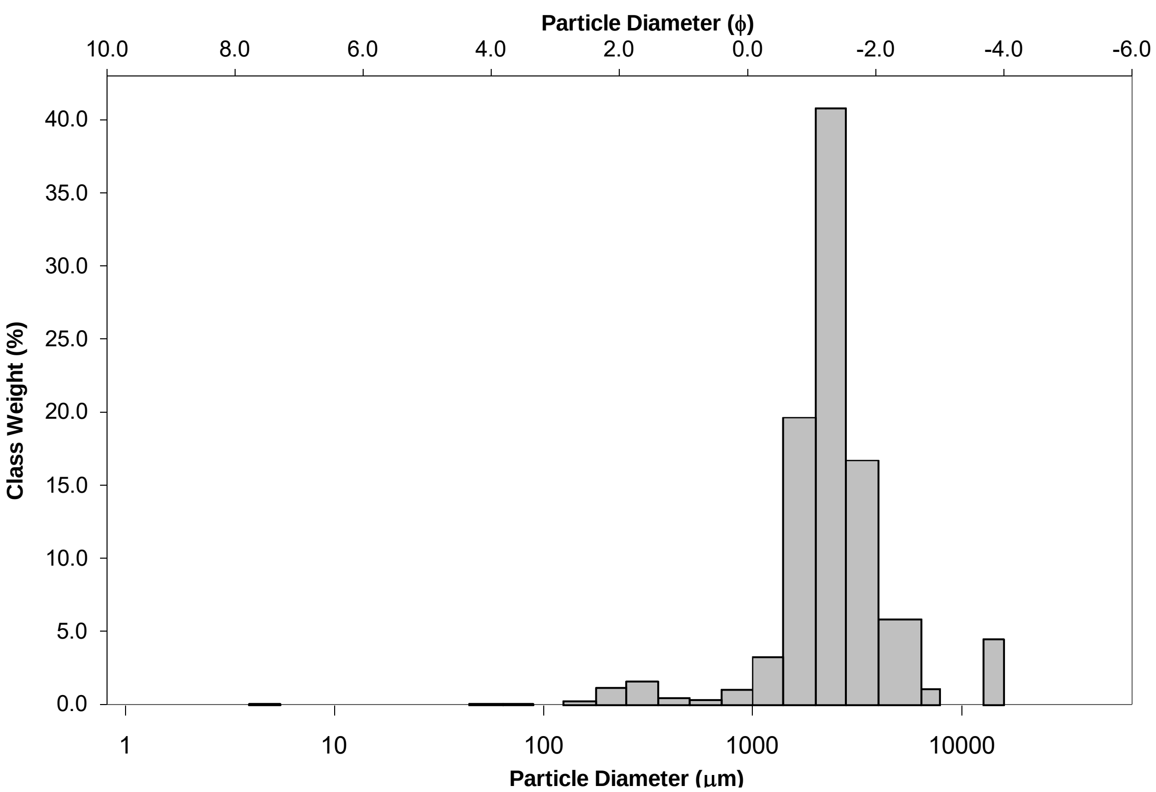
	μm	φ
MODE 1:	2400.0	-1.243
MODE 2:		
MODE 3:		
D_{10}:	1426.7	-2.157
MEDIAN or D_{50}:	2365.5	-1.242
D_{90}:	4460.2	-0.513
(D_{90} / D_{10}):	3.126	0.238
(D_{90} - D_{10}):	3033.6	1.644
(D_{75} / D_{25}):	1.665	0.546
(D_{75} - D_{25}):	1226.8	0.735

GRAIN SIZE DISTRIBUTION

GRAVEL:	70.3%	COARSE SAND:	1.5%
SAND:	29.4%	MEDIUM SAND:	2.2%
MUD:	0.3%	FINE SAND:	1.5%
		V FINE SAND:	0.1%
V COARSE GRAVEL:	0.0%	V COARSE SILT:	0.1%
COARSE GRAVEL:	0.0%	COARSE SILT:	0.0%
MEDIUM GRAVEL:	3.0%	MEDIUM SILT:	0.0%
FINE GRAVEL:	8.9%	FINE SILT:	0.1%
V FINE GRAVEL:	58.4%	V FINE SILT:	0.0%
V COARSE SAND:	24.1%	CLAY:	0.1%

	METHOD OF MOMENTS			FOLK & WARD METHOD		
	Arithmetic μm	Geometric μm	Logarithmic φ	Geometric μm	Logarithmic φ	Description
MEAN ($\bar{x}$):	2899.5	2298.6	-1.201	2397.2	-1.261	Very Fine Gravel
SORTING (σ):	2314.0	2.082	1.058	1.665	0.735	Moderately Sorted
SKEWNESS (Sk):	3.594	-2.439	2.439	-0.009	0.009	Symmetrical
KURTOSIS (K):	17.94	22.30	22.30	1.583	1.583	Very Leptokurtic

GRAIN SIZE DISTRIBUTION



Attachment H – Habitat and Complexity Impact Calculations Updated October 2022

Ocean Wind Offshore Wind Farm Proposed Project Design			Unit of Measure	Benthic Habitat Types																
				Coarse Sediment				Sand and Muddy Sand							Mud and Sandy Mud					
				Coarse Sediment	Coarse Sediment (interpolated)	Coarse Sediment -Mobile	Coarse Sediment -Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud	Anthropogenic	Total
Wind Farm Area - Alternative A, Proposed Action																				
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.02	-	0.36	-	0.05	1.88	0.00	-	-	0.02	-	-	-	-	-	-	2.34
			%	1%	0%	15%	0%	2%	81%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.37	-	5.59	-	0.71	28.72	0.20	-	-	0.40	-	-	-	-	-	-	35.98
			%	1%	0%	16%	0%	2%	80%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	38.91	-	599.84	1.79	54.16	3,886.47	63.22	-	-	56.16	-	-	-	-	-	-	4,700.55
			%	1%	0%	13%	0%	1%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	-	-	1.22	-	-	2.45	-	-	-	-	-	-	-	-	-	-	3.67
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	0.20	-	-	0.40	-	-	-	-	-	-	-	-	-	-	0.59
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	-	-	10.73	-	-	24.23	-	-	-	-	-	-	-	-	-	-	34.96
			%	0%	0%	31%	0%	0%	69%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	1.96	-	23.53	0.01	0.75	140.25	1.46	-	-	1.53	-	-	-	-	-	-	169.48
			%	1%	0%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	16.11	0.11	195.37	0.09	6.25	1,167.88	12.13	-	-	12.74	-	-	-	-	-	-	1,410.67
			%	1%	0.01%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	-	-	0.30	-	-	4.80	-	-	-	-	-	-	-	-	-	-	5.10
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	-	-	2.57	-	-	40.15	-	-	-	-	-	-	-	-	-	-	42.72
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Total Permanent Impacts			**Acres**	**2.35**	**-**	**31.20**	**0.01**	**1.51**	**178.49**	**1.66**	**-**	**-**	**1.95**	**-**	**-**	**-**	**-**	**-**	**-**	**217.17**
			%	**1%**	0%	**14%**	**0%**	**1%**	**82%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**55.03**	**0.11**	**808.51**	**1.88**	**60.41**	**5,118.72**	**75.35**	**-**	**-**	**68.90**	**-**	**-**	**-**	**-**	**-**	**-**	**6,188.90**
			%	**1%**	**0%**	**13%**	**0%**	**1%**	**83%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**
Wind Farm Area - Alternative B1, No Surface Occupancy at Select Locations to Reduce Visual Impacts																				
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.02	-	0.29	-	0.05	1.74	-	-	-	0.02	-	-	-	-	-	-	2.13
			%	1%	0%	14%	0%	2%	82%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.37	-	4.86	-	0.71	26.21	-	-	-	0.39	-	-	-	-	-	-	32.54
			%	1%	0%	15%	0%	2%	81%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	35.05	-	587.14	0.09	54.28	3,538.98	11.51	-	-	56.48	-	-	-	-	-	-	4,283.53
			%	1%	0%	14%	0%	1%	83%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	-	-	1.22	-	-	2.45	-	-	-	-	-	-	-	-	-	-	3.67
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	0.20	-	-	0.40	-	-	-	-	-	-	-	-	-	-	0.59
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	-	-	10.73	-	-	24.23	-	-	-	-	-	-	-	-	-	-	34.96
			%	0%	0%	31%	0%	0%	69%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	1.96	-	23.53	0.01	0.75	140.25	1.46	-	-	1.53	-	-	-	-	-	-	169.48
			%	1%	0%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	16.11	0.11	195.37	0.09	6.25	1,167.88	12.13	-	-	12.74	-	-	-	-	-	-	1,410.67
			%	1%	0.01%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	-	-	0.30	-	-	4.80	-	-	-	-	-	-	-	-	-	-	5.10
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	-	-	2.57	-	-	40.15	-	-	-	-	-	-	-	-	-	-	42.72
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Total Permanent Impacts			**Acres**	**2.35**	**-**	**30.40**	**0.01**	**1.51**	**175.84**	**1.46**	**-**	**-**	**1.95**	**-**	**-**	**-**	**-**	**-**	**-**	**213.52**
			%	**1%**	0%	**14%**	**0%**	**1%**	**82%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**51.16**	**0.11**	**795.81**	**0.18**	**60.53**	**4,771.24**	**23.64**	**-**	**-**	**69.21**	**-**	**-**	**-**	**-**	**-**	**-**	**5,771.88**
			%	**1%**	**0%**	**14%**	**0%**	**1%**	**83%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**

Ocean Wind Offshore Wind Farm Proposed Project Design			Unit of Measure	Benthic Habitat Types: Coarse Sediment				Sand and Muddy Sand							Mud and Sandy Mud					
				Coarse Sediment	Coarse Sediment (interpolated)	Coarse Sediment -Mobile	Coarse Sediment -Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud	Anthropogenic	Total
Wind Farm Area - Alternative B2, No Surface Occupancy at Select Locations to Reduce Visual Impacts																				
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.02	-	0.29	-	0.05	1.50	-	-	-	0.02	-	-	-	-	-	-	1.89
			%	1%	0%	16%	0%	3%	79%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.37	-	4.66	-	0.71	22.75	-	-	-	0.39	-	-	-	-	-	-	28.88
			%	1%	0%	16%	0%	2%	79%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	35.04	-	540.91	0.00	54.28	3,104.71	10.81	-	-	56.48	-	-	-	-	-	-	3,802.23
			%	1%	0%	14%	0%	1%	82%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	-	-	1.22	-	-	2.45	-	-	-	-	-	-	-	-	-	-	3.67
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	0.20	-	-	0.40	-	-	-	-	-	-	-	-	-	-	0.59
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	-	-	10.73	-	-	24.23	-	-	-	-	-	-	-	-	-	-	34.96
			%	0%	0%	31%	0%	0%	69%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Inter-Array Cables	Perm	Cable Protection[4]	Acres	1.96	-	23.53	0.01	0.75	140.25	1.46	-	-	1.53	-	-	-	-	-	-	169.48
			%	1%	0%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	16.11	0.11	195.37	0.09	6.25	1,167.88	12.13	-	-	12.74	-	-	-	-	-	-	1,410.67
			%	1%	0.01%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
OSS Link Cable	Perm	Cable Protection[4]	Acres	-	-	0.30	-	-	4.80	-	-	-	-	-	-	-	-	-	-	5.10
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	-	-	2.57	-	-	40.15	-	-	-	-	-	-	-	-	-	-	42.72
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Total Permanent Impacts			**Acres**	**2.35**	**-**	**30.21**	**0.01**	**1.51**	**172.14**	**1.46**	**-**	**-**	**1.95**	**-**	**-**	**-**	**-**	**-**	**-**	**209.62**
			%	**1%**	0%	**14%**	**0%**	**1%**	**82%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**51.16**	**0.11**	**749.58**	**0.09**	**60.53**	**4,336.97**	**22.94**	**-**	**-**	**69.21**	**-**	**-**	**-**	**-**	**-**	**-**	**5,290.58**
			%	**1%**	**0%**	**14%**	**0%**	**1%**	**82%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**
Wind Farm Area - Alternative C1, Wind Turbine Layout Modification to Establish a Buffer Between Ocean Wind and Atlantic Shores																				
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.02	-	0.32	-	0.05	1.91	-	-	-	0.02	-	-	-	-	-	-	2.33
			%	1%	0%	14%	0%	2%	82%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.37	-	5.32	-	0.71	29.04	-	-	-	0.39	-	-	-	-	-	-	35.83
			%	1%	0%	15%	0%	2%	81%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	44.49	-	651.95	0.37	54.27	3,888.77	19.96	-	-	56.90	-	-	-	-	-	-	4,716.71
			%	1%	0%	14%	0%	1%	82%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	-	-	1.22	-	-	2.45	-	-	-	-	-	-	-	-	-	-	3.67
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	0.20	-	-	0.40	-	-	-	-	-	-	-	-	-	-	0.59
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	-	-	10.73	-	-	24.23	-	-	-	-	-	-	-	-	-	-	34.96
			%	0%	0%	31%	0%	0%	69%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Inter-Array Cables	Perm	Cable Protection[4]	Acres	1.96	-	23.53	0.01	0.75	140.25	1.46	-	-	1.53	-	-	-	-	-	-	169.48
			%	1%	0%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	16.11	0.11	195.37	0.09	6.25	1,167.88	12.13	-	-	12.74	-	-	-	-	-	-	1,410.67
			%	1%	0.01%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
OSS Link Cable	Perm	Cable Protection[4]	Acres	-	-	0.30	-	-	4.80	-	-	-	-	-	-	-	-	-	-	5.10
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	-	-	2.57	-	-	40.15	-	-	-	-	-	-	-	-	-	-	42.72
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Total Permanent Impacts			**Acres**	**2.35**	**-**	**30.89**	**0.01**	**1.51**	**178.84**	**1.46**	**-**	**-**	**1.95**	**-**	**-**	**-**	**-**	**-**	**-**	**217.00**
			%	**1%**	0%	**14%**	**0%**	**1%**	**82%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**60.60**	**0.11**	**860.62**	**0.46**	**60.53**	**5,121.02**	**32.09**	**-**	**-**	**69.64**	**-**	**-**	**-**	**-**	**-**	**-**	**6,205.07**
			%	**1%**	**0%**	**14%**	**0%**	**1%**	**83%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**

Ocean Wind Offshore Wind Farm Proposed Project Design			Unit of Measure	Benthic Habitat Types																
				Coarse Sediment				Sand and Muddy Sand							Mud and Sandy Mud					
				Coarse Sediment	Coarse Sediment (interpolated)	Coarse Sediment -Mobile	Coarse Sediment -Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud	Anthropogenic	Total
Wind Farm Area - Alternative C2 (405nm), Wind Turbine Layout Modification to Establish a Buffer Between Ocean Wind and Atlantic Shores																				
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.02	-	0.32	-	0.05	1.93	-	-	-	0.02	-	-	-	-	-	-	2.34
			%	1%	0%	14%	0%	2%	82%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.37	-	5.18	-	0.71	29.16	-	-	-	0.39	0.03	-	-	-	-	-	35.83
			%	1%	0%	14%	0%	2%	81%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	40.25	-	603.42	1.80	54.24	3,907.13	50.45	-	-	56.44	2.97	-	-	-	-	-	4,716.70
			%	1%	0%	13%	0%	1%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	-	-	1.22	-	-	2.45	-	-	-	-	-	-	-	-	-	-	3.67
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	0.20	-	-	0.40	-	-	-	-	-	-	-	-	-	-	0.59
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	-	-	10.73	-	-	24.23	-	-	-	-	-	-	-	-	-	-	34.96
			%	0%	0%	31%	0%	0%	69%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Inter-Array Cables	Perm	Cable Protection[4]	Acres	1.96	-	23.53	0.01	0.75	140.25	1.46	-	-	1.53	-	-	-	-	-	-	169.48
			%	1%	0%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	16.11	0.11	195.37	0.09	6.25	1,167.88	12.13	-	-	12.74	-	-	-	-	-	-	1,410.67
			%	1%	0.01%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
OSS Link Cable	Perm	Cable Protection[4]	Acres	-	-	0.30	-	-	4.80	-	-	-	-	-	-	-	-	-	-	5.10
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	-	-	2.57	-	-	40.15	-	-	-	-	-	-	-	-	-	-	42.72
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Total Permanent Impacts			**Acres**	**2.34**	**-**	**30.74**	**0.01**	**1.51**	**178.98**	**1.46**	**-**	**-**	**1.95**	**0.03**	**-**	**-**	**-**	**-**	**-**	**217.03**
			%	**1%**	0%	**14%**	**0%**	**1%**	**82%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**56.36**	**0.11**	**812.09**	**1.89**	**60.49**	**5,139.38**	**62.58**	**-**	**-**	**69.18**	**2.97**	**-**	**-**	**-**	**-**	**-**	**6,205.05**
			%	**1%**	**0%**	**13%**	**0%**	**1%**	**83%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**
Wind Farm Area - Alternative C2 (540 nm), Wind Turbine Layout Modification to Establish a Buffer Between Ocean Wind and Atlantic Shores																				
Wind Turbine Generators	Perm.	Foundations[1]	Acres	-	-	0.27	0.02	0.02	1.85	0.12	-	-	0.06	-	-	-	-	-	-	2.34
			%	0%	0%	11%	1%	1%	79%	5%	0%	0%	2%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	4.29	0.32	0.33	28.13	1.89	-	-	0.82	0.03	-	-	-	-	-	35.83
			%	0%	0%	12%	1%	1%	79%	5%	0%	0%	2%	0%	0%	0%	0%	0%	0%	100%
	Temp.	Seafloor Disturbance[3]	Acres	27.26	-	525.77	32.09	25.66	3,595.32	415.67	-	-	82.44	12.49	-	-	-	-	-	4,716.69
			%	1%	0%	11%	1%	1%	76%	9%	0%	0%	2%	0%	0%	0%	0%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	-	-	1.22	-	-	2.45	-	-	-	-	-	-	-	-	-	-	3.67
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	0.20	-	-	0.40	-	-	-	-	-	-	-	-	-	-	0.59
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	-	-	10.73	-	-	24.23	-	-	-	-	-	-	-	-	-	-	34.96
			%	0%	0%	31%	0%	0%	69%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	1.96	-	23.53	0.01	0.75	140.25	1.46	-	-	1.53	-	-	-	-	-	-	169.48
			%	1%	0%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp.	Cable Installation and Seafloor Preparation[5]	Acres	16.11	0.11	195.37	0.09	6.25	1,167.88	12.13	-	-	12.74	-	-	-	-	-	-	1,410.67
			%	1%	0.01%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	-	-	0.30	-	-	4.80	-	-	-	-	-	-	-	-	-	-	5.10
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	-	-	2.57	-	-	40.15	-	-	-	-	-	-	-	-	-	-	42.72
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Total Permanent Impacts			**Acres**	**1.96**	**-**	**29.81**	**0.35**	**1.11**	**177.88**	**3.47**	**-**	**-**	**2.41**	**0.03**	**-**	**-**	**-**	**-**	**-**	**217.02**
			%	**1%**	0%	**14%**	**0%**	**1%**	**82%**	**2%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	100%
Total Temporary Impacts			**Acres**	**43.37**	**0.11**	**734.44**	**32.17**	**31.91**	**4,827.58**	**427.80**	**-**	**-**	**95.18**	**12.49**	**-**	**-**	**-**	**-**	**-**	**6,205.05**
			%	**1%**	**0%**	**12%**	**1%**	**1%**	**78%**	**7%**	**0%**	**0%**	**2%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	100%

Ocean Wind Offshore Wind Farm Proposed Project Design			Unit of Measure	Benthic Habitat Types: Coarse Sediment				Sand and Muddy Sand							Mud and Sandy Mud					
				Coarse Sediment	Coarse Sediment (interpolated)	Coarse Sediment -Mobile	Coarse Sediment -Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud	Anthropogenic	Total
Wind Farm Area - Alternative D, Sand Ridge and Trough Avoidance																				
Wind Turbine Generators	Perm.	Foundations[1]	Acres	-	-	0.25	-	0.05	1.66	-	-	-	0.02	-	-	-	-	-	-	1.99
			%	0%	0%	13%	0%	2%	84%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	4.30	-	0.71	24.94	-	-	-	0.39	-	-	-	-	-	-	30.34
			%	0%	0%	14%	0%	2%	82%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	13.02	-	499.11	0.09	51.21	3,363.33	11.51	-	-	56.47	-	-	-	-	-	-	3,994.75
			%	0%	0%	12%	0%	1%	84%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	-	-	1.22	-	-	2.45	-	-	-	-	-	-	-	-	-	-	3.67
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	-	-	0.20	-	-	0.40	-	-	-	-	-	-	-	-	-	-	0.59
			%	0%	0%	33%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	-	-	10.73	-	-	24.23	-	-	-	-	-	-	-	-	-	-	34.96
			%	0%	0%	31%	0%	0%	69%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	1.96	-	23.53	0.01	0.75	140.25	1.46	-	-	1.53	-	-	-	-	-	-	169.48
			%	1%	0%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	16.11	0.11	195.37	0.09	6.25	1,167.88	12.13	-	-	12.74	-	-	-	-	-	-	1,410.67
			%	1%	0.01%	14%	0%	0.4%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	-	-	0.30	-	-	4.80	-	-	-	-	-	-	-	-	-	-	5.10
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	-	-	2.57	-	-	40.15	-	-	-	-	-	-	-	-	-	-	42.72
			%	0%	0%	6%	0%	0.0%	94%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Total Permanent Impacts			**Acres**	**1.96**	**-**	**29.80**	**0.01**	**1.51**	**174.49**	**1.46**	**-**	**-**	**1.95**	**-**	**-**	**-**	**-**	**-**	**-**	**211.18**
			%	1%	0%	14%	0%	1%	83%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	100%
Total Temporary Impacts			**Acres**	**29.14**	**0.11**	**707.78**	**0.18**	**57.46**	**4,595.59**	**23.64**	**-**	**-**	**69.21**	**-**	**-**	**-**	**-**	**-**	**-**	**5,483.11**
			%	**1%**	**0%**	**13%**	**0%**	**1%**	**84%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**

Notes:

[1] Foundations are calculated using a 5.55 m radius

[2] Maximum Scour Protection are calculated using a 22.39 m radius around foundation

[3] Seafloor Disturbance are calculated using a 221.0 m radius around maximum scour protection (250 - max scour and WTG)

[4] Cable Protection are calculated using a 2.99 m total width; While removal of WTG positions is anticipated to result in a corresponding reduction in inter-array cable length and associated cable protection and cable installation and seafloor preparation impacts; the cable protection and cable installation and seafloor preparation area for the alternatives excluding WTG positions could not be calculated because the inter-array cable alignments associated with these alternatives have not been designed/engineered. Therefore, the values for these impact areas remains the same as those for the Proposed Action

[5] Cable Installation and Seafloor Preparation are calculated using a 25 m total width; While removal of WTG positions is anticipated to result in a corresponding reduction in inter-array cable length and associated cable protection and cable installation and seafloor preparation impacts; the cable protection and cable installation and seafloor preparation area for the alternatives excluding WTG positions could not be calculated because the inter-array cable alignments associated with these alternatives have not been designed/engineered. Therefore, the values for these impact areas remains the same as those for the Proposed Action

Key:

WTGs = Wind Turbine Generators

OSSs = Offshore Substations

Ocean Wind Offshore Wind Farm Proposed Project Design			Unit of Measure	NOAA Complexity Categories						
				Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
Wind Farm Area - Alternative A, Proposed Action										
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.38	-	0.05	1.91	0.00	-	2.34
			%	16%	0%	2%	82%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	6.0	-	0.7	29.1	0.20	-	35.98
			%	17%	0%	2%	81%	1%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	638.8	1.79	54.2	3,942.6	63.2	-	4700.55
			%	14%	0%	1%	84%	1%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	1.22	0.00	0.00	2.45	0.00	0.00	3.67
			%	33%	0%	0%	67%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.20	0.00	0.00	0.40	0.00	0.00	0.59
			%	33%	0%	0%	67%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	10.73	0.00	0.00	24.23	0.00	0.00	34.96
			%	31%	0%	0%	69%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	25.48	0.01	0.75	141.78	1.46	-	169.48
			%	15%	0.01%	0.4%	84%	0.9%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	211.48	0.20	6.25	1180.61	12.13	-	1,410.67
			%	15%	0.0%	0.4%	84%	1%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	0.3	0.00	0.0	4.8	0.00	-	5.10
			%	6%	0.00%	0.0%	94%	0.0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	2.57	0.00	0.00	40.15	0.00	-	42.72
			%	6%	0.0%	0.0%	94%	0%	0%	100%
Total Permanent Impacts			**Acres**	**33.54**	**0.01**	**1.51**	**180.44**	**1.66**	**-**	**217.17**
			%	**15%**	**0%**	**1%**	**83%**	**1%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**863.54**	**1.99**	**60.41**	**5,187.62**	**75.35**	**-**	**6,188.91**
			%	**14%**	**0%**	**1%**	**84%**	**1%**	**0%**	**100%**
Wind Farm Area - Alternative B1, No Surface Occupancy at Select Locations to Reduce Visual Impacts										
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.3	-	0.0	1.8	-	-	2.13
			%	15%	0%	2%	83%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	5.2	-	0.7	26.6	-	-	32.54
			%	16%	0%	2%	82%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	622.2	0.1	54.3	3,595.5	11.5	-	4283.53
			%	15%	0%	1%	84%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	1.22	0.00	0.00	2.45	0.00	0.00	3.67
			%	33%	0%	0%	67%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.20	0.00	0.00	0.40	0.00	0.00	0.59
			%	33%	0%	0%	67%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	10.73	0.00	0.00	24.23	0.00	0.00	34.96
			%	31%	0%	0%	69%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	25.48	0.01	0.75	141.78	1.46	-	169.48
			%	15%	0.01%	0.4%	84%	0.9%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	211.48	0.20	6.25	1180.61	12.13	-	1,410.67
			%	15%	0.0%	0.4%	84%	1%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	0.3	0.00	0.0	4.8	0.00	-	5.10
			%	6%	0.00%	0.0%	94%	0.0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	2.57	0.00	0.00	40.15	0.00	-	42.72
			%	6%	0.0%	0.0%	94%	0%	0%	100%
Total Permanent Impacts			**Acres**	**32.75**	**0.01**	**1.51**	**177.79**	**1.46**	**-**	**213.52**
			%	**15%**	**0%**	**1%**	**83%**	**1%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**846.97**	**0.29**	**60.53**	**4,840.45**	**23.64**	**-**	**5,771.88**
			%	**15%**	**0%**	**1%**	**84%**	**0%**	**0%**	**100%**

Ocean Wind Offshore Wind Farm Proposed Project Design			Unit of Measure	NOAA Complexity Categories						
				Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
Wind Farm Area - Alternative B2, No Surface Occupancy at Select Locations to Reduce Visual Impacts										
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.3	-	0.05	1.5	-	-	1.89
			%	17%	0%	3%	81%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	5.0	-	0.7	23.1	-	-	28.88
			%	17%	0%	2%	80%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	576.0	0.0	54.3	3,161.2	10.8	-	3802.23
			%	15%	0%	1%	83%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	1.22	0.00	0.00	2.45	0.00	0.00	3.67
			%	33%	0%	0%	67%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.20	0.00	0.00	0.40	0.00	0.00	0.59
			%	33%	0%	0%	67%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	10.73	0.00	0.00	24.23	0.00	0.00	34.96
			%	31%	0%	0%	69%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	25.48	0.01	0.75	141.78	1.46	-	169.48
			%	15%	0.01%	0.4%	84%	0.9%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	211.48	0.20	6.25	1180.61	12.13	-	1,410.67
			%	15%	0.0%	0.4%	84%	1%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	0.3	0.00	0.0	4.8	0.00	-	5.10
			%	6%	0.00%	0.0%	94%	0.0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	2.57	0.00	0.00	40.15	0.00	-	42.72
			%	6%	0.0%	0.0%	94%	0%	0%	100%
Total Permanent Impacts			**Acres**	**32.55**	**0.01**	**1.51**	**174.09**	**1.46**	**-**	**209.62**
			%	**16%**	**0%**	**1%**	**83%**	**1%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**800.74**	**0.20**	**60.53**	**4,406.18**	**22.94**	**-**	**5,290.58**
			%	**15%**	**0%**	**1%**	**83%**	**0%**	**0%**	**100%**
Wind Farm Area - Alternative C1, Wind Turbine Layout Modification to Establish a Buffer Between Ocean Wind and Atlantic Shores										
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.3	-	0.05	1.9	-	-	2.33
			%	15%	0%	2%	83%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	5.7	-	0.7	29.4	-	-	35.83
			%	16%	0%	2%	82%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	696.4	0.4	54.3	3,945.7	20.0	-	4716.71
			%	15%	0%	1%	84%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	1.22	0.00	0.00	2.45	0.00	0.00	3.67
			%	33%	0%	0%	67%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.20	0.00	0.00	0.40	0.00	0.00	0.59
			%	33%	0%	0%	67%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	10.73	0.00	0.00	24.23	0.00	0.00	34.96
			%	31%	0%	0%	69%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	25.48	0.01	0.75	141.78	1.46	-	169.48
			%	15%	0.01%	0.4%	84%	0.9%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	211.48	0.20	6.25	1180.61	12.13	-	1,410.67
			%	15%	0.0%	0.4%	84%	1%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	0.3	0.00	0.0	4.8	0.00	-	5.10
			%	6%	0.00%	0.0%	94%	0.0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	2.57	0.00	0.00	40.15	0.00	-	42.72
			%	6%	0.0%	0.0%	94%	0%	0%	100%
Total Permanent Impacts			**Acres**	**33.23**	**0.01**	**1.51**	**180.79**	**1.46**	**-**	**217.00**
			%	**15%**	**0%**	**1%**	**83%**	**1%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**921.22**	**0.57**	**60.53**	**5,190.66**	**32.09**	**-**	**6,205.07**
			%	**15%**	**0%**	**1%**	**84%**	**1%**	**0%**	**100%**

Ocean Wind Offshore Wind Farm Proposed Project Design			Unit of Measure	NOAA Complexity Categories						
				Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
Wind Farm Area - Alternative C2 (405 nm), Wind Turbine Layout Modification to Establish a Buffer Between Ocean Wind and Atlantic Shores										
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.34	-	0.05	1.95	-	-	2.34
			%	15%	0%	2%	83%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	5.54	-	0.71	29.55	0.03	-	35.83
			%	15%	0%	2%	82%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	643.67	1.80	54.24	3,963.56	53.42	-	4716.70
			%	14%	0%	1%	84%	1%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	1.22	0.00	0.00	2.45	0.00	0.00	3.67
			%	33%	0%	0%	67%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.20	0.00	0.00	0.40	0.00	0.00	0.59
			%	33%	0%	0%	67%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	10.73	0.00	0.00	24.23	0.00	0.00	34.96
			%	31%	0%	0%	69%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	25.48	0.01	0.75	141.78	1.46	-	169.48
			%	15%	0.01%	0.4%	84%	0.9%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	211.48	0.20	6.25	1180.61	12.13	-	1,410.67
			%	15%	0.0%	0.4%	84%	1%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	0.3	0.00	0.0	4.8	0.00	-	5.10
			%	6%	0.00%	0.0%	94%	0.0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	2.57	0.00	0.00	40.15	0.00	-	42.72
			%	6%	0.0%	0.0%	94%	0%	0%	100%
Total Permanent Impacts			**Acres**	**33.08**	**0.01**	**1.51**	**180.93**	**1.50**	**-**	**217.02**
			%	**15%**	**0%**	**1%**	**83%**	**1%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**868.45**	**2.00**	**60.49**	**5,208.56**	**65.55**	**-**	**6,205.05**
			%	**14%**	**0%**	**1%**	**84%**	**1%**	**0%**	**100%**
Wind Farm Area - Alternative C2 (540 nm), Wind Turbine Layout Modification to Establish a Buffer Between Ocean Wind and Atlantic Shores										
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.27	0.02	0.02	1.91	0.12	0.00	2.34
			%	11%	1%	1%	82%	5%	0%	100%
		Maximum Scour Protection[2]	Acres	4.29	0.32	0.33	28.95	1.93	0.00	35.83
			%	12%	1%	1%	81%	5%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	553.03	32.09	25.66	3677.76	428.16	0.00	4,716.69
			%	12%	1%	1%	78%	9%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	1.22	0.00	0.00	2.45	0.00	0.00	3.67
			%	33%	0%	0%	67%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.20	0.00	0.00	0.40	0.00	0.00	0.59
			%	33%	0%	0%	67%	0%	0%	100%
	Temp	Seafloor Disturbance[3]	Acres	10.73	0.00	0.00	24.23	0.00	0.00	34.96
			%	31%	0%	0%	69%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	25.48	0.01	0.75	141.78	1.46	-	169.48
			%	15%	0.01%	0.4%	84%	0.9%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	211.48	0.20	6.25	1180.61	12.13	-	1,410.67
			%	15%	0.0%	0.4%	84%	1%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	0.3	0.00	0.0	4.8	0.00	-	5.10
			%	6%	0.00%	0.0%	94%	0.0%	0%	100%
	Temp	Cable Installation and Seafloor Preparation[5]	Acres	2.57	0.00	0.00	40.15	0.00	-	42.72
			%	6%	0.0%	0.0%	94%	0%	0%	100%
Total Permanent Impacts			**Acres**	**31.76**	**0.35**	**1.11**	**180.29**	**3.51**	**-**	**217.02**
			%	**15%**	**0%**	**1%**	**83%**	**2%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**777.81**	**32.28**	**31.91**	**4,922.76**	**440.29**	**-**	**6,205.05**
			%	**13%**	**1%**	**1%**	**79%**	**7%**	**0%**	**100%**

Ocean Wind Offshore Wind Farm Proposed Project Design			Unit of Measure	NOAA Complexity Categories						
				Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
Wind Farm Area - Alternative D, Sand Ridge and Trough Avoidance										
Wind Turbine Generators	Perm.	Foundations[1]	Acres	0.3	-	0.05	1.7	-	-	1.99
			%	13%	0%	2%	85%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	4.3	-	0.7	25.3	-	-	30.34
			%	14%	0%	2%	83%	0%	0%	100%
	Temp.	Seafloor Disturbance[3]	Acres	512.1	0.1	51.2	3,419.8	11.5	-	3994.75
			%	13%	0%	1%	86%	0%	0%	100%
Offshore Substation Foundations	Perm.	Foundations[1]	Acres	1.22	0.00	0.00	2.45	0.00	0.00	3.67
			%	33%	0%	0%	67%	0%	0%	100%
		Maximum Scour Protection[2]	Acres	0.20	0.00	0.00	0.40	0.00	0.00	0.59
			%	33%	0%	0%	67%	0%	0%	100%
	Temp.	Seafloor Disturbance[3]	Acres	10.73	0.00	0.00	24.23	0.00	0.00	34.96
			%	31%	0%	0%	69%	0%	0%	100%
Inter-Array Cables	Perm.	Cable Protection[4]	Acres	25.48	0.01	0.75	141.78	1.46	-	169.48
			%	15%	0.01%	0.4%	84%	0.9%	0%	100%
	Temp.	Cable Installation and Seafloor Preparation[5]	Acres	211.48	0.20	6.25	1180.61	12.13	-	1,410.67
			%	15%	0.0%	0.4%	84%	1%	0%	100%
OSS Link Cable	Perm.	Cable Protection[4]	Acres	0.3	0.00	0.0	4.8	0.00	-	5.10
			%	6%	0.00%	0.0%	94%	0.0%	0%	100%
	Temp.	Cable Installation and Seafloor Preparation[5]	Acres	2.57	0.00	0.00	40.15	0.00	-	42.72
			%	6%	0.0%	0.0%	94%	0%	0%	100%
Total Permanent Impacts			**Acres**	**31.76**	**0.01**	**1.51**	**176.44**	**1.46**	**-**	**211.18**
			%	**15%**	**0%**	**1%**	**84%**	**1%**	**0%**	**100%**
Total Temporary Impacts			**Acres**	**736.92**	**0.29**	**57.46**	**4,664.80**	**23.64**	**-**	**5,483.11**
			%	**13%**	**0%**	**1%**	**85%**	**0%**	**0%**	**100%**

Notes:

[1] Foundations are calculated using a 5.55m radius

[2] Maximum Scour Protection are calculated using a 22.39m radius around foundation

[3] Seafloor Disturbance are calculated using a 221.0m radius around maximum scour protection (250 - max scour and WTG)

Key:
WTGs = Wind Turbine Generators
OSSs = Offshore Substations

[4] Cable Protection are calculated using a 2.99 m total width; While removal of WTG positions is anticipated to result in a corresponding reduction in inter-array cable length and associated cable protection and cable installation and seafloor preparation impacts; the cable protection and cable installation and seafloor preparation area for the alternatives excluding WTG positions could not be calculated because the inter-array cable alignments associated with these alternatives have not been designed/engineered. Therefore, the values for these impact areas remains the same as those for the Proposed Action

[5] Cable Installation and Seafloor Preparation are calculated using a 25 m total width; While removal of WTG positions is anticipated to result in a corresponding reduction in inter-array cable length and associated cable protection and cable installation and seafloor preparation impacts; the cable protection and cable installation and seafloor preparation area for the alternatives excluding WTG positions could not be calculated because the inter-array cable alignments associated with these alternatives have not been designed/engineered. Therefore, the values for these impact areas remains the same as those for the Proposed Action

		Unit of Measure	Coarse Sediment	Coarse Sediment-Mobile	Coarse Sediment-Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with SAV (interpolated)	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand with Historical SAV (interpolated)	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with SAV (interpolated)	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud with Historical SAV (interpolated)	Mud and Sandy Mud	Mud and Sandy Mud (interpolated)
	BL England - OSS to Landfall at 35th St																				
Perm.	Cable Protection	Acres	0.02	0.26	-	-	2.54	-	-	-	-	-	20.22	0.02	-	-	-	-	-	0.89	-
		%	0%	1%	0%	0%	11%	0%	0%	0%	0%	0%	84%	0%	0%	0%	0%	0%	0%	4%	0%
Temp.	Cable Installation and Seafloor Preparation	Acres	0.12	2.18	-	-	21.32	-	-	-	-	-	169.14	0.19	-	-	-	-	-	7.40	-
		%	0%	1%	0%	0%	11%	0%	0%	0%	0%	0%	84%	0%	0%	0%	0%	0%	0%	4%	0%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	-	0.57	-	-	-	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	1.26	-	-	-	-	-	-	-	-	-	20.40	1.53	-	-	-	-	-	-	-
		%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	88%	7%	0%	0%	0%	0%	0%	0%	0%
Total Permanent Impacts		**Acres**	**0.02**	**0.26**	**-**	**-**	**2.54**	**-**	**-**	**-**	**-**	**-**	**20.22**	**0.02**	**-**	**-**	**-**	**-**	**-**	**0.89**	**-**
		%	0%	1%	0%	0%	11%	0%	0%	0%	0%	0%	84%	0%	0%	0%	0%	0%	0%	4%	0%
Total Temporary Impacts		**Acres**	**1.39**	**2.18**	**-**	**-**	**21.32**	**-**	**-**	**-**	**-**	**-**	**190.12**	**1.73**	**-**	**-**	**-**	**-**	**-**	**7.40**	**-**
		%	1%	1%	0%	0%	10%	0%	0%	0%	0%	0%	85%	1%	0%	0%	0%	0%	0%	3%	0%
	BL England - OSS to Landfall at 13th St																				
Perm.	Cable Protection	Acres	-	0.26	-	-	2.54	-	-	-	-	-	17.20	-	0.34	-	-	-	-	1.60	-
		%	0%	1%	0%	0%	12%	0%	0%	0%	0%	0%	78%	0%	2%	0%	0%	0%	0%	7%	0%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	2.18	-	-	21.32	-	-	-	-	-	143.80	-	2.83	-	-	-	-	13.41	-
		%	0%	1%	0%	0%	12%	0%	0%	0%	0%	0%	78%	0%	2%	0%	0%	0%	0%	7%	0%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	-	0.57	-	-	-	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	-	-	-	-	22.69	0.52	-	-	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	98%	2%	0%	0%	0%	0%	0%	0%	0%
Total Permanent Impacts		**Acres**	**-**	**0.26**	**-**	**-**	**2.54**	**-**	**-**	**-**	**-**	**-**	**17.20**	**-**	**0.34**	**-**	**-**	**-**	**-**	**1.60**	**-**
		%	0%	1%	0%	0%	12%	0%	0%	0%	0%	0%	78%	0%	2%	0%	0%	0%	0%	7%	0%
Total Temporary Impacts		**Acres**	**-**	**2.18**	**-**	**-**	**21.32**	**-**	**-**	**-**	**-**	**-**	**167.06**	**0.52**	**2.83**	**-**	**-**	**-**	**-**	**13.41**	**-**
		%	0%	1%	0%	0%	10%	0%	0%	0%	0%	0%	81%	0%	1%	0%	0%	0%	0%	6%	0%
	BL England - OSS to Landfall at 5th St																				
Perm.	Cable Protection	Acres	-	0.35	-	-	2.54	-	-	-	-	-	17.36	0.04	0.28	-	-	-	-	0.81	-
		%	0%	2%	0%	0%	12%	0%	0%	0%	0%	0%	81%	0%	1%	0%	0%	0%	0%	4%	0%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	2.85	-	-	21.32	-	-	-	-	-	145.30	0.30	2.34	-	-	-	-	6.71	-
		%	0%	2%	0%	0%	12%	0%	0%	0%	0%	0%	81%	0%	1%	0%	0%	0%	0%	4%	0%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	-	0.25	-	-	-	-	-	-	0.32	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	43%	0%	0%	0%	0%	0%	0%	57%	0%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	-	-	-	-	20.64	2.36	-	-	-	-	-	0.20	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	89%	10%	0%	0%	0%	0%	0%	1%	0%
Total Permanent Impacts		**Acres**	**-**	**0.35**	**-**	**-**	**2.54**	**-**	**-**	**-**	**-**	**-**	**17.36**	**0.04**	**0.28**	**-**	**-**	**-**	**-**	**0.81**	**-**
		%	0%	2%	0%	0%	12%	0%	0%	0%	0%	0%	81%	0%	1%	0%	0%	0%	0%	4%	0%
Total Temporary Impacts		**Acres**	**-**	**2.85**	**-**	**-**	**21.32**	**-**	**-**	**-**	**-**	**-**	**166.19**	**2.65**	**2.34**	**-**	**-**	**-**	**-**	**7.24**	**-**
		%	0%	1%	0%	0%	11%	0%	0%	0%	0%	0%	82%	1%	1%	0%	0%	0%	0%	4%	0%
	Oyster Creek Offshore- OSS to Landfall at Atlantic side of IBSP																				
Perm.	Cable Protection	Acres	6.18	58.23	-	-	66.56	-	-	-	-	-	2.49	-	-	-	-	-	-	-	-
		%	5%	44%	0%	0%	50%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Temp.	Cable Installation and Seafloor Preparation	Acres	51.77	486.59	-	-	556.45	0.0001	-	-	-	-	20.72	-	-	-	-	-	-	-	-
		%	5%	44%	0%	0%	50%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Temp.	HDD Exit Pit	Acres	-	-	-	-	1.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

		Unit of Measure	Coarse Sediment	Coarse Sediment-Mobile	Coarse Sediment-Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with SAV (interpolated)	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand with Historical SAV (interpolated)	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with SAV (interpolated)	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud with Historical SAV (interpolated)	Mud and Sandy Mud	Mud and Sandy Mud (interpolated)
Temp	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	27.37	0.39	-	-	-	-	-	-	-	-	-	-	-	-	-
		%	0%	0%	0%	0%	99%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Total Permanent Impacts	**Acres**	**6.18**	**58.23**	**-**	**-**	**66.56**	**-**	**-**	**-**	**-**	**-**	**2.49**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		%	5%	44%	0%	0%	50%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
	Total Temporary Impacts	**Acres**	**51.77**	**486.59**	**-**	**-**	**584.97**	**0.39**	**-**	**-**	**-**	**-**	**20.72**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
		%	5%	43%	0%	0%	51%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to The Farm																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	0.23	-	0.04	-	2.18	-	-	-	-	-	-	8.94	0.73
		%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	74%	6%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	1.92	-	0.29	-	17.98	-	-	-	-	-	-	75.09	5.84
		%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	74%	6%
Temp	Dredging width for prior channel up to 175 ft wide (as reflected in the shapefiles)	Acres	-	-	-	-	-	-	-	-	-	-	-	-	-	7.24	0.67	-	-	5.61	2.50
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	4%	0%	0%	35%	16%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**0.23**	**-**	**0.04**	**-**	**2.18**	**-**	**-**	**-**	**-**	**-**	**-**	**8.94**	**0.73**
		%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	74%	6%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**1.92**	**-**	**0.29**	**-**	**17.98**	**-**	**-**	**7.24**	**0.67**	**-**	**-**	**80.69**	**8.34**
		%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	15%	0%	0%	6%	1%	0%	0%	69%	7%
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to The Farm																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	0.23	-	0.50	-	2.30	-	-	1.22	-	-	-	9.06	0.20
		%	0%	0%	0%	0%	0%	0%	2%	0%	4%	0%	17%	0%	0%	9%	0%	0%	0%	67%	1%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	1.92	-	4.15	-	19.03	-	-	10.20	-	-	-	75.97	1.79
		%	0%	0%	0%	0%	0%	0%	2%	0%	4%	0%	17%	0%	0%	9%	0%	0%	0%	67%	2%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	-	-	-	-	1.12	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	-	-	-	-	-	-	-	15.89	0.19	3.44	6.29	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	62%	1%	13%	24%	0%	0%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**0.23**	**-**	**0.50**	**-**	**2.30**	**-**	**-**	**1.22**	**-**	**-**	**-**	**9.06**	**0.20**
		%	0%	0%	0%	0%	0%	0%	2%	0%	4%	0%	17%	0%	0%	9%	0%	0%	0%	67%	1%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**1.92**	**-**	**4.15**	**-**	**19.03**	**-**	**-**	**27.21**	**0.19**	**3.44**	**6.29**	**75.97**	**1.79**
		%	0%	0%	0%	0%	0%	0%	1%	0%	3%	0%	14%	0%	0%	19%	0%	2%	4%	54%	1%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to Bay Parkway One Shot																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	0.04	-	-	-	1.42	-	-	-	-	0.12	-	4.56	-
		%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	23%	0%	0%	0%	0%	2%	0%	74%	0%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	0.33	-	-	-	11.91	-	-	-	-	0.96	-	38.36	0.04
		%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	23%	0%	0%	0%	0%	2%	0%	74%	0%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	0.57	-	-	-	-	-	-	-	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	12.36	3.20	-	1.21	-	-	-	-	-	4.53	-	1.92	-
		%	0%	0%	0%	0%	0%	0%	53%	14%	0%	5%	0%	0%	0%	0%	0%	20%	0%	8%	0%
Temp.	Dredging width for prior channel up to 175 ft wide (as reflected in the shapefiles)	Acres	-	-	-	-	-	-	-	-	-	-	-	-	-	7.24	0.67	-	-	5.61	2.50
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	4%	0%	0%	35%	16%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**0.04**	**-**	**-**	**-**	**1.42**	**-**	**-**	**-**	**-**	**0.12**	**-**	**4.56**	**-**
		%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	23%	0%	0%	0%	0%	2%	0%	74%	0%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**13.27**	**3.20**	**-**	**1.21**	**11.91**	**-**	**-**	**7.24**	**0.67**	**5.49**	**-**	**45.89**	**2.54**
		%	0%	0%	0%	0%	0%	0%	15%	3%	0%	1%	13%	0%	0%	8%	1%	6%	0%	50%	3%

		Unit of Measure	Coarse Sediment	Coarse Sediment-Mobile	Coarse Sediment-Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with SAV (interpolated)	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand with Historical SAV (interpolated)	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with SAV (interpolated)	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud with Historical SAV (interpolated)	Mud and Sandy Mud	Mud and Sandy Mud (interpolated)
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to Bay Parkway One Shot																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	0.04	-	0.26	-	1.50	-	-	0.57	-	0.12	-	4.38	-
		%	0%	0%	0%	0%	0%	0%	1%	0%	4%	0%	22%	0%	0%	8%	0%	2%	0%	64%	0%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	0.33	-	2.11	-	12.55	-	-	4.86	-	0.96	-	36.64	-
		%	0%	0%	0%	0%	0%	0%	1%	0%	4%	0%	22%	0%	0%	8%	0%	2%	0%	64%	0%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	0.57	-	-	-	-	-	-	1.12	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	34%	0%	0%	0%	0%	0%	0%	66%	0%	0%	0%	0%	0%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	12.36	3.20	-	1.21	-	-	-	15.89	0.19	7.97	6.29	1.92	-
		%	0%	0%	0%	0%	0%	0%	25%	7%	0%	2%	0%	0%	0%	32%	0%	16%	13%	4%	0%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**0.04**	**-**	**0.26**	**-**	**1.50**	**-**	**-**	**0.57**	**-**	**0.12**	**-**	**4.38**	**-**
		%	0%	0%	0%	0%	0%	0%	1%	0%	4%	0%	22%	0%	0%	8%	0%	2%	0%	64%	0%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**13.27**	**3.20**	**2.11**	**1.21**	**12.55**	**-**	**-**	**21.86**	**0.19**	**8.93**	**6.29**	**38.56**	**-**
		%	0%	0%	0%	0%	0%	0%	12%	3%	2%	1%	12%	0%	0%	20%	0%	8%	6%	36%	0%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to Bay Parkway																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	-	-	-	-	2.72	-	-	-	-	-	-	9.01	1.31
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	69%	10%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	-	-	-	-	22.56	-	-	-	-	-	-	75.61	10.63
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	69%	10%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	0.57	-	-	-	-	-	-	-	-	0.58
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	49%	0%	0%	0%	0%	0%	0%	0%	0%	51%
Temp.	Cofferdam HDD Anchoring Area (175 m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	5.38	3.02	-	6.50	-	-	-	0.19	-	0.31	-	0.14	11.51
		%	0%	0%	0%	0%	0%	0%	20%	11%	0%	24%	0%	0%	0%	1%	0%	1%	0%	1%	43%
Temp.	Dredging width for prior channel up to 175 ft wide (as reflected in the shapefiles)	Acres	-	-	-	-	-	-	-	-	-	-	-	-	-	7.24	0.67	-	-	5.61	2.50
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	4%	0%	0%	35%	16%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.72**	**-**	**-**	**-**	**-**	**-**	**-**	**9.01**	**1.31**
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	69%	10%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**5.38**	**3.02**	**-**	**7.07**	**22.56**	**-**	**-**	**7.43**	**0.67**	**0.31**	**-**	**81.36**	**25.22**
		%	0%	0%	0%	0%	0%	0%	4%	2%	0%	5%	15%	0%	0%	5%	0%	0%	0%	53%	16%
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to Bay Parkway																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	-	-	0.46	-	2.84	-	-	1.22	-	-	-	9.14	0.79
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	20%	0%	0%	8%	0%	0%	0%	63%	5%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	-	-	3.86	-	23.62	-	-	10.20	-	-	-	76.49	6.58
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	20%	0%	0%	8%	0%	0%	0%	63%	5%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	0.57	-	-	-	1.12	-	-	-	-	0.58
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	49%	0%	0%	0%	0%	26%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	5.38	3.02	-	6.50	-	-	-	16.07	0.19	3.75	6.29	0.14	11.51
		%	0%	0%	0%	0%	0%	0%	10%	6%	0%	12%	0%	0%	0%	30%	0%	7%	12%	0%	22%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.46**	**-**	**2.84**	**-**	**-**	**1.22**	**-**	**-**	**-**	**9.14**	**0.79**
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	20%	0%	0%	8%	0%	0%	0%	63%	5%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**5.38**	**3.02**	**3.86**	**7.07**	**23.62**	**-**	**-**	**27.40**	**0.19**	**3.75**	**6.29**	**76.63**	**18.67**
		%	0%	0%	0%	0%	0%	0%	3%	2%	2%	4%	13%	0%	0%	16%	0%	2%	4%	44%	11%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to Nautilus Rd																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	-	-	-	-	1.37	-	-	-	-	-	-	5.49	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	80%	0%

		Unit of Measure	Coarse Sediment	Coarse Sediment-Mobile	Coarse Sediment-Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with SAV (interpolated)	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand with Historical SAV (interpolated)	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with SAV (interpolated)	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud with Historical SAV (interpolated)	Mud and Sandy Mud	Mud and Sandy Mud (interpolated)
Temp	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	-	-	-	-	11.52	-	-	-	-	-	-	46.03	0.04
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	80%	0%
Temp	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	-	0.57	-	-	-	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%
Temp	Cofferdam HDD Anchoring Area (175 m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	0.94	-	6.04	1.70	6.31	0.001	-	-	-	-	-	6.42	1.81
		%	0%	0%	0%	0%	0%	0%	4%	0%	26%	7%	27%	0%	0%	0%	0%	0%	0%	28%	8%
Temp	Dredging width for prior channel up to 175 ft wide (as reflected in the shapefiles)	Acres	-	-	-	-	-	-	-	-	-	-	-	-	-	7.24	0.67	-	-	5.61	2.50
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	4%	0%	0%	35%	16%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.37**	**-**	**-**	**-**	**-**	**-**	**-**	**5.49**	**-**
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	80%	0%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**0.94**	**-**	**6.04**	**1.70**	**18.41**	**0.001**	**-**	**7.24**	**0.67**	**-**	**-**	**58.05**	**4.35**
		%	0%	0%	0%	0%	0%	0%	1%	0%	6%	2%	19%	0%	0%	7%	1%	0%	0%	60%	4%
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to Nautilus Rd																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	-	-	0.26	-	1.45	-	-	0.57	-	-	-	5.31	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	19%	0%	0%	8%	0%	0%	0%	70%	0%
Temp	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	-	-	2.11	-	12.17	-	-	4.86	-	-	-	44.30	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	19%	0%	0%	8%	0%	0%	0%	70%	0%
Temp	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	-	0.57	-	-	1.12	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34%	0%	0%	66%	0%	0%	0%	0%	0%
Temp	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	0.94	-	6.04	1.70	6.31	0.001	-	15.89	0.19	3.44	6.29	6.42	1.81
		%	0%	0%	0%	0%	0%	0%	2%	0%	12%	3%	13%	0%	0%	32%	0%	7%	13%	13%	4%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.26**	**-**	**1.45**	**-**	**-**	**0.57**	**-**	**-**	**-**	**5.31**	**-**
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	19%	0%	0%	8%	0%	0%	0%	70%	0%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**0.94**	**-**	**8.15**	**1.70**	**19.05**	**0.00**	**-**	**21.86**	**0.19**	**3.44**	**6.29**	**50.72**	**1.81**
		%	0%	0%	0%	0%	0%	0%	1%	0%	7%	1%	17%	0%	0%	19%	0%	3%	6%	44%	2%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to Lighthouse Dr																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	-	-	-	-	1.35	-	-	-	-	-	-	5.10	0.52
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	73%	7%
Temp	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	-	-	-	-	10.95	-	-	-	-	-	-	43.33	4.01
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	74%	7%
Temp	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	0.32	-	0.26	-	-	-	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	55%	0%	45%	0%	0%	0%	0%	0%	0%	0%	0%
Temp	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	3.04	-	8.24	0.11	6.41	0.01	-	-	-	-	-	5.18	0.22
		%	0%	0%	0%	0%	0%	0%	13%	0%	35%	0%	28%	0%	0%	0%	0%	0%	0%	22%	1%
Temp	Dredging width for prior channel up to 175 ft wide (as reflected in the shapefiles)	Acres	-	-	-	-	-	-	-	-	-	-	-	-	-	7.24	0.67	-	-	5.61	2.50
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	4%	0%	0%	35%	16%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1.35**	**-**	**-**	**-**	**-**	**-**	**-**	**5.10**	**0.52**
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	73%	7%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**3.04**	**-**	**8.56**	**0.11**	**17.62**	**0.01**	**-**	**7.24**	**0.67**	**-**	**-**	**54.12**	**6.73**
		%	0%	0%	0%	0%	0%	0%	3%	0%	9%	0%	18%	0%	0%	7%	1%	0%	0%	55%	7%
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to Lighthouse Drive																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	-	-	0.20	-	1.38	-	-	0.65	-	-	-	5.40	0.00002
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	18%	0%	0%	8%	0%	0%	0%	71%	0.0002%
Temp	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	-	-	1.75	-	11.36	-	-	5.35	-	-	-	45.37	0.0001
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	18%	0%	0%	8%	0%	0%	0%	71%	0.0002%

		Unit of Measure	Coarse Sediment	Coarse Sediment-Mobile	Coarse Sediment-Mobile (interpolated)	Sand and Muddy Sand with Low Density Boulder Field	Sand and Muddy Sand-Mobile	Sand and Muddy Sand-Mobile (interpolated)	Sand and Muddy Sand with SAV	Sand and Muddy Sand with SAV (interpolated)	Sand and Muddy Sand with Historical SAV	Sand and Muddy Sand with Historical SAV (interpolated)	Sand and Muddy Sand	Sand and Muddy Sand (interpolated)	Mud and Sandy Mud with Low Density Boulder Field	Mud and Sandy Mud with SAV	Mud and Sandy Mud with SAV (interpolated)	Mud and Sandy Mud with Historical SAV	Mud and Sandy Mud with Historical SAV (interpolated)	Mud and Sandy Mud	Mud and Sandy Mud (interpolated)
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	0.32	-	0.26	-	-	1.12	-	-	-	-	-
		%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%	15%	0%	0%	66%	0%	0%	0%	0%	0%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	3.04	-	8.24	0.11	6.41	0.01	-	15.89	0.19	3.44	6.29	5.18	0.22
		%	0%	0%	0%	0%	0%	0%	6%	0%	17%	0%	13%	0%	0%	32%	0%	7%	13%	11%	0%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.20**	**-**	**1.38**	**-**	**-**	**0.65**	**-**	**-**	**-**	**5.40**	**0.00002**
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	18%	0%	0%	8%	0%	0%	0%	71%	0%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**3.04**	**-**	**10.31**	**0.11**	**18.03**	**0.01**	**-**	**22.35**	**0.19**	**3.44**	**6.29**	**50.55**	**0.22**
		%	0%	0%	0%	0%	0%	0%	3%	0%	9%	0%	16%	0%	0%	20%	0%	3%	5%	44%	0.002
	Oyster Creek Inshore - Barnegat Bay **Alt E - Prior Channel to Marina**																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	-	-	-	-	2.69	-	-	-	-	-	-	10.01	1.47
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	71%	10%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	-	-	-	-	22.25	-	-	-	-	-	-	83.94	12.04
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	71%	10%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	0.99
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	0%	0%	0%	87%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	-	0.03	0.88	12.60	0.88	0.01	-	-	-	-	-	0.12	14.03
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	44%	3%	0%	0%	0%	0%	0%	0%	0%	49%
Temp.	Dredging width for prior channel up to 175 ft wide (as reflected in the shapefiles)	Acres	-	-	-	-	-	-	-	-	-	-	-	-	-	7.24	0.67	-	-	5.61	2.50
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	4%	0%	0%	35%	16%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2.69**	**-**	**-**	**-**	**-**	**-**	**-**	**10.01**	**1.47**
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	71%	10%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.03**	**0.88**	**12.75**	**23.12**	**0.01**	**-**	**7.24**	**0.67**	**-**	**-**	**89.68**	**29.57**
		%	0%	0%	0%	0%	0%	0%	0%	0%	1%	8%	14%	0%	0%	4%	0%	0%	0%	55%	18%
	Oyster Creek Inshore - Barnegat Bay **Alt A - Base Case to Marina**																				
Perm.	Cable Protection	Acres	-	-	-	-	-	-	-	-	0.46	-	2.80	-	-	1.22	-	-	-	10.14	0.95
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	18%	0%	0%	8%	0%	0%	0%	65%	6%
Temp.	Cable Installation and Seafloor Preparation	Acres	-	-	-	-	-	-	-	-	3.86	-	23.30	-	-	10.20	-	-	-	84.83	8.00
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	18%	0%	0%	8%	0%	0%	0%	65%	6%
Temp.	HDD Exit Pit	Acres	-	-	-	-	-	-	-	-	-	0.15	-	-	-	1.12	-	-	-	-	0.99
		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%	0%	0%	0%	49%	0%	0%	0%	0%	44%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	Acres	-	-	-	-	-	-	-	0.03	0.88	12.60	0.88	0.01	-	15.89	0.19	3.44	6.29	0.12	14.03
		%	0%	0%	0%	0%	0%	0%	0%	0%	2%	23%	2%	0%	0%	29%	0%	6%	12%	0%	26%
	Total Permanent Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.46**	**-**	**2.80**	**-**	**-**	**1.22**	**-**	**-**	**-**	**10.14**	**0.95**
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	18%	0%	0%	8%	0%	0%	0%	65%	6%
	Total Temporary Impacts	**Acres**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.03**	**4.74**	**12.75**	**24.18**	**0.01**	**-**	**27.21**	**0.19**	**3.44**	**6.29**	**84.95**	**23.02**
		%	0%	0%	0%	0%	0%	0%	0%	0%	3%	7%	13%	0%	0%	15%	0%	2%	3%	45%	12%

		Anthropogenic	Total		Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
	BL England - OSS to Landfall at 35th St										
Perm.	Cable Protection	-	23.96		0.28	-	-	23.65	0.02	-	23.96
		0%	100%		1.2%	0%	0%	99%	0.1%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	200.36		2.30	-	-	197.86	0.19	-	200.36
		0%	100%		1.1%	0%	0%	99%	0.1%	0%	100%
Temp.	HDD Exit Pit	-	0.57		-	-	-	0.57	-	-	0.57
		0%	100%		0%	0%	0%	100%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	-	23.20		1.26	-	-	20.40	1.53	-	23.20
		0%	100%		5%	0%	0%	88%	7%	0%	100%
	Total Permanent Impacts	**-**	**23.96**		**0.28**	**-**	**-**	**23.65**	**0.02**	**-**	**23.96**
		0%	100%		1%	0%	0%	99%	0.1%	0%	100%
	Total Temporary Impacts	**-**	**224.13**		**3.56**	**-**	**-**	**218.84**	**1.73**	**-**	**224.13**
		0%	100%		2%	0%	0%	98%	1%	0%	100%
	BL England - OSS to Landfall at 13th St										
Perm.	Cable Protection	-	21.95		0.26	-	0.34	21.35	-	-	21.95
		0%	100%		1%	0%	2%	97%	0%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	183.53		2.18	-	2.83	178.53	-	-	183.53
		0%	100%		1%	0%	2%	97%	0%	0%	100%
Temp.	HDD Exit Pit	-	0.57		-	-	-	0.57	-	-	0.57
		0%	100%		0%	0%	0%	100%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	-	23.20		-	-	-	22.69	0.52	-	23.20
		0%	100%		0%	0%	0%	98%	2%	0%	100%
	Total Permanent Impacts	**-**	**21.95**		**0.26**	**-**	**0.34**	**21.35**	**-**	**-**	**21.95**
		0%	100%		1%	0%	2%	97%	0%	0%	100%
	Total Temporary Impacts	**-**	**207.31**		**2.18**	**-**	**2.83**	**201.79**	**0.52**	**-**	**207.31**
		0%	100%		1%	0%	1%	97%	0%	0%	100%
	BL England - OSS to Landfall at 5th St										
Perm.	Cable Protection	-	21.38		0.35	-	0.28	20.72	0.04	-	21.38
		0%	100%		2%	0%	1%	97%	0.2%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	178.82		2.85	-	2.34	173.33	0.30	-	178.82
		0%	100%		2%	0%	1%	97%	0.2%	0%	100%
Temp.	HDD Exit Pit	-	0.57		-	-	-	0.57	-	-	0.57
		0%	100%		0%	0%	0%	100%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	-	23.20		-	-	-	20.85	2.36	-	23.20
		0%	100%		0%	0%	0%	90%	10%	0%	100%
	Total Permanent Impacts	**-**	**21.38**		**0.35**	**-**	**0.28**	**20.72**	**0.04**	**-**	**21.38**
		0%	100%		2%	0%	1%	97%	0%	0%	100%
	Total Temporary Impacts	**-**	**202.59**		**2.85**	**-**	**2.34**	**194.74**	**2.65**	**-**	**202.59**
		0%	100%		1%	0%	1%	96%	1%	0%	100%
	Oyster Creek Offshore- OSS to Landfall at Atlantic side of IBSP										
Perm.	Cable Protection	-	133.46		64.41	-	-	69.05	-	-	133.46
		0%	100%		48%	0%	0%	52%	0%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	1,115.53		538.36	-	-	577.17	0.0001	-	1,115.53
		0%	100%		48%	0%	0%	52%	0.00001%	0%	100%
Temp.	HDD Exit Pit	-	1.14		-	-	-	1.14	-	-	1.14
		0%	100%		0%	0%	0%	100%	0%	0%	100%

		Anthropogenic	Total		Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
Temp.	Cofferdam HDD Anchoring Area (175m radius from	-	27.76		-	-	-	27.37	0.39	-	27.76
	center point of HDD Exit pit)	0%	100%		0%	0%	0%	99%	1%	0%	100%
		-	**133.46**		**64.41**	**-**	**-**	**69.05**	**-**	**-**	**133.46**
	Total Permanent Impacts	0%	100%		48%	0%	0%	52%	0%	0%	100%
		-	**1,144.43**		**538.36**	**-**	**-**	**605.68**	**0.39**	**-**	**1,144.43**
	Total Temporary Impacts	0%	100%		47%	0%	0%	53%	0%	0%	100%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to The Farm										
Perm.		-	12.11		0.27	-	-	11.12	0.73	-	12.11
	Cable Protection	0%	100%		2%	0%	0%	92%	6%	0%	100%
Temp.		-	101.11		2.21	-	-	93.06	5.84	-	101.11
	Cable Installation and Seafloor Preparation	0%	100%		2%	0%	0%	92%	6%	0%	100%
Temp.	Dredging width for prior channel up to 175 ft wide	-	16.02		7.24	0.67	-	5.61	2.50	-	16.02
	(as reflected in the shapefiles)	0%	100%		45%	4%	0%	35%	16%	0%	100%
		-	**12.11**		**0.27**	**-**	**-**	**11.12**	**0.73**	**-**	**12.11**
	Total Permanent Impacts	0%	100%		2%	0%	0%	92%	6%	0%	100%
		-	**117.13**		**9.45**	**0.67**	**-**	**98.67**	**8.34**	**-**	**117.13**
	Total Temporary Impacts	0%	100%		8%	1%	0%	84%	7%	0%	100%
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to The Farm										
Perm.		-	13.51		1.95	-	-	11.36	0.20	-	13.51
	Cable Protection	0%	100%		14%	0%	0%	84%	1%	0%	100%
Temp.		-	113.06		16.27	-	-	95.00	1.79	-	113.06
	Cable Installation and Seafloor Preparation	0%	100%		14%	0%	0%	84%	2%	0%	100%
Temp.		-	1.12		1.12	-	-	-	-	-	1.12
	HDD Exit Pit	0%	100%		100%	0%	0%	0%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from	-	25.80		19.33	6.48	-	-	-	-	25.80
	center point of HDD Exit pit)	0%	100%		75%	25%	0%	0%	0%	0%	100%
		-	**13.51**		**1.95**	**-**	**-**	**11.36**	**0.20**	**-**	**13.51**
	Total Permanent Impacts	0%	100%		14%	0%	0%	84%	1%	0%	100%
		-	**139.98**		**36.72**	**6.48**	**-**	**95.00**	**1.79**	**-**	**139.98**
	Total Temporary Impacts	0%	100%		26%	5%	0%	68%	1%	0%	100%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to Bay Parkway One Shot										
Perm.		-	6.14		0.16	-	-	5.98	-	-	6.14
	Cable Protection	0%	100%		3%	0%	0%	97%	0%	0%	100%
Temp.		-	51.60		1.29	-	-	50.27	0.04	-	51.60
	Cable Installation and Seafloor Preparation	0%	100%		3%	0%	0%	97%	0%	0%	100%
Temp.		-	0.57		0.57	-	-	-	-	-	0.57
	HDD Exit Pit	0%	100%		100%	0%	0%	0%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from	0.002	23.23		16.90	4.41	-	1.92	-	0.002	23.23
	center point of HDD Exit pit)	0%	100%		73%	19%	0%	8%	0%	0.01%	100%
Temp.	Dredging width for prior channel up to 175 ft wide	-	16.02		7.24	0.67	-	5.61	2.50	-	16.02
	(as reflected in the shapefiles)	0%	100%		45%	4%	0%	35%	16%	0%	100%
		-	**6.14**		**0.16**	**-**	**-**	**5.98**	**-**	**-**	**6.14**
	Total Permanent Impacts	0%	100%		3%	0%	0%	97%	0%	0%	100%
		0.002	**91.42**		**26.00**	**5.08**	**-**	**57.80**	**2.54**	**0.002**	**91.42**
	Total Temporary Impacts	0%	100%		28%	6%	0%	63%	3%	0.002%	100%

		Anthropogenic	Total	Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
	Oyster Creek Inshore - Barnegat Bay									
	Alt A - Base Case to Bay Parkway One Shot									
Perm.	Cable Protection	-	6.87	0.99	-	-	5.88	-	-	6.87
		0%	100%	14%	0%	0%	86%	0%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	57.45	8.26	-	-	49.19	-	-	57.45
		0%	100%	14%	0%	0%	86%	0%	0%	100%
Temp.	HDD Exit Pit	-	1.69	1.69	-	-	-	-	-	1.69
		0%	100%	100%	0%	0%	0%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	0.002	49.04	36.22	10.89	-	1.92	-	0.002	49.04
		0%	100%	74%	22%	0%	4%	0%	0.004%	100%
	Total Permanent Impacts	**-**	**6.87**	**0.99**	**-**	**-**	**5.88**	**-**	**-**	**6.87**
		0%	100%	14%	0%	0%	86%	0%	0%	100%
	Total Temporary Impacts	**0.00**	**108.17**	**46.17**	**10.89**	**-**	**51.11**	**-**	**0.002**	**108.17**
		0%	100%	43%	10%	0%	47%	0%	0.002%	100%
	Oyster Creek Inshore - Barnegat Bay									
	Alt E - Prior Channel to Bay Parkway									
Perm.	Cable Protection	-	13.05	-	-	-	11.74	1.31	-	13.05
		0%	100%	0%	0%	0%	90%	10%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	108.80	-	-	-	98.17	10.63	-	108.80
		0%	100%	0%	0%	0%	90%	10%	0%	100%
Temp.	HDD Exit Pit	-	1.14	-	0.57	-	-	0.58	-	1.14
		0%	100%	0%	49%	0%	0%	51%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175 m radius from center point of HDD Exit pit)	-	27.06	5.88	9.52	-	0.14	11.51	-	27.06
		0%	100%	22%	35%	0%	1%	43%	0%	100%
Temp.	Dredging width for prior channel up to 175 ft wide (as reflected in the shapefiles)	-	16.02	7.24	0.67	-	5.61	2.50	-	16.02
		0%	100%	45%	4%	0%	35%	16%	0%	100%
	Total Permanent Impacts	**-**	**13.05**	**-**	**-**	**-**	**11.74**	**1.31**	**-**	**13.05**
		0%	100%	0%	0%	0%	90%	10%	0%	100%
	Total Temporary Impacts	**-**	**153.02**	**13.13**	**10.75**	**-**	**103.92**	**25.22**	**-**	**153.02**
		0%	100%	9%	7%	0%	68%	16%	0%	100%
	Oyster Creek Inshore - Barnegat Bay									
	Alt A - Base Case to Bay Parkway									
Perm.	Cable Protection	-	14.44	1.68	-	-	11.97	0.79	-	14.44
		0%	100%	12%	0%	0%	83%	5%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	120.75	14.06	-	-	100.11	6.58	-	120.75
		0%	100%	12%	0%	0%	83%	5%	0%	100%
Temp.	HDD Exit Pit	-	2.26	1.12	0.57	-	-	0.58	-	2.26
		0%	100%	49%	25%	0%	0%	26%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	-	52.86	25.21	16.00	-	0.14	11.51	-	52.86
		0%	100%	48%	30%	0%	0%	22%	0%	100%
	Total Permanent Impacts	**-**	**14.44**	**1.68**	**-**	**-**	**11.97**	**0.79**	**-**	**14.44**
		0%	100%	12%	0%	0%	83%	5%	0%	100%
	Total Temporary Impacts	**-**	**175.88**	**40.39**	**16.56**	**-**	**100.25**	**18.67**	**-**	**175.88**
		0%	100%	23%	9%	0%	57%	11%	0%	100%
	Oyster Creek Inshore - Barnegat Bay									
	Alt E - Prior Channel to Nautilus Rd									
Perm.	Cable Protection	-	6.85	-	-	-	6.85	-	-	6.85
		0%	100%	0%	0%	0%	100%	0%	0%	100%

		Anthropogenic	Total		Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
Temp.		-	57.59		-	-	-	57.55	0.04	-	57.59
	Cable Installation and Seafloor Preparation	0%	100%		0%	0%	0%	100%	0%	0%	100%
Temp.		-	0.57		-	-	-	0.57	-	-	0.57
	HDD Exit Pit	0%	100%		0%	0%	0%	100%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175 m radius from	-	23.23		6.99	1.70	-	12.73	1.81	-	23.23
	center point of HDD Exit pit)	0%	100%		30%	7%	0%	55%	8%	0%	100%
Temp.	Dredging width for prior channel up to 175 ft wide	-	16.02		7.24	0.67	-	5.61	2.50	-	16.02
	(as reflected in the shapefiles)	0%	100%		45%	4%	0%	35%	16%	0%	100%
		-	**6.85**		**-**	**-**	**-**	**6.85**	**-**	**-**	**6.85**
	Total Permanent Impacts	0%	100%		0%	0%	0%	100%	0%	0%	100%
		-	**97.41**		**14.23**	**2.37**	**-**	**76.46**	**4.35**	**-**	**97.41**
	Total Temporary Impacts	0%	100%		15%	2%	0%	78%	4%	0%	100%
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to Nautilus Rd										
Perm.		-	7.59		0.83	-	-	6.75	-	-	7.59
	Cable Protection	0%	100%		11%	0%	0%	89%	0%	0%	100%
Temp.		-	63.44		6.97	-	-	56.47	-	-	63.44
	Cable Installation and Seafloor Preparation	0%	100%		11%	0%	0%	89%	0%	0%	100%
Temp.		-	1.69		1.12	-	-	0.57	-	-	1.69
	HDD Exit Pit	0%	100%		66%	0%	0%	34%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from	-	49.03		26.31	8.18	-	12.73	1.81	-	49.03
	center point of HDD Exit pit)	0%	100%		54%	17%	0%	26%	4%	0%	100%
		-	**7.59**		**0.83**	**-**	**-**	**6.75**	**-**	**-**	**7.59**
	Total Permanent Impacts	0%	100%		11%	0%	0%	89%	0%	0%	100%
		-	**114.17**		**34.40**	**8.18**	**-**	**69.77**	**1.81**	**-**	**114.17**
	Total Temporary Impacts	0%	100%		30%	7%	0%	61%	2%	0%	100%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to Lighthouse Dr										
Perm.		-	6.97		-	-	-	6.45	0.52	-	6.97
	Cable Protection	0%	100%		0%	0%	0%	93%	7%	0%	100%
Temp.		-	58.29		-	-	-	54.28	4.01	-	58.29
	Cable Installation and Seafloor Preparation	0%	100%		0%	0%	0%	93%	7%	0%	100%
Temp.		-	0.57		0.32	-	-	0.26	-	-	0.57
	HDD Exit Pit	0%	100%		55%	0%	0%	45%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from	-	23.22		11.28	0.11	-	11.60	0.23	-	23.22
	center point of HDD Exit pit)	0%	100%		49%	0%	0%	50%	1%	0%	100%
Temp.	Dredging width for prior channel up to 175 ft wide	-	16.02		7.24	0.67	-	5.61	2.50	-	16.02
	(as reflected in the shapefiles)	0%	100%		45%	4%	0%	35%	16%	0%	100%
		-	**6.97**		**-**	**-**	**-**	**6.45**	**0.52**	**-**	**6.97**
	Total Permanent Impacts	0%	100%		0%	0%	0%	93%	7%	0%	100%
		-	**98.10**		**18.84**	**0.78**	**-**	**71.74**	**6.74**	**-**	**98.10**
	Total Temporary Impacts	0%	100%		19%	1%	0%	73%	7%	0%	100%
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to Lighthouse Drive										
Perm.		-	7.63		0.85	-	-	6.78	0.00	-	7.63
	Cable Protection	0%	100%		11%	0%	0%	89%	0.0002%	0%	100%
Temp.		-	63.82		7.09	-	-	56.73	0.00	-	63.82
	Cable Installation and Seafloor Preparation	0%	100%		11%	0%	0%	89%	0.0002%	0%	100%

		Anthropogenic	Total		Complex	Complex (interpolated)	Heterogenous Complex	Soft Bottom	Soft Bottom (interpolated)	Anthropogenic	Total
Temp.		-	1.69		1.44	-	-	0.26	-	-	1.69
Temp.	HDD Exit Pit	0%	100%		85%	0%	0%	15%	0%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	-	49.03		30.60	6.59	-	11.60	0.23	-	49.03
		0%	100%		62%	13%	0%	24%	0.5%	0%	100%
		-	**7.63**		**0.85**	**-**	**-**	**6.78**	**0.00002**	**-**	**7.63**
	Total Permanent Impacts	0%	100%		11%	0%	0%	89%	0.0002%	0%	100%
		-	**114.54**		**39.13**	**6.59**	**-**	**68.58**	**0.23**	**-**	**114.54**
	Total Temporary Impacts	0%	100%		34%	6%	0%	60%	0.2%	0%	100%
	Oyster Creek Inshore - Barnegat Bay Alt E - Prior Channel to Marina										
Perm.	Cable Protection	-	14.17		-	-	-	12.70	1.47	-	14.17
		0%	100%		0%	0%	0%	90%	10%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	118.23		-	-	-	106.19	12.04	-	118.23
		0%	100%		0%	0%	0%	90%	10%	0%	100%
Temp.	HDD Exit Pit	-	1.14		-	0.15	-	-	0.99	-	1.14
		0%	100%		0%	13%	0%	0%	87%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	-	28.56		0.88	12.64	-	1.00	14.04	-	28.56
		0%	100%		3%	44%	0%	4%	49%	0%	100%
Temp.	Dredging width for prior channel up to 175 ft wide (as reflected in the shapefiles)	-	16.02		7.24	0.67	-	5.61	2.50	-	16.02
		0%	100%		45%	4%	0%	35%	16%	0%	100%
		-	**14.17**		**-**	**-**	**-**	**12.70**	**1.47**	**-**	**14.17**
	Total Permanent Impacts	0%	100%		0%	0%	0%	90%	10%	0%	100%
		-	**163.96**		**8.12**	**13.45**	**-**	**112.80**	**29.58**	**-**	**163.96**
	Total Temporary Impacts	0%	100%		5%	8%	0%	69%	18%	0%	100%
	Oyster Creek Inshore - Barnegat Bay Alt A - Base Case to Marina										
Perm.	Cable Protection	-	15.57		1.68	-	-	12.94	0.95	-	15.57
		0%	100%		11%	0%	0%	83%	6%	0%	100%
Temp.	Cable Installation and Seafloor Preparation	-	130.18		14.06	-	-	108.13	8.00	-	130.18
		0%	100%		11%	0%	0%	83%	6%	0%	100%
Temp.	HDD Exit Pit	-	2.26		1.12	0.15	-	-	0.99	-	2.26
		0%	100%		49%	7%	0%	0%	44%	0%	100%
Temp.	Cofferdam HDD Anchoring Area (175m radius from center point of HDD Exit pit)	-	54.36		20.21	19.12	-	1.00	14.04	-	54.36
		0%	100%		37%	35%	0%	2%	26%	0%	100%
		-	**15.57**		**1.68**	**-**	**-**	**12.94**	**0.95**	**-**	**15.57**
	Total Permanent Impacts	0%	100%		11%	0%	0%	83%	6%	0%	100%
		-	**186.81**		**35.39**	**19.27**	**-**	**109.13**	**23.03**	**-**	**186.81**
	Total Temporary Impacts	0%	100%		19%	10%	0%	58%	12%	0%	100%

Benthic Habitat Assessment Popup Map

Update provided to BOEM in April 2023

Redacted from public copy

Addendum to the Benthic Habitat Mapping and Benthic Assessment (Baseline SAV 2022 Field Survey)

ADDENDUM

to the

Ocean Wind Offshore Wind Farm Benthic Habitat Mapping and Benthic Assessment to Support Essential Fish Habitat Consultation

Results of the Baseline Submerged Aquatic Vegetation 2022 Field Survey

Prepared for:

Ocean Wind
An Ørsted & PSEG project
Orsted, U.S.

Submitted by:

INSPIRE
ENVIRONMENTAL
INSPIRE Environmental
Newport, Rhode Island 02840

August 26, 2022

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LIST OF ACRONYMS

BOEM	Bureau of Ocean Energy Management
HDD	horizontal directional drilling
IBSP	Island Beach State Park
NJDEP	New Jersey Department of Environmental Protection
OCS	Outer Continental Shelf
OCW01	Ocean Wind Offshore Wind Farm
SAV	Submerged aquatic vegetation

This addendum to the *Ocean Wind Offshore Wind Farm Benthic Habitat Mapping and Benthic Assessment to Support Essential Fish Habitat Consultation* describes the results of a baseline submerged aquatic vegetation (SAV) mapping survey in Barnegat Bay that was completed in July 2022. The document begins with a brief overview of the motivation and purpose of this SAV survey, a description of the approach and methodology used, and a synthesis of the results. The data are also available to view in the online interactive popup map associated with the Ocean Wind Offshore Wind Farm.

1.0 INTRODUCTION

Ocean Wind, LLC proposes to construct and operate the Ocean Wind Offshore Wind Farm (OCW01 or Project) to generate renewable power off the coast of New Jersey. The wind farm portion of the Project will be in federal waters on the Outer Continental Shelf (OCS) in the designated Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0498 (Lease Area). In addition to the Lease Area, the Offshore Project Area includes two offshore Export Cable Route Corridors (BL England and Oyster Creek Offshore Export Cable Route Corridors) and the Oyster Creek Inshore Export Cable Route Corridor.

The focus of this baseline SAV mapping survey was on the Oyster Creek Inshore Export Cable Route Corridor that transits through Barnegat Bay, where SAV beds and SAV habitat were previously documented within the vicinity of the Project (Ocean Wind, LLC 2021) (Figure 1). The proposed Oyster Creek Inshore Export Cable Route Corridor transits from the western side of Island Beach State Park (IBSP) to the Oyster Creek landfall options on the western side of Barnegat Bay, as shown in Figure 1. The Oyster Creek Inshore Export Cable Route Corridor segment adjacent to IBSP was recently proposed to be relocated northward from its originally proposed route to minimize direct impacts to contiguous SAV beds in this area. This segment now transits through a formerly dredged navigation channel, hereafter referred to as the “prior channel.” The water depth of the prior channel restricts light penetration to the seafloor, limiting the growth of SAV within the channel (Lathrop et al. 2017; Ocean Wind, LLC 2021). On the western side of Barnegat Bay, several landfall options are currently being considered. Generally, in this area SAV beds occur in the shallow waters fringing the shoreline (Figure 1).

Note that throughout this document SAV refers to submerged aquatic vascular plants and not macroalgal species. This distinction is important because the factors that generally influence the growth and production of submerged aquatic vascular plants (e.g., turbidity/light availability at the seafloor) are typically different than the factors that are related to macroalgal blooms (e.g., water column nutrient concentrations).

2.0 OBJECTIVES

The overarching goal of this baseline pre-construction SAV survey was to map and characterize the SAV within the areas of potential influence of the Project. The area of potential influence of the Project was defined as a 500-ft buffer on either side of the cable route options at the landfall areas out to either the potential horizontal directional drilling (HDD) transition location (western landfall areas) or to the distance at which the 2019 mapped SAV beds ended (IBSP landfall). Specifically, the objective of this baseline SAV mapping survey was to refine the SAV bed delineations mapped using aerial surveying in 2019 by collecting in-water ground-truth imagery. This additional baseline survey was recommended by the New Jersey Department of Environmental Protection (NJDEP) upon review of the previously reported baseline data and the benthic monitoring plan (Ocean Wind, LLC 2021; INSPIRE 2022a). The data from this 2022 field survey, and the previous project-specific baseline SAV surveys (Ocean Wind, LLC 2021) will be used to inform Project design and avoidance strategies (cable routing, designated moorings/anchoring locations). Additional pre-construction SAV surveying is proposed as part of the Ocean Wind SAV-specific benthic monitoring plan (INSPIRE 2022b).

3.0 APPROACH AND METHODS

Underwater video data were collected July 13 – 17, 2022 (during the SAV growing season in Barnegat Bay) onboard the *R/V Redwing*, a small vessel capable of transiting through shallow waters. The approach to data collection followed Method 3 (continuous underwater towed video imagery) of the Tier-1 Survey Methodology described in *Submerged Aquatic Vegetation Survey Guidance for the New England Region* protocol (Colarusso and Verkade 2016).

Underwater towed video imagery was collected at four survey areas: The Farm, Bay Parkway, Lighthouse Drive, and IBSP. At each of these four survey areas the Oyster Creek Inshore Export Cable Route Corridor options overlap with SAV beds as delineated by aerial survey in 2019 (Figures 2, 3, 4, and 5). Each survey area included a 500-ft (152.4-m) buffer on either side of all proposed cable route options out to the deepest depth at which SAV was anticipated (no more than ~2.4 m [~8 ft]) (IBSP survey area) or out into the Bay to the transition where the potential HDD cable installation is proposed (western landfall areas).

A high-definition underwater video camera accompanied by LED lights and a scaling laser was mounted on a towable frame that was deployed from the davit of the vessel. The vessel was oriented in the best position regarding winds and currents to slowly drift/transit over the survey area and each targeted transect. Towed underwater imagery transects were generally positioned perpendicular to the suspected edge of the SAV bed. Once the towed frame was submerged, video data began recording and a live video feed allowed for real-time viewing by the crew onboard. The ideal vessel speed for video acquisition was no greater than 0.5 knots. During imagery collection, continuous navigational data were automatically recorded by HYPACK to track the position of the towed frame. Field notes on frame position and submerged vegetation observations were recorded in the field log (Attachment A) during the transects. Point navigation fixes and water depths were recorded periodically during each transect.

At one survey area (the Farm), the water column turbidity was very high and a modified approach using a drop camera provided more useful imagery than the continuous towed video along some transects.

Underwater imagery was analyzed using a video analysis software (Behavioral Observation Research Interactive Software [BORIS]) that allows the analyst to annotate the video using both continuous and point variables. The focus of the image analysis was to document the presence and general coverage of SAV observed in the video. The analyst also noted the coverage of macroalgae observed in the video (Attachment B). Descriptive categories for cover of SAV, as illustrated in Figure 6, and of macroalgae included:

> "Complete" – Observed SAV and/or macroalgae was continuous, nearly the entire field of view was occupied by SAV and/or macroalgae over these stretches of video. Generally, these segments encompassed SAV and/or macroalgae >50% cover ('high' category described in Colarusso and Verkade, 2016).

> "Patchy" – SAV and/or macroalgae was observed in discrete patches along these stretches of video. Generally, these segments encompassed SAV and/or macroalgae 11-50% cover ('low' and 'moderate categories described in Colarusso and Verkade, 2016).

> "Sparse" – SAV observations were infrequent and typically consisted of only a few shoots at any given location over these stretches of video. Often these SAV shoots were solitary, and sometimes floating in a bed of macroalgae or clearly not attached to the seafloor. Generally, these segments encompassed SAV typically observed as <1 to 10% cover ('sparse' category, as described in Colarusso and Verkade, 2016).

For each cable route option being considered in the Ocean Wind project design, a project area of potential influence on SAV was conservatively estimated. The project area of potential influence on SAV was estimated as the area within a 500-ft (152.4-m) buffer on either side of the cable route option, from the shore out into the Bay to the location where either potential HDD exits are proposed (western landfall areas) or out to where SAV was delineated to in 2019 (eastern landfall area [IBSP]). A 500-ft buffer was selected as this is the distance from the cable installation activity, which activates a time-of-year restriction for SAV on construction activities (NJDEP 2015). These project areas of potential influence on SAV estimates are conservative. Thus, these estimates of project acreage are not estimates of potential acres of impacted SAV habitat, but rather to be used to aid in selecting cable route options that limit the risk to SAV. Several project areas of potential influence for the individual cable route options being considered overlap with each other within the survey areas because the cable route options are often closer than 500 ft from each other. SAV acreage within the project areas of potential influence on SAV was estimated in GIS by interpolating polygons that were manually drawn using the video transect results (including observed patchy and complete SAV) as visual guides.

4.0 RESULTS AND DISCUSSION

Underwater imagery was collected along a total of 67 transects across the four survey areas, covering a total of 20.7 km (Table 1). A total of 17 hours and 48 minutes of video footage was obtained during the survey and analyzed post-collection. Generally, the deepest water depths where continuous beds of complete SAV were observed was about 1.7 m (5.6 ft), while patches of SAV beds were observed as deep as 1.8 to 2.0 m (6.0 to 6.5 ft) (Table 2). Across all four survey areas, the shallowest water depths where SAV was observed were between 0.4 and 0.9 m (1.5 and 3.1 ft).

Table 1. Inventory of Video Data Collected at Each Survey Area

Survey Area	Transects (n)[1]	Total Distance (km)	Total Analyzed Video Footage (h:m:s)
The Farm[2]	10	2.3	2:15:39
Bay Parkway[2]	15	4.8	4:27:52
Lighthouse Drive	19	5.4	4:52:54
IBSP[2]	23	8.2	6:12:11
Total	67	20.7	17:48:36

Notes
[1] "A" and "B" transects counted separately.
[2] Includes segments of transects with estimated coordinates.

Table 2. A Summary of the Maximum and Minimum Water Depths at which SAV was Observed and SAV Coverage Categories

Survey Area	SAV Point	SAV - Sparse		SAV - Patchy		SAV - Complete	
	Depth	Maximum Depth	Minimum Depth	Maximum Depth	Minimum Depth	Maximum Depth	Minimum Depth
	m	m	m	m	m	m	m
The Farm	0.5	N/A	N/A	N/A	N/A	N/A	N/A
Bay Parkway	N/A	1.9	0.6	1.8	0.5	1.7	0.6
Lighthouse Drive	N/A	2.2	0.9	1.8	0.6	1.7	0.8
IBSP	N/A	2.1	0.5	2.0	0.4	1.7	0.5
Average	0.5	2.1	0.7	1.9	0.5	1.7	0.6

N/A=Not Applicable

4.1 The Farm

A total of ten transects were collected at the Farm survey area, covering 2.3 km and resulting in 2 hours and 15 minutes of video footage. During field collection, turbidity was noted as being high across this entire survey area (Attachment A). At one transect the turbidity was very high (F09); as a result, data collection was modified by using a drop camera approach that allowed discrete images to be collected along the transect closer to the seafloor than the towed video allowed.

No SAV beds were observed along any continuous stretch of video at the Farm survey area (Figure 7). However, SAV point observations were noted at the southern transects. Each of these point instances consisted of single shoot of SAV noted in the footage that was clearly not attached to the seafloor but rather floating in the water column (Figure 7). Patchy macroalgal beds were observed throughout most of the survey area (Figure 8).

Only one corridor is being considered at the Farm landfall, which will include two cables within it. Including the 500-ft buffer around the cable corridor and extending east to the potential HDD exit location, the total project area of potential influence on SAV for this route is 18.4 acres (Table 3). Unlike the 2019 aerial imagery (Figure 2; Ocean Wind, LLC 2021), the 2022 in-water imagery suggests zero acres of SAV throughout this project area of potential influence on SAV (Table 3). This discrepancy could be due to challenges in discerning macroalgae beds from SAV beds in aerial imagery. The results of this 2022 survey corroborate previous in-water drop camera imagery collected in 2021, that also reported no SAV at the Farm survey area (Figure 2; Ocean Wind, LLC 2021).

4.2 Bay Parkway

A total of 15 transects were collected at the Bay Parkway survey area, covering 4.8 km and resulting in 4 hours and 28 minutes of video footage (Table 1). The deepest and shallowest water depths at which SAV was observed at Bay Parkway were 1.9 m (6.2 ft; sparse SAV) and 0.5 m (1.8 ft; patchy SAV), respectively (Table 2). The deepest water depth at which continuous complete SAV was observed was 1.7 m (5.6 ft).

SAV beds, dominated by *Zostera marina*, were observed along all transects sampled at the Bay Parkway survey area (Figure 9). Generally, SAV was patchy along the very shallow regions of the survey area, flanking the shoreline, and along the shore near the pier structure (western portions of Transects BP02 and BP03) (Figure 9). The spatial patterns of patchy and complete SAV observed in the video transects were generally corroborated by the orthomosaic aerial photography sourced from USGS (2019) and used as the base map (Figure 9). Complete SAV was observed out to approximately 150 m (492 ft) off the shore along the southern transects, and approximately 200 to 250 m (656 to 820 ft) off the shore in the northern portions of the survey area. SAV beds observed in 2022 were more extensive (larger area) than what was mapped from aerial imagery in 2019, but similar to what was observed during the 2021 in-water drop camera survey (Figures 3 and 9; Ocean Wind, LLC 2021). Patchy macroalgae was observed concurrent with the SAV beds over the majority of the survey area, with the exception of the northern most transect (BP01), where no macroalgae was observed (Figure 10).

At the Bay Parkway survey area, two route options are being considered. The "One Shot" option consists of a single cable, encompassing 30.3 acres of project area of potential influence on SAV (including the 500-ft buffer from the cable centerline out to the potential HDD exit location) (Table 3). The double cable Bay Parkway option consists of approximately 23.2 acres of project area of potential influence on SAV. These estimates of project acreage are conservative given the installation methodology proposed at this landfall, these are not estimates of potential acres of impacted SAV habitat.

Based on the 2022 SAV data, the 'One Shot' cable route option and the double cable route option encompass a total of 25.0 and 19.0 acres, respectively, of complete or patchy SAV habitat (Table 3; Figure 11). These estimates are larger than the 2019 aerial imagery-derived delineations, which include 11.8 and 7.6 acres for the "One Shot' and the double cable option, respectively (Table 3; Ocean Wind, LLC 2021).

Table 3. Estimated Project Acreage and SAV Habitat Acreage for each Cable Route Option as Derived from this 2022 Survey and the 2019 Delineations

Landfall	Cable Route Options	Project Area of Potential Influence on SAV (acres)[1]	2022 Survey SAV Area (Complete and/or Patchy) (acres)	2019 Survey SAV Area (Dense, Moderate and/or Sparse) (acres)[2]
The Farm	Holtec (double)	18.4	0.0	9.5
Bay Parkway	One Shot (single)	30.3	25.0	11.8
	Bay Parkway (double)	23.2	19.0	7.6
Lighthouse Drive	Nautilus Rd (single)	21.6	12.5	7.8
	Lighthouse Drive (single)	22.6	10.6	7.3
	Marina (double)	25.2	9.5	5.1
IBSP	IBSP (double)	91.7	59.9	54.1

[1] The project area of potential influence on SAV was estimated as the area within a 500-ft (152.4-m) buffer on either side of the cable route option, from the shore out to the location where either the potential HDD exits are proposed (western landfall areas) or out to where SAV was delineated to in 2019 (eastern landfall area [IBSP]).

[2] Delineations derived from aerial imagery collected in 2019 (Ocean Wind, LLC 2021), acreage that overlaps with the project area of potential influence on SAV.

4.3 Lighthouse Drive

A total of 19 transects were collected at the Lighthouse Drive survey area, covering 5.4 km and resulting in 4 hours and 53 minutes of video footage. The deepest and shallowest water depths at which SAV was observed at Lighthouse Drive were 2.2 m (7.4 ft; sparse SAV) and 0.6 m (2.1 ft; patchy SAV), respectively. The deepest water depth at which continuous complete SAV was observed was 1.7 m (5.6 ft).

Along the northern shoreline of the Lighthouse Drive survey area, SAV beds were found to be patchy. In general, stretches of complete SAV coverage were observed beginning about 25 to

50 m (82 to 164 ft) from the shoreline and extending to about 150 m (492 ft) offshore (transects LD01 through LD11; Figure 12). Regions of sparse or no SAV characterized the southern transects with the exception of LD15, which consisted of complete SAV coverage. Macroalgal beds characterized as complete and regions of patchy macroalgae were observed through the Lighthouse Drive survey area (Figure 13).

At the Lighthouse Drive survey area, three route options are being considered: Nautilus Road (single), Lighthouse Drive (single), and Marina (double cable). Depending on the route option the project areas of potential influence on SAV ranges from 21.6 to 25.2 acres (Table 3). Similar to the Bay Parkway landfall options, these estimates of project areas of potential influence on SAV are conservative given the installation methodology proposed at this landfall. These project areas of potential influence on SAV should not be interpreted as areas of potential impact on SAV resulting directly from cable installation.

Across the three route options at Lighthouse Drive landfall, the total SAV acreage (including complete and patchy SAV) ranges from 9.5 acres for Marina (double) to 12.5 acres for Nautilus Road (single), with a total of 10.6 acres of SAV for Lighthouse Drive (single) route option (Table 3; Figure 14). These estimates are larger than the 2019 aerial-imagery derived SAV delineations that range from 9.5 to 12.5 acres (Table 3; Ocean Wind, LLC 2021)

4.4 IBSP

A total of 23 transects were collected at the IBSP survey area, covering 8.2 km and resulting in 6 hours and 12 minutes of video footage. The deepest and shallowest water depths at which SAV was observed at IBSP were 2.1 m (6.8 ft; sparse SAV) and 0.4 m (1.5 ft; patchy SAV), respectively. The deepest water depth at which continuous complete SAV was observed was 1.7 m (5.5 ft).

SAV along the video transects collected at the IBSP survey area ranged from none to complete coverage (Figure 15). Generally, the 2022 data corroborated the 2019 SAV delineations from aerial imagery (Ocean Wind, LLC 2021) and the orthomosaic imagery base map (USGS 2019). Close to the shoreline the SAV was characterized as either sparse or patchy. About 200 to 250 m (656 to 820 ft) from the shoreline, the SAV beds were characterized by complete coverage on either side of the “prior channel;” complete SAV persisted westward for about 300 to 400 m, and then transitioned to patchy or sparse, in the same general locations that the 2019 SAV delineations ended (Figure 15). Through the “prior channel” SAV was typically observed as sparse, generally as single or double shoots of SAV in any given video frame. These sparse SAV observations were often challenging to determine whether the SAV was drifting in the water column or attached to the seafloor. Previous in-water drop camera data collected in 2021 reported no SAV observed in the “prior channel” (Figure 5). Macroalgae was frequently observed as either complete or patchy coverage throughout the IBSP survey area (Figure 16).

Only one cable route option containing both cables is being considered at the IBSP survey area, which encompasses a project area of potential influence on SAV of about 91.7 acres, including the 500-ft buffer on either side of the cable route westward to the extent of the SAV beds as delineated in 2019 with aerial imagery (Table 3). Cable installation at this landfall is proposed to be with an open cut. A total of 59.9 acres of complete and patchy SAV was estimated at the IBSP survey area using the results of the 2022 video survey (Table 3; Figure 17). This estimate is generally comparable to the 2019 aerial imagery derived SAV delineations (54.1 acres within the project area of potential influence on SAV) (Table 3; Ocean Wind, LLC 2021).

5.0 SUMMARY AND CONCLUSIONS

The 2022 baseline SAV mapping survey provides additional in-water SAV data at the four landfall areas being considering for the Ocean Wind Project. This dataset can be used in combination with the previously collected project-specific baseline SAV data (2019, 2020, and 2021) to inform decisions regarding cable route selection and other avoidance strategies aimed at minimizing impacts to SAV (designated moorings/anchoring locations). Additional pre-construction SAV surveying to further characterize the SAV beds at the landfalls is planned as described in the SAV-specific benthic monitoring plan (INSPIRE 2022b).

Generally, the SAV data collected in July 2022 corroborate the previous project-specific SAV surveys (Ocean Wind, LLC 2021). Within each project area of potential influence on SAV, acreage obtained from delineations derived from aerial imagery in 2019 are similar to the acreage estimated from the 2022 underwater video transects (Table 3). The exception was at the Farm landfall where no SAV beds were observed in the video data collected in 2022 (similar to the in-water data collected in 2020), although the aerial imagery from 2019 suggested about 9.5 acres of SAV in the project area of potential influence on SAV. This discrepancy is likely due to challenges in discerning between SAV and macroalgal beds using aerial imagery and highlights the importance of ground truth in-water data. At the other survey areas, the SAV acreage estimated from the 2022 video transects was generally higher than what was derived from the 2019 delineations. This is likely due to the coarse spatial resolution of towed video transects, resulting in conservative polygon interpolations, compared to the aerial imagery approach.

Across the three western landfall survey areas, encompassing six individual cable route options, the Farm had the least acreage of SAV observed (0 acres) and the smallest project area of potential influence on SAV (18.4 acres). The Marina double cable route option at the Lighthouse Drive landfall had the next lowest acreage of SAV observed (9.5 acres), but the project area of potential influence on SAV was similar to or slightly higher than the other western cable route options. The greatest SAV area and project area of potential influence on SAV were documented at the IBSP landfall, 59.9 and 91.7 acres. Cable installation through the prior channel where sparse SAV was observed, will limit direct impacts on the complete and patchy SAV habitat at this landfall. However, indirect impacts associated with sediment resuspension and deposition should be monitored.

6.0 REFERENCES

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ADDENDUM

to the

Ocean Wind Offshore Wind Farm Benthic Habitat Mapping and Benthic Assessment to Support Essential Fish Habitat Consultation

Results of the Baseline Submerged Aquatic Vegetation 2022 Field Survey

FIGURES

Prepared for:

Ocean Wind
An Ørsted & PSEG project
Orsted, U.S.

Submitted by:

INSPIRE ENVIRONMENTAL
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Newport, Rhode Island 02840

August 25, 2022

LIST OF FIGURES

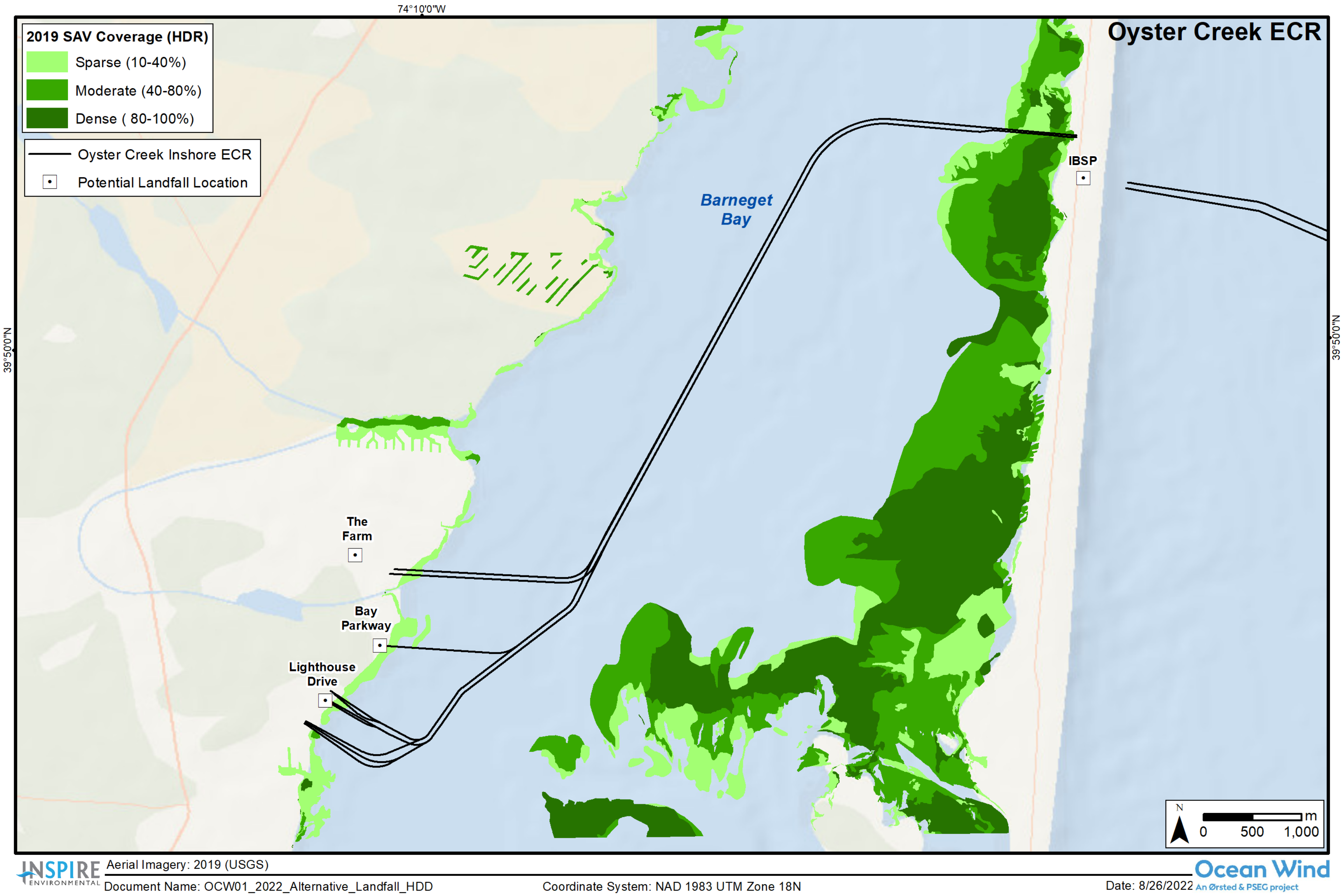

Figure 1. Oyster Creek Inshore Export Cable Route through Barnegat Bay and the delineation of SAV coverage from the 2019 aerial survey (Ocean Wind, LLC 2021)

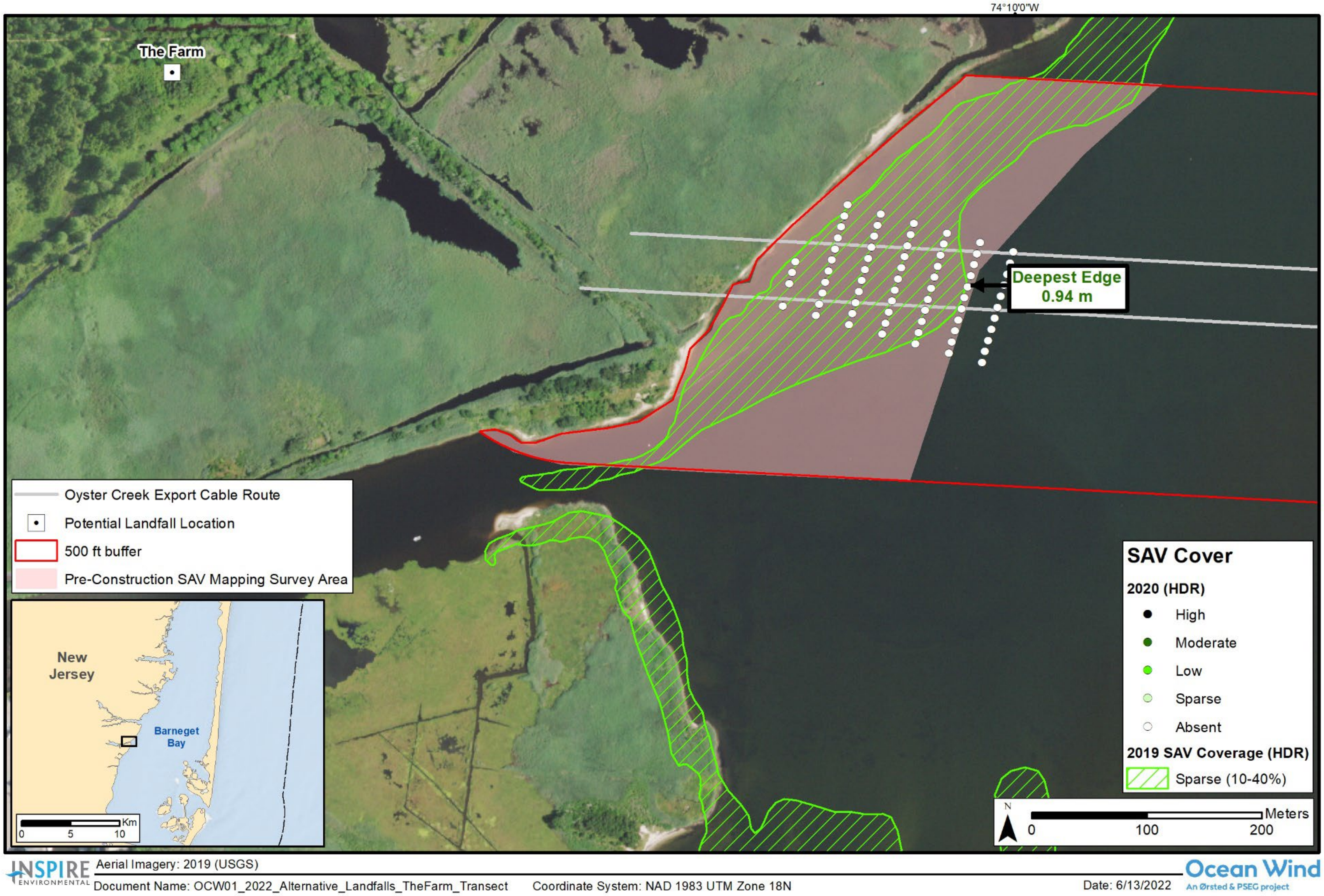

Figure 2. **The Farm survey area, SAV percent cover data collected by aerial survey in 2019 and in-water drop camera in 2020 (Ocean Wind, LLC 2021)**

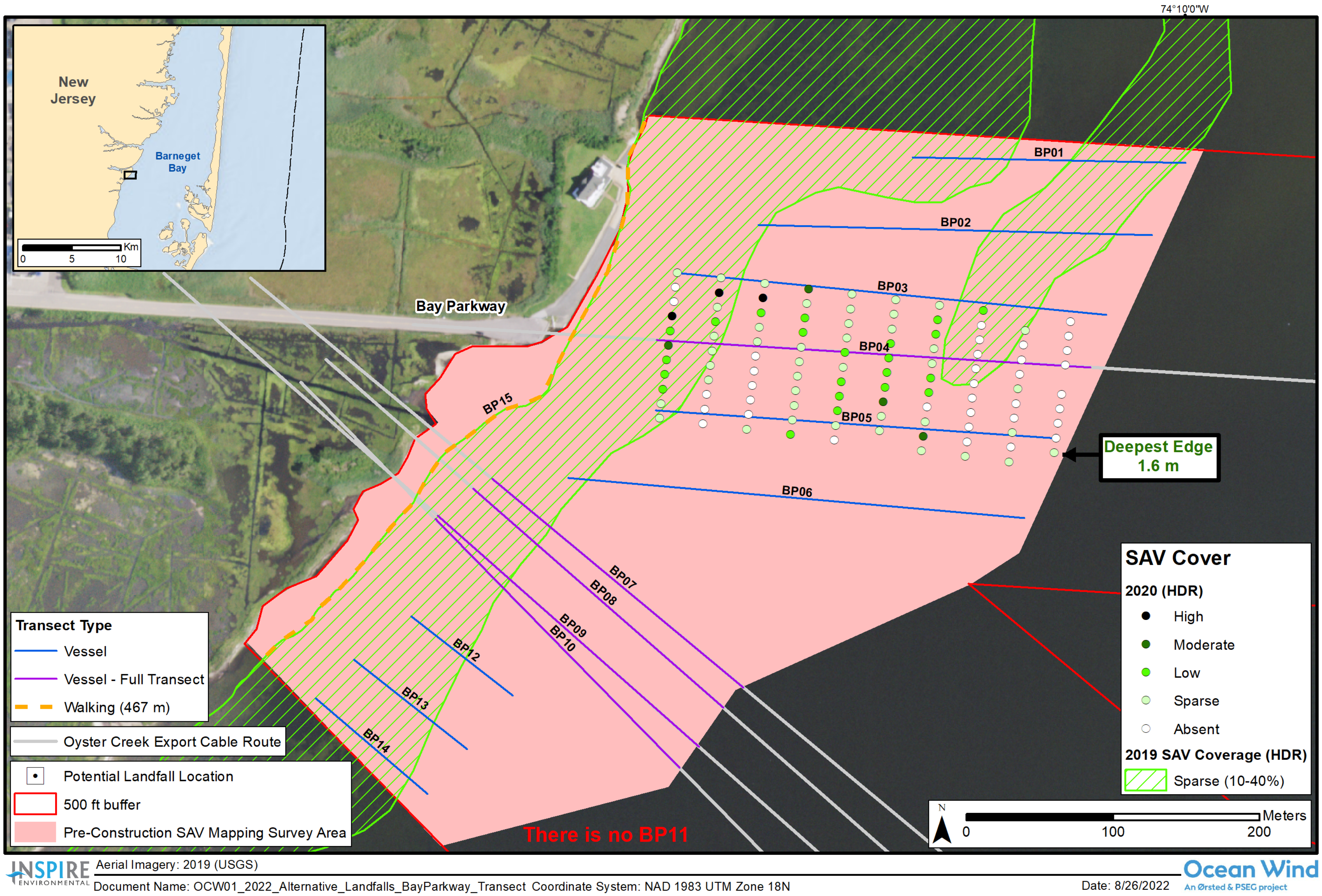

Figure 3. Bay Parkway survey area, SAV percent cover data collected by aerial survey in 2019 and in-water drop camera in 2020 (Ocean Wind, LLC 2021)

Figure 4. Lighthouse Drive survey area, SAV percent cover data collected by aerial survey in 2019 and in-water drop camera in 2020 (Ocean Wind, LLC 2021)

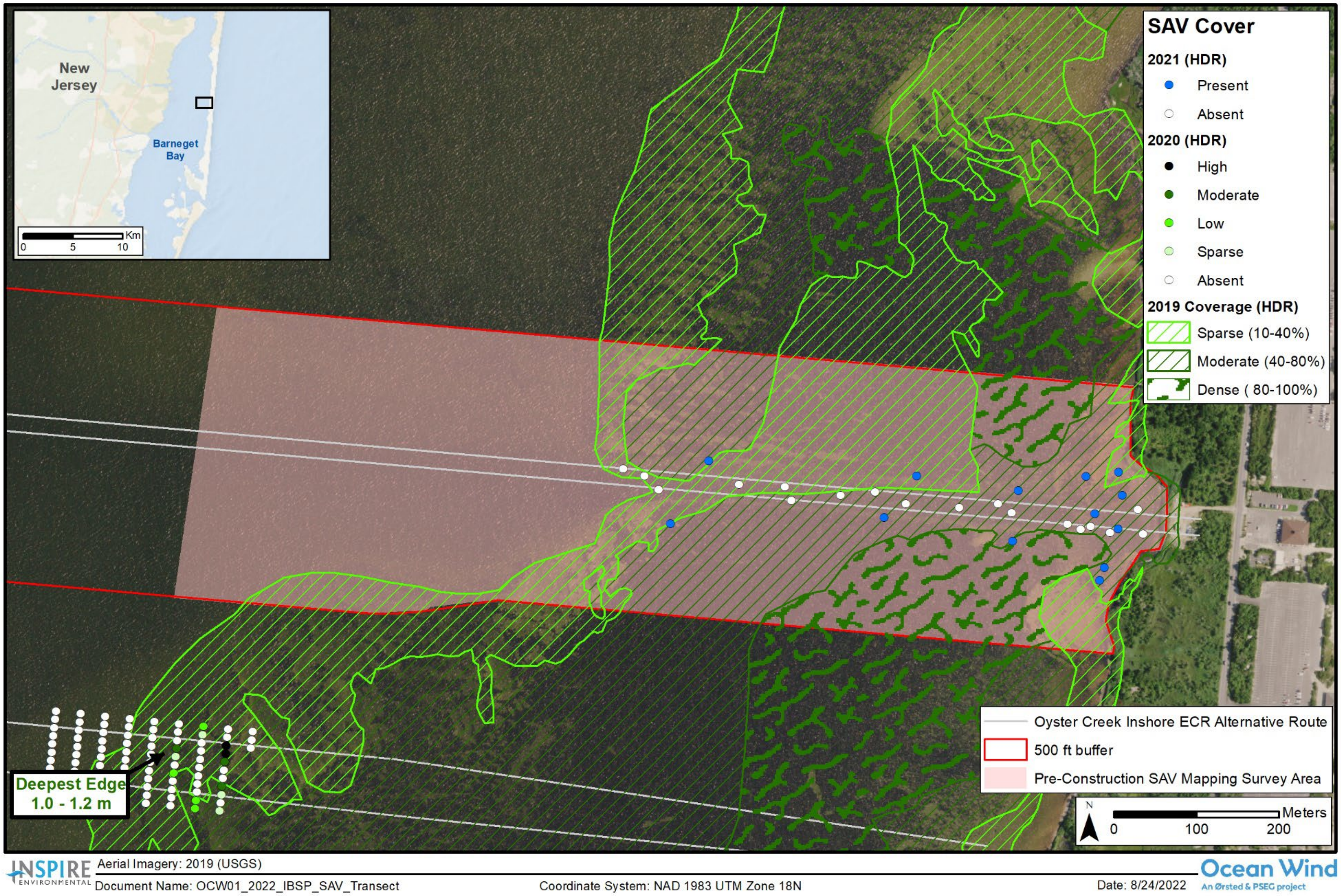

Figure 5. IBSP survey area, SAV percent cover data collected by aerial survey in 2019 and in-water drop camera in 2020 (Ocean Wind, LLC 2021)

(A)

(B)

(C)

Figure 6. Representative video still frames of (A) complete SAV (BP01); (B) patchy SAV in a complete bed of Macroalgae (IBSP06); and (C) sparse SAV in a bed of macroalgae (IBSP04)

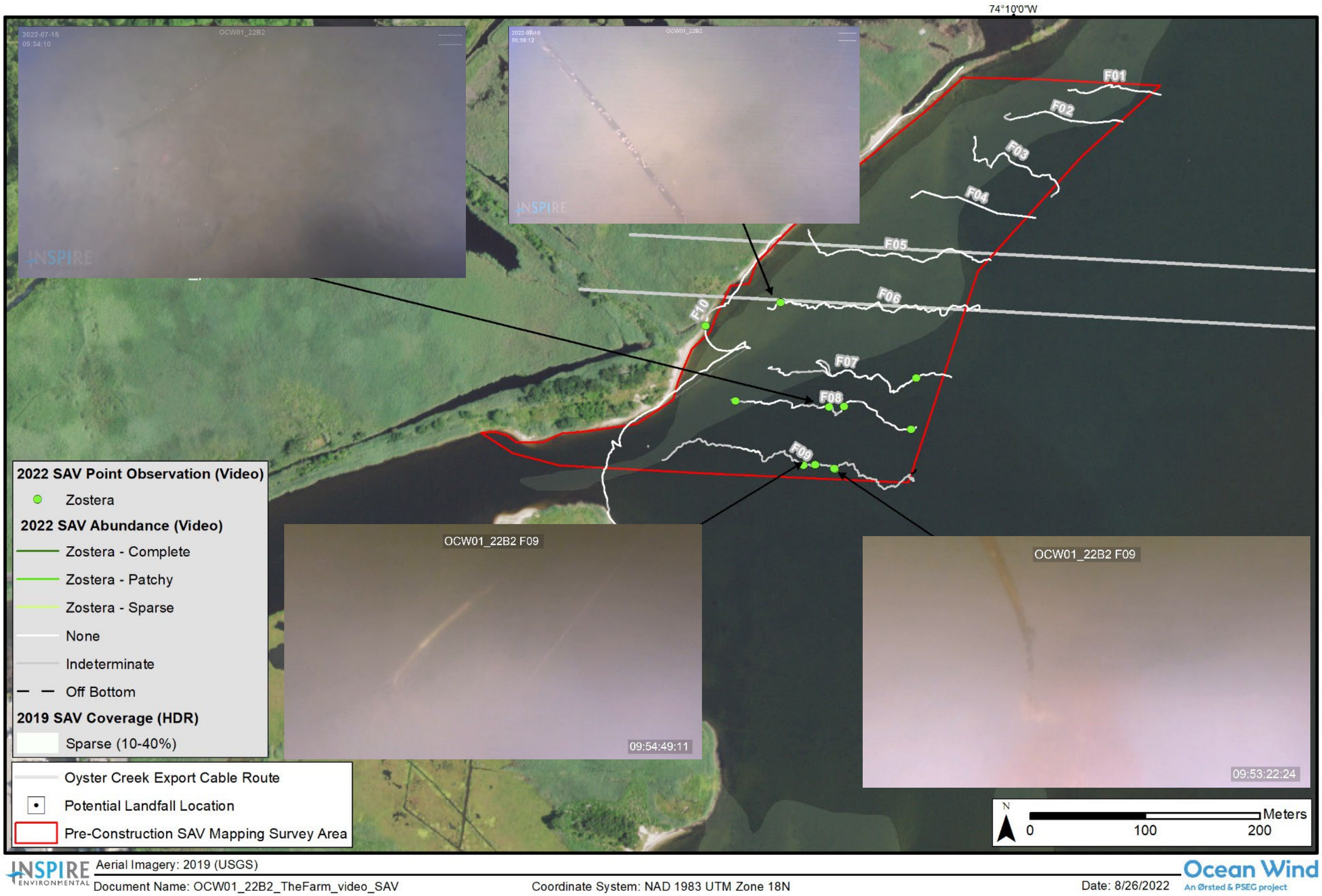

Figure 7. SAV observed along the video transects at the Farm

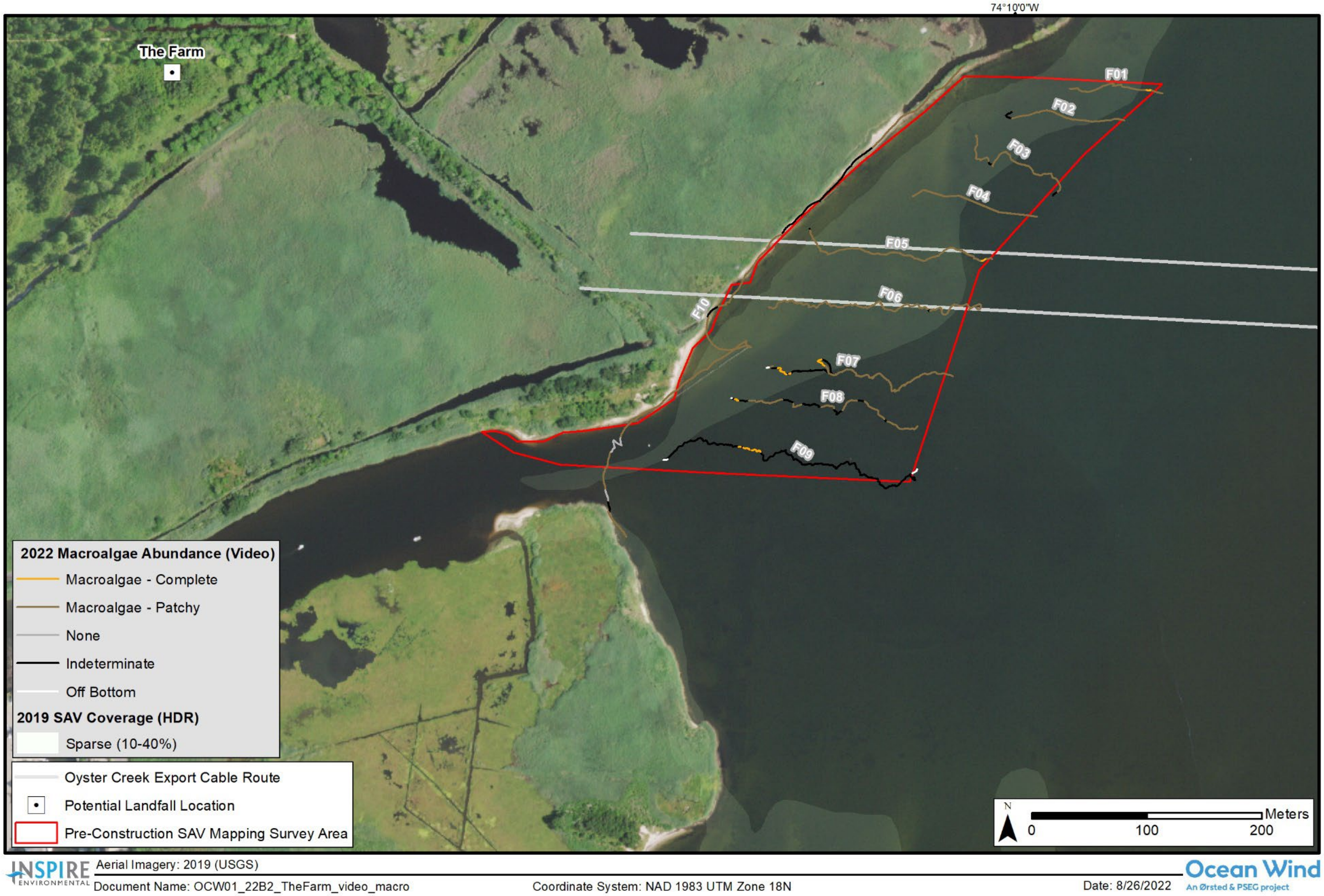

Figure 8. **Macroalgae cover observed along the video transects at the Farm**

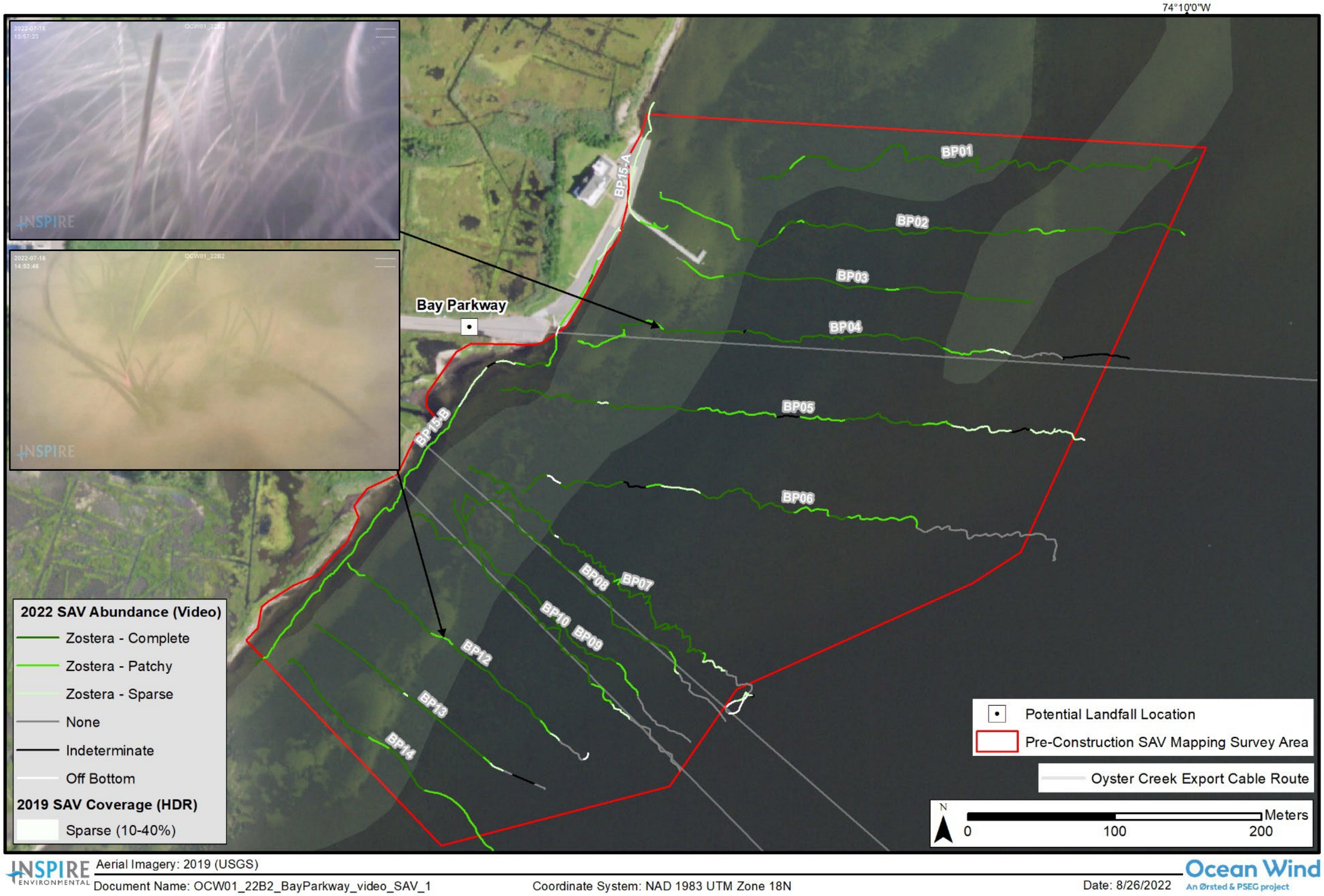

Figure 9. SAV observed along the video transects at the Bay Parkway survey area and representative still frames from the video footage

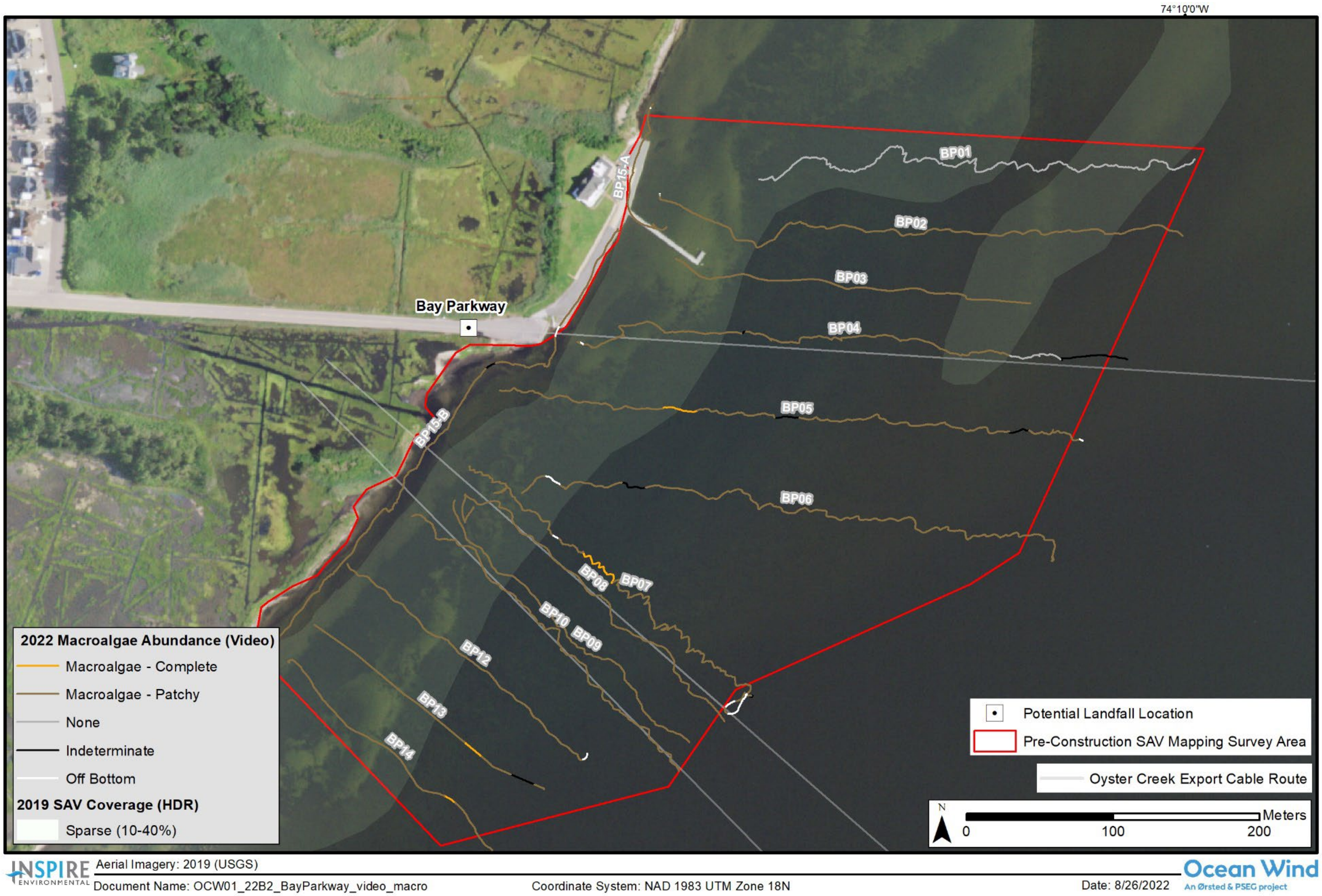

Figure 10. Macroalgae cover observed along the video transects at the Bay Parkway survey area

Figure 11. Estimated SAV habitat acreage (including observations of both patchy and complete coverage of SAV in the video data) at the Bay Parkway survey area

Figure 12. SAV observed along the video transects at the Lighthouse Drive survey area and representative still frames from the video footage

Figure 13. Macroalgae cover observed along the video transects at the Lighthouse Drive survey area

Figure 14. Estimated SAV habitat acreage (including observations of both patchy and complete coverage of SAV in the video data) at the Lighthouse Drive survey area

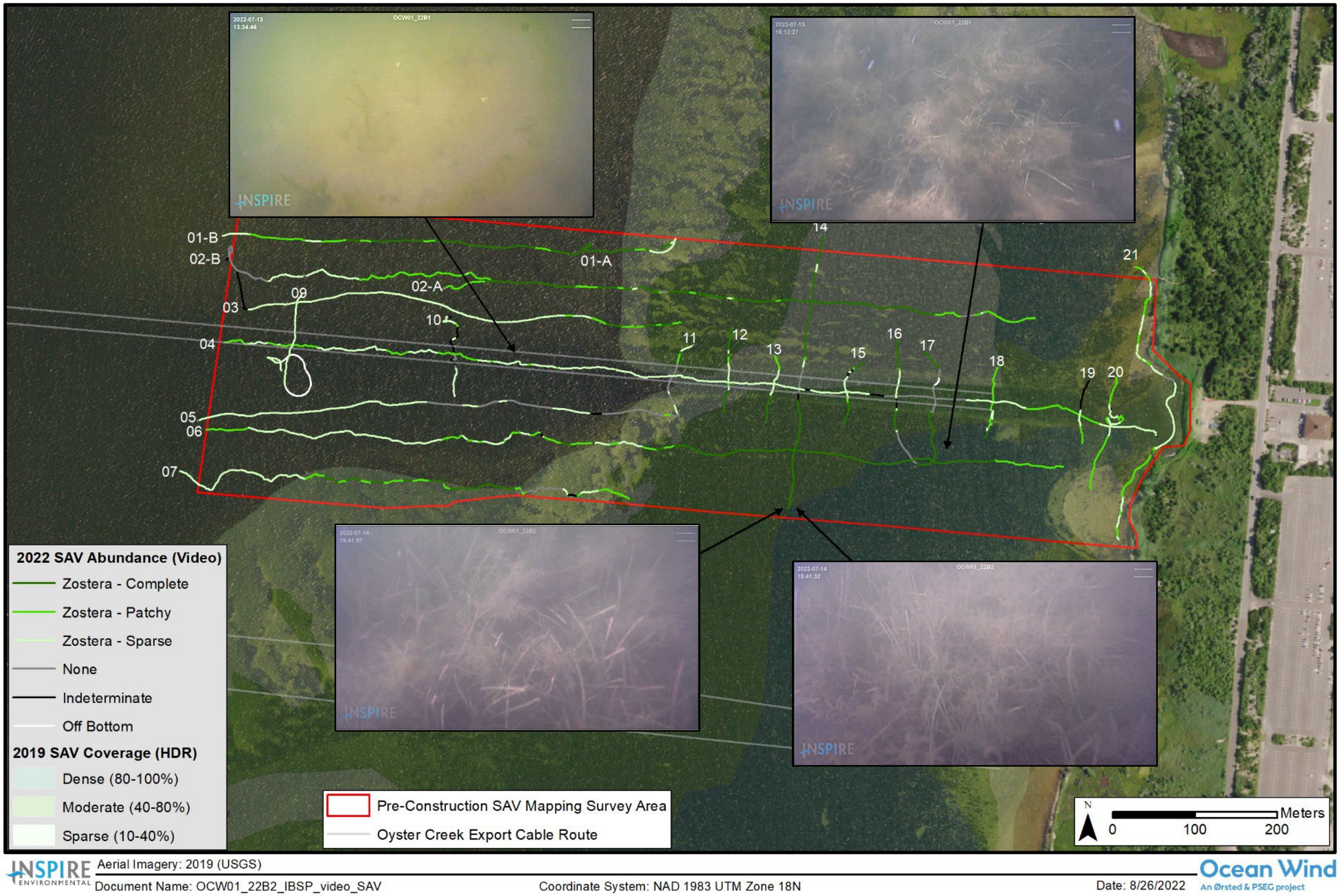

Figure 15. **SAV observed along the video transects at the IBSP survey area and representative still frames from the video footage**

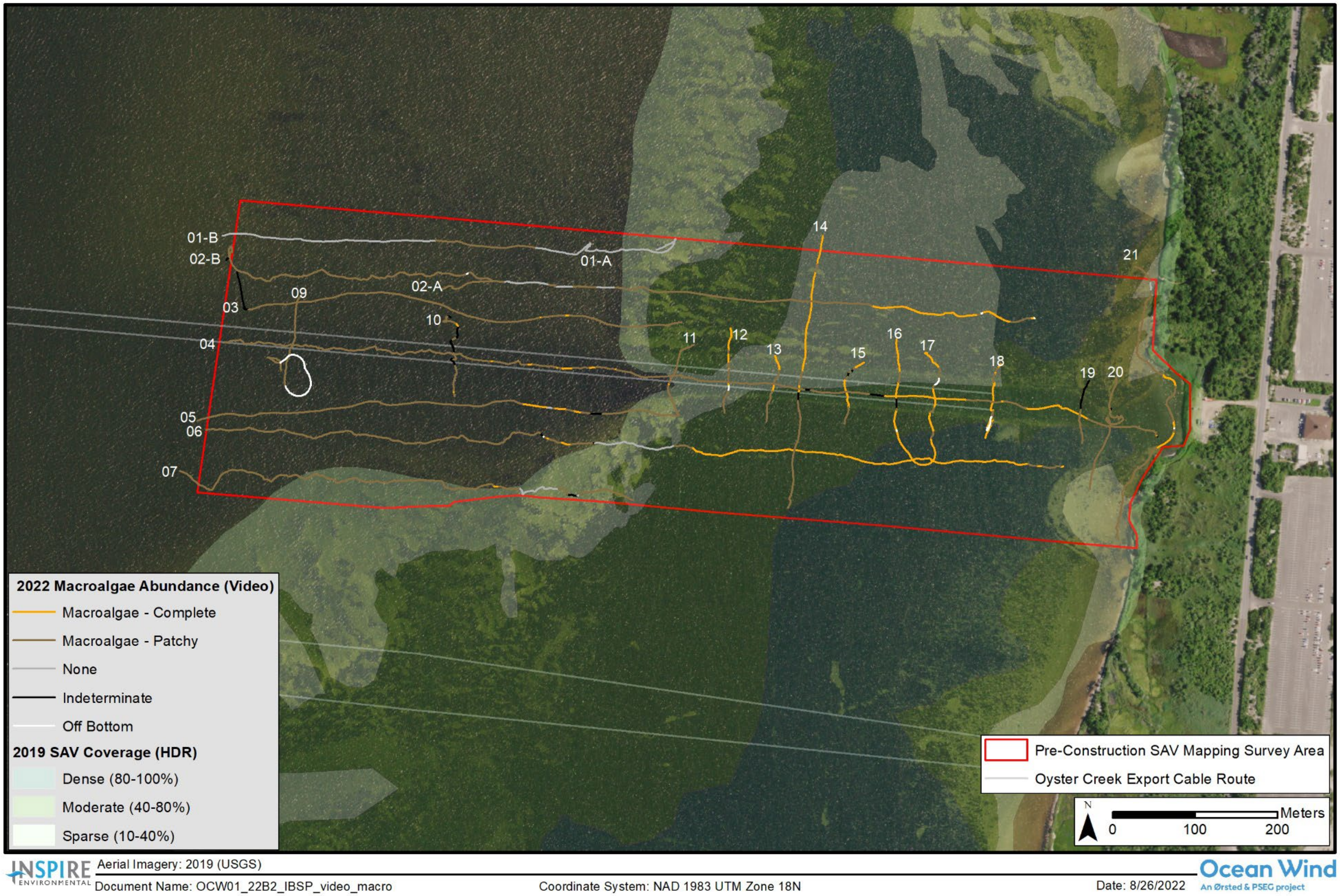

Figure 16. Macroalgae cover observed along the video transects at the IBSP survey area

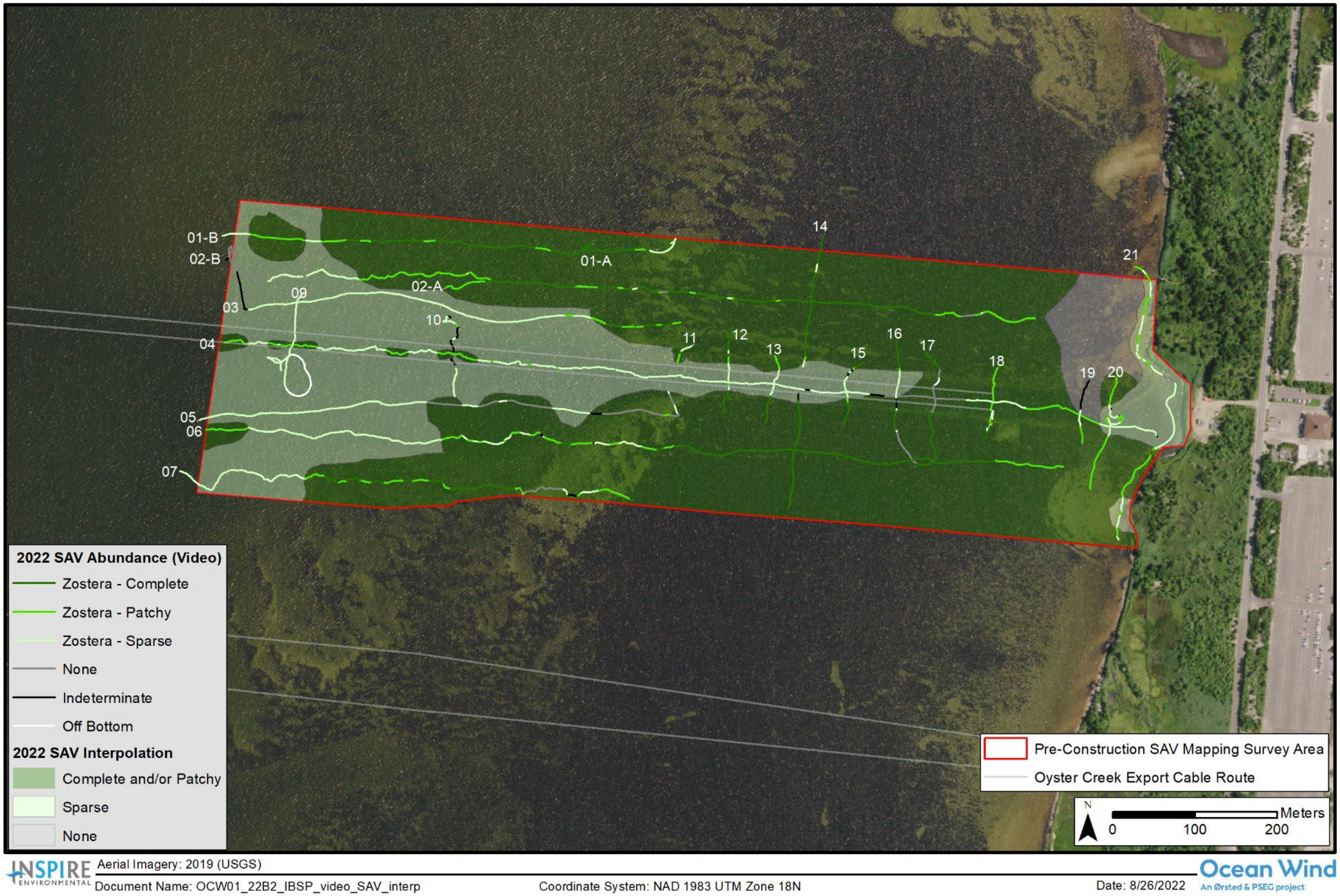

Figure 17. Estimated SAV habitat acreage (including observations of both patchy and complete coverage of SAV in the video data) at the IBSP survey area

ATTACHMENTS

Attachment A – Field Log

Notes:

SAV=Submerged Aquatic Vegetation

Date	Transect ID	Notes
7/13/2022	IBSP02-A	Starts with dominant sand with patches of SAV. Transitioning to dense SAV coverage with indeterminate patches of sand near the shoreline. Continuous all the way to shore. Patches of sand and SAV evident by looking into water from vessel.
7/13/2022	IBSP22 - IBSP04	Lots of mixed macroalgae at start of transect. Some appear dead, but may be coralline algae. Transitions to patchy algae/SAV around 13:15. Continuous throughout.
7/13/2022	IBSP06	Start of transect is a dense mix of algae/SAV. Patchy sand starts around 16:24. Dense macroalgae starting around 16:30. Poor visibility at end of transect.
7/13/2022	IBSP02-B	Sampled gap in transect IBSP02. Start of transect sandy with sparse clumps of SAV, possibly dead piles. Transitioned into continuous SAV with patches of sand, with algae intermittent on SAV patches.
7/14/2022	IBSP01-A - IBSP01-B	Started at east end of transect. Dense SAV present right away. Spiraling bryozoans. Transitioned to sand with SAV patches at end.
7/14/2022	IBSP03	SAV, extended transect to cover additional SAV.
7/14/2022	IBSP11	SAV and macroalgae present.
7/14/2022	IBSP05	Dense SAV on eastern side. Transition to macroalgae and SAV, then sand with patches.
7/14/2022	IBSP07	Transect aborted for rain. Operations suspended.
7/14/2022		(9:40) Stopped for weather.
7/14/2022		(11:14) Resumed operations.
7/14/2022	IBSP07	Started transect at edge of survey box. Start with sand with patches of SAV, transition to thick SAV. Then back to sand with patches.
7/14/2022	IBSP18	Obstructions, tree and others.
7/14/2022	IBSP17	Macroalgae, SAV, possible *Beggiatoa* .
7/14/2022	IBSP10 - IBSP09	Sandy patches.
7/14/2022		(16:49) Completed all planned transects at IBSP, transiting to the Farm.
7/14/2022	F01	Visibility so bad, hard to see bottom unless on it. Saw some evidence of SAV and intermittent macroalgae. Will return as time allows.
7/14/2022	F02	Tried to "pogo" with video system, intermittent macroalgae, little evidence of SAV. Will return as time allows.
7/14/2022		(15:32) End operations for the day, hoping for better visibility with calmer seas in early AM.
7/15/2022		(6:29) Departed dock.
7/15/2022		(6:50) Arrived at the Farm, wave height is 1 ft plus, making close to shore video challenging. Visibility at bottom only few inches.
7/15/2022	F03	Attempted to "pogo" video sled on bottom as too turbid for video. Attempted to GoPro on pole, not enough light.
7/15/2022	F03	Attempted to "pogo" with light on bottom/top/side, but too narrow beam angle or about same as Outland camera.
7/15/2022	F03	Attempted GoPro mounted on camera sled with Outland and lights, good footage.
7/15/2022	F08	Hard to see anything, lots of macroalgae throughout, no evidence of SAV.
7/15/2022	F09	No Outland recording, but GoPro good. Return as time allows. Black mud and macroalgae. Occasional single blades of SAV.
7/15/2022	F10	Transect abandoned. Will return and try again with waders.

Date	Transect ID	Notes
7/15/2022	BP01	Continuous SAV throughout transect all the way to shore. Hypack stopped continuous navigation log at some point within transect, and took a picture of vessel track for reference.
7/15/2022	BP02	SAV, possible coral throughout.
7/15/2022		(11:48) Battery change.
7/15/2022		(13:45) Resume operations, troubleshoot Hypack, remove GoPro from camera sled.
7/15/2022	BP06	Western portion of transect dominated by SAV, transitioning to primary sand near western edge of survey area. Possible coral.
7/15/2022		(16:45) Battery died, end operations.
7/16/2022		(6:18) Depart for the Farm.
7/16/2022		(7:01) Arrive on site, conditions calm, nearshore area still too turbid for video sled, added GoPro companion.
7/16/2022	F10	Very hard to see, little evidence of SAV. SAV floating on surface, macroalgae throughout.
7/16/2022		(7:50) Completed all planned transects at the Farm, headed to Bay Parkway.
7/16/2022	BP15-A	North of pier, mostly sandy close to shore.
7/16/2022	BP03	Hypack stopped logging mid-transect. Took a screen shot of vessel track for reference. Possible coral present in sandy area on eastern end of transect.
7/16/2022	BP04-A	No video recorded, only navigation.
7/16/2022	BP15-B	Picked up transect again on south side of pier. SAV present along south end of transect.
7/16/2022		Transit over to Lighthouse Drive to conduct nearshore transect while good conditions prevail.
7/16/2022	LD19	(10:54) Abandoned transect due to heavy rain.
7/16/2022	BP04	(13:54) Resumed operations.
7/16/2022		(15:30) Concluded operations, incoming thunderstorm.
7/17/2022		(6:20) Depart dock for Lighthouse Drive.
7/17/2022		(6:59) Arrive at sampling location.
7/17/2022	LD04	Started in sand, and then SAV continuous almost to shore.
7/17/2022	LD05 - LD07	State commercial crab vessel has line set across transect.
7/17/2022	LD03	Putting in further out to capture end of SAV.
7/17/2022	BP14	Continuous SAV.
7/17/2022		(9:32) Completed all transects at Bay Parkway.
7/17/2022	LD01	Start end with sand with continuous SAV bed.
7/17/2022	LD10	SAV started shortly after beginning transect.
7/17/2022	LD15	(13:50) Started recording and hauled camera back up to move further offshore and restart transect at 13:56.
7/17/2022		(14:55) Transects complete. Operations called for weather.

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
IBSP02-A	7/13/2022	12:03:50	577015.57	4411899.93	39.85363332	-74.09967857	1.6
IBSP02-A	7/13/2022	12:07:19	577070.24	4411907.59	39.85369737	-74.09903867	1.5
IBSP02-A	7/13/2022	12:14:34	577199.42	4411900.58	39.85362244	-74.09752955	1.5
IBSP02-A	7/13/2022	12:18:48	577266.03	4411895.98	39.85357494	-74.09675155	0.9
IBSP02-A	7/13/2022	12:23:46	577348.24	4411888.44	39.85349952	-74.09579143	0.9
IBSP02-A	7/13/2022	12:26:18	577395.3	4411882.54	39.85344208	-74.09524215	0.9
IBSP02-A	7/13/2022	12:32:16	577501.34	4411881.09	39.85341937	-74.09400278	0.8
IBSP02-A	7/13/2022	12:36:48	577580.42	4411873.72	39.85334574	-74.09307934	0.8
IBSP02-A	7/13/2022	12:40:21	577632.39	4411869.42	39.85330222	-74.09247241	0.8
IBSP02-A	7/13/2022	12:43:49	577675.62	4411870.56	39.85330857	-74.09196696	0.9
IBSP02-A	7/13/2022	12:46:32	577723.14	4411862.94	39.85323557	-74.09141244	0.8
IBSP02-A	7/13/2022	12:47:20	577730.8	4411862.54	39.85323126	-74.0913229	0.8
IBSP22	7/13/2022	13:04:47	577878.62	4411720.48	39.85193789	-74.08961195	0.8
IBSP22	7/13/2022	13:09:51	577763.87	4411753.4	39.85224502	-74.09094939	1.3
IBSP04	7/13/2022	13:12:42	577696.45	4411761.83	39.85232709	-74.09173641	1.3
IBSP04	7/13/2022	13:13:34	577676.31	4411762.19	39.85233222	-74.09197179	1.3
IBSP04	7/13/2022	13:14:38	577646.48	4411763.81	39.85234954	-74.0923202	1.3
IBSP04	7/13/2022	13:16:57	577573.86	4411768.3	39.85239659	-74.09316851	1.4
IBSP04	7/13/2022	13:19:57	577489.32	4411772.18	39.85243929	-74.09415618	1.5
IBSP04	7/13/2022	13:21:53	577435.74	4411778.65	39.85250245	-74.09478172	1.5
IBSP04	7/13/2022	13:23:51	577382.16	4411783.78	39.85255352	-74.09540741	1.6
IBSP04	7/13/2022	13:26:44	577302.44	4411791.79	39.85263299	-74.09633822	1.7
IBSP04	7/13/2022	13:28:47	577249.23	4411793.21	39.85265064	-74.09696002	1.7
IBSP04	7/13/2022	13:33:15	577138.94	4411804.5	39.85276232	-74.09824787	2.0
IBSP04	7/13/2022	13:34:41	577106.01	4411807.63	39.85279354	-74.0986323	2.0
IBSP04	7/13/2022	13:37:18	577046.68	4411813.29	39.85284992	-74.09932517	1.9
IBSP04	7/13/2022	13:40:09	576996.75	4411824.3	39.8529536	-74.09990752	1.8
IBSP04	7/13/2022	13:42:03	576956.19	4411821.24	39.85292977	-74.10038198	2.0
IBSP04	7/13/2022	13:45:17	576891.75	4411825.18	39.85297109	-74.10113464	1.9
IBSP04	7/13/2022	13:47:34	576851.68	4411829.35	39.85301231	-74.10160252	2.0
IBSP04	7/13/2022	13:49:34	576815.94	4411830.11	39.8530224	-74.10202024	2.0
IBSP04	7/13/2022	13:51:37	576775.96	4411831.85	39.85304162	-74.10248737	2.0
IBSP04	7/13/2022	13:53:03	576749.18	4411833.63	39.85306016	-74.10280014	2.0
IBSP06	7/13/2022	16:10:45	577674.27	4411688.85	39.85167164	-74.09200432	0.5
IBSP06	7/13/2022	16:15:36	577521.11	4411689.4	39.85169063	-74.09379439	0.5
IBSP06	7/13/2022	16:19:14	577413	4411701.67	39.85181103	-74.09505664	0.6
IBSP06	7/13/2022	16:19:42	577400.91	4411702.42	39.85181889	-74.0951978	0.6
IBSP06	7/13/2022	16:21:22	577358.03	4411698.22	39.85178497	-74.09569956	0.7
IBSP06	7/13/2022	16:22:40	577319.88	4411701.54	39.85181838	-74.09614507	0.7
IBSP06	7/13/2022	16:24:16	577284.7	4411706.18	39.85186334	-74.09655565	0.7
IBSP06	7/13/2022	16:26:50	577214.55	4411709.64	39.85190093	-74.0973752	1.1
IBSP06	7/13/2022	16:28:02	577182.85	4411710.64	39.85191281	-74.09774564	1.3
IBSP06	7/13/2022	16:28:44	577163.12	4411709.86	39.85190756	-74.09797637	1.4
IBSP06	7/13/2022	16:30:21	577128.59	4411724.3	39.85204076	-74.09837824	1.7
IBSP06	7/13/2022	16:31:35	577103.97	4411724.19	39.85204204	-74.09866607	1.7
IBSP06	7/13/2022	16:32:52	577083.6	4411711.89	39.8519331	-74.09890553	1.7
IBSP06	7/13/2022	16:35:17	577029.02	4411717.72	39.85199056	-74.09954281	1.6
IBSP06	7/13/2022	16:40:32	576898.42	4411725.81	39.85207523	-74.10106842	1.7
IBSP06	7/13/2022	16:43:30	576829.04	4411723.63	39.85206187	-74.1018796	1.7
IBSP06	7/13/2022	16:45:23	576786.99	4411726.73	39.85209361	-74.10237076	1.8
IBSP06	7/13/2022	16:47:32	576744.47	4411728	39.85210889	-74.10286758	1.7

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
IBSP02-B	7/13/2022	16:54:48	576753.92	4411942.43	39.85403989	-74.10273195	1.4
IBSP02-B	7/13/2022	17:00:00	576809.41	4411913.1	39.85377065	-74.10208684	1.5
IBSP02-B	7/13/2022	17:02:58	576864.45	4411921.65	39.85384268	-74.10144247	1.5
IBSP02-B	7/13/2022	17:05:07	576906.84	4411911.09	39.85374364	-74.10094823	1.5
IBSP02-B	7/13/2022	17:10:33	577005.22	4411918.2	39.85379883	-74.09979739	1.4
IBSP02-B	7/13/2022	17:13:21	577056.74	4411910.86	39.85372799	-74.09919612	1.2
IBSP02-B	7/13/2022	17:14:06	577071.09	4411909.24	39.85371209	-74.09902857	1.4
IBSP01-A	7/14/2022	7:52:40	577271.52	4411947.04	39.85403443	-74.09668131	1.0
IBSP01-A	7/14/2022	7:57:58	577216.29	4411943.09	39.85400391	-74.09732732	1.4
IBSP01-B	7/14/2022	8:00:12	577185.55	4411945.82	39.85403124	-74.09768632	1.4
IBSP01-B	7/14/2022	8:02:30	577169.2	4411940.62	39.85398594	-74.09787806	1.5
IBSP01-B	7/14/2022	8:05:01	577104.84	4411950.79	39.85408338	-74.09862914	1.5
IBSP01-B	7/14/2022	8:08:05	577030.2	4411956.02	39.85413725	-74.09950098	1.6
IBSP01-B	7/14/2022	8:11:31	576961.34	4411957.03	39.85415259	-74.10030579	1.7
IBSP01-B	7/14/2022	8:18:38	576801.8	4411960.59	39.85419911	-74.10217016	1.5
IBSP01-B	7/14/2022	8:20:33	576759.22	4411965.28	39.85424526	-74.10266732	1.5
IBSP03	7/14/2022	8:24:07	576762.74	4411917.18	39.85381163	-74.10263183	1.7
IBSP03	7/14/2022	8:26:12	576787.78	4411876.56	39.8534434	-74.10234392	1.9
IBSP03	7/14/2022	8:28:22	576850.51	4411882.77	39.85349362	-74.10160992	1.8
IBSP03	7/14/2022	8:30:58	576921.03	4411893.29	39.85358207	-74.1007844	1.7
IBSP03	7/14/2022	8:34:31	577026.2	4411871.61	39.85337716	-74.09955768	1.7
IBSP03	7/14/2022	8:40:27	577181.8	4411865.55	39.85330844	-74.09773965	1.8
IBSP03	7/14/2022	8:41:44	577211.86	4411855.59	39.85321604	-74.09738951	1.5
IBSP03	7/14/2022	8:45:21	577297.15	4411857.23	39.85322302	-74.09639239	1.2
IBSP03	7/14/2022	8:45:39	577302.53	4411858.1	39.85323038	-74.09632936	1.1
IBSP11	7/14/2022	8:52:37	577316.65	4411831.05	39.85298541	-74.09616755	1.2
IBSP11	7/14/2022	8:54:33	577294	4411797.4	39.85268429	-74.09643623	1.7
IBSP11	7/14/2022	8:57:13	577295.5	4411750.62	39.85226269	-74.09642426	0.9
IBSP05	7/14/2022	8:58:34	577287.04	4411745.77	39.85221979	-74.09652363	1.0
IBSP05	7/14/2022	8:59:28	577270.41	4411746.75	39.85223013	-74.09671794	1.0
IBSP05	7/14/2022	9:00:57	577241.91	4411750.59	39.85226737	-74.09705055	1.5
IBSP05	7/14/2022	9:02:59	577197.75	4411746.92	39.85223827	-74.09756718	1.9
IBSP05	7/14/2022	9:03:51	577175.09	4411749.29	39.85226166	-74.09783179	2.0
IBSP05	7/14/2022	9:04:54	577147.3	4411753.28	39.85230015	-74.09815617	2.1
IBSP05	7/14/2022	9:08:42	577067.49	4411758.81	39.85235722	-74.09908832	2.0
IBSP05	7/14/2022	9:11:04	577023.4	4411757.97	39.85235371	-74.09960381	2.0
IBSP05	7/14/2022	9:14:28	576940.56	4411758.6	39.85236687	-74.10057196	1.9
IBSP05	7/14/2022	9:16:33	576894.27	4411754.61	39.85233514	-74.10111353	2.0
IBSP05	7/14/2022	9:18:46	576842.74	4411748.8	39.85228746	-74.10171651	2.0
IBSP05	7/14/2022	9:20:36	576793.28	4411747.54	39.85228059	-74.1022948	1.9
IBSP05	7/14/2022	9:22:18	576757.26	4411746.73	39.85227653	-74.10271587	2.0
IBSP05	7/14/2022	9:24:26	576715.8	4411739.05	39.85221105	-74.10320146	2.1
IBSP07	7/14/2022	11:45:04	576735.97	4411661.4	39.85150966	-74.10297472	2.0
IBSP07	7/14/2022	11:49:42	576837.95	4411670.76	39.85158484	-74.10178164	1.8
IBSP07	7/14/2022	11:52:08	576883.68	4411663.08	39.85151143	-74.10124805	1.6
IBSP07	7/14/2022	11:57:36	577007.8	4411665.5	39.85152205	-74.09979699	1.6
IBSP07	7/14/2022	12:00:22	577055.53	4411657.9	39.85144925	-74.09924004	1.5
IBSP07	7/14/2022	12:03:43	577119.29	4411653.45	39.85140333	-74.09849536	1.0
IBSP07	7/14/2022	12:06:17	577173.65	4411647.42	39.85134404	-74.09786064	1.1
IBSP07	7/14/2022	12:09:07	577242.58	4411642.56	39.851294	-74.09705558	0.9
IBSP21	7/14/2022	12:24:20	577852.97	4411925.23	39.85378486	-74.08988741	0.5

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
IBSP21	7/14/2022	12:34:30	577893.58	4411790.04	39.85256319	-74.08942887	0.5
IBSP21	7/14/2022	12:36:18	577898.26	4411768.92	39.85237246	-74.08937667	0.5
IBSP21	7/14/2022	12:39:43	577899.97	4411731.61	39.85203617	-74.0893611	0.7
IBSP21	7/14/2022	12:41:33	577877.13	4411705.06	39.85179913	-74.08963125	0.7
IBSP21	7/14/2022	12:44:31	577851.61	4411675.53	39.85153543	-74.08993308	0.6
IBSP21	7/14/2022	12:47:39	577836.95	4411638.26	39.85120099	-74.09010887	0.5
IBSP20	7/14/2022	12:55:46	577798	4411660.96	39.85140904	-74.09056145	0.6
IBSP20	7/14/2022	12:58:21	577816.55	4411712.83	39.85187468	-74.09033837	0.8
IBSP20	7/14/2022	13:04:46	577822.37	4411763.18	39.85232777	-74.09026441	0.6
IBSP20	7/14/2022	13:06:10	577829.96	4411785.45	39.8525277	-74.09017307	0.4
IBSP19	7/14/2022	13:08:37	577795.65	4411785.67	39.85253279	-74.0905741	0.6
IBSP19	7/14/2022	13:11:20	577786.03	4411732.87	39.85205799	-74.0906928	0.8
IBSP18	7/14/2022	13:17:03	577671.11	4411719.18	39.85194522	-74.09203768	0.8
IBSP18	7/14/2022	13:20:41	577673.29	4411731.06	39.85205203	-74.09201079	0.8
IBSP18	7/14/2022	13:21:42	577680.02	4411751.64	39.85223677	-74.09192968	0.6
IBSP17	7/14/2022	15:12:03	577599.84	4411820.41	39.85286369	-74.09285866	0.8
IBSP17	7/14/2022	15:15:25	577609.18	4411756.38	39.85228597	-74.09275711	1.2
IBSP17	7/14/2022	15:17:31	577606.55	4411719.93	39.8519579	-74.09279213	0.8
IBSP16	7/14/2022	15:20:25	577560.95	4411733.04	39.85208015	-74.09332362	0.6
IBSP16	7/14/2022	15:22:18	577562.82	4411773.28	39.85244251	-74.093297	1.4
IBSP16	7/14/2022	15:24:44	577563.72	4411824.83	39.85290682	-74.09328034	0.7
IBSP16	7/14/2022	15:25:19	577563.1	4411836.53	39.85301225	-74.09328619	0.8
IBSP15	7/14/2022	15:29:22	577522.42	4411808.68	39.85276507	-74.09376497	0.6
IBSP15	7/14/2022	15:34:31	577499.67	4411734.11	39.85209541	-74.09403977	0.8
IBSP14	7/14/2022	15:41:09	577431.29	4411633.16	39.85119219	-74.09485091	0.8
IBSP14	7/14/2022	15:47:04	577446.32	4411739.59	39.85214958	-74.09466266	0.7
IBSP14	7/14/2022	15:48:13	577443.84	4411766.86	39.85239547	-74.09468844	0.8
IBSP14	7/14/2022	15:48:39	577444.74	4411777.61	39.85249228	-74.09467659	1.5
IBSP14	7/14/2022	15:49:59	577450.04	4411807.48	39.8527609	-74.09461119	1.2
IBSP14	7/14/2022	15:52:39	577457.62	4411865.25	39.85328064	-74.09451565	0.7
IBSP12	7/14/2022	16:09:05	577354.32	4411749.21	39.85224465	-74.09573691	0.9
IBSP12	7/14/2022	16:10:40	577359.11	4411776.83	39.85249305	-74.09567763	1.1
IBSP12	7/14/2022	16:11:39	577359.19	4411793.79	39.85264587	-74.09567463	1.7
IBSP12	7/14/2022	16:13:09	577358.96	4411827.88	39.85295298	-74.09567335	1.0
IBSP12	7/14/2022	16:14:13	577361.2	4411851.11	39.85316205	-74.09564442	0.9
IBSP10	7/14/2022	16:22:20	577021.15	4411864.38	39.85331248	-74.09961753	1.7
IBSP10	7/14/2022	16:27:10	577026.16	4411812.71	39.85284656	-74.09956512	2.0
IBSP10	7/14/2022	16:29:45	577025.95	4411767.74	39.85244143	-74.09957289	1.8
IBSP09	7/14/2022	16:35:31	576815.67	4411800.43	39.852755	-74.10202689	0.7
IBSP09	7/14/2022	16:44:35	576840.68	4411891.56	39.85357375	-74.10172386	1.6
F02	7/14/2022	17:21:35	571318.94	4407421.97	39.81378856	-74.16675359	1.0
F03	7/15/2022	6:58:41	571288.72	4407401.21	39.8136041	-74.16710897	1.2
F04	7/15/2022	8:04:02	571234.65	4407350.27	39.81314969	-74.16774613	1.1
F04	7/15/2022	8:10:36	571342.07	4407331.33	39.81297007	-74.16649335	1.8
F05	7/15/2022	8:27:24	571144.38	4407320.41	39.8128882	-74.1688039	0.6
F05	7/15/2022	8:28:42	571156.57	4407301.07	39.81271294	-74.1686636	0.9
F05	7/15/2022	8:29:35	571172.16	4407302.71	39.81272646	-74.16848131	1.0
F05	7/15/2022	8:30:15	571188.8	4407303.23	39.81272976	-74.16828689	1.1
F05	7/15/2022	8:31:09	571205.01	4407298.96	39.81268992	-74.168098	1.1
F05	7/15/2022	8:31:54	571219.02	4407300.32	39.81270099	-74.16793412	1.1
F05	7/15/2022	8:32:54	571236.78	4407295.02	39.81265173	-74.16772727	1.1

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
F05	7/15/2022	8:33:46	571249.21	4407295.73	39.81265711	-74.16758201	0.9
F05	7/15/2022	8:34:15	571255.56	4407297.05	39.8126685	-74.16750765	1.4
F05	7/15/2022	8:34:59	571271.99	4407302.86	39.81271944	-74.16731512	1.6
F05	7/15/2022	8:35:35	571287.1	4407296.63	39.81266208	-74.16713927	1.5
F05	7/15/2022	8:36:20	571297.47	4407294.82	39.81264484	-74.16701832	1.9
F06	7/15/2022	8:42:47	571290.33	4407251.28	39.81225321	-74.16710638	1.5
F06	7/15/2022	8:44:32	571275.23	4407253.81	39.81227723	-74.1672826	1.3
F06	7/15/2022	8:45:30	571259.97	4407246.56	39.81221326	-74.16746165	1.1
F06	7/15/2022	8:46:11	571256.72	4407252.1	39.81226341	-74.16749894	1.0
F06	7/15/2022	8:47:17	571245.43	4407252.49	39.81226784	-74.16763088	1.2
F06	7/15/2022	8:48:12	571236.08	4407254.98	39.81229112	-74.16773981	1.1
F06	7/15/2022	8:49:11	571222.67	4407252.17	39.81226688	-74.16789675	1.2
F06	7/15/2022	8:50:27	571206.97	4407255.04	39.81229409	-74.16807982	1.1
F06	7/15/2022	8:51:39	571197.93	4407254.06	39.81228598	-74.16818559	1.1
F06	7/15/2022	8:52:54	571184.68	4407255.3	39.81229827	-74.16834015	1.3
F06	7/15/2022	8:53:48	571175.9	4407254.33	39.81229031	-74.16844292	1.1
F06	7/15/2022	8:56:07	571147.3	4407254.21	39.81229162	-74.16877696	1.0
F06	7/15/2022	8:57:06	571135.79	4407256.19	39.81231039	-74.16891119	0.9
F06	7/15/2022	8:58:02	571129.27	4407258.52	39.8123319	-74.16898713	0.9
F06	7/15/2022	8:58:52	571123.09	4407258.63	39.81233343	-74.16905934	0.8
F06	7/15/2022	9:00:00	571109.14	4407252.63	39.81228052	-74.16922291	0.8
F07	7/15/2022	9:06:35	571108.75	4407200.41	39.81181013	-74.16923319	1.5
F07	7/15/2022	9:07:55	571122.37	4407195.71	39.81176663	-74.1690746	1.8
F07	7/15/2022	9:09:57	571144.92	4407198.01	39.81178545	-74.16881095	1.8
F07	7/15/2022	9:11:50	571162.32	4407198.95	39.81179248	-74.16860756	1.7
F07	7/15/2022	9:13:11	571162.28	4407194.6	39.81175331	-74.16860851	1.7
F07	7/15/2022	9:14:56	571185.72	4407193	39.81173692	-74.16833487	1.6
F07	7/15/2022	9:16:46	571214.08	4407186.76	39.81167836	-74.16800423	1.7
F07	7/15/2022	9:18:12	571225.95	4407184.76	39.8116593	-74.16786578	1.8
F07	7/15/2022	9:19:51	571254.74	4407195.24	39.81175131	-74.16752833	1.6
F07	7/15/2022	9:20:24	571268.8	4407192.57	39.81172606	-74.1673643	1.8
F08	7/15/2022	9:29:10	571076.22	4407173.64	39.81157164	-74.16961611	2.2
F08	7/15/2022	9:31:27	571116.76	4407171.9	39.81155259	-74.16914274	2.2
F08	7/15/2022	9:33:32	571149.71	4407167.79	39.81151284	-74.16875824	2.1
F08	7/15/2022	9:35:16	571171.9	4407162.48	39.81146312	-74.16849954	2.0
F08	7/15/2022	9:37:04	571203.89	4407160.64	39.81144389	-74.16812611	2.0
F08	7/15/2022	9:39:33	571237.49	4407148.84	39.81133473	-74.16773488	1.9
F09	7/15/2022	9:49:08	571205.03	4407099.78	39.81089548	-74.16811938	2.1
F09	7/15/2022	9:50:50	571188.5	4407106.67	39.8109589	-74.16831171	2.2
F09	7/15/2022	9:52:02	571183.68	4407116.33	39.81104632	-74.16836697	2.1
F09	7/15/2022	9:53:36	571164.93	4407113.99	39.81102684	-74.16858628	2.2
F09	7/15/2022	9:54:48	571150.66	4407116.69	39.81105233	-74.16875272	2.2
F09	7/15/2022	10:00:03	571096.51	4407129	39.81116781	-74.16938395	2.2
F09	7/15/2022	10:02:51	571060.33	4407134.92	39.81122415	-74.16980592	2.3
BP01	7/15/2022	10:45:54	571299.6	4406642.25	39.80676556	-74.16706439	1.4
BP01	7/15/2022	10:49:55	571243.21	4406647.23	39.80681521	-74.16772251	1.2
BP01	7/15/2022	10:51:45	571216.57	4406643.15	39.8067807	-74.16803416	1.1
BP01	7/15/2022	10:53:33	571195.88	4406642.34	39.80677511	-74.16827597	1.1
BP01	7/15/2022	10:55:46	571178.58	4406646.67	39.80681559	-74.16847758	1.1
BP01	7/15/2022	10:58:07	571148.06	4406647.54	39.80682599	-74.16883394	1.1
BP01	7/15/2022	10:59:48	571137.75	4406655.51	39.80689858	-74.16895354	1.0

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
BP01	7/15/2022	11:01:32	571117.01	4406645.44	39.80680961	-74.16919687	1.1
BP01	7/15/2022	11:03:36	571090.03	4406643.68	39.80679599	-74.16951221	1.0
BP01	7/15/2022	11:05:41	571067.06	4406648.27	39.80683927	-74.16978003	1.0
BP02	7/15/2022	11:28:27	571003.53	4406608.41	39.80648547	-74.17052641	0.9
BP02	7/15/2022	11:29:53	571026.97	4406593.65	39.80635059	-74.17025429	0.9
BP02	7/15/2022	11:30:56	571042.65	4406590.73	39.80632291	-74.17007143	1.4
BP02	7/15/2022	11:34:42	571103.09	4406602.97	39.80642819	-74.16936408	1.2
BP02	7/15/2022	11:36:52	571141.82	4406598.03	39.80638039	-74.16891215	1.5
BP02	7/15/2022	11:38:42	571176.8	4406599.45	39.80639033	-74.16850349	1.5
BP02	7/15/2022	11:40:19	571211.25	4406599.52	39.80638806	-74.16810107	1.3
BP02	7/15/2022	11:42:06	571246.05	4406599.56	39.80638551	-74.16769454	1.1
BP02	7/15/2022	11:43:15	571270.59	4406601.23	39.8063985	-74.16740773	1.3
BP06	7/15/2022	14:06:28	570907.61	4406424.64	39.80483793	-74.17166671	1.1
BP06	7/15/2022	14:08:18	570946.23	4406428.67	39.80487097	-74.17121519	1.3
BP06	7/15/2022	14:10:45	570995.89	4406422.6	39.80481218	-74.17063577	1.6
BP06	7/15/2022	14:12:51	571034.34	4406416.89	39.80475752	-74.17018724	1.2
BP06	7/15/2022	14:15:08	571072.44	4406410.56	39.80469724	-74.169743	1.5
BP06	7/15/2022	14:17:52	571114.14	4406403.18	39.80462734	-74.16925665	1.6
BP06	7/15/2022	14:20:29	571153.41	4406395.08	39.80455102	-74.16879889	1.8
BP06	7/15/2022	14:22:34	571185.13	4406391.98	39.8045205	-74.16842871	1.9
BP06	7/15/2022	14:26:30	571239.54	4406376.03	39.80437224	-74.16779487	2.1
BP07	7/15/2022	14:35:02	571034.46	4406282.89	39.80355025	-74.17020045	2.0
BP07	7/15/2022	14:36:37	571018.22	4406276.94	39.803498	-74.17039071	2.1
BP07	7/15/2022	14:38:09	571031.66	4406284.8	39.80356767	-74.17023292	2.0
BP07	7/15/2022	14:39:47	571018.07	4406297.36	39.80368198	-74.17039032	2.0
BP07	7/15/2022	14:41:43	571005.36	4406306.83	39.80376837	-74.17053772	1.8
BP07	7/15/2022	14:42:17	571001.18	4406307.45	39.80377429	-74.17058642	1.7
BP07	7/15/2022	14:43:01	570999.91	4406312.4	39.80381898	-74.17060076	1.3
BP07	7/15/2022	14:45:56	570981.15	4406330.46	39.80398327	-74.17081791	0.8
BP07	7/15/2022	14:47:23	570975.12	4406332.16	39.80399913	-74.17088816	1.4
BP07	7/15/2022	14:49:44	570963.21	4406347.49	39.80413816	-74.17102569	1.3
BP07	7/15/2022	14:52:37	570943.4	4406362.21	39.80427246	-74.17125544	1.5
BP07	7/15/2022	14:54:35	570930.94	4406372.64	39.80436748	-74.17139983	1.2
BP07	7/15/2022	14:56:13	570915.64	4406383.36	39.80446535	-74.17157746	1.2
BP07	7/15/2022	14:56:56	570903.99	4406389.7	39.8045234	-74.17171286	1.1
BP07	7/15/2022	14:59:16	570877.76	4406412.14	39.80472777	-74.17201681	1.0
BP07	7/15/2022	15:01:02	570864.29	4406422.31	39.80482048	-74.172173	0.8
BP07	7/15/2022	15:03:04	570850.9	4406434.88	39.80493488	-74.172328	0.8
BP08	7/15/2022	15:11:44	570870.79	4406408.21	39.80469294	-74.17209855	0.6
BP08	7/15/2022	15:13:00	570886.27	4406388.96	39.80451822	-74.17191992	0.9
BP08	7/15/2022	15:15:29	570928.55	4406351.67	39.80417871	-74.17143004	1.1
BP08	7/15/2022	15:17:21	570952.28	4406326.17	39.80394704	-74.17115558	1.1
BP08	7/15/2022	15:19:03	570984.32	4406297.81	39.80368882	-74.17078442	1.8
BP09	7/15/2022	15:29:25	570831.53	4406414.09	39.80474919	-74.1725565	0.6
BP09	7/15/2022	15:33:00	570891.15	4406344.34	39.80411586	-74.1718677	1.7
BP09	7/15/2022	15:34:03	570907.93	4406327.53	39.80396297	-74.17167356	1.1
BP09	7/15/2022	15:35:08	570922.24	4406311.69	39.80381911	-74.17150812	1.0
BP09	7/15/2022	15:36:43	570950.87	4406291.31	39.80363305	-74.17117584	1.8
BP09	7/15/2022	15:38:21	570973.66	4406262.49	39.80337152	-74.17091277	2.0
BP10	7/15/2022	15:48:38	570805.76	4406406.61	39.80468395	-74.17285834	0.6
BP10	7/15/2022	15:51:41	570851.53	4406370.22	39.80435229	-74.17232772	0.8

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
BP10	7/15/2022	15:52:38	570865.8	4406355.6	39.80421941	-74.17216263	0.9
BP10	7/15/2022	15:53:35	570881.46	4406343.29	39.80410713	-74.17198097	1.0
BP10	7/15/2022	15:56:24	570907.19	4406312.99	39.80383206	-74.17168371	1.1
BP10	7/15/2022	15:58:05	570929.87	4406289.29	39.8036166	-74.17142137	1.7
BP10	7/15/2022	15:59:09	570941.43	4406274.13	39.8034791	-74.17128804	1.9
F10	7/16/2022	7:09:27	570984.08	4407054.04	39.81050187	-74.17070539	0.6
F10	7/16/2022	7:11:42	570970	4407078.72	39.8107254	-74.17086717	0.6
F10	7/16/2022	7:12:16	570968.13	4407088.23	39.8108112	-74.17088797	0.8
F10	7/16/2022	7:13:40	570967.88	4407114.53	39.81104822	-74.17088813	1.8
F10	7/16/2022	7:14:22	570971.38	4407127.27	39.81116264	-74.17084578	2.5
F10	7/16/2022	7:15:13	570973.51	4407135.32	39.81123506	-74.17082006	2.5
F10	7/16/2022	7:16:51	570995.15	4407157.25	39.81143075	-74.17056486	1.4
F10	7/16/2022	7:17:47	571013.74	4407167.61	39.81152256	-74.17034662	0.8
F10	7/16/2022	7:19:43	571041.33	4407190.9	39.81173007	-74.17002176	0.7
F10	7/16/2022	7:21:12	571058.49	4407202.85	39.8118363	-74.16982006	0.7
F10	7/16/2022	7:23:29	571089.04	4407223.37	39.81201866	-74.16946096	0.8
F10	7/16/2022	7:24:40	571088.12	4407219.12	39.81198042	-74.16947211	0.7
F10	7/16/2022	7:26:25	571057.51	4407223.58	39.81202316	-74.16982928	0.5
F10	7/16/2022	7:27:09	571054.78	4407237.38	39.8121477	-74.1698596	0.5
F10	7/16/2022	7:28:47	571071.22	4407254.96	39.81230471	-74.16966564	0.5
F10	7/16/2022	7:29:43	571075.38	4407259.77	39.81234772	-74.1696165	0.5
F10	7/16/2022	7:32:16	571097.54	4407292.62	39.81264179	-74.16935417	0.5
F10	7/16/2022	7:35:28	571133.32	4407330.04	39.81297591	-74.16893203	0.5
F10	7/16/2022	7:37:10	571153.87	4407346.42	39.8131218	-74.16869023	0.5
F10	7/16/2022	7:39:13	571175.85	4407371.48	39.81334574	-74.16843076	0.5
F10	7/16/2022	7:41:45	571205.25	4407397.76	39.81358001	-74.16808447	0.5
F10	7/16/2022	7:43:08	571219.08	4407412.65	39.81371301	-74.16792126	0.5
F10	7/16/2022	7:44:53	571240.6	4407427.42	39.81384428	-74.16766827	0.5
BP15-A	7/16/2022	8:02:05	570976.42	4406602.83	39.80643753	-74.17084373	0.8
BP15-A	7/16/2022	8:05:49	570953.76	4406609.85	39.80650263	-74.17110759	0.8
BP15-A	7/16/2022	8:06:43	570951.54	4406626.88	39.80665622	-74.17113176	0.7
BP15-A	7/16/2022	8:08:14	570955.44	4406648.78	39.80685324	-74.17108376	0.6
BP15-A	7/16/2022	8:10:01	570965.37	4406667.87	39.80702438	-74.17096574	0.7
BP15-A	7/16/2022	8:11:09	570966.26	4406685.28	39.8071811	-74.17095346	0.6
BP03	7/16/2022	8:18:40	570983.38	4406581.03	39.80624047	-74.17076479	0.8
BP03	7/16/2022	8:19:51	570998.26	4406570.11	39.80614086	-74.17059211	0.7
BP03	7/16/2022	8:23:01	571065.05	4406566.67	39.80610432	-74.1698124	1.1
BP03	7/16/2022	8:27:39	571158.79	4406557.59	39.80601464	-74.16871837	1.5
BP15-B	7/16/2022	9:11:39	570925.35	4406568.95	39.80613652	-74.17144391	0.8
BP15-B	7/16/2022	9:14:20	570909.97	4406543.84	39.80591156	-74.1716263	0.7
BP15-B	7/16/2022	9:16:19	570900.17	4406517.47	39.80567482	-74.17174363	0.7
BP15-B	7/16/2022	9:18:00	570895.18	4406507.73	39.80558747	-74.171803	0.8
BP15-B	7/16/2022	9:20:43	570878.31	4406508.54	39.80559621	-74.17199995	0.5
BP15-B	7/16/2022	9:24:56	570839	4406486.35	39.80539957	-74.17246145	0.7
BP15-B	7/16/2022	9:27:41	570826.71	4406464.81	39.80520651	-74.17260733	0.7
BP15-B	7/16/2022	9:31:23	570803.56	4406437.14	39.80495919	-74.17288076	0.6
BP15-B	7/16/2022	9:34:47	570788.44	4406409.75	39.80471368	-74.17306032	0.7
BP15-B	7/16/2022	9:37:08	570772.93	4406396.13	39.80459225	-74.17324303	0.6
BP15-B	7/16/2022	9:39:42	570758.22	4406376.87	39.80441999	-74.17341686	0.7
BP15-B	7/16/2022	9:42:55	570739.03	4406354.62	39.80422111	-74.17364338	0.7
BP15-B	7/16/2022	9:46:38	570712.27	4406322.8	39.80393669	-74.17395946	0.7

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
BP15-B	7/16/2022	9:48:02	570703.72	4406309.17	39.80381462	-74.17406083	0.6
BP15-B	7/16/2022	9:48:53	570696.54	4406305.08	39.80377835	-74.1741451	0.6
LD19	7/16/2022	10:09:48	570522.9	4406146.11	39.80236054	-74.17619033	0.6
LD19	7/16/2022	10:13:00	570506.1	4406122.42	39.80214848	-74.17638919	0.6
LD19	7/16/2022	10:14:20	570496.41	4406111.41	39.8020501	-74.17650348	0.9
LD19	7/16/2022	10:16:49	570486.63	4406086.04	39.80182238	-74.17662053	0.6
LD19	7/16/2022	10:19:06	570474.89	4406058.91	39.80157896	-74.17676055	1.0
LD19	7/16/2022	10:24:39	570435.2	4406003.42	39.80108233	-74.17723009	0.8
LD19	7/16/2022	10:26:48	570412.4	4405993.12	39.80099136	-74.17749743	0.6
LD19	7/16/2022	10:30:11	570378.07	4405971.77	39.80080186	-74.17790079	0.7
LD19	7/16/2022	10:32:54	570364	4405940.89	39.80052487	-74.17806837	0.9
LD19	7/16/2022	10:40:06	570296.72	4405895.34	39.80012002	-74.17885912	1.1
LD19	7/16/2022	10:46:38	570267.29	4405840.37	39.79962728	-74.17920877	0.8
LD19	7/16/2022	10:51:04	570241.09	4405775.69	39.79904674	-74.17952168	0.9
LD19	7/16/2022	10:52:46	570221.42	4405757.66	39.79888585	-74.17975334	1.5
LD19	7/16/2022	10:53:36	570208.91	4405745.81	39.79878015	-74.17990079	2.1
LD19	7/16/2022	10:54:41	570196.72	4405727.33	39.79861468	-74.18004509	1.2
BP04	7/16/2022	13:53:56	570916.86	4406524.39	39.80573578	-74.17154792	0.8
BP04	7/16/2022	13:55:24	570945.49	4406528.24	39.80576808	-74.17121308	1.0
BP04	7/16/2022	13:58:03	570988.52	4406531.58	39.80579459	-74.17071005	1.0
BP04	7/16/2022	13:59:48	571029.26	4406531.28	39.80578845	-74.17023426	1.4
BP04	7/16/2022	14:01:36	571066.29	4406523.61	39.8057163	-74.16980247	1.5
BP04	7/16/2022	14:03:38	571096.72	4406527.16	39.80574572	-74.16944675	1.3
BP04	7/16/2022	14:06:25	571162.76	4406520.04	39.80567606	-74.16867601	1.4
BP04	7/16/2022	14:08:21	571200.26	4406517.97	39.80565424	-74.16823822	1.5
BP04	7/16/2022	14:11:01	571246.15	4406511.91	39.80559579	-74.16770283	1.5
BP05	7/16/2022	14:19:27	571259.84	4406457.28	39.80510248	-74.16754891	1.6
BP05	7/16/2022	14:21:37	571229.41	4406462.18	39.80514919	-74.1679038	1.7
BP05	7/16/2022	14:23:54	571188.94	4406465.86	39.8051857	-74.16837611	1.7
BP05	7/16/2022	14:25:02	571166.37	4406469.12	39.80521699	-74.16863944	1.5
BP05	7/16/2022	14:30:16	571050.05	4406473.05	39.80526216	-74.16999776	1.7
BP05	7/16/2022	14:32:24	571005.89	4406477.77	39.80530834	-74.17051304	1.5
BP05	7/16/2022	14:33:28	570985.68	4406478.52	39.80531681	-74.17074906	1.4
BP05	7/16/2022	14:35:09	570950.82	4406479.86	39.80533175	-74.17115607	1.0
BP05	7/16/2022	14:36:22	570927.04	4406482.95	39.80536161	-74.17143347	0.8
BP05	7/16/2022	14:37:01	570914.53	4406483.77	39.80537	-74.17157951	0.9
BP05	7/16/2022	14:39:08	570881.52	4406490.29	39.80543156	-74.17196446	0.7
BP12	7/16/2022	14:52:10	570921.74	4406241.28	39.80318479	-74.17152148	2.0
BP12	7/16/2022	14:53:40	570896.79	4406257.6	39.80333387	-74.17181123	1.6
BP12	7/16/2022	14:55:41	570865.16	4406287.76	39.80360825	-74.17217738	1.0
BP12	7/16/2022	14:56:46	570848.35	4406303.08	39.80374771	-74.17237209	1.2
BP12	7/16/2022	14:58:09	570824.72	4406322.39	39.80392363	-74.17264606	0.9
BP13	7/16/2022	15:12:17	570893.15	4406220.07	39.80299609	-74.17185776	2.0
BP13	7/16/2022	15:15:20	570857.85	4406235.15	39.8031349	-74.17226848	1.6
BP13	7/16/2022	15:18:29	570807.68	4406277.54	39.80352095	-74.17284983	1.0
BP13	7/16/2022	15:19:04	570798.04	4406284.17	39.80358147	-74.17296177	0.8
BP13	7/16/2022	15:21:20	570763.96	4406312.64	39.80384079	-74.17335682	0.7
LD04	7/17/2022	7:09:10	570631.86	4405876.27	39.79992049	-74.17494674	2.0
LD04	7/17/2022	7:10:01	570612.32	4405887.22	39.80002071	-74.17517376	1.9
LD04	7/17/2022	7:11:01	570592.89	4405902.09	39.80015631	-74.17539915	1.8
LD04	7/17/2022	7:11:52	570575.79	4405913.46	39.8002602	-74.17559765	1.5

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
LD04	7/17/2022	7:13:55	570541.43	4405940.66	39.80050811	-74.175996	1.1
LD04	7/17/2022	7:15:23	570510.75	4405953.19	39.80062353	-74.17635301	0.9
LD04	7/17/2022	7:17:13	570477.79	4405984.15	39.80090519	-74.17673463	0.8
LD04	7/17/2022	7:18:02	570459.04	4405995.2	39.80100627	-74.17695245	0.7
LD05	7/17/2022	7:19:05	570450.67	4406002.55	39.80107319	-74.17704949	1.0
LD05	7/17/2022	7:19:23	570450.68	4406002.71	39.80107466	-74.17704929	1.0
LD05	7/17/2022	7:20:58	570445.64	4405990.87	39.8009684	-74.17710952	0.7
LD05	7/17/2022	7:23:50	570477.57	4405957.42	39.80066437	-74.17674008	0.8
LD05	7/17/2022	7:24:45	570493.03	4405947.06	39.80056978	-74.17656067	0.9
LD05	7/17/2022	7:26:39	570527.24	4405915.05	39.80027858	-74.17616459	1.5
LD05	7/17/2022	7:27:26	570545.01	4405903.03	39.80016876	-74.17595832	1.6
LD05	7/17/2022	7:28:41	570571.57	4405881.32	39.79997098	-74.17565034	1.7
LD05	7/17/2022	7:29:24	570581.66	4405870.96	39.79987677	-74.17553371	1.8
LD05	7/17/2022	7:31:14	570610.22	4405849.49	39.79968101	-74.17520244	2.0
LD06	7/17/2022	7:44:35	570633.68	4405801.59	39.79924749	-74.17493358	2.1
LD06	7/17/2022	7:45:53	570616.78	4405807.97	39.79930638	-74.17513022	2.1
LD06	7/17/2022	7:46:25	570609.43	4405811.01	39.79933436	-74.17521574	2.1
LD06	7/17/2022	7:48:26	570582.8	4405828.6	39.79949507	-74.17552487	2.0
LD06	7/17/2022	7:50:10	570558.12	4405838.7	39.7995881	-74.17581208	1.8
LD06	7/17/2022	7:52:34	570515.13	4405866.74	39.79984428	-74.1763112	1.6
LD06	7/17/2022	7:53:51	570496.97	4405878.82	39.79995466	-74.17652201	1.6
LD06	7/17/2022	7:55:10	570476.43	4405886.07	39.8000217	-74.1767611	1.5
LD06	7/17/2022	7:56:43	570453.56	4405898.65	39.80013686	-74.17702687	1.0
LD06	7/17/2022	7:57:41	570440.26	4405908.44	39.80022623	-74.1771812	1.0
LD06	7/17/2022	7:59:04	570418.6	4405917.68	39.80031119	-74.17743321	0.9
LD06	7/17/2022	8:00:00	570404.92	4405925.11	39.80037927	-74.17759211	0.8
LD06	7/17/2022	8:00:57	570384.31	4405931.27	39.80043651	-74.17783222	0.8
LD06	7/17/2022	8:01:59	570366.03	4405946.56	39.80057576	-74.17804414	0.7
LD07	7/17/2022	8:03:31	570374.03	4405941.38	39.8005284	-74.17795123	0.8
LD07	7/17/2022	8:05:26	570394.84	4405915.63	39.80029469	-74.17771096	0.8
LD07	7/17/2022	8:07:12	570427.53	4405893.66	39.80009411	-74.17733146	0.9
LD07	7/17/2022	8:08:07	570446.5	4405885.48	39.80001887	-74.17711072	1.5
LD07	7/17/2022	8:09:16	570465.97	4405873.75	39.79991154	-74.17688462	1.6
LD07	7/17/2022	8:10:05	570483.97	4405866.52	39.79984495	-74.17667519	1.7
LD07	7/17/2022	8:11:30	570516.86	4405843.51	39.79963491	-74.17629344	1.8
LD07	7/17/2022	8:13:16	570548.86	4405826.43	39.79947837	-74.17592152	1.9
LD07	7/17/2022	8:15:09	570584.5	4405799.14	39.79922956	-74.17550824	2.1
LD03	7/17/2022	8:27:59	570642.51	4405943.41	39.80052443	-74.17481515	1.9
LD03	7/17/2022	8:29:21	570629.15	4405952.49	39.80060736	-74.17497017	1.7
LD03	7/17/2022	8:31:48	570595.05	4405974.63	39.80080966	-74.17536615	1.5
LD03	7/17/2022	8:34:06	570558.43	4405986.62	39.80092071	-74.17579255	1.7
LD03	7/17/2022	8:34:56	570545.05	4405992.41	39.800974	-74.17594821	1.8
LD03	7/17/2022	8:37:50	570505.04	4406013	39.80116287	-74.17641327	1.4
LD03	7/17/2022	8:39:56	570469.57	4406029.64	39.80131567	-74.17682581	1.2
LD02	7/17/2022	8:41:37	570475.62	4406061.58	39.80160293	-74.17675166	0.9
LD02	7/17/2022	8:43:30	570515.62	4406071.92	39.80169279	-74.17628344	0.7
LD02	7/17/2022	8:45:50	570551.91	4406041.02	39.80141137	-74.1758628	1.1
LD02	7/17/2022	8:48:13	570595.14	4406023.84	39.80125303	-74.17535977	1.0
LD02	7/17/2022	8:50:08	570631.65	4405994.21	39.80098302	-74.17493649	1.4
LD02	7/17/2022	8:51:12	570647.8	4405983.59	39.80088604	-74.174749	1.5
LD02	7/17/2022	8:51:41	570656.69	4405976.57	39.800822	-74.17464599	1.5

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
LD02	7/17/2022	8:53:58	570690.91	4405955.46	39.80062905	-74.17424851	1.8
LD02	7/17/2022	8:55:07	570714.37	4405944.99	39.8005327	-74.17397563	1.9
BP14	7/17/2022	9:21:39	570733.69	4406294.31	39.80367821	-74.17371231	0.7
BP14	7/17/2022	9:24:22	570764.28	4406259.19	39.80335926	-74.1733588	0.7
BP14	7/17/2022	9:27:24	570810.31	4406219.17	39.80299488	-74.17282546	1.1
BP14	7/17/2022	9:29:03	570834.97	4406208.24	39.80289436	-74.17253861	1.7
BP14	7/17/2022	9:30:35	570847.87	4406188.44	39.8027149	-74.17239007	1.8
LD01	7/17/2022	9:41:16	570714.25	4405993.95	39.80097385	-74.17397182	1.6
LD01	7/17/2022	9:42:25	570698.08	4406008.02	39.80110194	-74.1741591	1.4
LD01	7/17/2022	9:44:07	570677.79	4406025.44	39.80126055	-74.17439421	1.1
LD01	7/17/2022	9:45:51	570654.08	4406037.44	39.80137062	-74.17466983	1.1
LD01	7/17/2022	9:47:48	570623.17	4406056.86	39.80154814	-74.17502886	1.1
LD01	7/17/2022	9:49:02	570604.61	4406068.59	39.80165536	-74.17524438	1.2
LD01	7/17/2022	9:49:59	570593.11	4406076.73	39.80172971	-74.1753778	0.9
LD01	7/17/2022	9:51:41	570563.26	4406090.74	39.80185837	-74.17572498	0.9
LD01	7/17/2022	9:52:33	570554.36	4406100.46	39.80194664	-74.17582779	0.7
LD01	7/17/2022	9:53:50	570531.98	4406110.6	39.80203987	-74.17608817	0.6
LD08	7/17/2022	10:05:45	570333.62	4405902.94	39.80018548	-74.1784273	0.9
LD08	7/17/2022	10:07:12	570345.64	4405888.92	39.80005818	-74.1782884	0.9
LD08	7/17/2022	10:09:21	570370.3	4405876.88	39.79994768	-74.17800173	1.5
LD08	7/17/2022	10:12:06	570401.24	4405853.59	39.79973524	-74.17764279	1.8
LD08	7/17/2022	10:13:44	570434.74	4405847.23	39.79967518	-74.17725227	1.8
LD08	7/17/2022	10:15:56	570467.83	4405830.68	39.7995234	-74.17686747	1.8
LD08	7/17/2022	10:18:17	570495.75	4405811.14	39.79934499	-74.17654349	2.0
LD08	7/17/2022	10:19:53	570531.15	4405806.82	39.79930316	-74.17613055	1.9
LD08	7/17/2022	10:20:36	570543.57	4405796.62	39.79921026	-74.1759865	2.0
LD08	7/17/2022	10:21:44	570550.03	4405789.67	39.79914704	-74.17591185	2.0
LD08	7/17/2022	10:25:06	570588.13	4405762.19	39.79889631	-74.17546981	2.2
LD09	7/17/2022	10:35:10	570295.79	4405870.2	39.79989362	-74.17887272	0.8
LD09	7/17/2022	10:36:38	570313.46	4405859.09	39.79979209	-74.17866746	1.4
LD09	7/17/2022	10:38:10	570335.06	4405840.62	39.79962391	-74.17841716	1.5
LD09	7/17/2022	10:39:18	570356.95	4405833.57	39.7995586	-74.17816223	1.6
LD09	7/17/2022	10:40:28	570373.66	4405819.19	39.79942762	-74.17796859	1.8
LD09	7/17/2022	10:41:29	570383.13	4405810.36	39.79934731	-74.17785896	1.7
LD10	7/17/2022	10:53:41	570389.4	4405739.61	39.79870936	-74.17779327	1.8
LD10	7/17/2022	10:54:45	570366.64	4405749.29	39.79879845	-74.17805812	1.7
LD10	7/17/2022	10:56:40	570338.08	4405770.24	39.79898958	-74.17838944	1.3
LD10	7/17/2022	10:58:22	570319.6	4405785.19	39.79912583	-74.17860364	1.1
LD10	7/17/2022	11:00:06	570285.75	4405803.2	39.79929089	-74.1789971	0.9
LD11	7/17/2022	11:06:32	570245.94	4405775.56	39.79904508	-74.17946507	0.9
LD11	7/17/2022	11:08:02	570254.19	4405773.32	39.79902422	-74.17936893	0.8
LD11	7/17/2022	11:10:20	570292.08	4405748.56	39.79879803	-74.178929	0.8
LD11	7/17/2022	11:13:14	570331.85	4405731.79	39.79864372	-74.17846634	1.2
LD11	7/17/2022	11:15:46	570363.72	4405712.95	39.79847136	-74.17809607	1.4
LD12	7/17/2022	11:24:14	570195.46	4405706.81	39.79842987	-74.18006202	1.5
LD12	7/17/2022	11:26:20	570224.11	4405694.3	39.79831484	-74.17972875	1.6
LD12	7/17/2022	11:29:52	570274.55	4405663.7	39.79803496	-74.17914288	1.5
LD12	7/17/2022	11:31:40	570304.03	4405647.05	39.79788251	-74.17880036	2.0
LD12	7/17/2022	11:33:23	570339.56	4405635.87	39.79777893	-74.17838652	2.0
LD12	7/17/2022	11:34:55	570357.3	4405617.9	39.79761549	-74.17818135	2.1
LD12	7/17/2022	11:36:28	570392.28	4405604.21	39.79748927	-74.17777418	2.1

TransectID	Date	Time	X_UTM18N_m	Y_UTM18N_m	Latitude_WGS84	Longitude_WGS84	Depth_m
LD12	7/17/2022	11:38:19	570408.74	4405593.8	39.79739411	-74.17758308	2.2
LD13	7/17/2022	11:43:58	570419.01	4405545.35	39.79695684	-74.17746831	2.2
LD13	7/17/2022	11:45:13	570399.39	4405559.1	39.79708232	-74.17769596	2.2
LD13	7/17/2022	11:46:55	570359.14	4405579.86	39.79727267	-74.17816387	2.2
LD13	7/17/2022	11:48:12	570338.64	4405594.17	39.79740331	-74.17840178	2.1
LD13	7/17/2022	11:49:24	570318.37	4405602.73	39.79748212	-74.17863757	1.6
LD13	7/17/2022	11:54:41	570223.3	4405661.79	39.798022	-74.17974167	1.8
LD18	7/17/2022	12:34:19	570190.6	4405727.71	39.7986186	-74.18011653	1.8
LD18	7/17/2022	12:36:39	570182.02	4405709.39	39.79845425	-74.18021872	1.5
LD18	7/17/2022	12:39:03	570158.57	4405675.38	39.7981498	-74.18049625	0.9
LD18	7/17/2022	12:42:17	570119.72	4405662.21	39.79803436	-74.18095134	1.1
LD18	7/17/2022	12:43:22	570108.99	4405646.33	39.79789215	-74.18107842	1.0
LD18	7/17/2022	12:46:28	570109.34	4405605.13	39.79752094	-74.1810787	1.0
LD18	7/17/2022	12:48:26	570127.85	4405587.81	39.7973634	-74.18086439	1.8
LD18	7/17/2022	12:50:17	570130.03	4405569.09	39.79719459	-74.18084091	1.5
LD18	7/17/2022	12:52:00	570129.75	4405557.18	39.79708733	-74.18084551	0.9
LD18	7/17/2022	12:56:26	570128.37	4405521.41	39.79676515	-74.18086541	0.9
LD17	7/17/2022	13:02:49	570149.24	4405525.53	39.79680053	-74.18062125	1.3
LD17	7/17/2022	13:03:54	570162.8	4405511.76	39.79667539	-74.18046434	1.6
LD17	7/17/2022	13:05:50	570188.4	4405495.65	39.79652813	-74.18016703	2.0
LD17	7/17/2022	13:07:30	570206.7	4405483.14	39.79641393	-74.17995466	2.2
LD16	7/17/2022	13:13:04	570210.37	4405527.25	39.79681102	-74.17990711	1.8
LD16	7/17/2022	13:16:31	570170.66	4405555.5	39.79706876	-74.18036787	1.9
LD16	7/17/2022	13:17:43	570155.17	4405567.53	39.79717846	-74.18054742	1.7
LD16	7/17/2022	13:18:55	570138.64	4405580.95	39.7973007	-74.18073909	1.8
LD16	7/17/2022	13:19:23	570131.22	4405584.67	39.79733486	-74.18082539	1.8
LD14	7/17/2022	13:31:48	570177.22	4405674.16	39.79813727	-74.18027853	1.4
LD14	7/17/2022	13:34:17	570210.43	4405657.93	39.79798831	-74.17989239	2.0
LD14	7/17/2022	13:36:06	570220.13	4405643.18	39.79785462	-74.17978067	2.0
LD14	7/17/2022	13:37:53	570236.12	4405627.44	39.79771149	-74.1795956	1.8
LD14	7/17/2022	13:38:56	570252.78	4405617.78	39.79762309	-74.17940205	1.9
LD14	7/17/2022	13:42:14	570296.49	4405595.78	39.79742128	-74.1788939	2.1
LD14	7/17/2022	13:44:34	570315.79	4405569.66	39.79718436	-74.17867128	1.9
LD14	7/17/2022	13:46:09	570337.85	4405556.56	39.79706452	-74.17841504	2.0
LD14	7/17/2022	13:47:45	570361.99	4405544.72	39.79695585	-74.17813437	1.9
LD14	7/17/2022	13:49:34	570383.23	4405530.82	39.79682887	-74.17788779	2.0
LD14	7/17/2022	13:50:34	570399.08	4405527.69	39.79679936	-74.17770301	2.0
LD15	7/17/2022	13:57:00	570350.93	4405524.46	39.79677424	-74.17826572	1.7
LD15	7/17/2022	13:58:11	570335.9	4405529.22	39.79681837	-74.17844075	1.8
LD15	7/17/2022	13:59:42	570302.25	4405540.57	39.7969234	-74.17883254	1.5
LD15	7/17/2022	14:00:50	570280.3	4405554.84	39.79705378	-74.17908738	1.7
LD15	7/17/2022	14:02:08	570250.04	4405566.21	39.79715868	-74.17943958	1.4
LD15	7/17/2022	14:03:23	570222.15	4405572.6	39.7972186	-74.17976461	1.2
LD15	7/17/2022	14:05:36	570182.58	4405608.62	39.79754637	-74.18022296	1.1
LD15	7/17/2022	14:06:04	570174.13	4405615.16	39.79760597	-74.1803209	0.9
LD15	7/17/2022	14:07:38	570142.93	4405632.42	39.79776403	-74.18068352	0.9

Attachment B – Video Analysis Results

Notes:

IND=Indeterminate

N/A=Not Applicable

SAV=Submerged Aquatic Vegetation

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP02-A	7/13/2022	12:03:39	Start	Start	Macroalgae - Patchy	Start	None	Zostera
IBSP	IBSP02-A	7/13/2022	12:03:54	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP02-A	7/13/2022	12:03:55	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:07:04	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:07:05	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:08:07	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:08:08	-	Start	None	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:10:39	-	End	None	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:10:40	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:11:34	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:11:35	-	Start	None	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:12:35	-	End	None	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:12:36	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:12:51	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:12:52	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:14:32	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:14:33	-	Start	None	Start	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:15:41	-	End	None	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:15:42	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:15:56	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:15:57	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:16:21	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:16:22	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:17:05	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:17:06	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP02-A	7/13/2022	12:17:22	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP02-A	7/13/2022	12:17:23	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:19:09	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:19:10	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP02-A	7/13/2022	12:19:15	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP02-A	7/13/2022	12:19:16	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:19:21	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:19:22	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP02-A	7/13/2022	12:19:37	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-A	7/13/2022	12:19:51	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-A	7/13/2022	12:19:53	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP02-A	7/13/2022	12:19:54	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:21:48	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:21:49	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:22:09	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:22:10	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:24:17	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:24:18	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP02-A	7/13/2022	12:24:32	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP02-A	7/13/2022	12:24:33	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:24:39	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:24:40	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:27:19	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:27:20	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:27:33	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:27:34	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:34:17	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:34:18	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:38:24	-	-	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP02-A	7/13/2022	12:38:25	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:41:13	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:41:14	-	-	Macroalgae - Complete	Start	None	N/A
IBSP	IBSP02-A	7/13/2022	12:42:26	-	-	Macroalgae - Complete	End	None	N/A
IBSP	IBSP02-A	7/13/2022	12:42:27	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:42:36	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:42:37	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:42:54	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:42:55	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP02-A	7/13/2022	12:43:12	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP02-A	7/13/2022	12:43:13	-	Start	Macroalgae - Complete	Start	None	N/A
IBSP	IBSP02-A	7/13/2022	12:43:14	-	-	Macroalgae - Complete	End	None	N/A
IBSP	IBSP02-A	7/13/2022	12:43:15	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:45:03	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:45:04	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:46:46	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:46:47	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP02-A	7/13/2022	12:47:23	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP02-A	7/13/2022	12:47:24	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP02-A	7/13/2022	12:47:46	End	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP22	7/13/2022	13:04:36	Start	Start	IND	Start	IND	N/A
IBSP	IBSP22	7/13/2022	13:04:44	-	End	IND	End	IND	N/A
IBSP	IBSP22	7/13/2022	13:04:45	-	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP22	7/13/2022	13:04:49	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP22	7/13/2022	13:04:50	-	Start	IND	Start	IND	N/A
IBSP	IBSP22	7/13/2022	13:04:57	-	End	IND	End	IND	N/A
IBSP	IBSP22	7/13/2022	13:04:58	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP22	7/13/2022	13:05:07	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP22	7/13/2022	13:05:08	-	Start	IND	Start	IND	N/A
IBSP	IBSP22	7/13/2022	13:05:23	-	End	IND	End	IND	N/A
IBSP	IBSP22	7/13/2022	13:05:24	-	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP22	7/13/2022	13:05:33	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP22	7/13/2022	13:05:34	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP22	7/13/2022	13:05:42	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP22	7/13/2022	13:05:43	-	Start	IND	Start	IND	N/A
IBSP	IBSP22	7/13/2022	13:05:46	-	End	IND	End	IND	N/A
IBSP	IBSP22	7/13/2022	13:05:47	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP22	7/13/2022	13:07:58	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP22	7/13/2022	13:07:59	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP22	7/13/2022	13:08:23	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP22	7/13/2022	13:08:24	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP22	7/13/2022	13:11:39	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP22	7/13/2022	13:11:40	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP22	7/13/2022	13:12:41	End	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:12:42	Start	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:12:49	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:12:50	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:13:00	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:13:01	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:14:35	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:14:36	-	Start	Macroalgae - Complete	Start	None	N/A
IBSP	IBSP04	7/13/2022	13:17:49	-	End	Macroalgae - Complete	End	None	N/A
IBSP	IBSP04	7/13/2022	13:17:50	-	Start	IND	Start	IND	N/A
IBSP	IBSP04	7/13/2022	13:18:35	-	End	IND	End	IND	N/A
IBSP	IBSP04	7/13/2022	13:18:36	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:21:03	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:21:04	-	Start	IND	Start	IND	N/A
IBSP	IBSP04	7/13/2022	13:21:20	-	End	IND	End	IND	N/A
IBSP	IBSP04	7/13/2022	13:21:21	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:30:03	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:30:04	-	Start	Macroalgae - Complete	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:30:05	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:30:10	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:30:11	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:31:01	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:31:02	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:31:18	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:31:19	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:32:02	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:32:03	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:32:32	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:32:33	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:32:42	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:32:43	-	End	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:32:44	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:32:50	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:32:51	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:33:03	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:33:04	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:33:06	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:33:07	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:33:58	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:33:59	-	Start	Macroalgae - Complete	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:34:00	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:34:09	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:34:10	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:34:57	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP04	7/13/2022	13:34:58	-	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:35:04	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:35:05	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:36:09	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:36:10	-	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:36:18	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:36:19	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:36:50	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:36:51	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:39:40	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:39:41	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:41:21	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:41:22	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:42:47	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:42:48	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:46:57	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:46:58	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:47:02	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:47:03	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:47:04	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:47:05	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:49:43	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:49:44	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:49:49	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:49:50	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:50:29	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:50:30	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:51:26	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:51:27	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:51:29	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:51:30	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:51:38	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP04	7/13/2022	13:51:39	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP04	7/13/2022	13:53:11	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:07:43	Start	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:07:48	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:07:49	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:08:28	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:08:29	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:08:40	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:08:41	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:09:00	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:09:01	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:10:29	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:10:30	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP06	7/13/2022	16:23:01	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
IBSP	IBSP06	7/13/2022	16:23:02	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP06	7/13/2022	16:24:01	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP06	7/13/2022	16:24:02	-	Start	None	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:24:24	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:24:25	-	-	None	Start	Zostera - Complete	N/A
IBSP	IBSP06	7/13/2022	16:24:43	-	-	None	End	Zostera - Complete	N/A
IBSP	IBSP06	7/13/2022	16:24:44	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:25:23	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:25:24	-	-	None	Start	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:26:27	-	-	None	End	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:26:28	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:26:50	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:26:51	-	-	None	Start	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:27:30	-	End	None	End	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:27:31	-	Start	IND	Start	IND	N/A
IBSP	IBSP06	7/13/2022	16:27:37	-	End	IND	End	IND	N/A
IBSP	IBSP06	7/13/2022	16:27:38	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:28:34	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:28:35	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP06	7/13/2022	16:29:04	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP06	7/13/2022	16:29:05	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:29:40	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:29:41	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:29:51	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP06	7/13/2022	16:29:52	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:29:58	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:29:59	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP06	7/13/2022	16:30:04	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP06	7/13/2022	16:30:05	-	Start	IND	Start	IND	N/A
IBSP	IBSP06	7/13/2022	16:30:16	-	End	IND	End	IND	N/A
IBSP	IBSP06	7/13/2022	16:30:17	-	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP06	7/13/2022	16:30:19	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP06	7/13/2022	16:30:20	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:30:55	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:30:56	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:31:26	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:31:27	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:32:13	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:32:14	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:32:36	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:32:37	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:32:44	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:32:45	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:33:53	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:33:54	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:34:07	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:34:08	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:34:21	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:34:22	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:34:43	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:34:44	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:34:59	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:35:00	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:36:09	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:36:10	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:45:56	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP06	7/13/2022	16:45:57	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP06	7/13/2022	16:48:28	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-B	7/13/2022	16:53:59	Start	Start	IND	Start	IND	N/A
IBSP	IBSP02-B	7/13/2022	16:54:25	-	End	IND	End	IND	N/A
IBSP	IBSP02-B	7/13/2022	16:54:26	-	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP02-B	7/13/2022	16:54:53	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:55:04	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:55:18	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:55:40	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:55:50	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:56:04	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:56:11	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:56:21	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:56:44	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:57:18	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:58:02	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:58:19	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:58:28	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:58:47	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:58:59	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:59:01	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP02-B	7/13/2022	16:59:21	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP02-B	7/13/2022	16:59:22	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP02-B	7/13/2022	17:01:36	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP02-B	7/13/2022	17:01:37	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP02-B	7/13/2022	17:01:51	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP02-B	7/13/2022	17:01:52	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP02-B	7/13/2022	17:05:16	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP02-B	7/13/2022	17:05:17	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-B	7/13/2022	17:12:19	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-B	7/13/2022	17:12:20	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP02-B	7/13/2022	17:12:31	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP02-B	7/13/2022	17:12:32	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP02-B	7/13/2022	17:14:00	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP02-B	7/13/2022	17:14:01	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP02-B	7/13/2022	17:14:08	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP01-A	7/14/2022	7:52:34	Start	Start	None	Start	None	N/A
IBSP	IBSP01-A	7/14/2022	7:52:36	-	-	None	-	None	Zostera

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP01-A	7/14/2022	7:52:46	-	-	None	End	None	N/A
IBSP	IBSP01-A	7/14/2022	7:52:47	-	-	None	Start	Zostera - Complete	N/A
IBSP	IBSP01-A	7/14/2022	7:53:57	-	-	None	End	Zostera - Complete	N/A
IBSP	IBSP01-A	7/14/2022	7:53:58	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP01-A	7/14/2022	7:54:06	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP01-A	7/14/2022	7:54:07	-	-	None	Start	Zostera - Sparse	N/A
IBSP	IBSP01-A	7/14/2022	7:55:57	-	-	None	End	Zostera - Sparse	N/A
IBSP	IBSP01-A	7/14/2022	7:55:58	-	-	None	Start	Zostera - Complete	N/A
IBSP	IBSP01-A	7/14/2022	7:56:13	-	-	None	End	Zostera - Complete	N/A
IBSP	IBSP01-A	7/14/2022	7:56:14	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP01-A	7/14/2022	7:56:39	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP01-A	7/14/2022	7:56:40	-	-	None	Start	Zostera - Complete	N/A
IBSP	IBSP01-A	7/14/2022	7:59:27	End	End	None	End	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:00:06	Start	Start	None	Start	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:03:33	-	-	None	End	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:03:34	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:04:08	-	End	None	End	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:04:09	-	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:09:35	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:09:36	-	Start	None	Start	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:10:10	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:10:11	-	-	None	Start	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:13:14	-	-	None	End	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:13:15	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:13:48	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:13:49	-	-	None	Start	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:14:45	-	-	None	End	Zostera - Complete	N/A
IBSP	IBSP01-B	7/14/2022	8:14:46	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:15:56	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:15:57	-	-	None	Start	Zostera - Sparse	N/A
IBSP	IBSP01-B	7/14/2022	8:16:49	-	-	None	End	Zostera - Sparse	N/A
IBSP	IBSP01-B	7/14/2022	8:16:50	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:19:42	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP01-B	7/14/2022	8:19:43	-	-	None	Start	Zostera - Sparse	N/A
IBSP	IBSP01-B	7/14/2022	8:21:23	End	End	None	End	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:23:54	Start	Start	IND	Start	IND	N/A
IBSP	IBSP03	7/14/2022	8:25:41	-	End	IND	End	IND	N/A
IBSP	IBSP03	7/14/2022	8:25:42	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:38:31	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:38:32	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:38:38	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:38:39	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:39:03	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:39:04	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:39:08	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:39:09	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:39:36	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:39:37	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:39:39	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:39:40	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:39:51	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:39:52	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:40:00	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:40:01	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:40:47	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP03	7/14/2022	8:40:48	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:41:34	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:41:35	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:41:36	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:41:37	-	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:42:38	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:42:39	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:43:23	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:43:24	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:43:30	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:43:31	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:43:51	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:43:52	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:44:26	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:44:27	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP03	7/14/2022	8:44:33	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:44:34	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:45:09	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:45:10	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:45:29	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP03	7/14/2022	8:45:30	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP03	7/14/2022	8:45:39	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP11	7/14/2022	8:52:37	Start	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP11	7/14/2022	8:52:40	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP11	7/14/2022	8:52:41	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP11	7/14/2022	8:53:15	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP11	7/14/2022	8:53:16	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP11	7/14/2022	8:53:37	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP11	7/14/2022	8:53:38	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP11	7/14/2022	8:54:04	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP11	7/14/2022	8:54:05	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP11	7/14/2022	8:55:04	-	End	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP11	7/14/2022	8:55:05	-	Start	Macroalgae - Complete	-	None	N/A
IBSP	IBSP11	7/14/2022	8:55:08	-	End	Macroalgae - Complete	-	None	N/A
IBSP	IBSP11	7/14/2022	8:55:09	-	Start	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP11	7/14/2022	8:55:21	-	End	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP11	7/14/2022	8:55:22	-	Start	Macroalgae - Complete	-	None	N/A
IBSP	IBSP11	7/14/2022	8:55:31	-	End	Macroalgae - Complete	-	None	N/A
IBSP	IBSP11	7/14/2022	8:55:32	-	Start	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP11	7/14/2022	8:55:59	-	End	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP11	7/14/2022	8:56:00	-	Start	Macroalgae - Complete	Start	Zostera - Sparse	N/A
IBSP	IBSP11	7/14/2022	8:56:03	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP11	7/14/2022	8:56:04	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP11	7/14/2022	8:56:05	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP11	7/14/2022	8:56:06	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP11	7/14/2022	8:56:53	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP11	7/14/2022	8:56:54	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP11	7/14/2022	8:57:23	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP11	7/14/2022	8:57:24	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP11	7/14/2022	8:57:42	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP11	7/14/2022	8:58:33	End	End	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP05	7/14/2022	8:58:34	Start	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP05	7/14/2022	8:58:49	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP05	7/14/2022	8:58:50	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP05	7/14/2022	9:02:36	-	End	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP05	7/14/2022	9:02:37	-	Start	IND	Start	IND	N/A
IBSP	IBSP05	7/14/2022	9:03:13	-	End	IND	End	IND	N/A
IBSP	IBSP05	7/14/2022	9:03:14	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:03:40	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:03:41	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:04:02	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:04:03	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:04:19	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:04:20	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:04:55	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:04:56	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:04:57	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:04:58	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP05	7/14/2022	9:05:05	-	End	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP05	7/14/2022	9:05:06	-	Start	None	-	None	N/A
IBSP	IBSP05	7/14/2022	9:05:17	-	End	None	-	None	N/A
IBSP	IBSP05	7/14/2022	9:05:18	-	Start	Macroalgae - Complete	-	None	N/A
IBSP	IBSP05	7/14/2022	9:06:40	-	End	Macroalgae - Complete	-	None	N/A
IBSP	IBSP05	7/14/2022	9:06:41	-	Start	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP05	7/14/2022	9:07:41	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP05	7/14/2022	9:07:42	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:08:03	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:08:04	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP05	7/14/2022	9:08:50	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:08:52	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:09:11	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:09:30	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP05	7/14/2022	9:09:31	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:10:27	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:10:28	-	-	Macroalgae - Patchy	Start	None	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP05	7/14/2022	9:10:48	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:11:34	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:11:44	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:11:53	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:12:11	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:12:21	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:12:24	-	-	Macroalgae - Patchy	-	None	Zostera
IBSP	IBSP05	7/14/2022	9:12:25	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP05	7/14/2022	9:12:26	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:24:24	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP05	7/14/2022	9:24:25	-	-	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP05	7/14/2022	9:24:31	End	End	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP07	7/14/2022	11:42:33	Start	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP07	7/14/2022	11:50:04	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP07	7/14/2022	11:50:05	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:51:11	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:51:12	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:52:14	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:52:15	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:52:39	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:52:40	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:53:43	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:53:44	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:54:15	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:54:16	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:55:05	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:55:06	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:56:01	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:56:02	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:56:31	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:56:32	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:57:09	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:57:10	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:57:57	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	11:57:58	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:58:27	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	11:58:28	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	12:01:02	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	12:01:03	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	12:01:19	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	12:01:20	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	12:02:13	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	12:02:14	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:02:41	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:02:42	-	Start	None	Start	None	N/A
IBSP	IBSP07	7/14/2022	12:02:59	-	-	None	End	None	N/A
IBSP	IBSP07	7/14/2022	12:03:00	-	-	None	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:03:20	-	-	None	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:03:21	-	-	None	Start	None	N/A
IBSP	IBSP07	7/14/2022	12:03:33	-	-	None	-	None	Zostera
IBSP	IBSP07	7/14/2022	12:03:41	-	-	None	-	None	Zostera
IBSP	IBSP07	7/14/2022	12:04:05	-	-	None	-	None	Zostera
IBSP	IBSP07	7/14/2022	12:04:19	-	-	None	-	None	Zostera
IBSP	IBSP07	7/14/2022	12:04:24	-	-	None	-	None	Zostera
IBSP	IBSP07	7/14/2022	12:04:49	-	-	None	-	None	Zostera
IBSP	IBSP07	7/14/2022	12:05:05	-	-	None	-	None	Zostera
IBSP	IBSP07	7/14/2022	12:05:12	-	End	None	-	None	N/A
IBSP	IBSP07	7/14/2022	12:05:13	-	Start	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP07	7/14/2022	12:05:24	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP07	7/14/2022	12:05:25	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP07	7/14/2022	12:05:45	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP07	7/14/2022	12:05:46	-	Start	IND	Start	IND	N/A
IBSP	IBSP07	7/14/2022	12:06:24	-	End	IND	End	IND	N/A
IBSP	IBSP07	7/14/2022	12:06:25	-	Start	None	Start	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:06:28	-	End	None	-	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:06:29	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:06:37	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:06:38	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP07	7/14/2022	12:07:30	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP07	7/14/2022	12:07:31	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP07	7/14/2022	12:08:56	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP07	7/14/2022	12:08:57	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP07	7/14/2022	12:09:09	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP21	7/14/2022	12:24:18	Start	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:24:42	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:24:43	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:24:52	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:24:53	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:25:11	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:25:12	-	Start	None	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:25:27	-	End	None	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:25:28	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:25:43	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:25:44	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:28:08	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:28:09	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:29:33	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:29:34	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:30:20	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:30:21	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:30:53	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:30:54	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:31:09	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:31:10	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:31:55	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:31:56	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:32:05	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:32:06	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:32:14	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:32:15	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:32:36	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:32:37	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:33:35	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:33:36	-	Start	Macroalgae - Complete	Start	None	N/A
IBSP	IBSP21	7/14/2022	12:34:53	-	-	Macroalgae - Complete	End	None	N/A
IBSP	IBSP21	7/14/2022	12:34:54	-	-	Macroalgae - Complete	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:35:11	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:35:12	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:39:17	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:39:18	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:39:46	-	End	Macroalgae - Complete	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:39:47	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP21	7/14/2022	12:39:58	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP21	7/14/2022	12:39:59	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:40:03	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:40:04	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:41:11	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:41:12	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:41:34	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:41:35	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:41:59	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:42:00	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP21	7/14/2022	12:42:15	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP21	7/14/2022	12:42:16	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:44:04	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:44:05	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP21	7/14/2022	12:44:06	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP21	7/14/2022	12:44:07	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:47:12	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:47:13	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:48:14	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:48:15	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:48:42	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:48:43	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:50:02	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:50:03	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:51:08	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP21	7/14/2022	12:51:09	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP21	7/14/2022	12:51:26	End	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	12:55:30	Start	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP20	7/14/2022	12:58:47	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP20	7/14/2022	12:58:48	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	12:59:25	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	12:59:26	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP20	7/14/2022	12:59:29	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP20	7/14/2022	12:59:30	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	13:00:13	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	13:00:14	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP20	7/14/2022	13:00:56	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP20	7/14/2022	13:00:57	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	13:01:41	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	13:01:42	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP20	7/14/2022	13:03:09	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP20	7/14/2022	13:03:10	-	Start	IND	Start	IND	N/A
IBSP	IBSP20	7/14/2022	13:03:19	-	End	IND	End	IND	N/A
IBSP	IBSP20	7/14/2022	13:03:20	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	13:03:52	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	13:03:53	-	Start	IND	Start	IND	N/A
IBSP	IBSP20	7/14/2022	13:04:16	-	End	IND	End	IND	N/A
IBSP	IBSP20	7/14/2022	13:04:17	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	13:04:34	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP20	7/14/2022	13:04:35	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP20	7/14/2022	13:06:35	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP19	7/14/2022	13:08:33	Start	Start	IND	Start	IND	N/A
IBSP	IBSP19	7/14/2022	13:10:03	-	End	IND	End	IND	N/A
IBSP	IBSP19	7/14/2022	13:10:04	-	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP19	7/14/2022	13:10:05	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP19	7/14/2022	13:10:06	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP19	7/14/2022	13:11:23	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP19	7/14/2022	13:11:24	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP19	7/14/2022	13:12:26	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:17:00	Start	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP18	7/14/2022	13:17:58	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP18	7/14/2022	13:17:59	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:18:13	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:18:14	-	Start	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:18:15	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP18	7/14/2022	13:18:48	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP18	7/14/2022	13:18:49	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP18	7/14/2022	13:19:27	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP18	7/14/2022	13:19:28	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP18	7/14/2022	13:19:31	-	End	Macroalgae - Complete	End	Zostera - Sparse	N/A
IBSP	IBSP18	7/14/2022	13:19:32	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP18	7/14/2022	13:20:40	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP18	7/14/2022	13:20:41	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP18	7/14/2022	13:20:53	-	-	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP18	7/14/2022	13:20:54	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:21:09	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:21:10	-	Start	IND	Start	IND	N/A
IBSP	IBSP18	7/14/2022	13:21:33	-	End	IND	End	IND	N/A
IBSP	IBSP18	7/14/2022	13:21:34	-	Start	Macroalgae - Complete	Start	None	N/A
IBSP	IBSP18	7/14/2022	13:21:37	-	End	Macroalgae - Complete	End	None	N/A
IBSP	IBSP18	7/14/2022	13:21:38	-	Start	IND	Start	IND	N/A
IBSP	IBSP18	7/14/2022	13:21:48	-	End	IND	End	IND	N/A
IBSP	IBSP18	7/14/2022	13:21:49	-	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:24:07	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:24:08	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:24:31	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:24:32	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:24:45	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:24:46	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:25:00	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP18	7/14/2022	13:25:01	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP18	7/14/2022	13:25:32	End	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:12:02	Start	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:13:01	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:13:02	-	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP17	7/14/2022	15:13:40	-	End	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP17	7/14/2022	15:13:41	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP17	7/14/2022	15:14:18	-	End	Off Bottom	End	Off Bottom	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP17	7/14/2022	15:14:19	-	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP17	7/14/2022	15:14:31	-	End	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP17	7/14/2022	15:14:32	-	Start	Macroalgae - Complete	-	None	N/A
IBSP	IBSP17	7/14/2022	15:15:34	-	End	Macroalgae - Complete	-	None	N/A
IBSP	IBSP17	7/14/2022	15:15:35	-	Start	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP17	7/14/2022	15:16:13	-	End	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP17	7/14/2022	15:16:14	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:17:14	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:17:15	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:17:47	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:17:48	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:18:58	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
IBSP	IBSP17	7/14/2022	15:18:59	End	Start	None	End	Zostera - Complete	N/A
IBSP	IBSP16	7/14/2022	15:19:00	Start	Start	Macroalgae - Complete	Start	None	N/A
IBSP	IBSP16	7/14/2022	15:20:06	-	End	Macroalgae - Complete	End	None	N/A
IBSP	IBSP16	7/14/2022	15:20:07	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP16	7/14/2022	15:20:14	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP16	7/14/2022	15:20:15	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP16	7/14/2022	15:21:14	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP16	7/14/2022	15:21:15	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP16	7/14/2022	15:21:24	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP16	7/14/2022	15:21:25	-	Start	IND	Start	IND	N/A
IBSP	IBSP16	7/14/2022	15:21:58	-	End	IND	End	IND	N/A
IBSP	IBSP16	7/14/2022	15:21:59	-	Start	Macroalgae - Complete	Start	Zostera - Sparse	N/A
IBSP	IBSP16	7/14/2022	15:22:49	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP16	7/14/2022	15:22:50	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP16	7/14/2022	15:23:20	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP16	7/14/2022	15:23:21	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP16	7/14/2022	15:23:26	-	-	Macroalgae - Complete	End	Zostera - Sparse	N/A
IBSP	IBSP16	7/14/2022	15:23:27	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP16	7/14/2022	15:23:36	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP16	7/14/2022	15:23:37	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP16	7/14/2022	15:25:26	End	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP15	7/14/2022	15:29:21	Start	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP15	7/14/2022	15:29:59	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP15	7/14/2022	15:30:00	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
IBSP	IBSP15	7/14/2022	15:30:04	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
IBSP	IBSP15	7/14/2022	15:30:05	-	Start	IND	Start	IND	N/A
IBSP	IBSP15	7/14/2022	15:30:17	-	End	IND	End	IND	N/A
IBSP	IBSP15	7/14/2022	15:30:18	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP15	7/14/2022	15:30:32	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP15	7/14/2022	15:30:33	-	Start	IND	Start	IND	N/A
IBSP	IBSP15	7/14/2022	15:30:48	-	End	IND	End	IND	N/A
IBSP	IBSP15	7/14/2022	15:30:49	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP15	7/14/2022	15:31:04	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP15	7/14/2022	15:31:05	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP15	7/14/2022	15:32:26	-	-	Macroalgae - Complete	End	Zostera - Sparse	N/A
IBSP	IBSP15	7/14/2022	15:32:27	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP15	7/14/2022	15:32:47	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP15	7/14/2022	15:32:48	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP15	7/14/2022	15:33:20	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
IBSP	IBSP15	7/14/2022	15:33:21	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP15	7/14/2022	15:34:31	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP14	7/14/2022	15:41:08	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP14	7/14/2022	15:48:05	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP14	7/14/2022	15:48:06	-	Start	IND	Start	IND	N/A
IBSP	IBSP14	7/14/2022	15:48:28	-	End	IND	End	IND	N/A
IBSP	IBSP14	7/14/2022	15:48:29	-	Start	Macroalgae - Complete	Start	None	N/A
IBSP	IBSP14	7/14/2022	15:48:51	-	End	Macroalgae - Complete	-	None	N/A
IBSP	IBSP14	7/14/2022	15:48:52	-	Start	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP14	7/14/2022	15:49:30	-	End	Macroalgae - Patchy	-	None	N/A
IBSP	IBSP14	7/14/2022	15:49:31	-	Start	Macroalgae - Complete	-	None	N/A
IBSP	IBSP14	7/14/2022	15:49:48	-	-	Macroalgae - Complete	End	None	N/A
IBSP	IBSP14	7/14/2022	15:49:49	-	-	Macroalgae - Complete	Start	Zostera - Sparse	N/A
IBSP	IBSP14	7/14/2022	15:50:07	-	-	Macroalgae - Complete	End	Zostera - Sparse	N/A
IBSP	IBSP14	7/14/2022	15:50:08	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP14	7/14/2022	15:50:22	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP14	7/14/2022	15:50:23	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP14	7/14/2022	15:54:49	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP14	7/14/2022	15:54:50	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
IBSP	IBSP14	7/14/2022	15:55:12	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP14	7/14/2022	15:55:13	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP14	7/14/2022	15:56:36	End	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP13	7/14/2022	16:02:30	Start	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP13	7/14/2022	16:03:21	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP13	7/14/2022	16:03:22	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP13	7/14/2022	16:04:06	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP13	7/14/2022	16:04:07	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP13	7/14/2022	16:04:28	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP13	7/14/2022	16:04:29	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP13	7/14/2022	16:04:48	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP13	7/14/2022	16:04:49	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP13	7/14/2022	16:06:16	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
IBSP	IBSP12	7/14/2022	16:09:03	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
IBSP	IBSP12	7/14/2022	16:10:30	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
IBSP	IBSP12	7/14/2022	16:10:31	-	Start	None	End	Zostera - Complete	N/A
IBSP	IBSP12	7/14/2022	16:10:32	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP12	7/14/2022	16:11:00	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP12	7/14/2022	16:11:01	-	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP12	7/14/2022	16:11:19	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP12	7/14/2022	16:11:20	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP12	7/14/2022	16:11:58	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP12	7/14/2022	16:11:59	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP12	7/14/2022	16:12:04	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP12	7/14/2022	16:12:05	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP12	7/14/2022	16:12:21	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP12	7/14/2022	16:12:22	-	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP12	7/14/2022	16:12:39	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP12	7/14/2022	16:12:40	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP12	7/14/2022	16:12:51	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP12	7/14/2022	16:12:52	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP12	7/14/2022	16:12:56	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP12	7/14/2022	16:12:57	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
IBSP	IBSP12	7/14/2022	16:14:13	End	End	Macroalgae - Complete	End	Zostera - Complete	N/A
IBSP	IBSP10	7/14/2022	16:22:18	Start	Start	IND	Start	IND	N/A
IBSP	IBSP10	7/14/2022	16:22:36	-	End	IND	End	IND	N/A
IBSP	IBSP10	7/14/2022	16:22:37	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:24:02	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:24:03	-	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
IBSP	IBSP10	7/14/2022	16:24:10	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
IBSP	IBSP10	7/14/2022	16:24:11	-	Start	IND	Start	IND	N/A
IBSP	IBSP10	7/14/2022	16:25:06	-	End	IND	End	IND	N/A
IBSP	IBSP10	7/14/2022	16:25:07	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:25:26	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:25:27	-	Start	IND	Start	IND	N/A
IBSP	IBSP10	7/14/2022	16:26:20	-	-	IND	-	IND	Zostera
IBSP	IBSP10	7/14/2022	16:26:29	-	End	IND	End	IND	N/A
IBSP	IBSP10	7/14/2022	16:26:30	-	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP10	7/14/2022	16:27:17	-	End	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP10	7/14/2022	16:27:18	-	Start	IND	Start	IND	N/A
IBSP	IBSP10	7/14/2022	16:27:56	-	End	IND	End	IND	N/A
IBSP	IBSP10	7/14/2022	16:27:57	-	Start	Macroalgae - Patchy	Start	None	N/A
IBSP	IBSP10	7/14/2022	16:28:04	-	-	Macroalgae - Patchy	End	None	N/A
IBSP	IBSP10	7/14/2022	16:28:05	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:29:14	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:29:15	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:29:26	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:29:27	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
IBSP	IBSP10	7/14/2022	16:29:45	End	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP09	7/14/2022	16:35:29	Start	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP09	7/14/2022	16:37:44	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
IBSP	IBSP09	7/14/2022	16:37:45	-	Start	Off Bottom	Start	Off Bottom	N/A
IBSP	IBSP09	7/14/2022	16:39:43	-	End	Off Bottom	End	Off Bottom	N/A
IBSP	IBSP09	7/14/2022	16:39:44	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
IBSP	IBSP09	7/14/2022	16:44:39	End	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
The Farm	F01	7/14/2022	17:13:02	Start	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F01	7/14/2022	17:13:15	-	End	Macroalgae - Patchy	-	None	N/A
The Farm	F01	7/14/2022	17:13:16	-	Start	Macroalgae - Complete	-	None	N/A
The Farm	F01	7/14/2022	17:13:42	-	End	Macroalgae - Complete	-	None	N/A
The Farm	F01	7/14/2022	17:13:43	-	Start	Macroalgae - Patchy	-	None	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
The Farm	F01	7/14/2022	17:17:33	End	End	Macroalgae - Patchy	End	None	N/A
The Farm	F02	7/14/2022	17:21:29	Start	Start	IND	Start	IND	N/A
The Farm	F02	7/14/2022	17:22:18	-	End	IND	End	IND	N/A
The Farm	F02	7/14/2022	17:22:19	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F02	7/14/2022	17:28:04	End	End	Macroalgae - Patchy	End	None	N/A
The Farm	F03	7/15/2022	6:58:35	Start	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F03	7/15/2022	7:00:19	-	-	Macroalgae - Patchy	-	None	Possible SAV
The Farm	F03	7/15/2022	7:00:32	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F03	7/15/2022	7:00:33	-	Start	IND	Start	IND	N/A
The Farm	F03	7/15/2022	7:00:51	-	End	IND	End	IND	N/A
The Farm	F03	7/15/2022	7:00:52	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F03	7/15/2022	7:05:40	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F03	7/15/2022	7:05:41	-	Start	IND	Start	IND	N/A
The Farm	F03	7/15/2022	7:05:52	End	End	IND	End	IND	N/A
The Farm	F04	7/15/2022	8:04:02	Start	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F04	7/15/2022	8:10:36	End	End	Macroalgae - Patchy	End	None	N/A
The Farm	F05	7/15/2022	8:27:22	Start	Start	IND	Start	IND	N/A
The Farm	F05	7/15/2022	8:27:27	-	End	IND	End	IND	N/A
The Farm	F05	7/15/2022	8:27:28	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F05	7/15/2022	8:35:07	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F05	7/15/2022	8:35:08	-	Start	IND	Start	IND	N/A
The Farm	F05	7/15/2022	8:35:10	-	End	IND	End	IND	N/A
The Farm	F05	7/15/2022	8:35:11	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F05	7/15/2022	8:36:00	-	End	Macroalgae - Patchy	-	None	N/A
The Farm	F05	7/15/2022	8:36:01	-	Start	Macroalgae - Complete	-	None	N/A
The Farm	F05	7/15/2022	8:36:23	-	End	Macroalgae - Complete	-	None	N/A
The Farm	F05	7/15/2022	8:36:24	-	Start	Macroalgae - Patchy	-	None	N/A
The Farm	F05	7/15/2022	8:36:44	End	End	Macroalgae - Patchy	End	None	N/A
The Farm	F06	7/15/2022	8:42:41	Start	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F06	7/15/2022	8:46:44	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F06	7/15/2022	8:46:45	-	Start	IND	Start	IND	N/A
The Farm	F06	7/15/2022	8:47:04	-	End	IND	End	IND	N/A
The Farm	F06	7/15/2022	8:47:05	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F06	7/15/2022	8:59:12	-	-	Macroalgae - Patchy	-	None	Zostera
The Farm	F06	7/15/2022	9:00:06	End	End	Macroalgae - Patchy	End	None	N/A
The Farm	F07	7/15/2022	9:06:32	Start	Start	Off Bottom	Start	Off Bottom	N/A
The Farm	F07	7/15/2022	9:06:35	-	End	Off Bottom	End	Off Bottom	N/A
The Farm	F07	7/15/2022	9:06:36	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F07	7/15/2022	9:06:45	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F07	7/15/2022	9:06:46	-	Start	IND	Start	IND	N/A
The Farm	F07	7/15/2022	9:07:08	-	End	IND	End	IND	N/A
The Farm	F07	7/15/2022	9:07:09	-	Start	Macroalgae - Complete	Start	None	N/A
The Farm	F07	7/15/2022	9:08:12	-	End	Macroalgae - Complete	End	None	N/A
The Farm	F07	7/15/2022	9:08:13	-	Start	IND	Start	IND	N/A
The Farm	F07	7/15/2022	9:08:37	-	End	IND	End	IND	N/A
The Farm	F07	7/15/2022	9:08:38	-	Start	Macroalgae - Complete	Start	None	N/A
The Farm	F07	7/15/2022	9:08:46	-	End	Macroalgae - Complete	End	None	N/A
The Farm	F07	7/15/2022	9:08:47	-	Start	IND	Start	IND	N/A
The Farm	F07	7/15/2022	9:08:54	-	-	IND	-	IND	Macroalgae
The Farm	F07	7/15/2022	9:09:30	-	-	IND	-	IND	Macroalgae
The Farm	F07	7/15/2022	9:09:35	-	-	IND	-	IND	Macroalgae
The Farm	F07	7/15/2022	9:09:39	-	-	IND	-	IND	Macroalgae
The Farm	F07	7/15/2022	9:09:51	-	-	IND	-	IND	Macroalgae
The Farm	F07	7/15/2022	9:10:21	-	-	IND	-	IND	Macroalgae
The Farm	F07	7/15/2022	9:12:11	-	-	IND	-	IND	Macroalgae
The Farm	F07	7/15/2022	9:12:14	-	End	IND	End	IND	N/A
The Farm	F07	7/15/2022	9:12:15	-	Start	Macroalgae - Complete	Start	None	N/A
The Farm	F07	7/15/2022	9:12:43	-	End	Macroalgae - Complete	-	None	N/A
The Farm	F07	7/15/2022	9:12:44	-	Start	Macroalgae - Patchy	-	None	N/A
The Farm	F07	7/15/2022	9:19:00	-	-	Macroalgae - Patchy	-	None	Zostera
The Farm	F07	7/15/2022	9:20:24	End	End	Macroalgae - Patchy	End	None	N/A
The Farm	F08	7/15/2022	9:29:06	Start	Start	Off Bottom	Start	Off Bottom	N/A
The Farm	F08	7/15/2022	9:29:15	-	End	Off Bottom	End	Off Bottom	N/A
The Farm	F08	7/15/2022	9:29:16	-	Start	IND	Start	IND	N/A
The Farm	F08	7/15/2022	9:29:25	-	End	IND	End	IND	N/A
The Farm	F08	7/15/2022	9:29:26	-	Start	Macroalgae - Complete	Start	None	N/A
The Farm	F08	7/15/2022	9:29:34	-	-	Macroalgae - Complete	-	None	Zostera
The Farm	F08	7/15/2022	9:29:40	-	End	Macroalgae - Complete	End	None	N/A
The Farm	F08	7/15/2022	9:29:41	-	Start	IND	Start	IND	N/A
The Farm	F08	7/15/2022	9:30:04	-	End	IND	End	IND	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
The Farm	F08	7/15/2022	9:30:05	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F08	7/15/2022	9:30:17	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F08	7/15/2022	9:30:18	-	Start	IND	Start	IND	N/A
The Farm	F08	7/15/2022	9:30:22	-	End	IND	End	IND	N/A
The Farm	F08	7/15/2022	9:30:23	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F08	7/15/2022	9:31:38	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F08	7/15/2022	9:31:39	-	Start	IND	Start	IND	N/A
The Farm	F08	7/15/2022	9:32:10	-	End	IND	End	IND	N/A
The Farm	F08	7/15/2022	9:32:11	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F08	7/15/2022	9:32:45	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F08	7/15/2022	9:32:46	-	Start	IND	Start	IND	N/A
The Farm	F08	7/15/2022	9:33:50	-	End	IND	End	IND	N/A
The Farm	F08	7/15/2022	9:33:51	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F08	7/15/2022	9:34:11	-	-	Macroalgae - Patchy	-	None	Zostera
The Farm	F08	7/15/2022	9:34:26	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F08	7/15/2022	9:34:27	-	Start	IND	Start	IND	N/A
The Farm	F08	7/15/2022	9:35:06	-	-	IND	-	IND	Macroalgae
The Farm	F08	7/15/2022	9:35:21	-	End	IND	End	IND	N/A
The Farm	F08	7/15/2022	9:35:22	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F08	7/15/2022	9:35:33	-	-	Macroalgae - Patchy	-	None	Zostera
The Farm	F08	7/15/2022	9:36:01	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F08	7/15/2022	9:36:02	-	Start	IND	Start	IND	N/A
The Farm	F08	7/15/2022	9:36:15	-	End	IND	End	IND	N/A
The Farm	F08	7/15/2022	9:36:16	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F08	7/15/2022	9:37:25	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F08	7/15/2022	9:37:26	-	Start	IND	Start	IND	N/A
The Farm	F08	7/15/2022	9:37:39	-	End	IND	End	IND	N/A
The Farm	F08	7/15/2022	9:37:40	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F08	7/15/2022	9:39:06	-	-	Macroalgae - Patchy	-	None	Zostera
The Farm	F08	7/15/2022	9:39:36	End	End	Macroalgae - Patchy	End	None	N/A
The Farm	F09	7/15/2022	9:45:17	Start	Start	Off Bottom	Start	Off Bottom	N/A
The Farm	F09	7/15/2022	9:45:35	-	End	Off Bottom	End	Off Bottom	N/A
The Farm	F09	7/15/2022	9:45:36	-	Start	IND	Start	IND	N/A
The Farm	F09	7/15/2022	9:49:17	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:51:34	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:52:01	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:52:18	-	-	IND	-	IND	Possible SAV
The Farm	F09	7/15/2022	9:52:23	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:52:26	-	-	IND	-	IND	Possible SAV
The Farm	F09	7/15/2022	9:52:31	-	-	IND	-	IND	Possible SAV
The Farm	F09	7/15/2022	9:52:35	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:52:47	-	-	IND	-	IND	Macroalgae, Possible SAV
The Farm	F09	7/15/2022	9:52:56	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:52:57	-	-	IND	-	IND	Possible SAV
The Farm	F09	7/15/2022	9:53:07	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:53:16	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:53:23	-	-	IND	-	IND	Zostera
The Farm	F09	7/15/2022	9:53:27	-	-	IND	-	IND	Zostera
The Farm	F09	7/15/2022	9:53:42	-	-	IND	-	IND	Possible SAV
The Farm	F09	7/15/2022	9:53:46	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:53:53	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:53:55	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:54:34	-	-	IND	-	IND	Possible SAV
The Farm	F09	7/15/2022	9:54:50	-	-	IND	-	IND	Zostera
The Farm	F09	7/15/2022	9:54:51	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:54:52	-	-	IND	-	IND	Zostera
The Farm	F09	7/15/2022	9:54:59	-	-	IND	-	IND	Possible SAV
The Farm	F09	7/15/2022	9:55:28	-	-	IND	-	IND	Possible SAV
The Farm	F09	7/15/2022	9:55:35	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:55:39	-	-	IND	-	IND	Zostera
The Farm	F09	7/15/2022	9:55:55	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:56:04	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:57:53	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:58:06	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	9:59:33	-	End	IND	End	IND	N/A
The Farm	F09	7/15/2022	9:59:34	-	Start	Macroalgae - Complete	Start	None	N/A
The Farm	F09	7/15/2022	9:59:54	-	-	Macroalgae - Complete	-	None	Possible SAV
The Farm	F09	7/15/2022	9:59:57	-	-	Macroalgae - Complete	-	None	Possible SAV
The Farm	F09	7/15/2022	10:00:18	-	End	Macroalgae - Complete	End	None	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
The Farm	F09	7/15/2022	10:00:19	-	Start	IND	Start	IND	N/A
The Farm	F09	7/15/2022	10:00:23	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	10:00:26	-	End	IND	End	IND	N/A
The Farm	F09	7/15/2022	10:00:27	-	Start	Macroalgae - Complete	Start	None	N/A
The Farm	F09	7/15/2022	10:00:53	-	End	Macroalgae - Complete	End	None	N/A
The Farm	F09	7/15/2022	10:00:54	-	Start	IND	Start	IND	N/A
The Farm	F09	7/15/2022	10:01:01	-	End	IND	End	IND	N/A
The Farm	F09	7/15/2022	10:01:02	-	Start	Macroalgae - Complete	Start	None	N/A
The Farm	F09	7/15/2022	10:01:09	-	End	Macroalgae - Complete	End	None	N/A
The Farm	F09	7/15/2022	10:01:10	-	Start	IND	Start	IND	N/A
The Farm	F09	7/15/2022	10:04:15	-	-	IND	-	IND	Macroalgae
The Farm	F09	7/15/2022	10:05:44	-	End	IND	End	IND	N/A
The Farm	F09	7/15/2022	10:05:45	-	Start	Off Bottom	Start	Off Bottom	N/A
The Farm	F09	7/15/2022	10:06:01	End	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP01	7/15/2022	10:42:36	Start	Start	None	Start	Zostera - Complete	N/A
Bay Parkway	BP01	7/15/2022	11:05:31	-	-	None	End	Zostera - Complete	N/A
Bay Parkway	BP01	7/15/2022	11:05:32	-	-	None	Start	Zostera - Patchy	N/A
Bay Parkway	BP01	7/15/2022	11:06:12	-	-	None	End	Zostera - Patchy	N/A
Bay Parkway	BP01	7/15/2022	11:06:13	-	-	None	Start	Zostera - Complete	N/A
Bay Parkway	BP01	7/15/2022	11:07:29	End	End	None	End	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:26:54	Start	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP02	7/15/2022	11:26:55	-	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP02	7/15/2022	11:26:56	-	Start	None	Start	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:26:58	-	End	None	-	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:26:59	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:29:49	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:29:50	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:31:31	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:31:32	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:31:48	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:31:49	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:32:27	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:32:28	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:32:52	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:32:53	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:40:57	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:40:58	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:42:07	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:42:08	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:46:16	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP02	7/15/2022	11:46:17	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP02	7/15/2022	11:46:28	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP06	7/15/2022	14:04:23	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP06	7/15/2022	14:05:38	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP06	7/15/2022	14:05:39	-	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP06	7/15/2022	14:06:10	-	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP06	7/15/2022	14:06:11	-	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP06	7/15/2022	14:08:17	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP06	7/15/2022	14:08:18	-	Start	IND	Start	IND	N/A
Bay Parkway	BP06	7/15/2022	14:09:16	-	End	IND	End	IND	N/A
Bay Parkway	BP06	7/15/2022	14:09:17	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP06	7/15/2022	14:09:48	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP06	7/15/2022	14:09:49	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP06	7/15/2022	14:10:52	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP06	7/15/2022	14:10:53	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP06	7/15/2022	14:14:39	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP06	7/15/2022	14:14:40	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP06	7/15/2022	14:16:07	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP06	7/15/2022	14:16:08	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP06	7/15/2022	14:16:50	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP06	7/15/2022	14:16:51	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP06	7/15/2022	14:19:54	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP06	7/15/2022	14:19:55	-	-	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP06	7/15/2022	14:20:30	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP06	7/15/2022	14:26:40	End	End	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP07	7/15/2022	14:35:01	Start	Start	IND	Start	IND	N/A
Bay Parkway	BP07	7/15/2022	14:35:39	-	End	IND	End	IND	N/A
Bay Parkway	BP07	7/15/2022	14:35:40	-	Start	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP07	7/15/2022	14:35:42	-	-	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP07	7/15/2022	14:35:43	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Bay Parkway	BP07	7/15/2022	14:36:24	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP07	7/15/2022	14:36:25	-	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP07	7/15/2022	14:36:42	-	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP07	7/15/2022	14:36:43	-	Start	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP07	7/15/2022	14:36:56	-	End	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP07	7/15/2022	14:36:57	-	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP07	7/15/2022	14:38:00	-	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP07	7/15/2022	14:38:01	-	Start	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP07	7/15/2022	14:39:41	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP07	7/15/2022	14:39:54	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP07	7/15/2022	14:40:23	-	-	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP07	7/15/2022	14:40:24	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP07	7/15/2022	14:42:11	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP07	7/15/2022	14:42:12	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP07	7/15/2022	14:42:50	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP07	7/15/2022	14:42:51	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP07	7/15/2022	14:52:14	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP07	7/15/2022	14:52:15	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP07	7/15/2022	14:52:48	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP07	7/15/2022	14:52:49	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
Bay Parkway	BP07	7/15/2022	14:55:50	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
Bay Parkway	BP07	7/15/2022	14:55:51	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
Bay Parkway	BP07	7/15/2022	14:57:00	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP07	7/15/2022	14:57:01	-	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP07	7/15/2022	14:57:14	-	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP07	7/15/2022	14:57:15	-	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP07	7/15/2022	15:04:00	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP08	7/15/2022	15:08:53	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP08	7/15/2022	15:18:26	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP08	7/15/2022	15:18:27	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP08	7/15/2022	15:18:54	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP08	7/15/2022	15:18:55	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP08	7/15/2022	15:19:02	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP08	7/15/2022	15:19:03	-	-	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP08	7/15/2022	15:19:19	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP08	7/15/2022	15:19:29	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP08	7/15/2022	15:19:33	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP08	7/15/2022	15:19:36	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP08	7/15/2022	15:19:51	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP08	7/15/2022	15:19:54	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP08	7/15/2022	15:19:59	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP08	7/15/2022	15:20:50	End	End	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP09	7/15/2022	15:29:18	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP09	7/15/2022	15:36:03	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP09	7/15/2022	15:36:04	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP09	7/15/2022	15:37:04	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP09	7/15/2022	15:37:05	-	-	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP09	7/15/2022	15:37:31	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP09	7/15/2022	15:38:46	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP09	7/15/2022	15:38:52	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP09	7/15/2022	15:39:00	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP09	7/15/2022	15:39:04	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP09	7/15/2022	15:39:16	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP09	7/15/2022	15:39:23	End	End	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP10	7/15/2022	15:48:35	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP10	7/15/2022	15:57:54	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP10	7/15/2022	15:57:55	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP10	7/15/2022	15:58:55	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP10	7/15/2022	15:58:56	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP10	7/15/2022	15:59:55	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP10	7/15/2022	15:59:56	-	-	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP10	7/15/2022	16:00:09	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:00:57	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:01:01	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:01:17	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:01:23	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:01:29	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:01:50	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:01:53	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:02:16	-	-	Macroalgae - Patchy	-	None	Zostera

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Bay Parkway	BP10	7/15/2022	16:02:17	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:02:19	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP10	7/15/2022	16:02:25	End	End	Macroalgae - Patchy	End	None	Zostera
The Farm	F10	7/16/2022	7:09:24	Start	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F10	7/16/2022	7:10:55	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F10	7/16/2022	7:10:56	-	Start	IND	Start	IND	N/A
The Farm	F10	7/16/2022	7:12:02	-	End	IND	End	IND	N/A
The Farm	F10	7/16/2022	7:12:03	-	Start	None	Start	None	N/A
The Farm	F10	7/16/2022	7:12:32	-	End	None	-	None	N/A
The Farm	F10	7/16/2022	7:12:33	-	Start	Macroalgae - Patchy	-	None	N/A
The Farm	F10	7/16/2022	7:14:18	-	End	Macroalgae - Patchy	-	None	N/A
The Farm	F10	7/16/2022	7:14:19	-	Start	None	-	None	N/A
The Farm	F10	7/16/2022	7:15:59	-	End	None	-	None	N/A
The Farm	F10	7/16/2022	7:16:00	-	Start	Macroalgae - Patchy	-	None	N/A
The Farm	F10	7/16/2022	7:27:09	-	-	Macroalgae - Patchy	-	None	Zostera
The Farm	F10	7/16/2022	7:27:40	-	-	Macroalgae - Patchy	-	None	Possible SAV
The Farm	F10	7/16/2022	7:27:42	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F10	7/16/2022	7:27:43	-	Start	IND	Start	IND	N/A
The Farm	F10	7/16/2022	7:28:27	-	End	IND	End	IND	N/A
The Farm	F10	7/16/2022	7:28:28	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F10	7/16/2022	7:34:17	-	End	Macroalgae - Patchy	End	None	N/A
The Farm	F10	7/16/2022	7:34:18	-	Start	IND	Start	IND	N/A
The Farm	F10	7/16/2022	7:41:04	-	End	IND	End	IND	N/A
The Farm	F10	7/16/2022	7:41:05	-	Start	Macroalgae - Patchy	Start	None	N/A
The Farm	F10	7/16/2022	7:48:13	End	End	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP15-A	7/16/2022	8:02:01	Start	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP15-A	7/16/2022	8:05:40	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP15-A	7/16/2022	8:05:41	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP15-A	7/16/2022	8:11:33	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP15-A	7/16/2022	8:11:34	-	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP15-A	7/16/2022	8:11:40	End	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP03	7/16/2022	8:18:35	Start	Start	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP03	7/16/2022	8:19:01	-	-	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP03	7/16/2022	8:19:02	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP03	7/16/2022	8:20:44	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP03	7/16/2022	8:20:45	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP03	7/16/2022	8:26:00	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP03	7/16/2022	8:26:01	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP03	7/16/2022	8:26:28	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP03	7/16/2022	8:26:29	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP03	7/16/2022	8:30:52	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP15-B	7/16/2022	9:07:29	Start	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP15-B	7/16/2022	9:10:53	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP15-B	7/16/2022	9:10:54	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:11:32	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:11:33	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP15-B	7/16/2022	9:12:10	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP15-B	7/16/2022	9:12:11	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:15:09	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:15:10	-	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP15-B	7/16/2022	9:15:31	-	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP15-B	7/16/2022	9:15:32	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:18:12	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:18:13	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP15-B	7/16/2022	9:20:35	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP15-B	7/16/2022	9:20:36	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:21:08	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:21:09	-	Start	IND	Start	IND	N/A
Bay Parkway	BP15-B	7/16/2022	9:21:15	-	End	IND	End	IND	N/A
Bay Parkway	BP15-B	7/16/2022	9:21:16	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP15-B	7/16/2022	9:22:30	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP15-B	7/16/2022	9:22:31	-	Start	IND	Start	IND	N/A
Bay Parkway	BP15-B	7/16/2022	9:22:52	-	End	IND	End	IND	N/A
Bay Parkway	BP15-B	7/16/2022	9:22:53	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP15-B	7/16/2022	9:25:49	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP15-B	7/16/2022	9:25:50	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:48:24	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP15-B	7/16/2022	9:48:25	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP15-B	7/16/2022	9:48:53	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:08:51	Start	Start	Off Bottom	Start	Off Bottom	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Lighthouse Drive	LD19	7/16/2022	10:09:54	-	End	Off Bottom	End	Off Bottom	N/A
Lighthouse Drive	LD19	7/16/2022	10:09:55	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:14:48	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:14:49	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:15:43	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:15:44	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:18:12	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:18:13	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:21:53	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:21:54	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:22:43	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:22:44	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:24:04	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:24:05	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:24:24	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:24:25	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:25:19	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:25:20	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:25:42	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:25:43	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:28:56	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:28:57	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:29:59	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:30:00	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:42:29	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD19	7/16/2022	10:42:30	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:48:04	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:48:05	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:52:50	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
Lighthouse Drive	LD19	7/16/2022	10:52:51	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD19	7/16/2022	10:53:16	-	End	IND	End	IND	N/A
Lighthouse Drive	LD19	7/16/2022	10:53:17	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD19	7/16/2022	10:53:28	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD19	7/16/2022	10:53:29	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:53:40	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:53:41	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:53:51	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:53:52	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:54:36	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD19	7/16/2022	10:54:37	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD19	7/16/2022	10:55:44	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD19	7/16/2022	10:56:12	-	End	IND	End	IND	N/A
Lighthouse Drive	LD19	7/16/2022	10:56:13	-	Start	Off Bottom	Start	Off Bottom	N/A
Lighthouse Drive	LD19	7/16/2022	10:58:41	End	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP04	7/16/2022	13:53:44	Start	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP04	7/16/2022	13:53:52	-	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP04	7/16/2022	13:53:53	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP04	7/16/2022	13:55:47	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP04	7/16/2022	13:55:48	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP04	7/16/2022	13:56:44	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP04	7/16/2022	13:56:45	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP04	7/16/2022	13:57:13	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP04	7/16/2022	13:57:14	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP04	7/16/2022	13:59:38	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP04	7/16/2022	13:59:39	-	Start	IND	Start	IND	N/A
Bay Parkway	BP04	7/16/2022	13:59:52	-	End	IND	End	IND	N/A
Bay Parkway	BP04	7/16/2022	13:59:53	-	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP04	7/16/2022	14:06:38	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP04	7/16/2022	14:06:39	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP04	7/16/2022	14:08:09	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP04	7/16/2022	14:08:10	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP04	7/16/2022	14:08:58	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP04	7/16/2022	14:08:59	-	-	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP04	7/16/2022	14:09:02	-	End	Macroalgae - Patchy	-	None	N/A
Bay Parkway	BP04	7/16/2022	14:09:03	-	Start	None	-	None	N/A
Bay Parkway	BP04	7/16/2022	14:10:56	-	End	None	End	None	N/A
Bay Parkway	BP04	7/16/2022	14:10:57	-	Start	IND	Start	IND	N/A
Bay Parkway	BP04	7/16/2022	14:13:06	End	End	IND	End	IND	N/A
Bay Parkway	BP05	7/16/2022	14:19:23	Start	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP05	7/16/2022	14:19:37	-	End	Off Bottom	End	Off Bottom	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Bay Parkway	BP05	7/16/2022	14:19:38	-	Start	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP05	7/16/2022	14:19:39	-	-	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP05	7/16/2022	14:19:40	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP05	7/16/2022	14:22:03	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP05	7/16/2022	14:22:04	-	Start	IND	Start	IND	N/A
Bay Parkway	BP05	7/16/2022	14:22:41	-	End	IND	End	IND	N/A
Bay Parkway	BP05	7/16/2022	14:22:42	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP05	7/16/2022	14:24:46	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP05	7/16/2022	14:24:47	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP05	7/16/2022	14:25:42	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP05	7/16/2022	14:25:43	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP05	7/16/2022	14:28:06	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP05	7/16/2022	14:28:07	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP05	7/16/2022	14:29:33	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP05	7/16/2022	14:29:34	-	Start	IND	Start	IND	N/A
Bay Parkway	BP05	7/16/2022	14:29:43	-	-	IND	-	IND	Zostera
Bay Parkway	BP05	7/16/2022	14:29:45	-	-	IND	-	IND	Zostera
Bay Parkway	BP05	7/16/2022	14:29:48	-	-	IND	-	IND	Zostera
Bay Parkway	BP05	7/16/2022	14:29:54	-	-	IND	-	IND	Zostera
Bay Parkway	BP05	7/16/2022	14:30:08	-	-	IND	-	IND	Zostera
Bay Parkway	BP05	7/16/2022	14:30:12	-	-	IND	-	IND	Zostera
Bay Parkway	BP05	7/16/2022	14:30:14	-	-	IND	-	IND	Zostera
Bay Parkway	BP05	7/16/2022	14:30:15	-	End	IND	End	IND	N/A
Bay Parkway	BP05	7/16/2022	14:30:16	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP05	7/16/2022	14:32:51	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP05	7/16/2022	14:32:52	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
Bay Parkway	BP05	7/16/2022	14:34:06	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
Bay Parkway	BP05	7/16/2022	14:34:07	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
Bay Parkway	BP05	7/16/2022	14:35:57	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP05	7/16/2022	14:35:58	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP05	7/16/2022	14:36:15	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP05	7/16/2022	14:36:16	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP05	7/16/2022	14:40:10	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP12	7/16/2022	14:52:05	Start	Start	Off Bottom	Start	Off Bottom	N/A
Bay Parkway	BP12	7/16/2022	14:52:14	-	End	Off Bottom	End	Off Bottom	N/A
Bay Parkway	BP12	7/16/2022	14:52:15	-	Start	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP12	7/16/2022	14:52:54	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP12	7/16/2022	14:53:13	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP12	7/16/2022	14:53:15	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP12	7/16/2022	14:53:18	-	-	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP12	7/16/2022	14:53:19	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP12	7/16/2022	14:53:38	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP12	7/16/2022	14:53:39	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP12	7/16/2022	14:54:11	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP12	7/16/2022	14:54:12	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP12	7/16/2022	14:57:49	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP12	7/16/2022	14:57:50	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP12	7/16/2022	14:58:32	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP12	7/16/2022	14:58:33	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP12	7/16/2022	15:01:26	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP12	7/16/2022	15:01:27	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP12	7/16/2022	15:02:03	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP13	7/16/2022	15:12:15	Start	Start	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP13	7/16/2022	15:12:37	-	-	Macroalgae - Patchy	-	None	Zostera
Bay Parkway	BP13	7/16/2022	15:12:50	-	End	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP13	7/16/2022	15:12:51	-	Start	IND	Start	IND	N/A
Bay Parkway	BP13	7/16/2022	15:14:13	-	End	IND	End	IND	N/A
Bay Parkway	BP13	7/16/2022	15:14:14	-	Start	Macroalgae - Patchy	Start	None	N/A
Bay Parkway	BP13	7/16/2022	15:14:44	-	-	Macroalgae - Patchy	End	None	N/A
Bay Parkway	BP13	7/16/2022	15:14:45	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Bay Parkway	BP13	7/16/2022	15:15:25	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP13	7/16/2022	15:15:26	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP13	7/16/2022	15:15:42	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP13	7/16/2022	15:15:43	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP13	7/16/2022	15:15:46	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
Bay Parkway	BP13	7/16/2022	15:15:47	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
Bay Parkway	BP13	7/16/2022	15:16:30	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
Bay Parkway	BP13	7/16/2022	15:16:31	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
Bay Parkway	BP13	7/16/2022	15:18:58	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP13	7/16/2022	15:18:59	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Bay Parkway	BP13	7/16/2022	15:19:06	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Bay Parkway	BP13	7/16/2022	15:19:07	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP13	7/16/2022	15:23:04	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD04	7/17/2022	7:07:16	Start	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD04	7/17/2022	7:11:34	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD04	7/17/2022	7:11:35	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD04	7/17/2022	7:11:54	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD04	7/17/2022	7:11:55	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD04	7/17/2022	7:13:07	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD04	7/17/2022	7:13:08	-	Start	Off Bottom	Start	Off Bottom	N/A
Lighthouse Drive	LD04	7/17/2022	7:13:16	-	End	Off Bottom	End	Off Bottom	N/A
Lighthouse Drive	LD04	7/17/2022	7:13:17	-	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD04	7/17/2022	7:17:50	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD04	7/17/2022	7:17:51	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD04	7/17/2022	7:18:08	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD04	7/17/2022	7:18:09	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD04	7/17/2022	7:18:44	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD04	7/17/2022	7:18:45	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD04	7/17/2022	7:19:03	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD05	7/17/2022	7:19:04	Start	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD05	7/17/2022	7:19:32	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD05	7/17/2022	7:19:33	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD05	7/17/2022	7:19:48	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD05	7/17/2022	7:19:49	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD05	7/17/2022	7:24:29	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD05	7/17/2022	7:24:30	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD05	7/17/2022	7:27:09	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD05	7/17/2022	7:27:10	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD05	7/17/2022	7:28:02	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD05	7/17/2022	7:28:03	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD05	7/17/2022	7:32:30	End	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:44:31	Start	Start	IND	Start	IND	N/A
Lighthouse Drive	LD06	7/17/2022	7:44:37	-	End	IND	End	IND	N/A
Lighthouse Drive	LD06	7/17/2022	7:44:38	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD06	7/17/2022	7:44:45	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD06	7/17/2022	7:44:46	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:45:14	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:45:15	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:45:29	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:45:30	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:53:32	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:53:33	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD06	7/17/2022	7:55:26	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD06	7/17/2022	7:55:27	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD06	7/17/2022	7:58:54	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD06	7/17/2022	7:58:55	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:59:03	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD06	7/17/2022	7:59:04	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD06	7/17/2022	7:59:49	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD06	7/17/2022	7:59:50	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD06	7/17/2022	8:02:05	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD07	7/17/2022	8:03:22	Start	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD07	7/17/2022	8:04:45	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD07	7/17/2022	8:04:46	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD07	7/17/2022	8:09:00	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD07	7/17/2022	8:09:01	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD07	7/17/2022	8:09:38	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD07	7/17/2022	8:09:39	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD07	7/17/2022	8:16:09	End	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD03	7/17/2022	8:27:47	Start	Start	IND	Start	IND	N/A
Lighthouse Drive	LD03	7/17/2022	8:27:51	-	End	IND	End	IND	N/A
Lighthouse Drive	LD03	7/17/2022	8:27:52	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD03	7/17/2022	8:31:32	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD03	7/17/2022	8:31:33	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD03	7/17/2022	8:32:59	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD03	7/17/2022	8:33:00	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD03	7/17/2022	8:34:24	-	End	IND	End	IND	N/A
Lighthouse Drive	LD03	7/17/2022	8:34:25	-	Start	Macroalgae - Complete	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD03	7/17/2022	8:35:52	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD03	7/17/2022	8:35:53	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Lighthouse Drive	LD03	7/17/2022	8:37:46	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD03	7/17/2022	8:37:47	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD03	7/17/2022	8:39:26	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD03	7/17/2022	8:39:27	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD03	7/17/2022	8:40:14	End	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD02	7/17/2022	8:41:34	Start	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD02	7/17/2022	8:41:35	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD02	7/17/2022	8:41:38	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD02	7/17/2022	8:41:39	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD02	7/17/2022	8:43:50	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD02	7/17/2022	8:43:51	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD02	7/17/2022	8:50:02	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD02	7/17/2022	8:50:03	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD02	7/17/2022	8:52:13	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD02	7/17/2022	8:52:14	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD02	7/17/2022	8:52:30	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD02	7/17/2022	8:52:31	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD02	7/17/2022	8:53:09	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD02	7/17/2022	8:53:10	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD02	7/17/2022	8:55:15	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD02	7/17/2022	8:55:16	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD02	7/17/2022	8:55:18	End	End	IND	End	IND	N/A
Bay Parkway	BP14	7/17/2022	9:20:06	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP14	7/17/2022	9:24:47	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP14	7/17/2022	9:24:48	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP14	7/17/2022	9:25:35	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Bay Parkway	BP14	7/17/2022	9:25:36	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Bay Parkway	BP14	7/17/2022	9:27:34	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Bay Parkway	BP14	7/17/2022	9:27:35	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Bay Parkway	BP14	7/17/2022	9:28:16	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
Bay Parkway	BP14	7/17/2022	9:28:17	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
Bay Parkway	BP14	7/17/2022	9:28:41	-	End	Macroalgae - Complete	-	Zostera - Patchy	N/A
Bay Parkway	BP14	7/17/2022	9:28:42	-	Start	Macroalgae - Patchy	-	Zostera - Patchy	N/A
Bay Parkway	BP14	7/17/2022	9:32:07	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD01	7/17/2022	9:40:17	Start	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD01	7/17/2022	9:40:20	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD01	7/17/2022	9:40:21	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD01	7/17/2022	9:40:26	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD01	7/17/2022	9:40:27	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD01	7/17/2022	9:41:21	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD01	7/17/2022	9:41:22	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD01	7/17/2022	9:42:17	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD01	7/17/2022	9:42:18	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD01	7/17/2022	9:47:40	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
Lighthouse Drive	LD01	7/17/2022	9:47:41	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
Lighthouse Drive	LD01	7/17/2022	9:50:10	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
Lighthouse Drive	LD01	7/17/2022	9:50:11	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
Lighthouse Drive	LD01	7/17/2022	9:51:33	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD01	7/17/2022	9:51:34	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD01	7/17/2022	9:52:02	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD01	7/17/2022	9:52:03	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD01	7/17/2022	9:52:15	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD01	7/17/2022	9:52:16	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD01	7/17/2022	9:54:37	End	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD08	7/17/2022	10:05:42	Start	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD08	7/17/2022	10:05:50	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD08	7/17/2022	10:05:51	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD08	7/17/2022	10:08:21	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD08	7/17/2022	10:08:22	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD08	7/17/2022	10:11:03	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD08	7/17/2022	10:11:04	-	-	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD08	7/17/2022	10:11:31	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:12:04	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:12:17	-	End	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD08	7/17/2022	10:12:18	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD08	7/17/2022	10:12:28	-	End	IND	End	IND	N/A
Lighthouse Drive	LD08	7/17/2022	10:12:29	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD08	7/17/2022	10:12:37	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:13:07	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD08	7/17/2022	10:13:08	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Lighthouse Drive	LD08	7/17/2022	10:13:44	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A
Lighthouse Drive	LD08	7/17/2022	10:13:45	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD08	7/17/2022	10:14:48	-	End	Macroalgae - Complete	End	Zostera - Sparse	N/A
Lighthouse Drive	LD08	7/17/2022	10:14:49	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD08	7/17/2022	10:15:19	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:15:29	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:15:54	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:16:12	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD08	7/17/2022	10:16:13	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD08	7/17/2022	10:16:39	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD08	7/17/2022	10:16:40	-	-	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD08	7/17/2022	10:19:04	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:19:38	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:19:47	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:19:51	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:20:19	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:20:47	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:21:06	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:21:13	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:21:36	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:22:21	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:23:17	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:23:33	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD08	7/17/2022	10:25:07	End	End	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD09	7/17/2022	10:35:02	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD09	7/17/2022	10:37:23	-	-	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD09	7/17/2022	10:37:24	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD09	7/17/2022	10:41:38	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD09	7/17/2022	10:41:39	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD09	7/17/2022	10:42:36	-	End	IND	End	IND	N/A
Lighthouse Drive	LD09	7/17/2022	10:42:37	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD09	7/17/2022	10:43:02	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD09	7/17/2022	10:43:28	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD09	7/17/2022	10:43:40	End	End	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD10	7/17/2022	10:52:15	Start	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD10	7/17/2022	10:52:56	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD10	7/17/2022	10:52:57	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD10	7/17/2022	10:54:30	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD10	7/17/2022	10:54:31	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD10	7/17/2022	10:54:58	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
Lighthouse Drive	LD10	7/17/2022	10:54:59	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
Lighthouse Drive	LD10	7/17/2022	10:55:25	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
Lighthouse Drive	LD10	7/17/2022	10:55:26	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD10	7/17/2022	10:55:56	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD10	7/17/2022	10:55:57	-	-	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD10	7/17/2022	11:01:20	End	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD11	7/17/2022	11:06:30	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD11	7/17/2022	11:08:36	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
Lighthouse Drive	LD11	7/17/2022	11:08:37	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
Lighthouse Drive	LD11	7/17/2022	11:14:42	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
Lighthouse Drive	LD11	7/17/2022	11:14:43	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD11	7/17/2022	11:15:26	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
Lighthouse Drive	LD11	7/17/2022	11:15:27	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
Lighthouse Drive	LD11	7/17/2022	11:15:55	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
Lighthouse Drive	LD11	7/17/2022	11:15:56	-	-	Macroalgae - Complete	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD11	7/17/2022	11:16:19	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD11	7/17/2022	11:16:20	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
Lighthouse Drive	LD11	7/17/2022	11:17:20	End	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD12	7/17/2022	11:24:13	Start	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD12	7/17/2022	11:26:18	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD12	7/17/2022	11:26:19	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD12	7/17/2022	11:26:43	-	End	IND	End	IND	N/A
Lighthouse Drive	LD12	7/17/2022	11:26:44	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:26:47	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:26:48	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD12	7/17/2022	11:27:11	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD12	7/17/2022	11:27:12	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD12	7/17/2022	11:28:26	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD12	7/17/2022	11:28:27	-	-	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:28:54	-	-	Macroalgae - Patchy	-	None	Zostera

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Lighthouse Drive	LD12	7/17/2022	11:29:03	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:29:12	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:29:19	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:29:23	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:29:40	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:29:46	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:29:49	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:29:50	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD12	7/17/2022	11:31:10	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD12	7/17/2022	11:31:11	-	-	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:31:35	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:31:42	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:31:47	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:31:48	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD12	7/17/2022	11:32:17	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD12	7/17/2022	11:32:18	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD12	7/17/2022	11:33:20	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD12	7/17/2022	11:33:21	-	-	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:33:45	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:34:00	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:34:33	-	End	Macroalgae - Patchy	-	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:34:34	-	Start	Macroalgae - Complete	-	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:35:17	-	-	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:35:18	-	-	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:35:27	-	-	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:37:02	-	End	Macroalgae - Complete	End	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:37:03	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD12	7/17/2022	11:38:30	-	End	IND	End	IND	N/A
Lighthouse Drive	LD12	7/17/2022	11:38:31	-	Start	Macroalgae - Complete	Start	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:38:37	-	End	Macroalgae - Complete	End	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:38:38	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD12	7/17/2022	11:38:51	-	End	IND	End	IND	N/A
Lighthouse Drive	LD12	7/17/2022	11:38:52	-	Start	Macroalgae - Complete	Start	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:38:54	-	End	Macroalgae - Complete	End	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:38:55	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD12	7/17/2022	11:39:29	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD12	7/17/2022	11:39:42	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD12	7/17/2022	11:39:46	-	End	IND	End	IND	N/A
Lighthouse Drive	LD12	7/17/2022	11:39:47	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD12	7/17/2022	11:39:57	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD12	7/17/2022	11:40:12	End	End	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:43:53	Start	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD13	7/17/2022	11:44:40	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD13	7/17/2022	11:44:41	-	-	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:44:47	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:45:36	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:45:45	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:46:31	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:46:46	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:46:55	-	End	Macroalgae - Patchy	-	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:46:56	-	Start	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:47:45	-	-	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:49:44	-	-	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:50:04	-	-	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:50:09	-	-	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:50:14	-	End	Macroalgae - Complete	-	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:50:15	-	Start	Macroalgae - Patchy	-	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:50:20	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:50:21	-	End	Macroalgae - Patchy	-	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:50:22	-	Start	Macroalgae - Complete	-	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:51:20	-	End	Macroalgae - Complete	-	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:51:21	-	Start	Macroalgae - Patchy	-	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:51:25	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD13	7/17/2022	11:51:34	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD13	7/17/2022	11:51:35	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD13	7/17/2022	11:52:38	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD13	7/17/2022	11:52:39	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD13	7/17/2022	11:53:57	-	End	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD13	7/17/2022	11:53:58	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD13	7/17/2022	11:54:32	-	-	IND	-	IND	Macroalgae

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Lighthouse Drive	LD13	7/17/2022	11:54:38	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD13	7/17/2022	11:54:40	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD13	7/17/2022	11:54:42	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD13	7/17/2022	11:54:46	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD13	7/17/2022	11:54:59	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD13	7/17/2022	11:55:02	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD13	7/17/2022	11:55:59	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD13	7/17/2022	11:56:13	End	End	IND	End	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:34:16	Start	Start	IND	Start	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:35:24	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:36:14	-	End	IND	End	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:36:15	-	Start	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:36:29	-	End	Macroalgae - Patchy	-	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:36:30	-	Start	Macroalgae - Complete	-	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:37:26	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:37:27	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:41:41	-	End	Macroalgae - Complete	End	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:41:42	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:41:50	-	End	IND	End	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:41:51	-	Start	Macroalgae - Complete	Start	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:42:10	-	-	Macroalgae - Complete	End	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:42:11	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:42:22	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:42:23	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD18	7/17/2022	12:42:58	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD18	7/17/2022	12:42:59	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:43:39	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD18	7/17/2022	12:44:04	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:44:09	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:44:14	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:44:27	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD18	7/17/2022	12:44:30	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD18	7/17/2022	12:45:02	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:45:13	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:45:15	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:45:25	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:45:57	-	End	IND	End	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:45:58	-	Start	None	Start	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:46:00	-	End	None	-	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:46:01	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:46:23	-	End	Macroalgae - Patchy	-	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:46:24	-	Start	Macroalgae - Complete	-	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:46:26	-	-	Macroalgae - Complete	End	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:46:27	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:46:50	-	End	Macroalgae - Complete	End	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:46:51	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:47:13	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD18	7/17/2022	12:48:28	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:48:30	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD18	7/17/2022	12:48:55	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD18	7/17/2022	12:48:58	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD18	7/17/2022	12:49:35	-	End	IND	End	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:49:36	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD18	7/17/2022	12:49:45	-	End	Macroalgae - Patchy	-	None	N/A
Lighthouse Drive	LD18	7/17/2022	12:49:46	-	Start	Macroalgae - Complete	-	None	N/A
Lighthouse Drive	LD18	7/17/2022	12:50:11	-	-	Macroalgae - Complete	End	None	N/A
Lighthouse Drive	LD18	7/17/2022	12:50:12	-	-	Macroalgae - Complete	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD18	7/17/2022	12:50:26	-	-	Macroalgae - Complete	End	Zostera - Sparse	N/A
Lighthouse Drive	LD18	7/17/2022	12:50:27	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:51:58	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:51:59	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:52:34	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:52:35	-	Start	Macroalgae - Patchy	-	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:53:55	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:53:56	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:54:07	-	End	IND	End	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:54:08	-	Start	Macroalgae - Complete	Start	None	N/A
Lighthouse Drive	LD18	7/17/2022	12:54:29	-	-	Macroalgae - Complete	End	None	N/A
Lighthouse Drive	LD18	7/17/2022	12:54:30	-	-	Macroalgae - Complete	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD18	7/17/2022	12:55:43	-	End	Macroalgae - Complete	End	Zostera - Sparse	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Lighthouse Drive	LD18	7/17/2022	12:55:44	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:55:50	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD18	7/17/2022	12:56:01	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD18	7/17/2022	12:56:18	-	End	IND	End	IND	N/A
Lighthouse Drive	LD18	7/17/2022	12:56:19	-	Start	Macroalgae - Complete	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:56:31	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
Lighthouse Drive	LD18	7/17/2022	12:56:32	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
Lighthouse Drive	LD18	7/17/2022	12:56:40	End	End	Macroalgae - Complete	End	Zostera - Complete	N/A
Lighthouse Drive	LD17	7/17/2022	13:02:32	Start	Start	Macroalgae - Patchy	Start	Zostera - Complete	N/A
Lighthouse Drive	LD17	7/17/2022	13:03:25	-	End	Macroalgae - Patchy	End	Zostera - Complete	N/A
Lighthouse Drive	LD17	7/17/2022	13:03:26	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD17	7/17/2022	13:03:30	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD17	7/17/2022	13:03:31	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD17	7/17/2022	13:03:34	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD17	7/17/2022	13:03:36	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD17	7/17/2022	13:04:14	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:04:20	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:04:27	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:04:29	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:04:49	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:04:50	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:12	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:20	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:24	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:28	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:31	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:34	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:38	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:47	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:49	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:05:55	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:06:00	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:06:03	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:06:05	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:06:07	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:06:10	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:06:37	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:07:12	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD17	7/17/2022	13:07:25	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:07:27	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:07:30	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:07:36	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD17	7/17/2022	13:07:37	-	End	IND	End	IND	N/A
Lighthouse Drive	LD17	7/17/2022	13:07:38	-	Start	Off Bottom	Start	Off Bottom	N/A
Lighthouse Drive	LD17	7/17/2022	13:12:31	End	End	Off Bottom	End	Off Bottom	N/A
Lighthouse Drive	LD16	7/17/2022	13:12:32	Start	Start	IND	Start	IND	N/A
Lighthouse Drive	LD16	7/17/2022	13:12:56	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD16	7/17/2022	13:13:18	-	End	IND	End	IND	N/A
Lighthouse Drive	LD16	7/17/2022	13:13:19	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD16	7/17/2022	13:13:34	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD16	7/17/2022	13:13:40	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD16	7/17/2022	13:13:45	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD16	7/17/2022	13:13:58	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD16	7/17/2022	13:14:55	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD16	7/17/2022	13:15:52	-	End	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD16	7/17/2022	13:15:53	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD16	7/17/2022	13:16:16	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:18	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:20	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:22	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:26	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:39	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:43	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:49	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:51	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:53	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:16:58	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:02	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:05	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:07	-	-	IND	-	IND	Macroalgae

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Lighthouse Drive	LD16	7/17/2022	13:17:08	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:11	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:13	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:15	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:17	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:18	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:20	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:24	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:26	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:28	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:30	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:32	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:33	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:36	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:38	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:40	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:41	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:43	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:45	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD16	7/17/2022	13:17:47	-	End	IND	End	IND	Macroalgae
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Lighthouse Drive	LD16	7/17/2022	13:19:00	-	-	Macroalgae - Complete	-	None	Zostera
Lighthouse Drive	LD16	7/17/2022	13:19:24	End	End	Macroalgae - Complete	End	None	N/A
Lighthouse Drive	LD14	7/17/2022	13:31:10	Start	Start	Macroalgae - Complete	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:31:23	-	End	Macroalgae - Complete	End	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:31:24	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:32:12	-	End	IND	End	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:32:13	-	Start	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:32:17	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:32:18	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:32:38	-	End	IND	End	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:32:39	-	Start	Macroalgae - Complete	Start	None	N/A
Lighthouse Drive	LD14	7/17/2022	13:32:43	-	-	Macroalgae - Complete	End	None	N/A
Lighthouse Drive	LD14	7/17/2022	13:32:44	-	-	Macroalgae - Complete	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:33:27	-	End	Macroalgae - Complete	End	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:33:28	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:33:29	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD14	7/17/2022	13:33:56	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD14	7/17/2022	13:34:11	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD14	7/17/2022	13:34:21	-	-	IND	-	IND	Macroalgae
Lighthouse Drive	LD14	7/17/2022	13:34:22	-	-	IND	-	IND	Zostera
Lighthouse Drive	LD14	7/17/2022	13:34:25	-	End	IND	End	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:34:26	-	Start	Macroalgae - Complete	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:35:04	-	End	Macroalgae - Complete	End	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:35:05	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:35:22	-	End	IND	End	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:35:23	-	Start	Macroalgae - Complete	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:35:31	-	End	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:35:32	-	Start	Macroalgae - Patchy	-	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:37:39	-	-	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:37:40	-	-	Macroalgae - Patchy	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD14	7/17/2022	13:37:58	-	-	Macroalgae - Patchy	End	Zostera - Patchy	N/A
Lighthouse Drive	LD14	7/17/2022	13:37:59	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:49:02	-	End	Macroalgae - Patchy	End	Zostera - Sparse	N/A
Lighthouse Drive	LD14	7/17/2022	13:49:03	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:49:18	-	End	IND	End	IND	N/A
Lighthouse Drive	LD14	7/17/2022	13:49:19	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD14	7/17/2022	13:49:24	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD14	7/17/2022	13:49:25	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
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Lighthouse Drive	LD15	7/17/2022	13:56:56	Start	Start	IND	Start	IND	N/A
Lighthouse Drive	LD15	7/17/2022	13:57:00	-	End	IND	End	IND	N/A
Lighthouse Drive	LD15	7/17/2022	13:57:01	-	Start	Macroalgae - Patchy	Start	None	N/A
Lighthouse Drive	LD15	7/17/2022	13:57:16	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD15	7/17/2022	13:57:27	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD15	7/17/2022	13:57:50	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD15	7/17/2022	13:58:04	-	-	Macroalgae - Patchy	-	None	Zostera
Lighthouse Drive	LD15	7/17/2022	13:58:15	-	-	Macroalgae - Patchy	End	None	N/A
Lighthouse Drive	LD15	7/17/2022	13:58:16	-	-	Macroalgae - Patchy	Start	Zostera - Sparse	N/A
Lighthouse Drive	LD15	7/17/2022	13:58:23	-	End	Macroalgae - Patchy	-	Zostera - Sparse	N/A

Area	Transect ID	Date	Time	Transect	Macroalgae Period	Relative Macroalgae Abundance	SAV Period	Relative SAV Abundance	Point Observations
Lighthouse Drive	LD15	7/17/2022	13:58:24	-	Start	Macroalgae - Complete	-	Zostera - Sparse	N/A
Lighthouse Drive	LD15	7/17/2022	13:58:25	-	-	Macroalgae - Complete	End	Zostera - Sparse	N/A
Lighthouse Drive	LD15	7/17/2022	13:58:26	-	-	Macroalgae - Complete	Start	Zostera - Patchy	N/A
Lighthouse Drive	LD15	7/17/2022	13:58:37	-	-	Macroalgae - Complete	End	Zostera - Patchy	N/A
Lighthouse Drive	LD15	7/17/2022	13:58:38	-	-	Macroalgae - Complete	Start	Zostera - Complete	N/A
Lighthouse Drive	LD15	7/17/2022	13:59:37	-	End	Macroalgae - Complete	-	Zostera - Complete	N/A
Lighthouse Drive	LD15	7/17/2022	13:59:38	-	Start	None	-	Zostera - Complete	N/A
Lighthouse Drive	LD15	7/17/2022	14:07:30	-	End	None	End	Zostera - Complete	N/A
Lighthouse Drive	LD15	7/17/2022	14:07:31	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD15	7/17/2022	14:07:46	-	End	IND	End	IND	N/A
Lighthouse Drive	LD15	7/17/2022	14:07:47	-	Start	None	Start	Zostera - Complete	N/A
Lighthouse Drive	LD15	7/17/2022	14:08:08	-	End	None	End	Zostera - Complete	N/A
Lighthouse Drive	LD15	7/17/2022	14:08:09	-	Start	IND	Start	IND	N/A
Lighthouse Drive	LD15	7/17/2022	14:08:14	-	End	IND	End	IND	N/A
Lighthouse Drive	LD15	7/17/2022	14:08:15	-	Start	None	Start	Zostera - Complete	N/A
Lighthouse Drive	LD15	7/17/2022	14:08:20	End	End	None	End	Zostera - Complete	N/A

Ocean Wind
An Ørsted & PSEG project

Tagging Short-Distance Migrant Red Knots in Coastal New Jersey

Ocean Wind 1 (OCW01)

Tagging Short-Distance Migrant Red Knots in Coastal New Jersey

April 2022

Report to:

Katharine Perry
Permitting Manager, Ocean Wind 01
Ørsted

Report from:

Biodiversity Research Institute
276 Canco Road
Portland, ME 04103

Wildlife Restoration Partnerships
109 Market Lane
Greenwich, NJ 08323

1. SUMMARY

- Ocean Wind 1 LLC (OCW01) funded a research project to track short-distance migrant Red Knots captured at sites in coastal New Jersey in 2021 using satellite telemetry, in partnership with the Biodiversity Research Institute (BRI) and Wildlife Restoration Partnerships (WRP).

- The GPS satellite tags provide up to 60 3-D positions (latitude, longitude, and altitude) during the portion of migration when Red Knots could potentially fly through the OCW01 Lease Area.

- A total of 32 tags were deployed on Red Knots in 2021 – 15 tags failed to record usable data and 17 tags provided location and altitudinal information for some period.

- Of the 17 individuals with tags that provided data, 5 made migratory movements within the life of the tags, including 4 short-distance migrants and 1 long-distance migrants. Tracks indicate that one of the short-distance migrants may have flown through the Lease Area.

- Overall, the majority of locations established by satellite tags were associated with relatively low flight height estimates. The short-distance migrant that may have passed through the Lease Area appeared to fly low throughout its migration, although it is important to note that the error associated with the altitude measurement is relatively unknown. Lotek estimates 20 m accuracy, but actual error may vary by position depending on the number of satellites available.

- A wind analysis indicates that the tagged Red Knots generally initiated migration with favorable tailwinds, that the one long-distance migrant had favorable wind support throughout its offshore movements, and that the short-distance migrants flew in more variable wind conditions.

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2. INTRODUCTION

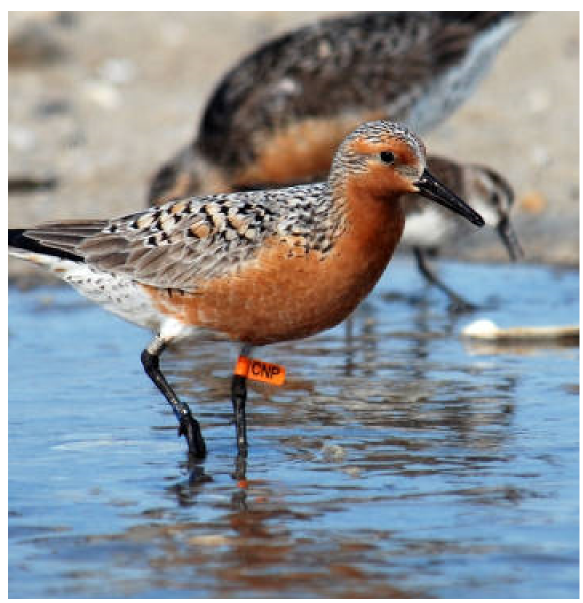
Ocean Wind 1, LLC (OCW01), a joint venture of Ørsted Wind Power North America, LLC (Ørsted) and Public Service Enterprise Group Renewable Generation LLC (PSEG), participated in several informal discussions with the U.S. Fish and Wildlife (USFWS) about avian data available for the Ocean Wind ESA Section 7 consultation. The USFWS has indicated that existing coastal Motus[1] receiver stations used to track Red Knots (*Calidris canutus rufa*) do not provide movement data for the OCW01 Lease Area, as receivers were likely too far away to detect tagged birds in the vicinity of the Lease Area. As a result, the USFWS suggested that tracking studies of Red Knots conducted closer to the Lease Area would increase the understanding of Red Knot exposure to the proposed OCW01 offshore wind project.

In response, OCW01 funded the following research project:

- Biodiversity Research Institute (BRI), in partnership with Wildlife Restoration Partnerships (WRP), tagged 32 short-distance migrant Red Knots at sites in coastal New Jersey in 2021.
- The GPS tags provided up to 60 3-D positions (latitude, longitude, and altitude) during the portion of migration when Red Knots could potentially fly through the Ocean Wind Lease Area.

In developing this research project, OCW01 has held multiple calls with USFWS, BRI, and Dr. Larry Niles (Red Knot expert) of WRP, to identify the best locations to tag migrant Red Knots. The Monomoy National Wildlife Refuge in Massachusetts, and areas of coastal New Jersey, were identified as the best locations to tag long-distance and short-distance migrants, respectively. Of these locations and migrant types, tagging in coastal New Jersey was identified as logistically feasible and ideal for informing the understanding of short-distance migrants, a significant data gap. The results of the tagging work are intended to support ESA Section 7 consultation.

2.1. Species Background



The Red Knot (*Calidris canutus*) is a medium-sized shorebird with one of the longest migrations in the world, undertaking non-stop flights of up to 5,000 mi (~8,000 km) on their annual travels (Baker *et al*. 2020). Red Knots breed in the Canadian High Arctic, and migrate to wintering grounds in the southeastern U.S., the Caribbean, Mexico, Brazil, and Argentina (Baker *et al*. 2020). On their annual migrations, they stop over at a few key sites along the U.S. Atlantic coast, including coastal New Jersey, to renew depleted energy reserves (Burger *et al*. 2011). Population status is thought to be strongly influenced by adult survival and recruitment rates, as well as food availability on

[1] The Motus Wildlife Tracking System (Motus) is an international collaborative research network that uses coordinated automated radio telemetry to facilitate research and education on the ecology and conservation of migratory animals. For more information visit https://motus.org/.

stopover sites, and conditions on the breeding grounds (Baker *et al*. 2020).

The Atlantic flyway subspecies (*C. c. rufa*) is listed as *Threatened* under the Endangered Species Act (ESA), primarily because this population decreased by approximately 70% from 1981 to 2012, to less than 30,000 individuals (Burger et al. 2011, Baker et al. 2020). This population of Red Knots has two distinct migratory strategies: long- and short-distance migrants. Previous studies throughout the flyway show knots wintering primarily in three different locations: (1) the southeast US coast and Caribbean Islands, (2) Northern Brazil, and (3) Tierra del Fuego. Thus, Red Knots wintering in the southeast US and Caribbean are considered short-distance migrants, while Red Knots wintering at the latter two, more distant destinations exhibit an extended flight across the Atlantic Ocean, and are designated as long-distance migrants. On their southbound migrations in the fall, the short-distance migrants are expected to fly down the Atlantic coast in a series of short hops to winter on the southeast U.S. coast or the Caribbean, while the long-distance migrants are generally expected to fly directly offshore from coastal New Jersey, taking direct, multi-day offshore flights to wintering areas in South America.

The Red Knot is present in New Jersey only during spring and fall migratory periods. A Motus study tracked Red Knots tagged in James Bay and the Mingan Islands in Canada, and in Massachusetts and New Jersey (Loring et al. 2018). The receiver network was primarily land-based with some coastal coverage and limited offshore coverage. Out of 388 Red Knots tagged, three birds (one tagged in Massachusetts and two tagged in New Jersey) were estimated to cross the New Jersey Wind Energy Area (Loring *et al*. 2018). These flights were initiated during fair weather conditions, with clear skies and little to no precipitation (Loring *et al*. 2018).

3. METHODS

Red Knots were tracked during their fall migration using small satellite transmitters with GPS receivers (PinPoint Argos-75 GPS Transmitters[2]1 from Lotek Wireless, Ontario, Canada). Each transmitter weighed 0.15 oz (4.1 g), <3% of the average body mass of tagged Red Knots (5.1 oz [143.6 g]), and each had a 2 in (5 cm) GPS antenna and 9 in (23 cm) Argos antenna.

These transmitters were designed to collect approximately 60 GPS locations and altitude estimates on a customized schedule, and the estimated accuracy of positions is typically within 33 ft (10 m) for 2-D location estimates, and within 66 ft (20 m) for altitude estimates. The tags deployed in 2021 had two different program schedules depending on the age and molt condition of the birds (Table 3-1). Location data is relayed via the Argos satellite system (https://www.argos-system.org/).

Table 3-1. Tag program schedules for molt conditions.

Condition (molt/age)	Tag schedule
No molt	Programed to "ping" every 5 hours starting at 7am GMT (2am EST) the day after deployment for the life of the tag (60+ points)
Molting/SY	Programed to "ping" once per day starting at 7am GMT (2am EST) the day after deployment for the life of the tag (60+ points)

All field work to capture and tag Red Knots was led by Dr. Larry Niles of WRP (Federal Bird Banding Permit No. 22803). WRP and BRI staff conducted field surveys for Red Knots between late July and early November, 2021, along coastal New Jersey to identify appropriate sites and flocks for capture. Flocks that included visibly molting adults were targeted—molt indicates short distance migrants. The 2021 fall migration of Red Knots was atypical, however, with short-distance migrants arriving in New Jersey later than normal, molting later than normal, and in smaller numbers at their traditional roost sites. The three capture locations were selected based on proximity to the OCW01 and the presence of focal birds (Table 3-2 and Figure 3-1).

Table 3-2. Capture locations of Red Knots in coastal New Jersey and the number of tags deployed on each date in 2021.

Location	Date				Total
	9 September	20 October	27 October	10 November	
Avalon	.	10	7	.	17
Brigantine	5	.	.	.	5
Stone Harbor	.	.	.	10	10
Total	5	10	7	10	32

[2] https://www.lotek.com/wp-content/uploads/2017/10/PinPoint-GPS-Argos-for-birds-Spec-Sheet.pdf

WRP captured Red Knots using cannon nets. Biologists removed the birds from the net and placed them in secure storage boxes. All birds were weighed, and other morphometric data was collected from Red Knots using standard measurement protocols. Red Knots were banded with a USFWS metal band and a light-green leg flag with a field-readable black alpha-numeric code. The designation of short- and long-distance migrant Red Knots was made with birds in the hand. Dr. Niles selected birds for tagging based on their molt and weight, which together suggest when birds will depart on migration.

Transmitters were attached to Red Knots by clipping a small area of feathers from the synsacral region and gluing the tags to the feather stubble and skin with a cyanoacrylate gel adhesive (Figure 3-2). Two subcutaneous sutures were added at the distal and proximal ends of the tags to improve transmitter retention. This particular method has been used to attach VHF transmitters to Common Terns (*n* >300) and Roseate Terns (*n* >150) at nesting colonies in the northeastern U.S. (Loring *et al*. 2019), with no evidence of adverse effects on behavior (Loring *et al*. 2016).

In this initial assessment of the data, we simply mapped actual point locations provided by the satellite tags and assumed a straight flight line between points. Erroneous outlying points, well beyond the realms of possibility for daily migratory movements, were removed manually prior to final mapping and tabulation.

3.1. Modeling Uncertainty

Since Red Knots can cover a lot of distance when traveling between known locations every 5 hours, it was necessary to estimate positions between these known locations and with it an estimate of uncertainty. We used a continuous-time correlated random walk model (CTCRW; Johnson et al. 2008) that generates a set of points uniformly spaced in time, less than the time step between locations, and allows for an estimate of position uncertainty at each of these estimated positions along the movement path. This general method was suggested by USFWS and example code was provided by Pam Loring (USFWS). Because Red Knots were not always moving during the telemetry period, we accounted for the difference of activity between positions over land and those over water to yield more accurate position estimates (Johnson et al. 2008). Data were loaded into R version 4.1.1 (R Core Team 2021), and models were run for all individuals with enough locations (excluding tags 221838, 221846, and 221848) as a group using the crawlWrap function in package "momentuHMM" (McClintock & Michelot 2018). The position estimates with uncertainty were generated every 10 minutes and were converted to a spatial data format and exported to ArcGIS 10.8.1 for mapping.

3.2. Weather Conditions

To examine Red Knot movements in relation to wind speed and direction, we used satellite-derived data from the NOAA NCEP North American Regional Reanalysis (NARR) environmental dataset provided by the NOAA/OAR/ESRL PSL, Boulder, Colorado, USA (https://psl.noaa.gov/data/gridded/data.narr.html), following methods used in Loring *et al.* 2020. The analysis was in response to a request from USFWS. Wind u and v vector data are provided at a 3h daily interval at 10 m above surface level and across 29 pressure levels ranging from 100-1000 (hPa), for which geopotential height is also available. For individual locations at an estimated altitude at or below 10 m, the 10 m dataset was used to extract wind information based on the closest 3h interval to the timestamp of the tracking data. For individual locations at estimated altitudes greater than 10 m, wind vector data was vertically interpolated to estimated flight altitudes using linear interpolation between the closest altitude fields based on geopotential height (which varies within pressure level based on weather). Wind u and v vector data were then used to calculate wind speed (m/s) and wind assistance (degrees) at all locations (see Appendix B). For this report "wind assistance" indicates the direction the wind is blowing towards, rather than wind direction which indicates the direction the wind is blowing from.

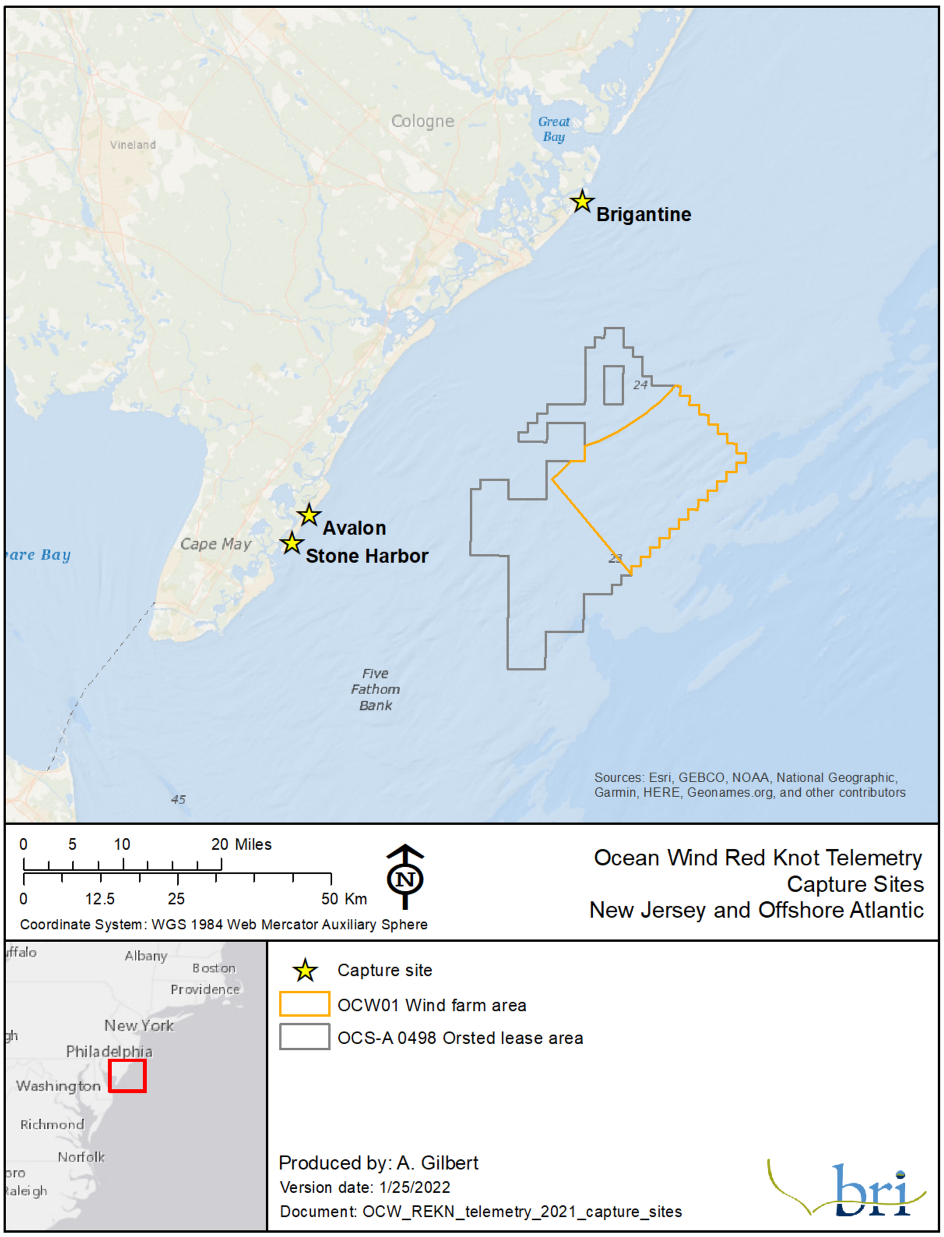


Figure 3-1. Map of Red Knot capture locations in New Jersey, 2021, relation to the Ocean Wind Lease Area and Ocean Wind 1 Wind Farm Area.

Figure 3-2. A satellite tagged Red Knot captured at Brigantine in coastal New Jersey, 2021, prior to release. Photo shows the tag glued and sutured to the upper back, and clearly indicates the short GPS antenna and the longer Argos antenna.

4. RESULTS

A total of 70 Red Knots were captured over four field days in September–November of 2021, at the three capture sites, 32 of which were tagged with GPS satellite transmitters. Standard morphometric measurements indicate that the subset of tagged birds was similar overall to the larger sample (Table 4-1).

Of the 32 satellite tags deployed, 15 tags failed to record usable data. Of the remaining 17 tags, all provided reliable location data and altitudinal information for some period, but only 5 of these birds migrated during the lifespan of the tags (limited to ~60 locations; Figure 4-1 and Figure 4-2). Twelve birds showed mostly local coastal movements in and around the area of capture, and did not leave on migration within the lifespan of the tags.

Of the 5 birds for which migration data was recorded, 4 showed coastal movements typically associated more with short-distance migrants, and 1 showed movements typical of a long-distance migrant.

Table 4-1. Mass and measurements of Red Knots captured at coastal sites in New Jersey, 2021, for all birds captured (n=70) and for satellite-tagged birds (n=32).

Measurement	ALL birds				SAT TAGGED birds			
	n	Minimum	Maximum	Mean	*n*	Minimum	Maximum	Mean
Mass (g)	70	114	180	139	32	115	164	143.6
Culmen (mm)	68	29.2	39.6	35.4	32	29.2	39.6	35.6
Head and bill (mm)	68	56.0	68.0	64.2	32	56.0	67.6	64.3
Wing (mm)	61	156.0	175.0	166.5	25	160.0	175.0	169.0

4.1. Short-distance migrants

Four tagged birds showed movements typical of short-distance migrants during the lifespan of the tags, moving coastally and, in some cases, pausing at stopover areas to forage for periods of days at a time (Figure 4-1 and Figure 4-2). Migratory strategy was determined through capture weight and molt (Appendix B) as well as eventual migratory tracks.

Interestingly, one bird (221851) tagged at Brigantine on September 9th, moved north on September 13th along the Atlantic coast to stopover on the south shore of Long Island, NY, where it stayed until the tag ran out on October 11th (Figure 4-1).

Two birds tagged at Stone Harbor on November 10th, moved south down the Atlantic coast. One bird (221850) departed on November 13th, and stopped in the Cape Hatteras area in Pamlico Sound, NC, on November 14th and remained there until the tag ran out on November 30th. Another bird (221866) departed on November 14th and stopped for a day in the Bald Head Island area at the mouth of the Cape Fear River in NC, and again in the marshes around the Bulls Bay area north of Charleston, SC, on November 16th, where it remained until the tag ran out on December 10th (Figure 4-1). The ultimate wintering destinations of these short-distance migrants individuals is unknown, however, but their movements were all coastal, well inshore of the Ocean Wind Lease Area, and predominantly at low flight heights (Table 4-2 and Figure 4-4).

One bird (211842) left the Brigantine area on September 10th and took a more coastal route, but did not stop along the way, as is typical of short-distance migrants, but remained largely on the continental shelf (Figure 4-2). This bird continued on south, eventually crossing over the Bahamas, before making landfall on the north coast of Cuba on September 12th, and flew low for the entirety of its journey (range: 1–22 m, mean: 9.33 m; Table 4-2). Assuming straight flight lines between GPS locations, this bird appears to have crossed the Ocean Wind Lease Area (Figure 4-2).

4.2. Long-distance migrant

Of the 5 birds captured at Brigantine on September 9th, 1 individual provided useful long-distance migration data (Figure 4-2). The bird (221849) left the Brigantine area on September 19th and headed southeast, directly out over the continental shelf before turning south over the deep waters of the Hatteras Plain, on a route typical of long-distance migrants headed towards wintering areas along the northern coast of South America (Figure 4-2). Red Knots taking similar offshore routes usually make landfall in Venezuela, Guyana, Suriname, French Guiana, or northern Brazil. Also, typically for long-distance migrants, this bird appeared to climb to a considerable height (~400 m) by the time it reached the shelf edge, and maintained significant height throughout its offshore journey (range: 109–575 m, mean: 329 m; Table 4-2).

4.3. Local Movements

Twelve birds showed only local movements within the lifespan of the tags (Figure 4-3). These birds primarily stayed close to their capture locations, although 1 bird moved along the coast to Chesapeake Bay. Capture data indicates that these birds were short-distance migrants. Of note, local eBird records indicate that Red Knots remained in coastal New Jersey until January. This may be due to relatively mild temperatures throughout the fall and early winter, as well as the availability of abundant food resources.

4.4. Continuous-time Correlated Random Walk Model

The CTCRW modeled movements suggest that two individuals (221842 and 221849) may have interacted with the Lease Area. For 221849, the position uncertainty around locations while the bird was feeding/roosting onshore were large enough to slightly overlap the northern corner of the Lease Area, but this bird likely did not actually interact with the Lease Area. The model does not change the interpretation, however, that 221842 appears to have moved through the western edge of the Lease Area.

4.5. Flight Heights

The majority of locations established by satellite tags were associated with relatively low flight height estimates (Table 4-3 and Table 4-4), either below or within the range of the RSZ (23–276 m), although almost all well inshore of the Lease Area. The long-distance offshore migrant (221849) showed the highest flight heights recorded and maintained significant altitude throughout its offshore journey (Figure 4-4). The short -distance coastal migrant (211842), that passed through the western edge of the Lease Area, remained relatively low (below 22 m) throughout its journey (Table 4-2 and Figure 4-4). Without a confirmed location within the Lease Area, however, its flight height during that leg of migration is unknown. An important note is that while Lotek indicates the error on flight heights is ~20 m, the true error around the flight height estimates is not known and may vary for each estimate depending on the number of satellites available. Further, these data represent a small sample size and the flight heights should be interpreted to represent only the individuals tracked.

Table 4-2. Altitude of birds detected >1 km from shore.

Tag Number	Number of days tracked	Number of estimates	Altitude (m)*		
			Min	Max	Mean
221842	2	3	1	22	9.33
221849	2	5	109	575	329.2
221850	11	20	-7	37	2.9
221852	1	1	29	29	29
221866	2	2	-6	302	148

*Negative altitude estimates are a result of error in the estimate and the position relative to the water surface (i.e. can be below 0 due to tide and waves)

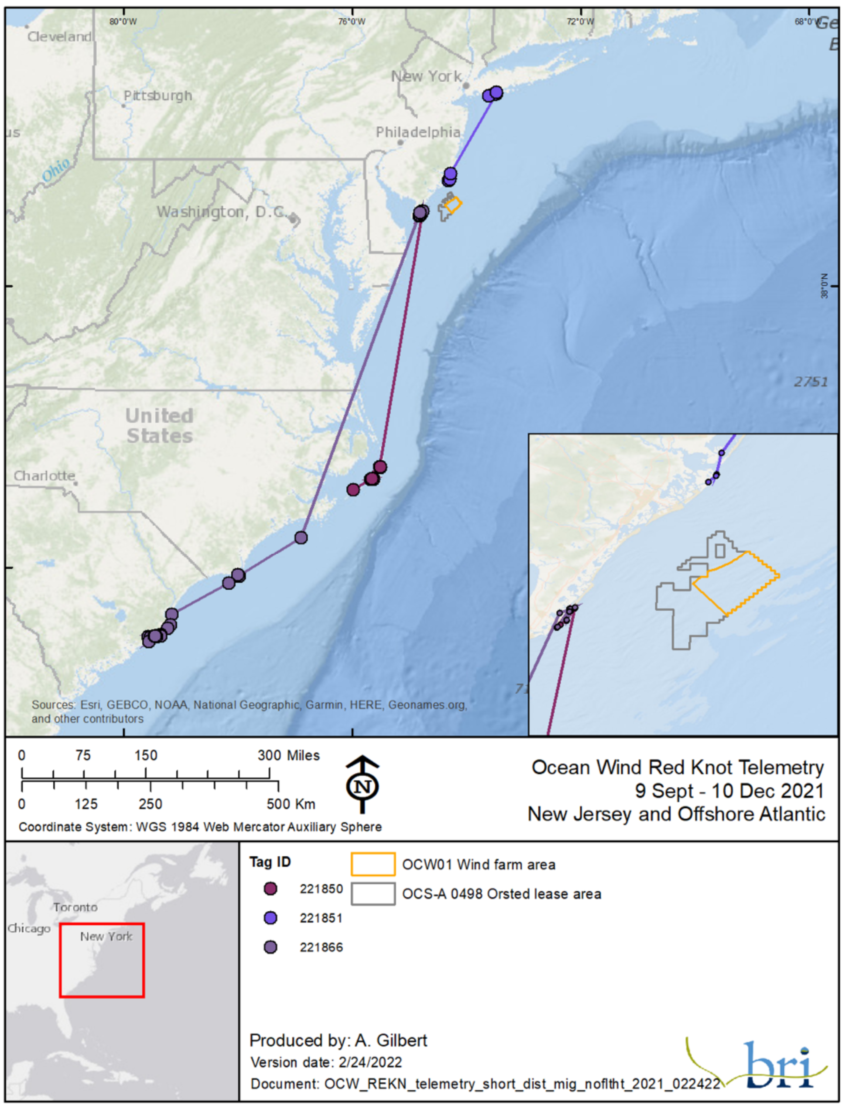


Figure 4-1. Movements of 3 short-distance migrant Red Knots tagged in coastal New Jersey in 2021, in relation to the Ocean Wind Lease Area and Ocean Wind 1 Wind Farm Area. All data points are simply connected by straight lines.

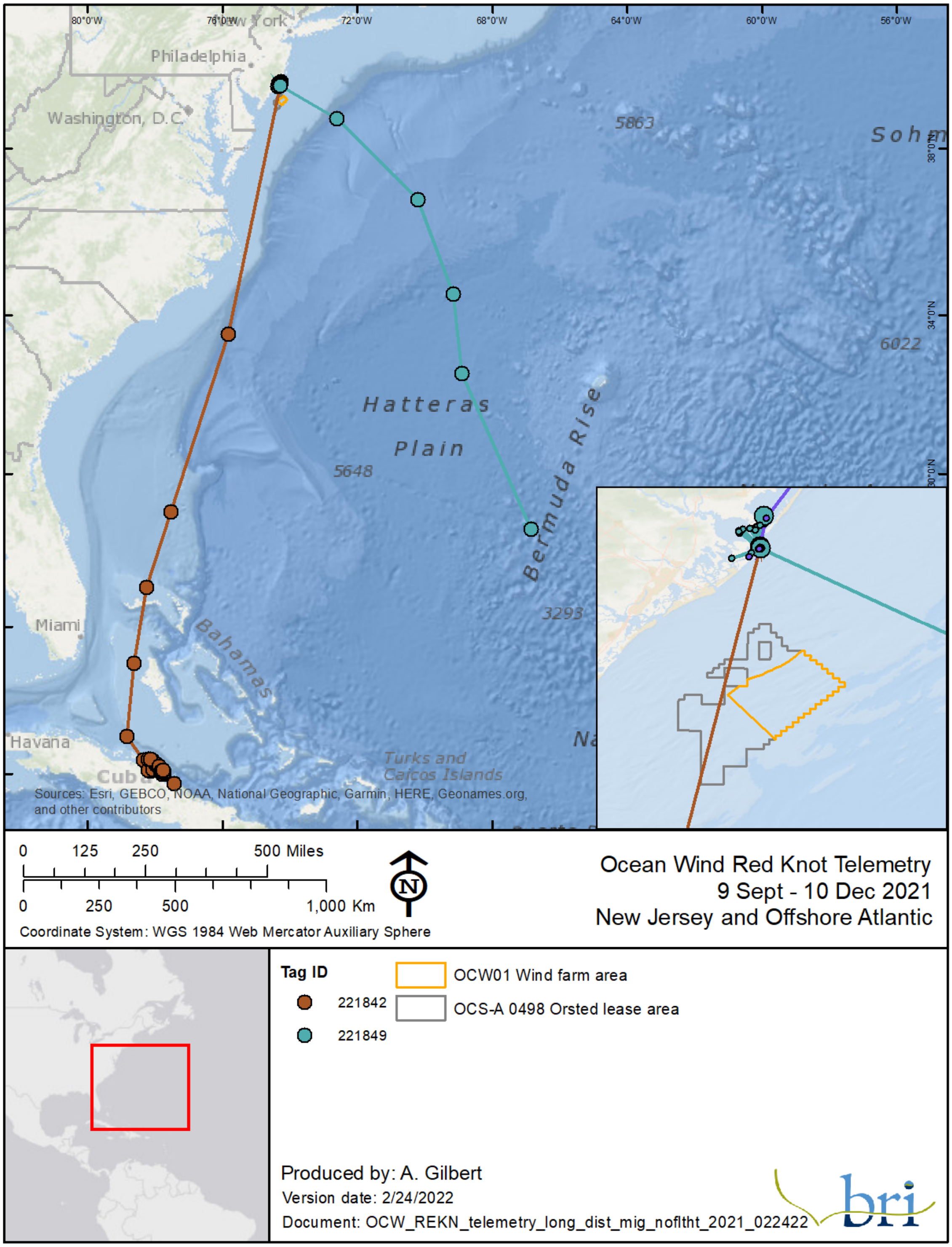


Figure 4-2. Movements of 1 short-distance migrant Red Knot (brown) and 1 long-distance migrant Red Knot (green) tagged in coastal New Jersey in 2021, in relation to the Ocean Wind Lease Area and Ocean Wind 1 Wind Farm Area. All data points are simply connected by straight lines.

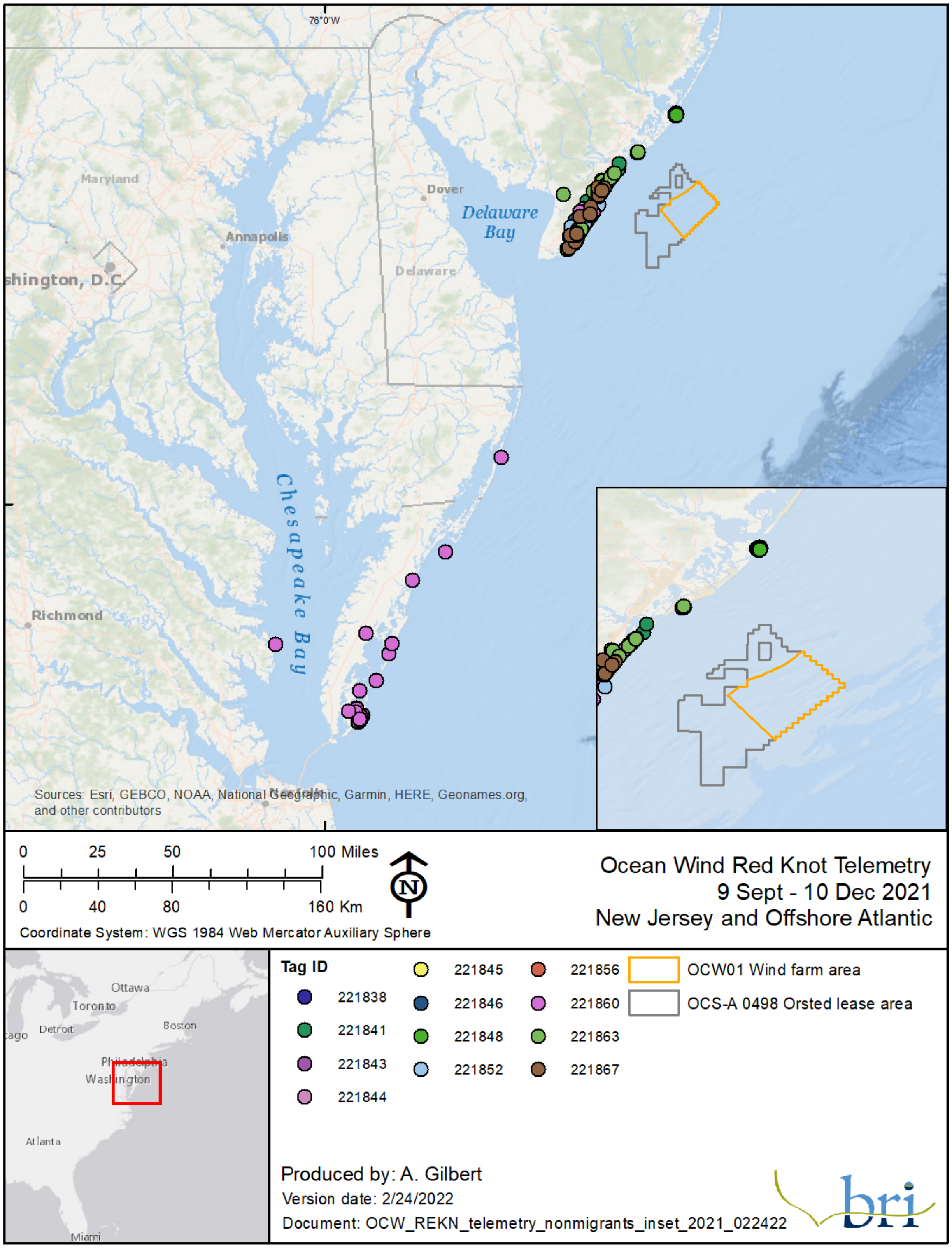


Figure 4-3. Movements Red Knots tagged in coastal New Jersey in 2021 that did not migrate during the tag lifespan.

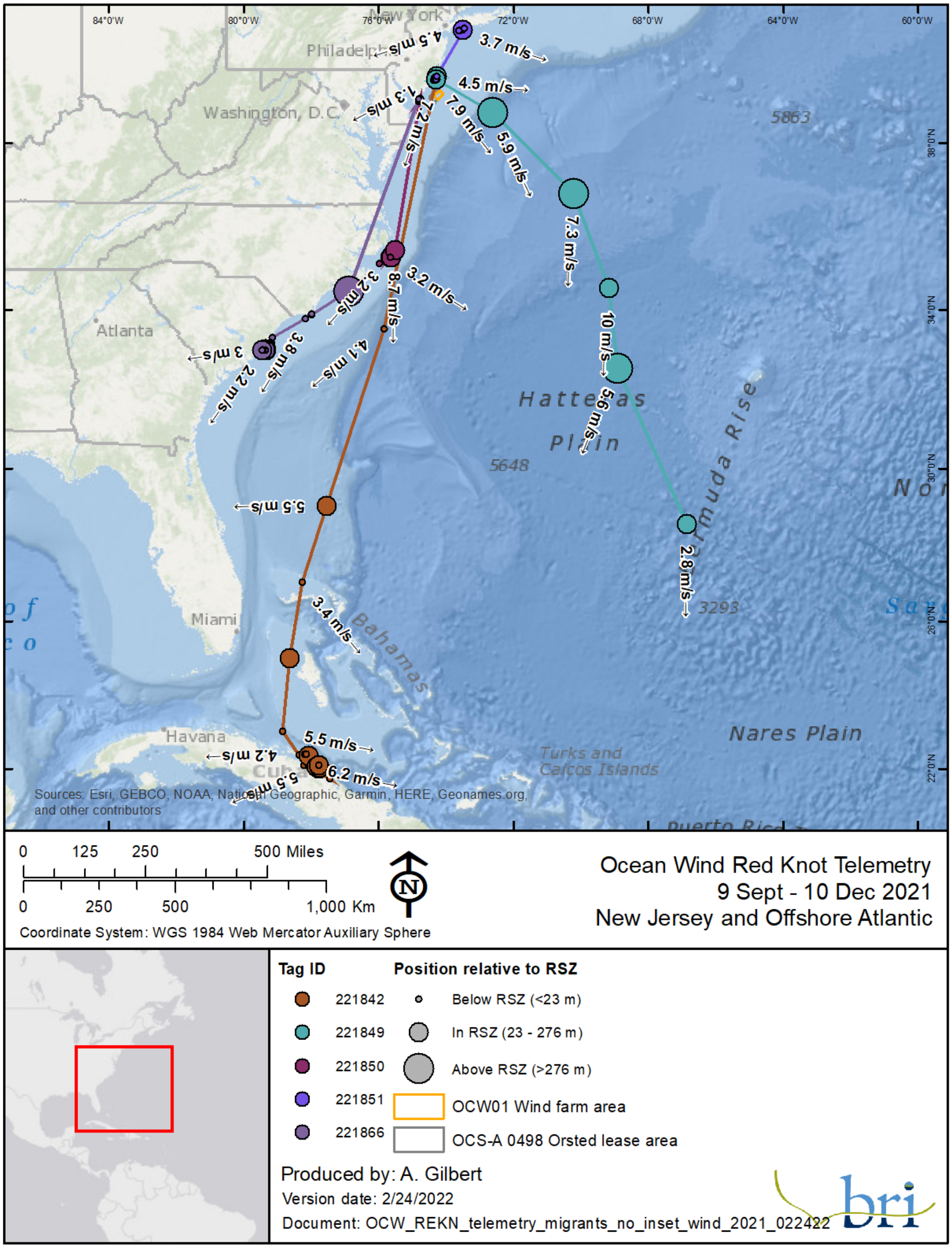


Figure 4-4. Movements of 5 Red Knots tagged in coastal New Jersey in 2021, as they depart on migration, in relation to the Ocean Wind Lease Area and Ocean Wind 1 Wind Farm Area. All data points are simply connected by straight lines, and each point for which there is altitudinal data is assigned to a flight height category (below, within, or above the Project's potential Rotor Swept Zone) indicated by point size. Each point is labeled with the estimated wind speed and wind assistance.

Table 4-3. Altitude, wind speed, and wind assistance estimates over the course of tag deployment for Red Knots satellite-tagged in New Jersey, 2021. The wind assistances estimates represent the direction the wind is blowing towards.

			Altitude (m)**			Wind Speed (m/s)			Wind Assistance (degrees)		
Tag Number*	# days tracked	# estimates	Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean
221838	10	10	-1	3	1.4	1.3	7.8	4.5	95	255	192
221841	19	66	-7	39	4.2	1.2	12.7	5.3	91	264	181
221842 (S)	22	92	-7	78	8.1	0.7	7.9	4.2	90	268	192
221843	13	47	-12	18	3.3	0.8	12.0	5.8	93	264	189
221844	8	24	-14	13	0.2	2.0	12.6	6.4	95	261	162
221845	4	16	-2	9	2.1	2.0	8.9	5.6	104	261	171
221846	10	39	-3	9	1.7	0.8	12.0	5.4	94	264	181
221848	25	25	-2	11	2.2	0.6	7.8	3.9	90	259	173
221849 (L)	12	47	-8	575	38.4	0.7	10.0	4.8	95	266	183
221850 (S)	19	72	-7	37	2.9	1.3	13.6	6.2	93	261	177
221851 (S)	31	31	-10	7	2.7	0.6	10.6	4.1	92	268	181
221852	11	41	-10	29	2.8	1.2	12.0	6.0	93	264	182
221856	1	2	1	8	4.5	5.3	6.7	6.0	147	155	151
221860	24	88	-32	148	5.9	0.2	12.6	5.8	95	264	169
221863	11	36	-6	35	3.3	0.3	12.6	5.9	104	260	161
221866 (S)	29	125	-12	302	4.2	0.1	9.4	3.7	93	268	190
221867	15	56	-14	47	4.9	0.8	12.0	5.4	91	263	185

*S = short-distance migrant, L = long-distance migrant. Tags without labels did not migrate during the tagging lifespan.

**Negative altitude estimates are a result of error in the estimate and the position relative to the water surface (i.e. can be below 0 due to tide and waves)

4.6. Weather Conditions

For each of the five birds displaying migratory movements, we report the average wind speed and sustained wind assistance for the day of departure (Table 4-4). Weather details were derived from NOAA's Climate Data Online Archive (https://www.ncdc.noaa.gov/cdo-web/) for the Atlantic City International Airport, in Egg Harbor Township, New Jersey (39°27'07" N, -74°34'01" W), and located at an elevation of 18 m. Overall, tagged birds chose similar departure conditions, at least at ground level, and a consistent sustained wind assistance despite whether they were departing on long- or short-distance migrations.

Table 4-4. Estimated dates of departure, daily weather conditions on the days of departure for Red Knots satellite-tagged in coastal New Jersey, 2021. The wind assistance estimates represent the direction the wind is blowing towards.

Tag number	Date tagged	Date of departure	Average wind speed (m/s)	Sustained wind assistance	
				degrees	direction
Short-distance migrants					
221851	Sep 9	Sep 13	3.3	110	ESE
221850	Nov 10	Nov 13	4.6	120	ESE
221866	Nov 10	Nov 14	3.1	80	E
221842	Sep 9	Sep 10	4.3	130	SE
Long-distance migrants					
221849	Sep 9	Sep 19	2.6	180	S

Predicted wind speed and direction were also established for each point location and estimated altitude for each of the 5 short- and long-distance migrants. The long-distance migrant (221849) departed with supportive tailwinds blowing towards the south, which continued during migration. The short-distance migrants departed when winds were blowing generally to the southeast and supportive conditions (winds blowing to the SW to SE) were generally maintained during migratory movements (Figure 4-4 and Table 4-3). For both groups, wind speed was variable, with the mean ranging from 3.7 to 6.2 m/s. Full details are presented in tables in Appendix A.

4.7. Tag Performance

All satellite transmitters were received early in August from Lotek. Each tag was carefully tested according to Lotek's testing protocol (Lotek 2019) on August 5th or August 17th, 2021, then deactivated and stored in proper conditions until they were deployed. Before each trapping day, all tags were all charged, activated, and programmed, following Lotek's programming protocol. Each tag was programmed with one of two specific GPS schedules (Table 3-1).

Due to the number of tags that failed or collected very few points, BRI and WRP contacted Lotek to try to understand the issue. Lotek examined all tag programming and tag metadata and found no specific cause for the failures. Lotek has offered to provide partial replacement of the failed tags and WRP and Lotek are discussing additional tests of the tags that can be conducted prior to future deployments.

4. DISCUSSION

Other than one long-distance migrant that went directly offshore north of the Lease Area, all other Red Knots remained relatively close to shore, and most well inshore of the Lease Area. Based on a straight-line connection between points, only one short-distance migrant (221842) appears to have flown through the western edge of the OCW01 Lease Area. This bird flew at relatively low altitudes throughout its migration. Only the long-distance offshore migrant showed consistently high flight height estimates, and maintained considerable altitude throughout its migration; however, there is unknown error associated with the altitude measurements.

4.8. Recommendations

The data presented here reinforces the value of collecting tracking data for avian species of conservation concern. Given the tag performance in 2021, the only way to improve the quality of the information gathered would be to increase the sample size. That could be achieved in two ways:

- Funding further capture and tagging work for the fall of 2022, potentially testing the new Sunbird solar Argos transmitter developed by Lotek. This would remove the limitation of a finite number of points of the PinPoint tags, and the potential for mismatch due to uncertainty around when birds might leave on migration (https://www.lotek.com/products/sunbird-solar-argos-transmitters/).
- Include Monomoy National Wildlife Refuge on Cape Cod, Massachusetts, as a potential capture site in any future studies. The site is north of the New Jersey Lease Areas and is an important stopover location for Red Knots on their southward migration. Based on previous work using nanotags and geolocators at this site, WRP may be able to better predict departure dates because all Red Knots are known to leave the site by mid-November.
- Combining these results with those collected at other sites along the New Jersey coast (e.g., Red Knot tracking funded by Atlantic Shores or the National Fish & Wildlife Foundation). Collectively, these data would be much more meaningful and informative.

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APPENDIX A. Altitude, Wind Speed, and Wind Assistance at Each Offshore Location for Each Short- & Long-distance Migrant

Table A1. 3D location and wind information for short-distance migrant Red Knot ID 221851 post-staging. Satellite-tagged in New Jersey, 2021.

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
9/13/2021	4:01	39.54	-74.29	-4	5.5	221.1
9/14/2021	3:58	40.61	-73.48	6	0.8	196.5
9/15/2021	4:01	40.61	-73.48	-10	4.0	156.4
9/16/2021	4:03	40.61	-73.48	6	5.3	191.4
9/17/2021	4:01	40.61	-73.52	3	4.5	252.1
9/18/2021	4:03	40.61	-73.52	2	4.3	220.3
9/19/2021	4:01	40.60	-73.53	6	1.6	165.1
9/20/2021	3:58	40.60	-73.53	4	2.1	268.4
9/22/2021	3:58	40.59	-73.62	-1	3.7	107.5
9/23/2021	4:01	40.59	-73.62	5	5.8	147.3
9/24/2021	3:58	40.59	-73.62	3	4.7	172.2
9/25/2021	4:01	40.59	-73.62	7	2.3	126.4
9/26/2021	3:58	40.59	-73.62	0	0.6	143.7
9/27/2021	4:01	40.59	-73.62	3	4.4	99.8
9/28/2021	3:58	40.62	-73.49	5	8.4	211.1
9/29/2021	4:01	40.61	-73.48	5	2.0	143.5
9/30/2021	4:03	40.61	-73.48	3	4.5	163.4
10/1/2021	4:01	40.61	-73.48	3	5.2	172.5
10/2/2021	3:58	40.61	-73.53	3	3.7	107.9
10/3/2021	4:01	40.60	-73.53	1	3.2	217.3
10/4/2021	3:58	40.61	-73.53	6	1.9	165.4
10/5/2021	4:01	40.60	-73.53	34	3.4	92.5
10/6/2021	3:58	40.60	-73.53	-2	4.4	242.6
10/7/2021	4:01	40.59	-73.62	2	0.7	219.3
10/8/2021	3:58	40.59	-73.62	7	2.7	200.6
10/9/2021	4:01	40.59	-73.62	4	4.3	110.0
10/10/2021	3:58	40.63	-73.48	6	9.6	255.1
10/11/2021	4:01	40.63	-73.48	6	10.6	233.8

*Negative altitude estimates are a result of error in the estimate and the position relative to the water surface (i.e. can be below 0 due to tide and waves)

Table A2. 3D location and wind information for short-distance migrant Red Knot ID 221850 post-staging. Satellite-tagged in New Jersey, 2021.

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
11/13/2021	2:59	38.99	-74.80	-1	3.4	104.2
11/13/2021	8:02	38.98	-74.82	0	2.0	144.3
11/13/2021	13:00	39.02	-74.78	7	2.3	145.8
11/13/2021	17:59	39.02	-74.79	4	3.9	148.2
11/13/2021	23:02	39.03	-74.77	1	8.0	237.9
11/14/2021	8:59	35.47	-75.52	-1	8.7	180.0
11/14/2021	14:02	35.30	-75.66	0	6.1	202.8
11/14/2021	19:01	35.30	-75.63	3	3.2	221.4
11/15/2021	0:00	35.30	-75.66	-2	2.8	222.1
11/15/2021	5:02	35.14	-75.99	-2	2.7	168.9
11/15/2021	10:01	35.14	-76.00	-4	8.5	93.9
11/16/2021	1:01	35.14	-76.00	-3	5.4	124.9
11/16/2021	10:59	35.30	-75.66	0	4.9	149.9
11/16/2021	16:02	35.30	-75.66	0	4.1	141.2
11/16/2021	21:00	35.30	-75.64	36	1.3	156.9
11/17/2021	1:59	35.30	-75.64	-4	1.7	170.3
11/17/2021	7:02	35.30	-75.64	-2	2.6	161.2
11/17/2021	12:01	35.30	-75.66	0	1.9	179.8
11/18/2021	8:00	35.30	-75.64	-3	6.8	209.7
11/18/2021	12:58	35.30	-75.66	-2	5.0	224.3
11/18/2021	23:00	35.30	-75.63	36	5.9	214.4
11/19/2021	3:58	35.30	-75.64	9	6.9	211.0
11/19/2021	9:01	35.30	-75.64	0	7.1	200.2
11/19/2021	14:00	35.29	-75.66	1	6.7	134.2
11/20/2021	5:00	35.46	-75.52	-1	9.3	184.7
11/20/2021	15:02	35.30	-75.65	1	7.8	210.6
11/20/2021	20:01	35.30	-75.65	5	7.8	217.1
11/21/2021	0:59	35.30	-75.64	35	8.7	225.1
11/21/2021	6:02	35.30	-75.64	-1	8.2	228.9
11/21/2021	11:01	35.29	-75.63	-7	4.8	256.2
11/21/2021	16:00	35.30	-75.65	19	3.4	240.3
11/21/2021	20:58	35.30	-75.64	3	4.0	239.9
11/22/2021	2:01	35.30	-75.64	-3	2.7	129.9
11/22/2021	7:00	35.30	-75.64	-1	4.2	184.7
11/22/2021	11:58	35.30	-75.64	0	5.0	199.0
11/22/2021	17:01	35.29	-75.66	-1	3.2	241.6
11/22/2021	22:00	35.29	-75.66	0	6.5	158.7
11/23/2021	2:59	35.29	-75.66	0	6.5	196.8
11/23/2021	8:02	35.30	-75.66	-3	11.6	187.8
11/23/2021	13:00	35.30	-75.66	5	13.6	173.0
11/23/2021	17:59	35.30	-75.65	1	12.2	167.2

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
11/23/2021	23:02	35.30	-75.65	0	10.4	163.1
11/24/2021	4:01	35.30	-75.66	-1	10.0	157.6
11/24/2021	8:59	35.30	-75.66	-1	8.4	160.2
11/24/2021	14:02	35.30	-75.64	-1	8.5	159.6
11/24/2021	19:01	35.30	-75.66	17	7.1	172.3
11/25/2021	5:02	35.29	-75.66	37	4.5	189.4
11/25/2021	10:01	35.30	-75.66	-2	3.2	123.0
11/25/2021	15:00	35.29	-75.66	1	4.6	124.1
11/25/2021	19:58	35.29	-75.66	2	5.4	93.0
11/26/2021	1:01	35.29	-75.69	-2	7.1	235.2
11/26/2021	6:00	35.30	-75.64	2	7.4	239.1
11/26/2021	10:59	35.29	-75.68	-4	9.1	248.8
11/26/2021	16:02	35.29	-75.68	-2	8.5	95.8
11/26/2021	21:00	35.29	-75.66	1	6.4	95.9
11/27/2021	1:59	35.29	-75.66	2	7.6	141.5
11/27/2021	7:02	35.30	-75.66	-1	8.5	152.1
11/27/2021	12:01	35.29	-75.67	1	7.8	151.0
11/27/2021	16:59	35.29	-75.67	0	8.3	152.7
11/27/2021	22:02	35.29	-75.67	11	5.6	132.6
11/28/2021	3:01	35.29	-75.68	-1	3.0	129.9
11/28/2021	12:58	35.29	-75.67	-1	4.3	237.0
11/29/2021	3:58	35.30	-75.64	4	6.7	253.0
11/29/2021	9:01	35.30	-75.66	0	5.8	260.5
11/29/2021	14:00	35.29	-75.66	1	8.7	143.7
11/29/2021	18:59	35.29	-75.64	37	11.2	171.0
11/30/2021	0:02	35.47	-75.52	-3	9.3	159.8
11/30/2021	5:00	35.47	-75.52	5	5.7	156.0
11/30/2021	9:59	35.47	-75.52	32	3.3	143.1
11/30/2021	15:02	35.30	-75.66	1	3.1	144.9

*Negative altitude estimates are a result of error in the estimate and the position relative to the water surface (i.e. can be below 0 due to tide and waves)

Table A3. 3D location and wind information for short-distance migrant Red Knot ID 221866 post-staging. Satellite-tagged in New Jersey, 2021.

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
11/14/2021	4:01	39.02	-74.82	3	8.9	123.1
11/14/2021	14:02	34.46	-76.90	302	7.3	208.5
11/14/2021	19:01	33.88	-78.00	-1	3.8	211.4
11/15/2021	0:00	33.89	-77.99	-5	2.3	223.0
11/15/2021	5:02	33.91	-78.01	-10	5.0	245.8
11/15/2021	10:01	33.79	-78.17	-6	9.4	101.9
11/15/2021	15:00	33.33	-79.17	3	8.8	116.0
11/15/2021	19:58	33.18	-79.19	3	6.6	134.8
11/16/2021	1:01	33.13	-79.24	0	4.9	130.4
11/16/2021	6:00	33.02	-79.36	-2	2.7	121.5
11/16/2021	10:59	33.04	-79.36	29	1.9	97.5
11/16/2021	21:00	33.02	-79.36	4	0.2	180.4
11/17/2021	1:59	33.02	-79.36	-2	3.7	199.2
11/17/2021	7:02	33.02	-79.36	1	3.0	261.8
11/17/2021	12:01	33.02	-79.36	0	2.4	93.4
11/17/2021	16:59	33.02	-79.36	1	1.8	101.0
11/17/2021	22:02	33.02	-79.36	3	1.6	132.6
11/18/2021	12:58	33.01	-79.37	0	1.0	150.5
11/18/2021	18:01	33.02	-79.36	-8	2.2	173.0
11/18/2021	23:00	33.04	-79.36	1	3.2	172.0
11/19/2021	4:03	33.02	-79.36	0	3.5	190.7
11/19/2021	9:01	33.02	-79.36	32	2.2	215.2
11/19/2021	14:00	33.02	-79.36	0	3.2	127.0
11/19/2021	18:59	33.02	-79.36	2	7.4	212.7
11/20/2021	0:02	33.04	-79.36	0	8.0	204.1
11/20/2021	5:00	33.02	-79.36	2	6.8	201.9
11/20/2021	9:59	33.04	-79.36	-3	6.4	204.9
11/20/2021	15:02	33.02	-79.36	24	6.4	210.1
11/21/2021	0:59	33.04	-79.36	0	7.0	227.0
11/21/2021	6:02	33.02	-79.36	0	5.4	217.9
11/21/2021	11:01	33.04	-79.36	-12	4.1	210.9
11/21/2021	16:00	33.02	-79.36	3	4.7	197.6
11/21/2021	21:02	33.02	-79.36	6	3.2	198.9
11/22/2021	2:01	33.01	-79.44	0	3.4	268.4
11/22/2021	7:00	33.02	-79.36	-3	0.8	175.7
11/22/2021	12:03	33.02	-79.36	3	1.3	184.7
11/22/2021	17:01	33.02	-79.36	6	2.3	250.5
11/22/2021	22:00	33.02	-79.36	32	4.6	121.5
11/23/2021	2:59	33.01	-79.44	2	2.5	203.7
11/23/2021	8:02	33.02	-79.36	-11	3.4	170.8
11/23/2021	13:00	33.02	-79.36	22	6.4	184.4

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
11/23/2021	17:59	33.02	-79.36	2	8.5	186.1
11/23/2021	23:02	33.01	-79.45	0	6.2	174.6
11/24/2021	4:01	33.01	-79.44	0	4.5	173.2
11/24/2021	8:59	33.01	-79.45	-12	4.4	179.2
11/24/2021	14:02	33.01	-79.45	2	3.1	185.5
11/24/2021	19:01	33.01	-79.47	3	4.6	224.6
11/25/2021	0:00	33.01	-79.44	-6	5.4	205.9
11/25/2021	4:58	33.01	-79.44	-1	3.7	191.1
11/25/2021	10:01	33.01	-79.45	2	1.4	195.4
11/25/2021	15:00	33.01	-79.45	2	1.7	177.7
11/25/2021	19:58	33.01	-79.45	3	1.9	181.6
11/26/2021	1:01	33.01	-79.44	1	3.1	244.6
11/26/2021	6:00	33.01	-79.44	0	4.0	253.6
11/26/2021	10:59	33.01	-79.45	35	4.5	247.4
11/26/2021	16:02	33.01	-79.45	6	6.5	254.0
11/26/2021	21:00	33.01	-79.47	0	4.8	110.2
11/27/2021	1:59	33.01	-79.44	-5	4.4	136.5
11/27/2021	7:02	33.01	-79.44	-3	2.6	183.6
11/27/2021	12:01	33.00	-79.58	7	3.2	173.2
11/27/2021	16:59	32.99	-79.55	2	4.5	208.1
11/27/2021	22:02	33.01	-79.47	15	2.3	217.3
11/28/2021	3:01	33.01	-79.44	1	1.0	126.3
11/28/2021	8:00	33.01	-79.44	-4	2.7	249.0
11/28/2021	12:58	33.01	-79.46	0	3.4	251.5
11/28/2021	18:01	33.01	-79.45	5	4.0	259.8
11/28/2021	23:00	33.01	-79.46	-1	4.7	229.9
11/29/2021	3:58	33.01	-79.47	-5	3.8	248.2
11/29/2021	9:01	33.01	-79.44	-2	3.7	96.6
11/29/2021	14:00	33.01	-79.47	0	3.5	129.5
11/29/2021	18:59	33.01	-79.47	2	7.4	200.9
11/30/2021	0:02	33.01	-79.47	0	4.5	190.7
11/30/2021	5:00	33.01	-79.47	32	3.1	150.7
11/30/2021	9:59	33.01	-79.44	0	1.8	175.1
11/30/2021	15:02	32.93	-79.57	1	2.0	146.6
11/30/2021	20:01	33.01	-79.47	6	1.9	134.3
12/1/2021	0:59	33.01	-79.47	0	2.9	227.3
12/1/2021	6:02	33.01	-79.47	0	4.4	249.9
12/1/2021	11:01	33.01	-79.44	-2	3.1	267.6
12/1/2021	16:00	33.01	-79.46	32	2.9	99.4
12/1/2021	20:58	33.01	-79.45	2	1.4	112.3
12/2/2021	2:01	33.01	-79.47	-1	2.9	180.7
12/2/2021	7:00	33.01	-79.47	-4	1.7	258.5
12/2/2021	11:58	33.01	-79.45	1	0.8	252.0

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
12/2/2021	17:01	33.01	-79.46	1	3.6	118.2
12/3/2021	2:59	33.01	-79.46	-2	4.0	214.7
12/3/2021	8:02	33.01	-79.44	-2	2.6	223.6
12/3/2021	13:00	33.01	-79.45	1	3.2	267.7
12/3/2021	17:59	33.01	-79.46	2	3.8	110.1
12/3/2021	23:02	33.01	-79.44	0	0.1	132.5
12/4/2021	4:01	33.01	-79.46	6	2.6	188.9
12/4/2021	8:59	33.01	-79.44	-6	1.2	246.6
12/4/2021	14:02	33.01	-79.45	2	2.5	240.3
12/4/2021	19:01	33.01	-79.46	1	2.7	224.5
12/5/2021	0:00	33.01	-79.44	1	2.8	230.8
12/5/2021	10:01	33.01	-79.44	-2	2.5	131.0
12/5/2021	15:00	33.01	-79.45	4	1.6	189.1
12/5/2021	20:03	33.02	-79.37	32	2.6	253.0
12/6/2021	1:01	33.01	-79.44	0	2.4	126.3
12/6/2021	6:00	33.01	-79.46	32	0.6	202.8
12/6/2021	10:59	33.01	-79.44	0	0.6	130.3
12/6/2021	16:02	33.02	-79.37	2	1.7	258.8
12/6/2021	21:00	33.02	-79.36	-3	1.4	242.6
12/7/2021	1:59	33.01	-79.44	2	3.5	232.8
12/7/2021	7:02	33.01	-79.46	0	2.6	220.0
12/7/2021	16:59	33.01	-79.45	2	3.3	161.6
12/7/2021	22:02	33.02	-79.37	0	6.4	219.8
12/8/2021	3:01	33.01	-79.44	2	5.2	242.6
12/8/2021	8:00	33.01	-79.45	-2	3.8	225.9
12/8/2021	12:58	33.01	-79.46	1	1.4	265.6
12/8/2021	18:01	33.01	-79.45	0	2.4	167.3
12/8/2021	23:00	33.01	-79.46	0	3.9	240.3
12/9/2021	3:58	33.01	-79.44	0	5.7	164.7
12/9/2021	9:01	33.01	-79.47	-2	3.4	184.9
12/9/2021	14:00	33.01	-79.44	2	2.9	199.7
12/9/2021	18:59	33.01	-79.45	3	6.0	229.6
12/10/2021	0:02	33.01	-79.46	9	4.8	241.1
12/10/2021	5:00	33.01	-79.44	-1	4.4	255.4
12/10/2021	9:59	33.01	-79.47	0	0.9	105.4

*Negative altitude estimates are a result of error in the estimate and the position relative to the water surface (i.e. can be below 0 due to tide and waves)

Table A4. 3D location and wind information for long-distance migrant Red Knot ID 221842 post-staging. Satellite-tagged in New Jersey, 2021.

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
9/10/2021	2:59	39.47	-74.30	4	1.3	241.9
9/10/2021	8:02	39.47	-74.31	0	4.5	94.7
9/10/2021	13:00	39.47	-74.30	2	4.4	113.5
9/10/2021	17:59	39.47	-74.30	2	7.9	142.1
9/11/2021	8:59	33.54	-75.85	22	4.1	229.8
9/11/2021	19:01	29.05	-77.55	34	5.5	267.9
9/12/2021	0:00	27.07	-78.28	1	3.4	140.0
9/12/2021	5:02	25.03	-78.65	27	3.3	90.1
9/12/2021	10:01	23.05	-78.85	5	5.5	100.7
9/12/2021	15:00	22.40	-78.37	18	4.2	267.2
9/12/2021	19:58	22.11	-78.16	9	6.2	101.4
9/13/2021	1:01	22.02	-77.81	8	5.5	246.8
9/13/2021	6:00	22.02	-77.80	2	6.3	112.5
9/13/2021	10:59	22.02	-77.78	38	3.1	109.6
9/13/2021	21:00	21.75	-77.46	6	4.4	259.9
9/14/2021	1:59	22.12	-78.18	5	4.7	264.0
9/14/2021	7:02	22.12	-78.18	5	4.7	119.8
9/14/2021	12:01	22.13	-78.23	8	3.3	171.8
9/14/2021	16:59	22.12	-78.23	11	4.1	216.4
9/14/2021	22:02	22.14	-78.10	23	3.0	240.1
9/15/2021	3:01	22.02	-77.80	5	4.8	233.9
9/15/2021	8:00	22.02	-77.80	12	5.0	239.6
9/15/2021	12:58	22.07	-77.77	3	5.7	237.8
9/15/2021	18:01	22.06	-77.76	10	5.9	229.5
9/15/2021	23:00	22.06	-77.76	9	5.3	242.7
9/16/2021	3:58	22.02	-77.80	0	7.4	222.9
9/16/2021	9:01	22.06	-77.76	4	6.2	223.8
9/16/2021	14:00	22.12	-77.79	3	5.1	212.3
9/16/2021	18:59	22.12	-77.79	13	6.8	216.4
9/17/2021	0:02	22.29	-77.99	9	3.7	220.0
9/17/2021	5:00	22.29	-78.00	5	6.4	228.3
9/17/2021	9:59	22.39	-78.08	24	2.6	198.7
9/17/2021	15:02	22.42	-78.15	10	3.0	184.7
9/17/2021	20:01	22.42	-78.15	1	3.2	159.9
9/18/2021	0:59	22.42	-78.21	7	3.4	110.8
9/18/2021	6:02	22.42	-78.22	6	3.3	90.2
9/18/2021	16:00	22.42	-78.15	7	7.3	93.3
9/18/2021	20:58	22.42	-78.15	9	4.9	96.0
9/19/2021	2:01	22.43	-78.16	0	5.8	92.0
9/19/2021	7:00	22.24	-77.90	1	6.0	262.9
9/19/2021	11:58	22.12	-77.79	5	3.9	257.1

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
9/19/2021	17:01	22.12	-77.79	14	6.9	265.1
9/19/2021	22:00	22.12	-77.78	9	4.7	96.1
9/20/2021	2:59	22.09	-77.76	6	4.1	264.1
9/20/2021	8:02	22.12	-77.79	21	4.5	253.8
9/20/2021	13:00	22.12	-77.79	6	4.3	246.9
9/20/2021	17:59	22.12	-77.79	2	5.8	266.6
9/20/2021	23:02	22.12	-77.79	8	5.2	93.6
9/21/2021	4:01	22.08	-77.80	5	6.4	255.4
9/21/2021	8:59	22.12	-77.79	11	7.4	241.1
9/21/2021	14:02	22.12	-77.79	6	6.4	257.4
9/21/2021	19:01	22.12	-77.79	16	4.6	95.6
9/22/2021	0:00	22.12	-77.79	1	4.5	243.3
9/22/2021	5:02	22.06	-77.76	8	6.1	242.3
9/22/2021	10:01	22.12	-77.79	-2	5.9	252.8
9/22/2021	15:00	22.12	-77.79	10	4.8	153.5
9/22/2021	19:58	22.12	-77.79	9	3.9	164.3
9/23/2021	1:01	22.06	-77.76	6	2.2	95.8
9/23/2021	6:00	22.06	-77.76	5	4.4	144.1
9/23/2021	10:59	22.12	-77.79	5	3.0	175.0
9/23/2021	16:02	22.12	-77.79	9	3.2	208.6
9/23/2021	21:00	22.12	-77.79	9	3.3	194.0
9/24/2021	1:59	22.02	-77.80	3	2.5	197.5
9/24/2021	7:02	22.12	-77.79	6	1.3	247.7
9/24/2021	12:01	22.12	-77.79	4	3.1	214.6
9/24/2021	16:59	22.12	-77.79	9	3.6	217.6
9/24/2021	22:02	22.12	-77.79	9	2.2	222.5
9/25/2021	3:01	22.12	-77.79	9	3.0	238.1
9/25/2021	8:00	22.12	-77.79	0	5.0	242.6
9/25/2021	13:02	22.08	-77.86	78	3.7	238.8
9/25/2021	18:01	22.12	-77.79	12	3.9	240.5
9/25/2021	23:00	22.12	-77.79	5	1.9	265.6
9/26/2021	3:58	22.12	-77.79	7	2.0	111.7
9/26/2021	9:01	22.12	-77.79	9	3.4	237.0
9/26/2021	14:00	22.12	-77.79	11	2.0	249.7
9/26/2021	18:59	22.12	-77.79	12	3.1	110.1
9/27/2021	0:02	22.12	-77.79	9	3.0	152.1
9/27/2021	5:00	22.12	-77.79	21	4.0	192.2
9/27/2021	9:59	22.12	-77.79	6	3.0	222.0
9/27/2021	15:02	22.06	-77.77	24	2.2	209.6
9/27/2021	20:01	22.06	-77.77	13	1.0	137.1
9/28/2021	0:59	22.12	-77.79	3	2.3	199.0
9/28/2021	6:02	22.12	-77.79	1	3.5	234.9
9/28/2021	11:01	22.12	-77.79	3	3.1	233.9

Date	Time	Latitude	Longitude	Altitude (m)*	Wind Speed (m/s)	Wind Assistance (degrees)
9/28/2021	16:00	22.12	-77.79	9	1.7	243.0
9/28/2021	21:02	22.12	-77.78	13	3.1	226.3
9/29/2021	2:01	22.12	-77.79	10	3.1	233.6
9/29/2021	7:00	22.12	-77.79	6	3.5	124.9
9/29/2021	11:58	22.08	-77.80	9	2.1	148.9
9/29/2021	17:01	22.08	-77.80	11	2.5	264.5
9/29/2021	22:00	22.08	-77.80	10	2.1	106.7
9/30/2021	2:59	22.12	-77.79	24	4.5	91.8
9/30/2021	8:02	22.12	-77.79	0	5.0	118.8
9/30/2021	13:00	22.12	-77.79	6	4.1	155.5

*Negative altitude estimates are a result of error in the estimate and the position relative to the water surface (i.e. can be below 0 due to tide and waves)

Table A5. 3D location and wind information for long-distance migrant Red Knot ID 221849 post-staging. Satellite-tagged in New Jersey, 2021.

Date	Time	Latitude	Longitude	Altitude (m)	Wind Speed (m/s)	Wind Assistance (degrees)
9/19/2021	2:01	39.47	-74.30	0	1.3	128.8
9/19/2021	7:00	38.71	-72.63	364	5.9	154.3
9/19/2021	11:58	36.81	-70.22	575	7.3	182.2
9/19/2021	17:01	34.53	-69.18	109	10.0	182.1
9/19/2021	22:00	32.56	-68.93	437	5.6	201.3
9/20/2021	8:02	28.59	-66.87	161	2.8	179.4

APPENDIX B. Weight, molt, age, and predicted migratory strategy of captured birds.

Date	Band ID	Lotek ID	Weight (g)	Molt	Age	Predicted strategy
08-Sep-21	1392-24970	221838	141	2-1,0-9	ASY	Short
20-Oct-21	1332-55502	221839	126	5-8,4-1,1-1	ASY	Short
27-Oct-21	1392-35728	221840	154	5-10	SY	Short
27-Oct-21	1392-35730	221841	134	5-10	SY	Short
08-Sep-21	1392-24967	221842	156	0-10	ASY	Short*
27-Oct-21	1392-35732	221843	152	5-9,4-1	SY	Short
10-Nov-21	1392-35746	221844	138	5-10	ASY	Short
10-Nov-21	1392-35743	221845	148	5-10	ASY	Short
27-Oct-21	1392-35729	221846	157	5-9,4-1	ASY	Short
10-Nov-21	1392-35744	221847	164	J-10	J	Unknown
08-Sep-21	1392-24969	221848	150	5-10	SY	Unknown/likely short
08-Sep-21	1392-24971	221849	155	0-10	ASY	Long
10-Nov-21	1332-69627	221850	159	5-9,4-1	ASY	Short
08-Sep-21	1392-24968	221851	160	2-2,0-8	ASY	Short
27-Oct-21	1392-35731	221852	134	5-7,4-1,1-1,0-1	ASY	Short
20-Oct-21	1392-25000	221853	119	5-6,4-1,1-1,0-2	ASY	Short
10-Nov-21	1392-35741	221854	143	5-8,4-1,0-1	ASY	Short
20-Oct-21	1392-24999	221855	115	5-7,4-1,1-1,0-1	ASY	Short
10-Nov-21	1392-35748	221856	149	5-7,4-1,1-1,0-1	ASY	Short
20-Oct-21	1392-24998	221857	139	5-7,4-1,0-2	ASY	Short
10-Nov-21	1392-35745	221858	159	5-10	ASY	Short
20-Oct-21	1392-35726	221859	125	5-8,4-1,2-1	ASY	Short
10-Nov-21	1392-35750	221860	159	J-10	J	Unknown
20-Oct-21	1392-24997	221861	143	5-8,4-1,1-1	ASY	Short
20-Oct-21	1392-24994	221862	155	5-8,4-1,01	ASY	Short
10-Nov-21	1332-69297	221863	156	5-9,4-1	ASY	Short
20-Oct-21	1392-24996	221864	125	5-7,4-1,0-2	ASY	Short
20-Oct-21	1392-35727	221865	150	5-9,4-1	ASY	Short
10-Nov-21	1392-35742	221866	149	5-10	ASY	Short
27-Oct-21	1392-35733	221868	131	5-10	SY	Short
20-Oct-21	1392-24995	221837	131	5-8,4-1,01	ASY	Short
27-Oct-21	1392-35739	221867	120	5-9,4-1	SY	Short

*While the bird did not show molt, indicating a long-distance migrant, the bird traveled to Cuba and is, therefore, considered a short-distance migrant. Red Knots can vary their strategy on molt timing, and some short-distance migrants are known to molt on their wintering grounds.

Red Knot Habitat Assessment

Ocean Wind 1: Red Knot (*Calidris canutus rufa*) Habitat Assessment

November 2022

Submitted by:

Wildlife Research Partnerships LLC, Greenwich, NJ
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HDR Engineering, Inc

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1. Summary

Ocean Wind 1, LLC (OCW01), a joint venture of Ørsted Wind Power North America, LLC (Ørsted) and Public Service Enterprise Group Renewable Generation LLC (PSEG), received a request from the Bureau of Ocean Energy Management (BOEM) to provide additional information on potential suitable habitat for Red Knots (*Calidris canutus rufa*) in areas that may be impacted by proposed OCW01 Onshore Facilities. This request was based on comments from U.S. Fish and Wildlife Service (USFWS) on OCW01's Biological Assessment. In response, OCW01 funded a research project in partnership with Wildlife Restoration Partnerships (WRP), the Biodiversity Research Institute (BRI), and HDR Engineering, Inc, to develop mapped products that display suitable habitat for Red Knots in the BL England and Oyster Creek Areas (Appendix 1). OCW01 funded WRP and BRI previously to conduct tracking studies with the use of satellite telemetry to assess Red Knot exposure to the proposed OCW01 offshore wind project.

For this project, WRP and BRI created habitat suitability maps for the BL England and Oyster Creek Areas. These were overlaid with layers of OCW01 onshore components (e.g., cable routes) and Red Knot detections, including the previously collected satellite data as well as other historic resightings, to determine overlap between suitable habitat, Red Knot use areas, and potential areas of disturbance. This assessment provides detailed information on potential disturbance to Red Knots during their north and south bound migrations at stopover points along the Atlantic Coast of New Jersey.

The assessment found the following:

- BL England: While there is significant Red Knot activity during their fall migration to the south of the proposed cable construction sites, it is likely that use of the Ocean City beach area by Red Knots is primarily for occasional foraging along the intertidal beach, molting in the known concentration areas, or brief migration stopovers. Additionally, based on the proposed construction methods, activities and timing, disturbance to Red Knots will be minimal and limited to noise disturbance, and no Red Knot habitat will be impacted.
- Oyster Creek: Historic iNaturalist data at this site shows Red Knot use in the area, but this use is minimal. Based on the proposed construction methods, activities and timing, disturbance to Red Knots will be minimal at this site and limited to noise disturbance. Additionally, no Red Knot habitat will be impacted.

In summary, this assessment found there will be no impact to Red Knot habitat at these sites, and any disturbance will be limited to minimal noise disturbance only during the time of landfall activities.

2. Introduction

Each year, Red Knots (*Calidris canutus rufa; hereafter referred to as Red Knot*) migrate up to 32,000 km from their Arctic breeding grounds to wintering areas from the Gulf of Mexico to South America (Morrison et al. 2004). Breeding success largely depends on the condition and arrival time of shorebirds at their breeding grounds. For this reason, the Red Knot relies heavily on a few critical stopover locations on the northbound return flight, especially Delaware Bay (Niles et al. 2010). Previously, it was believed that arrival and departure time from southbound stopover sites were less strict, as the need to migrate south was less constrained by timing. However, recent work conducted by Wildlife Restoration Partnerships (WRP), in partnership with the U.S. Fish and Wildlife Service (USFWS), has found that Red Knots face the same timing restrictions during their fall migration. It is critical that Red Knots arrive at their long-distance wintering location before the raptor migration, to avoid predation, and prior to molt. The continued existence of undisturbed foraging opportunities at these stopover sites is a key element in their survival and recovery.

Each May to early June, Red Knots and other northbound shorebirds stop in the Delaware Bay Estuary to feed, almost exclusively, on horseshoe crab eggs (Clark et al. 1993, Tsipoura and Burger 1999). Their timing coincides with peak horseshoe crab (*Limulus polyphemus*) spawning season, the largest spawning event in the world. During a few weeks in May, Red Knots gain critical body fat reserves for a successful migration to their breeding grounds (Baker et al. 2004, Duijins et al. 2017). However, overharvesting of horseshoe crabs in the late 1990's led to a decline in egg availability, and, consequently, shorebird populations dramatically declined (Baker *et al.* 2004, Morrison et al. 2007, Niles *et al.* 2007, 2009). The decline eventually led to USFWS listing the Red Knot as Threatened in 2015 (USFWS 2016).

The Atlantic Coast of New Jersey has been identified as one of the major stopover locations for Red Knots and other shorebirds during their southbound migrations (Harrington et al. 2010). Although total numbers of Red Knots using these sites have dropped dramatically from around 10,000 Red Knots in 1990 to about 1,000 in 2008, this drop off is largely accredited to the overall decline in Red Knots since their population crash in 2003 (Harrington et al. 2010).

On the Atlantic Outer Continental Shelf (OCS), a total of 7,073 km^2 is presently under lease agreement for development of commercial-scale offshore wind energy facilities, and an additional 11,235 km^2 is in the planning stages for potential lease (BOEM 2019). While broad patterns in migration routes and behavior of Red Knots have been documented by tracking and banding studies (Burger et al. 2012, Loring et al. 2018, Niles et al. 2010), fine-scale information on the specific routes, altitudes, timing, and environmental conditions associated with flights over the Atlantic OCS have not been fully understood until recently.

Recent advances in light-weight satellite tracking technology have made it possible to collect high-resolution, three-dimensional movement data of small-bodied shorebirds in offshore environments and can be used to improve estimates of exposure to offshore wind development. For this reason, OCW01 funded a multi-year study using Argos satellite tags with GPS sensors deployed on southbound birds staging in New Jersey. The project was initiated in 2021, in collaboration with WRP, BRI and the USFWS. Our team deployed a total of 60 tags on Red Knots.

The tags also provided data on coastal habitat use during fall migration in the vicinity of OCW01 cable landfall sites and onshore cable routes. For this reason, WRP and BRI have been contracted to assess these plans and generate habitat suitability maps for Red Knots at the proposed sites and evaluate any potential impacts to this species.

2.1. Habitat Needs

During their southbound migration, Red Knots stop at key sites for a number of reasons. Long distance migrants (Red Knots over wintering in South America) utilize these important stopovers primarily to develop fat reserves for the next leg of their migration. During this time, they have only a short period of time to double in weight before needing to continue their migration. Their timing is restricted by the need to leave the stopover site before the raptor migration, where they would be easy prey at such large weights. Short distant migrants (Red Knots over wintering in the Caribbean or southern Florida) also use these stopovers to gain weight, but they spend more time in these areas before continuing their migration to their wintering grounds. At the stopover sites, like the Atlantic Coast of New Jersey, short distant migrants will molt their flight feathers, so they gain weight slowly, then hop down the coast until they reach their wintering grounds. By keeping their weights lower, they can stay in the stopover areas longer and do not suffer the same intense timing restrictions of the long-distance migrants, but they increase their risk for predation.

During their stopover period, Red Knots feed on small gem clams within the intertidal zone during low tide along the Atlantic Coast of New Jersey, or feed on clams and mussel spat in the saltmarsh behind the shore. At high tide the birds roost in the saltmarshes within the back bays of the New Jersey coast. From the satellite tag data and historic data, we know Red Knots use a multitude of microsites throughout the larger New Jersey stopover, shifting from one beach or marsh area to another. For this reason, it is important to properly assess the full construction path as well as timing of the work for each export route.

2.2. Proposed route plans

See Appendix 1 with Site Photos.

2.2.1. BL England Export Route

Offshore cables would be directed into Ocean City via horizontal directional drilling (HDD) to avoid impacts to the beach. Cables would run from offshore under the beach and street until reaching a transition joint bay near 35th street and West Avenue. Cable work would be conducted under paved road in an urban area from 35th street to Roosevelt Boulevard. Where Roosevelt Boulevard crosses over Crook Horn Creek, HDD would run the cable from the east side of the creek to the west in an area just to the south of the bridge. Once crossing the Creek, cable would return under the roadway and follow Roosevelt Blvd and to North Shore Road, continuing north until reaching Clay Avenue. The cable would then follow Clay Avenue until reaching its destination at the planned substation at BL England power plant. See Figure 2 for an overview of the full preferred route.

2.2.2. Oyster Creek Export Route

Offshore cables would be directed into Island Beach State Park via HDD to avoid impacts to the beach. Cables would make landfall at the parking lot (labeled Ocean Swimming Parking Area #2 on Google Maps) on Central Avenue (Shore Road). After a short onshore route to the north for approximately 1,400 feet, the Cables would then be run west via open cut from Central Ave to an already existing maintenance area bordering Barnegat Bay. Cables would then be run across Barnegat Bay via jetting installation technology and dredging/open cut until landfall just north of Oyster Creek. From landfall until crossing Oyster Creek at Route 9, cables would be run via traditional duct bank installation. Cables would cross Oyster Creek at Route 9 via HDD, then follow the access road to the Oyster Creek power plant via duct bank installation until reaching the substation. See Figure 8 for an overview of the full preferred route.

2.2.3. Alternative routes

BL England Cable Export Route: The BL England route options at 5th Street and 13th Street would be made under the beach using HDD to avoid impacts to the beach. HDD workspace and the cable routes would be within paved road ROW (5th Street, 13th Street, and West Avenue) through highly developed urban areas until they converge with the preferred route at 35th Street. See Figure 7 for an overview map of the alternative route.

Oyster Creek Export Route: The Oyster Creek route option on Bay Parkway is surrounded by tidal marsh wetlands. While identified as a potential alternative, this route is not practicable and unlikely to be pursued as compared to the other alternatives due to the presence of wetland and submerged aquatic vegetation and permitting constraints. The remaining Oyster Creek route options would make landfall within disturbed gravel areas at parking lots and a marina. Once on land, route options would follow public roads to Route 9. East of Route 9, the route option would follow a private paved roadway west and north to an HDD site adjacent to Oyster Creek. The cable would be installed under Oyster Creek and associated freshwater wetlands using HDD, then would converge with the existing preferred route within the paved access road to the substation site. See Figure 13 for an overview map of the alternative route.

3. Methods

At both sites our team conducted site visits and took aerial drone photos as well as on the ground photos of both proposed export routes. Next, our team gathered all pertinent data of Red Knot use in the proposed areas for the cable export routes including historic sightings as well as satellite tag data. Then, to properly assess any potential impacts to both Red Knots and key Red Knot habitat along the Atlantic coast of New Jersey, WRP generated habitat suitability maps along the proposed cable routes. Mapping products were broken out into four sections along the proposed route at key areas as well as one overview map of full cable route. We also generated one overview map for the proposed alternative routes.

GIS analysis for maps was performed in QGIS Desktop software (version 3.28.0). OpenStreetMap's 'OSM Standard' basemap was used in the final map products, released under Creative Commons Attribution-ShareAlike 2.0 Generic (CC BY-SA 2.0) (© OpenStreetMap contributors). All maps were then overlayed with Red Knot presence point data from satellite tags, eBird[1] sightings, as well as iNaturalist sightings. Then three other layers were added to the maps, potential Red Knot habitat, Red Knot high movement areas, and disturbance level layers.

3.1. Shapefiles

Preferred and alternative cable route shapefiles, limits of disturbance shapefiles, and BL England component shapefiles were provided to WRP by HDR, detailed below.

Preferred cable routes:
- OCW01_COP_Offshore_and_Inshore_Export_Cable_Route_20221027
- OCW01_COP_Onshore_Export_Cable_Route_20221027

Alternative cable routes:
- OCW01_COP_Offshore_and_Inshore_Export_Cable_Options_20221027

[1] https://ebird.org/home

- OCW01_COP_Onshore_Export_Cable_Options_20221027

Limits of disturbance:

- OCW01_Limits_of_Disturbance
- Note: The BL England area of this shapefile was modified in order to reflect updated spatial extents of the substation planning area (represented in 'BL England components').

BL England components:

- OCW01_COP_BLE_InterconnectionCableRoute
- OCW01_COP_BLE_OnshoreExportCableSitingArea
- OCW01_COP_BLE_PotentialOnshoreSubstationArea

3.2. Red Knot sighting data

Red Knot satellite point data was downloaded as a .csv file via Argos website. Points with location class 1, 2, and 3 were filtered from the raw data and downloaded, as they contain the highest quality location accuracy among the available data (3: <250m, 2: 250-500m, 1: 500-1500m). The satellite ping data covered a temporal range of 10-21-2021 until 10-21-2022. The .csv file was then imported into QGIS using the 'Longitude' and 'Latitude' fields as XY coordinates, respectively. eBird data was collected and downloaded as a .csv file via a data request from eBird's public database using the following parameters:

1) Species: Red Knot – *Calidris canutus*;
2) Region: New Jersey, United States (US);
3) Date range: Jan 2017 to Dec 2022 and;
4) All other parameters used default settings.

The .csv file was then imported into QGIS using the 'LONGITUDE' and 'LATITUDE' fields as XY coordinates, respectively. iNaturalist data was downloaded as a .csv file from iNaturalist's public database using the following parameters: 1) Quality grade: Research, 2) Place: New Jersey, 3) Taxon: Red Knot, 4) All other parameters used default settings.

3.3. Habitat/Movement/Disturbance Layers

The Potential Red Knot Habitat layer was created through visual assessment of 2019 NAIP imagery in order to digitize areas of sandy beach that can potentially serve as habitat for Red Knots.

The High Red Knot Movement Area was designated in the area of Ocean City beach that shows significant Red Knot activity, as indicated by successive satellite pings. The extent was hand-drawn and serves to demonstrate that there is definitive evidence that Red Knots use this area for extended periods of time.

The Disturbance Level layer was determined by a visual comparison of the planned cable routes and construction work with Red Knot presence and habitat data. In areas marked as "Potential Disturbance," there is potential knot habitat, there has been documented presence of Red Knot in the immediate area, and there is the possibility that there could be a noise disturbance to Red Knots as construction is underway. In areas marked as "No Disturbance", there has been no documented presence of knots in the immediate area and/or there is no feasible habitat for knots to be present.

Timing of proposed construction activity was provided to WRP by HDR (Figure 1). White boxes with text describing the timing of each construction activity based on information from a site photolog were placed on the maps. This information is current as of October 4, 2022.

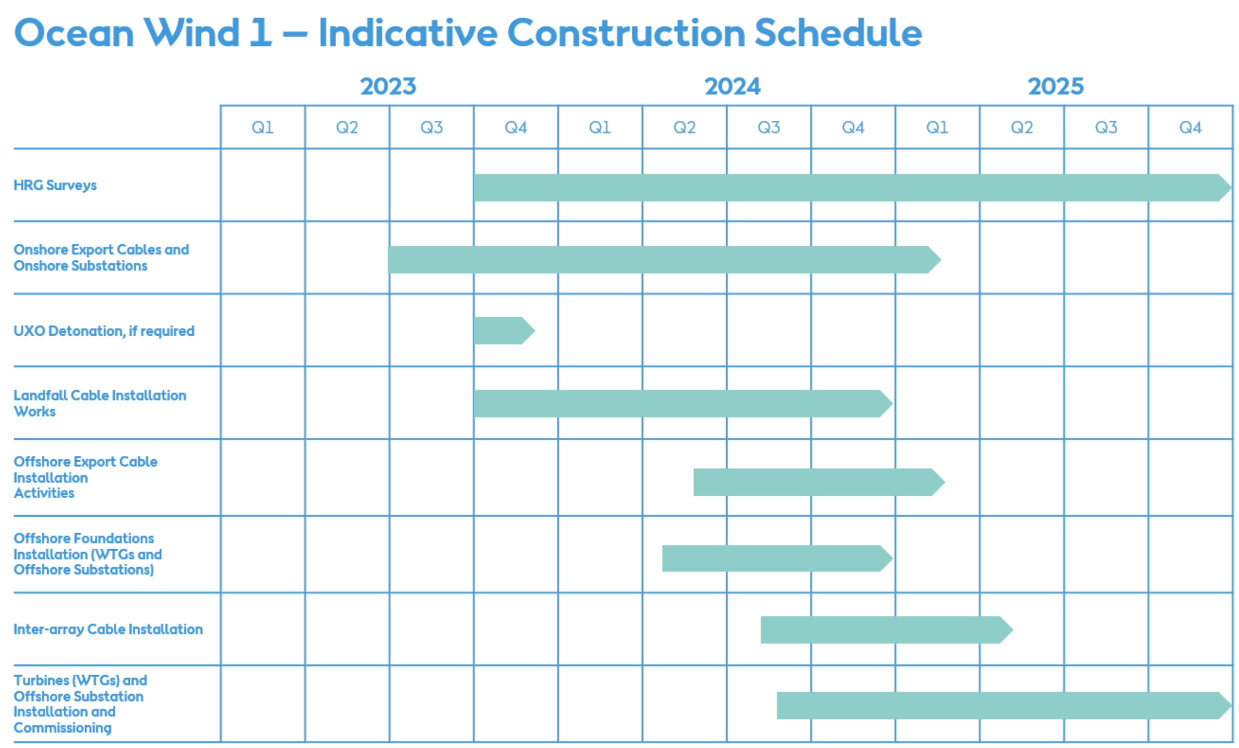


Figure 1. OCW01 Construction Schedule

4. Results

Photos were collected along each proposed cable route during our site visit. The BL England export route has had documented Red Knot use along Ocean City beach, as seen with historic sightings and the satellite tag data. Red Knots have also been known to use the back bays behind Ocean City beach. During the site visit our team took note of the specific route locations. Along the BL England route one of the locations for HDD activities is adjacent to Red Knot habitat but the location where activities will occur is not Red Knot habitat (Appendix 1: BL England photos 2 & 3). The rest of the BL England route is also not Red Knot habitat. At the Oyster Creek export route site photos were taken as well. The beach habitat along the route has been noted historically as Red Knot habitat (resightings data) but is not used frequently by Red Knots. The rest of the cable export route is not Red Knot habitat (Appendix 1: Oyster Creek photos).

Resulting mapped products were broken out into four sections to show closer detail along the route with one larger overview map for both sites. Additionally, alternative route overview maps were generated to show potential alternative routes.

4.1. BL England Export Route

For the BL England Cable route, Figure *2* shows an overview of the full preferred route, Figure *3*–Figure *6* show zoomed in sections along the route, and Figure *7* shows an overview map of the alternative route. In Figure *2* and Figure *3*, satellite tag point data as well as eBird and iNaturalist sightings data can be seen on the maps. There is significant Red Knot activity during the fall migration to the south of the proposed cable construction sites, primarily shown with satellite tag points (Figure *2*). While these point locations clearly point to Red Knot use of the Ocean City Beach, our coastwide ground and aerial surveys found no knots on the Ocean City Beach. It is likely that use of the Ocean City beach area is primarily for occasional foraging along the intertidal beach by knots building weight or molting in the known concentration areas or used by birds briefly during migration.

4.2. Oyster Creek Export Route

For the Oyster Creek export route, Figure *8* shows an overview of the full preferred route, Figure *9*–Figure *12* show zoomed in sections along that route and Figure *13* shows an overview map of the alternative route. Along this route we did not have any satellite tag detections. Figure *9* shows iNaturalist data at this site which represents a number of recorded Red Knot sightings for “Island Beach State Park,” but the sightings do not contain accurate location coordinates. This point does not represent a specific sighting location. The beach habitat at this site shown in Figure *9* and Figure *10* is listed as potential Red Knot habitat.

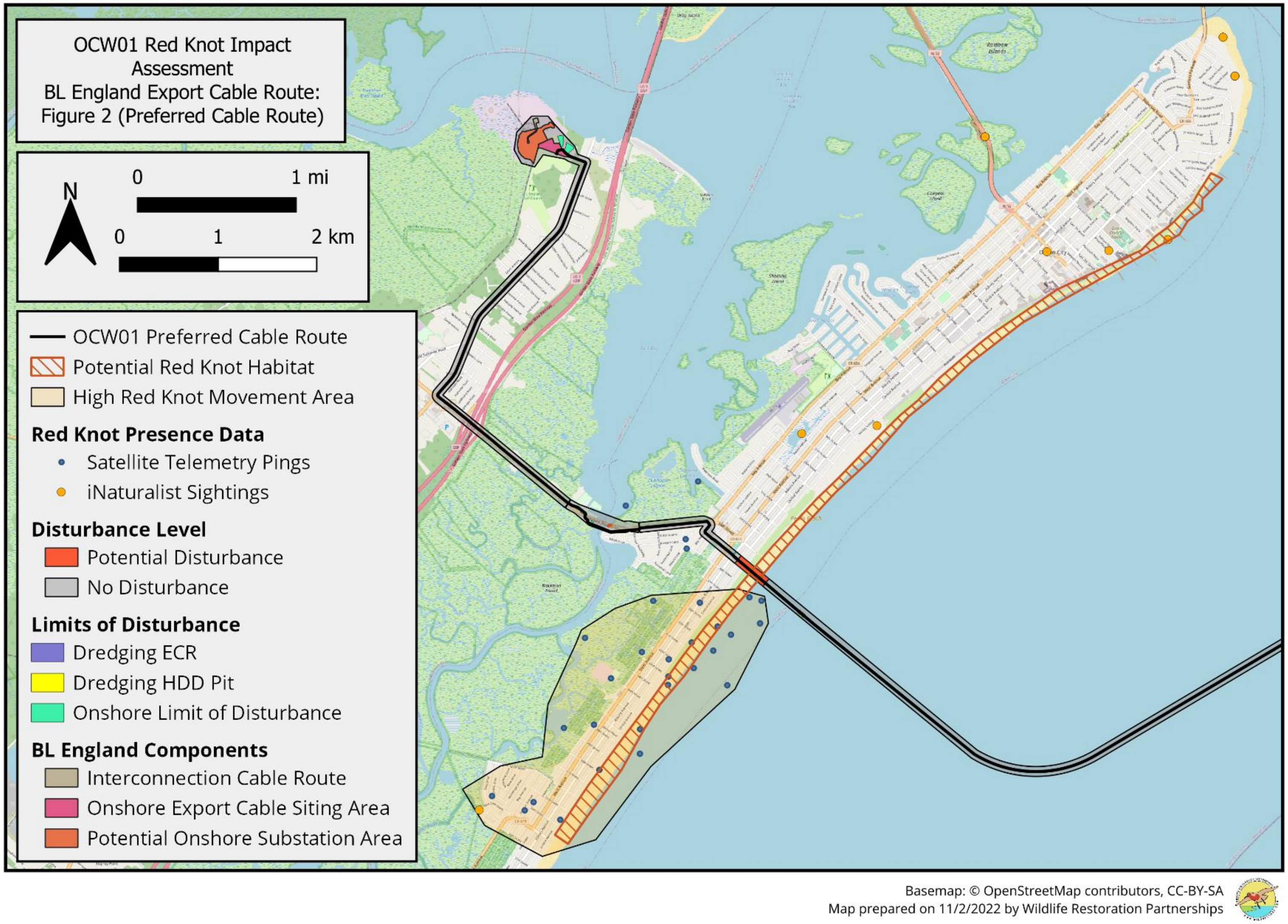
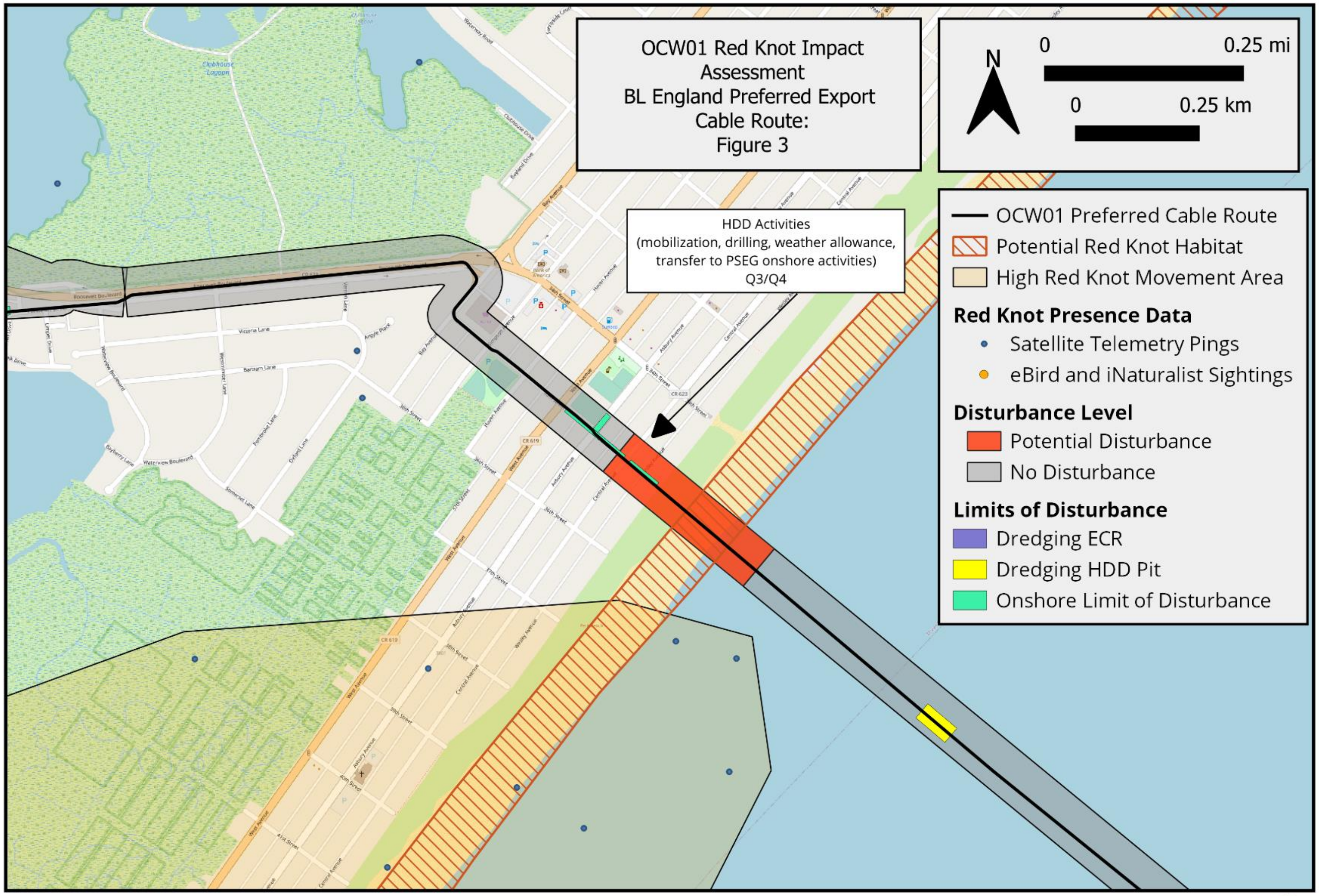
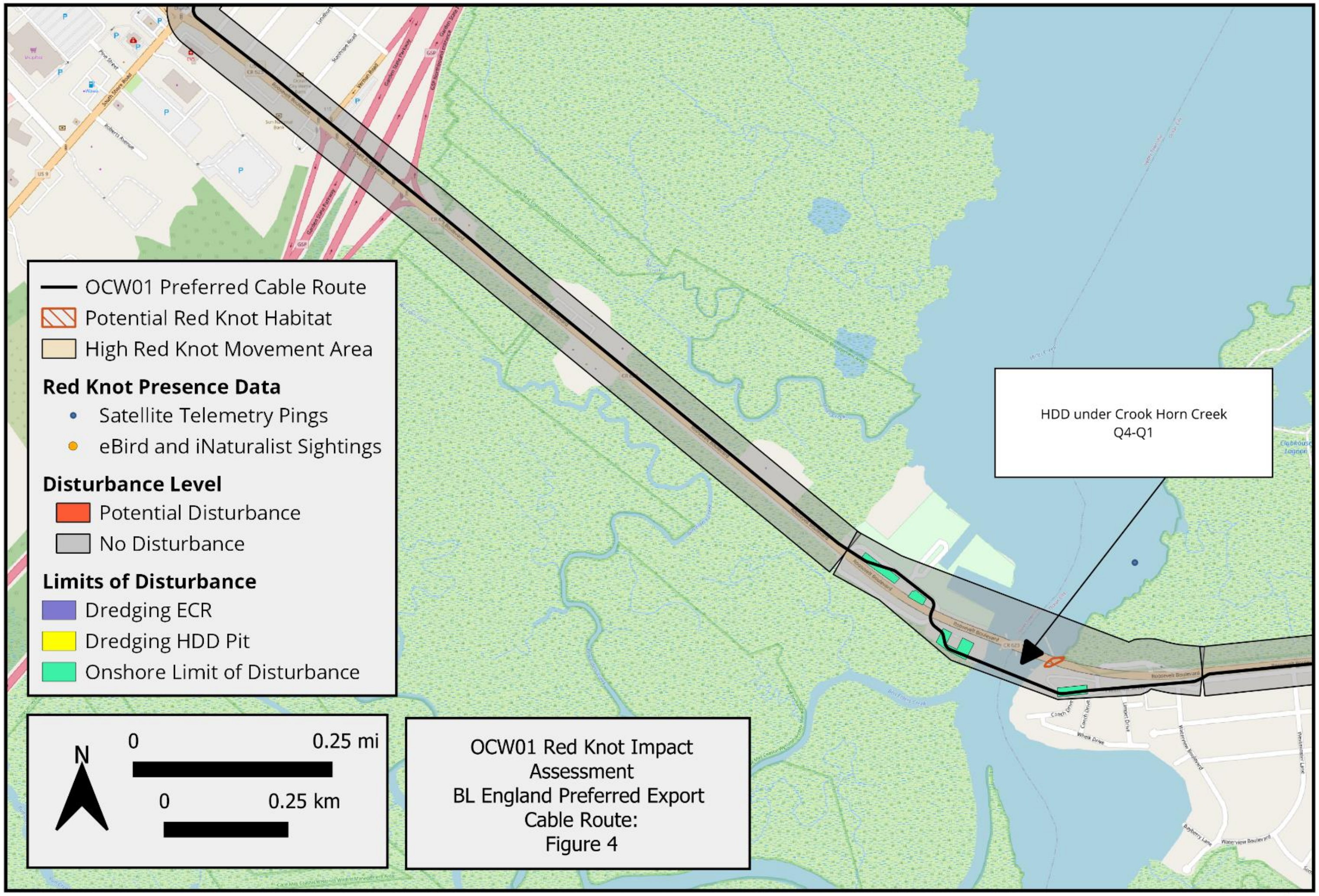


Figure 2. BL England cable route showing full overview map of proposed project.



Basemap: © OpenStreetMap contributors, CC-BY-SA
Map prepared on 11/2/2022 by Wildlife Restoration Partnerships

Figure 3. BL England cable route from dredging HDD pit to first site of onshore activities.

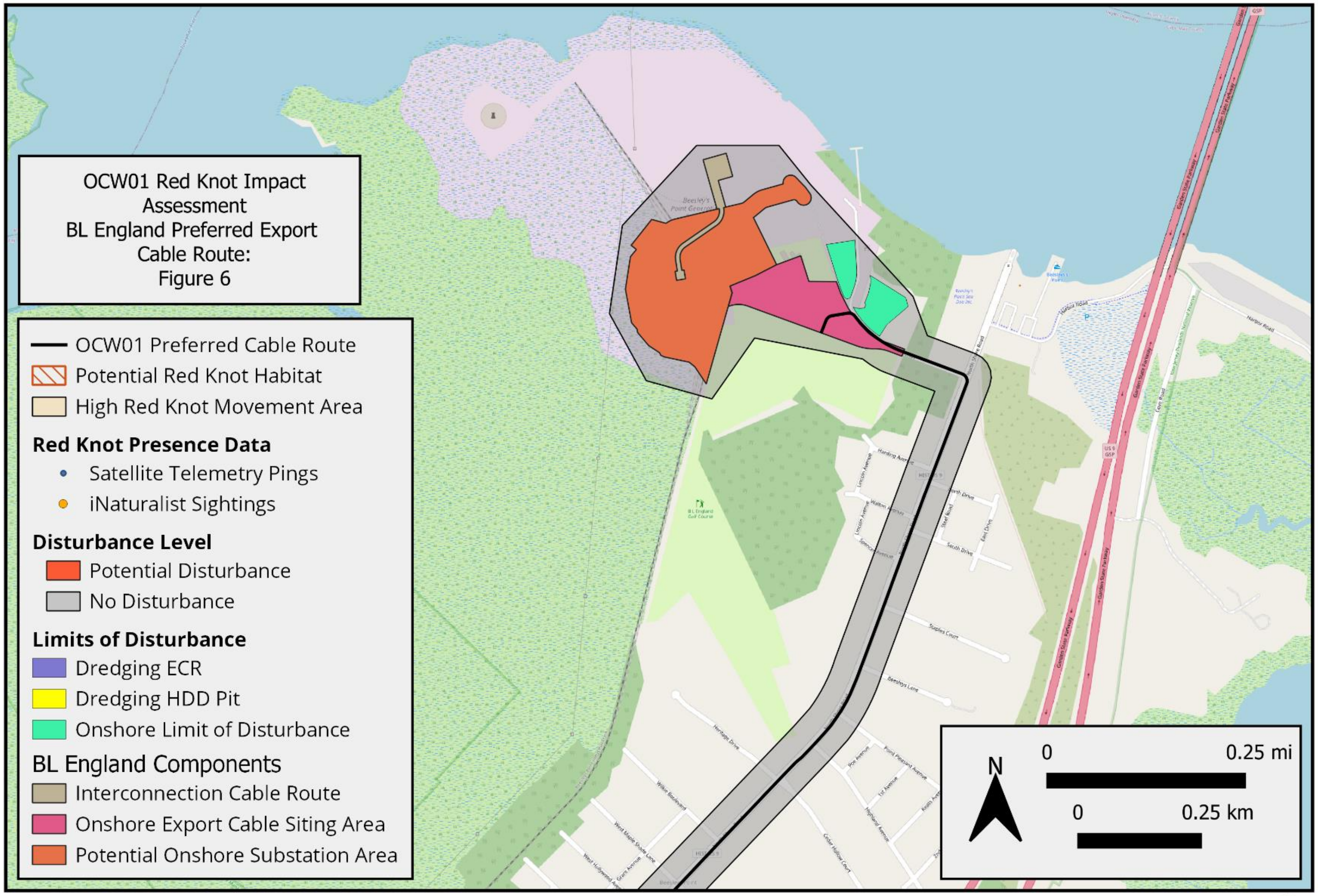


Map prepared on 11/2/2022 by Wildlife Restoration Partnerships

Figure 4. BL England cable route at second HDD activity site at Crook Horn Creek.

Basemap: © OpenStreetMap contributors, CC-BY-SA
Map prepared on 11/2/2022 by Wildlife Restoration Partnerships

Figure 5. BL England cable route showing export cable along roadway.



Basemap: © OpenStreetMap contributors, CC-BY-SA
Map prepared on 11/2/2022 by Wildlife Restoration Partnerships

Figure 6. BL England cable route showing onshore export siting area and potential onshore substation area.

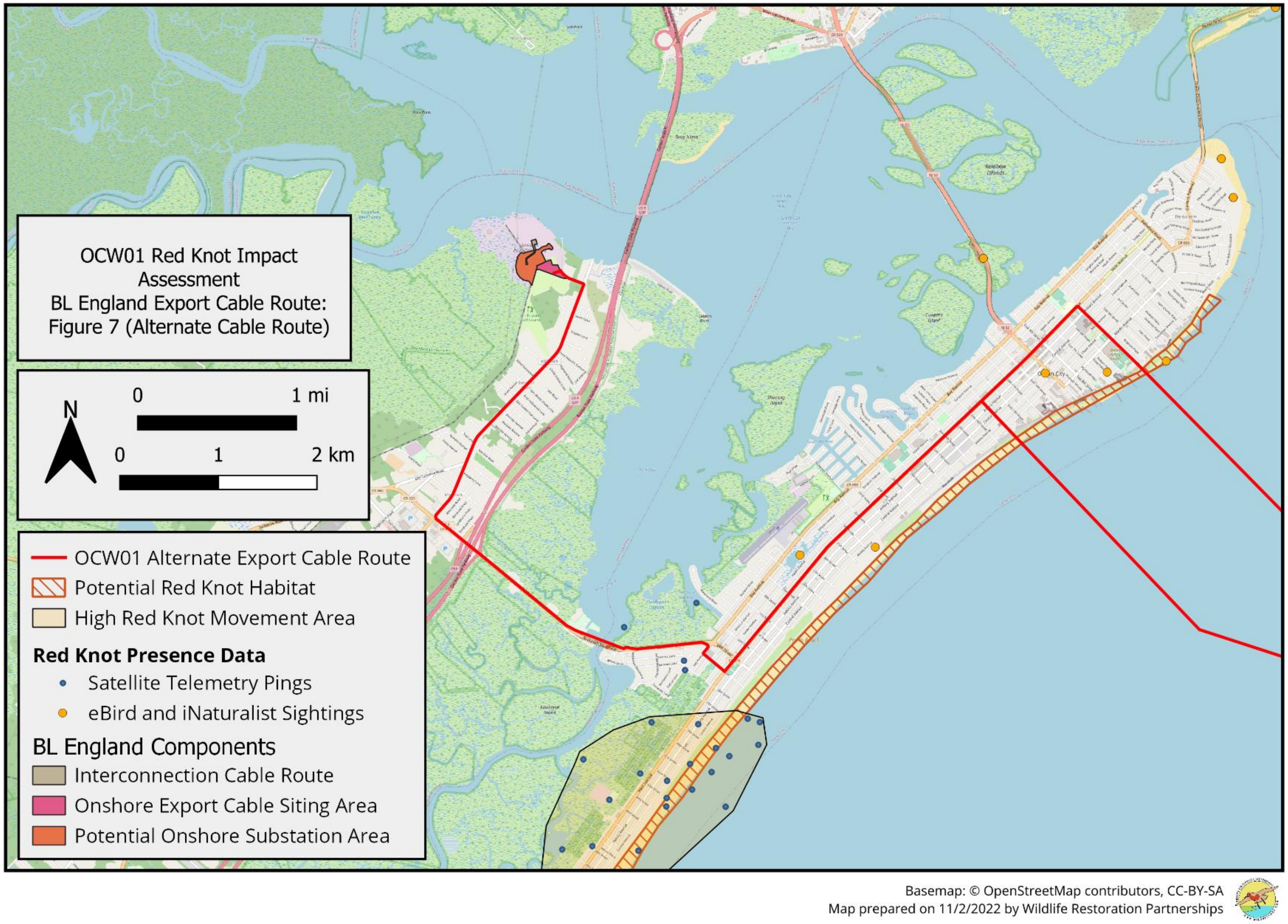
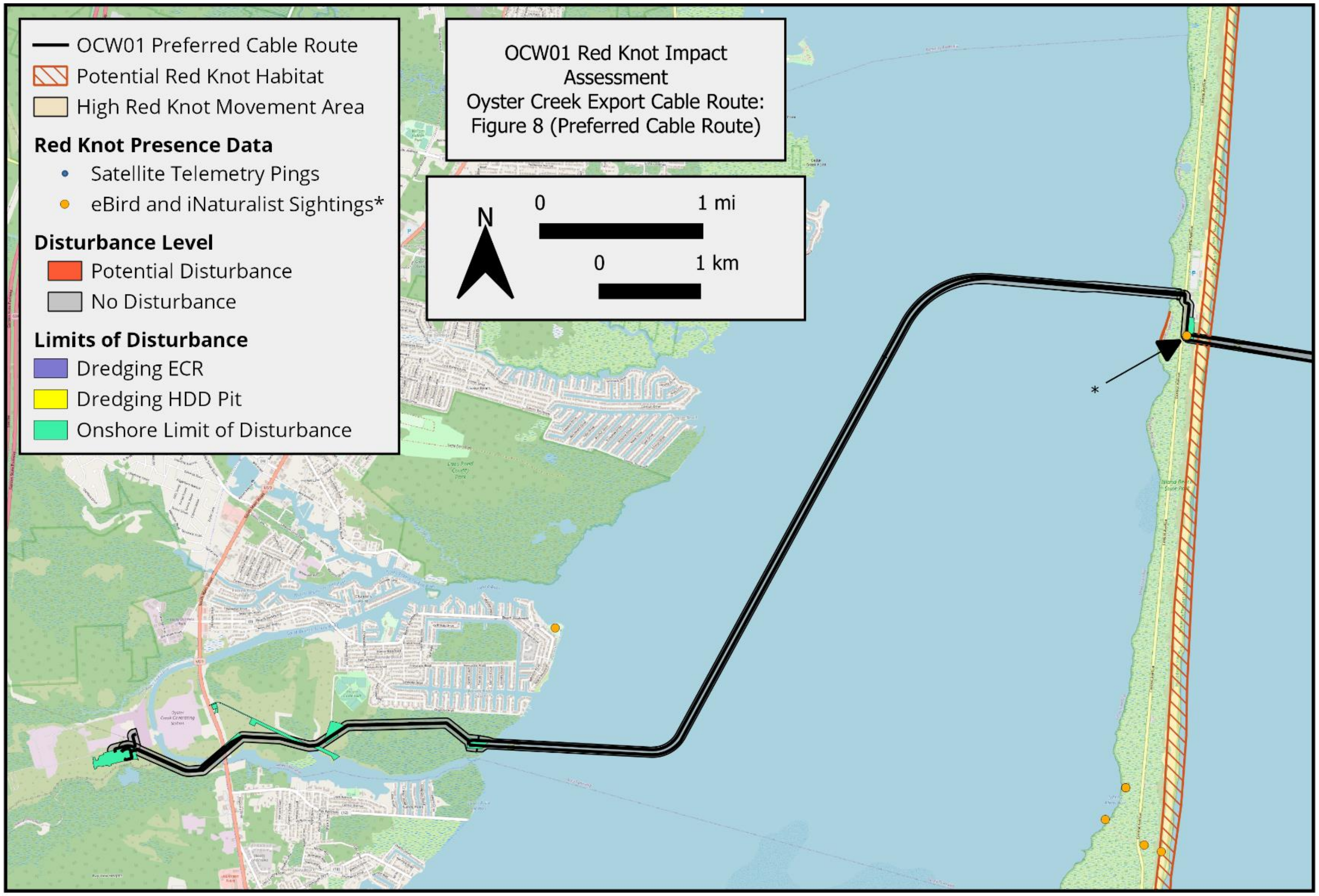


Figure 7. BL England cable route showing overview map of proposed alternative route for project.



* This point represents 95 eBird records of Red Knot sightings with the general location "Island Beach SP". Accurate location or coordinates were not entered by users and the point does not represent a specific sighting location.

Basemap: © OpenStreetMap contributors, CC-BY-SA
Map prepared on 11/2/2022 by Wildlife Restoration Partnerships

Figure 8. Oyster Creek export route showing full proposed cable route for project.

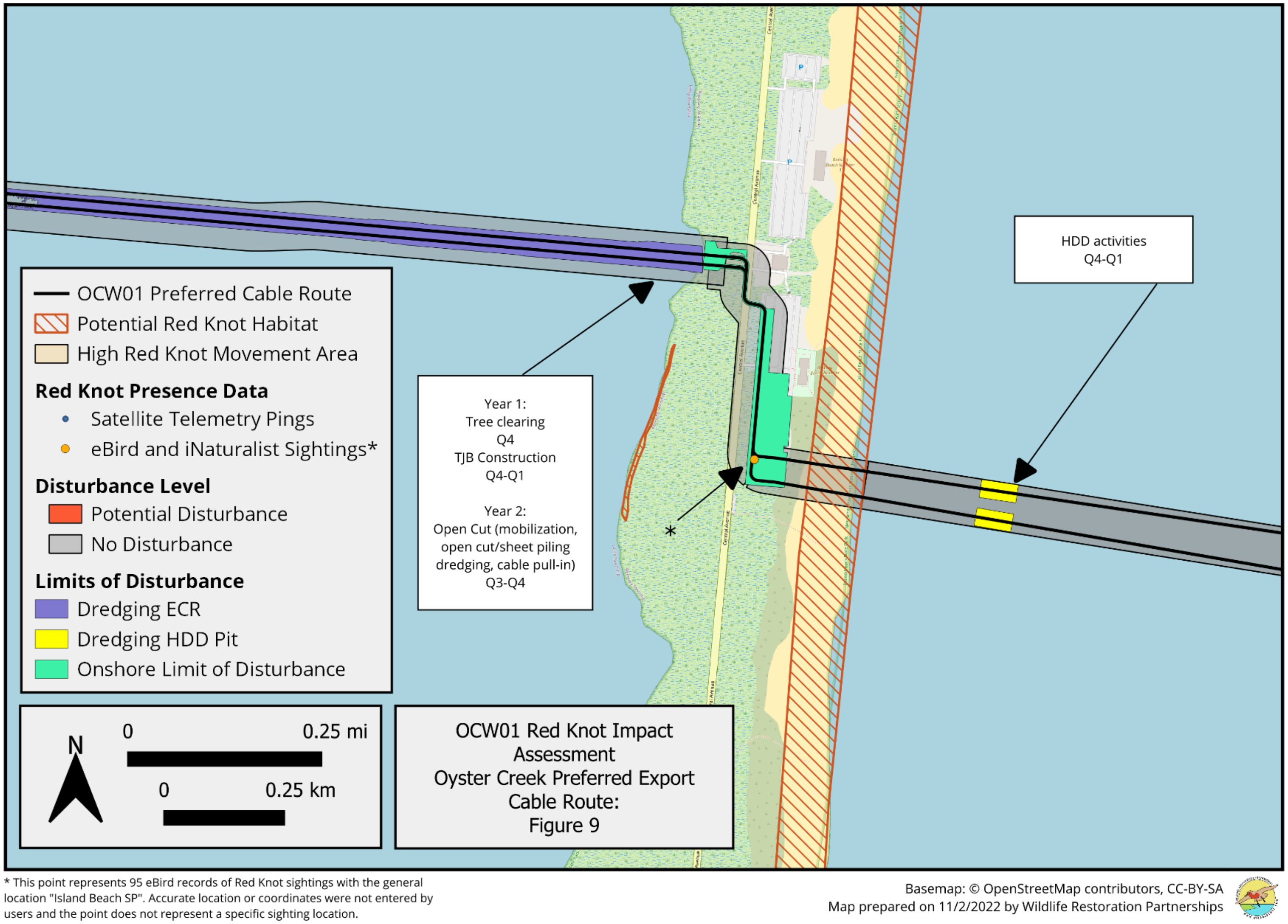


Figure 9. Oyster Creek export route showing HDD dredging pit through first site of HDD onshore activities.

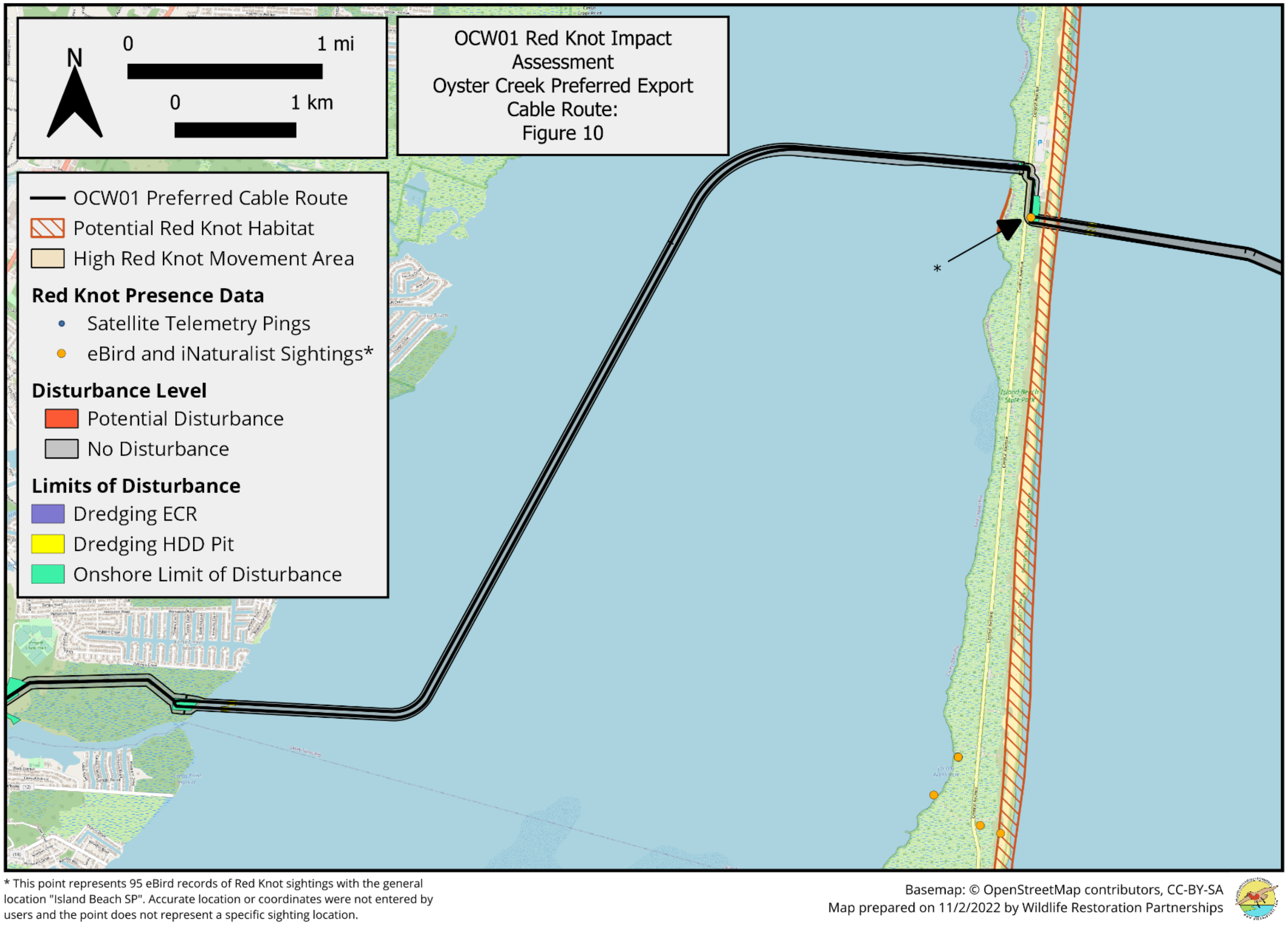


Figure 10. Oyster Creek export route showing HDD dredging pit through first site of HDD onshore activities and export cable route from Island Beach State Park to second onshore HDD activity site.

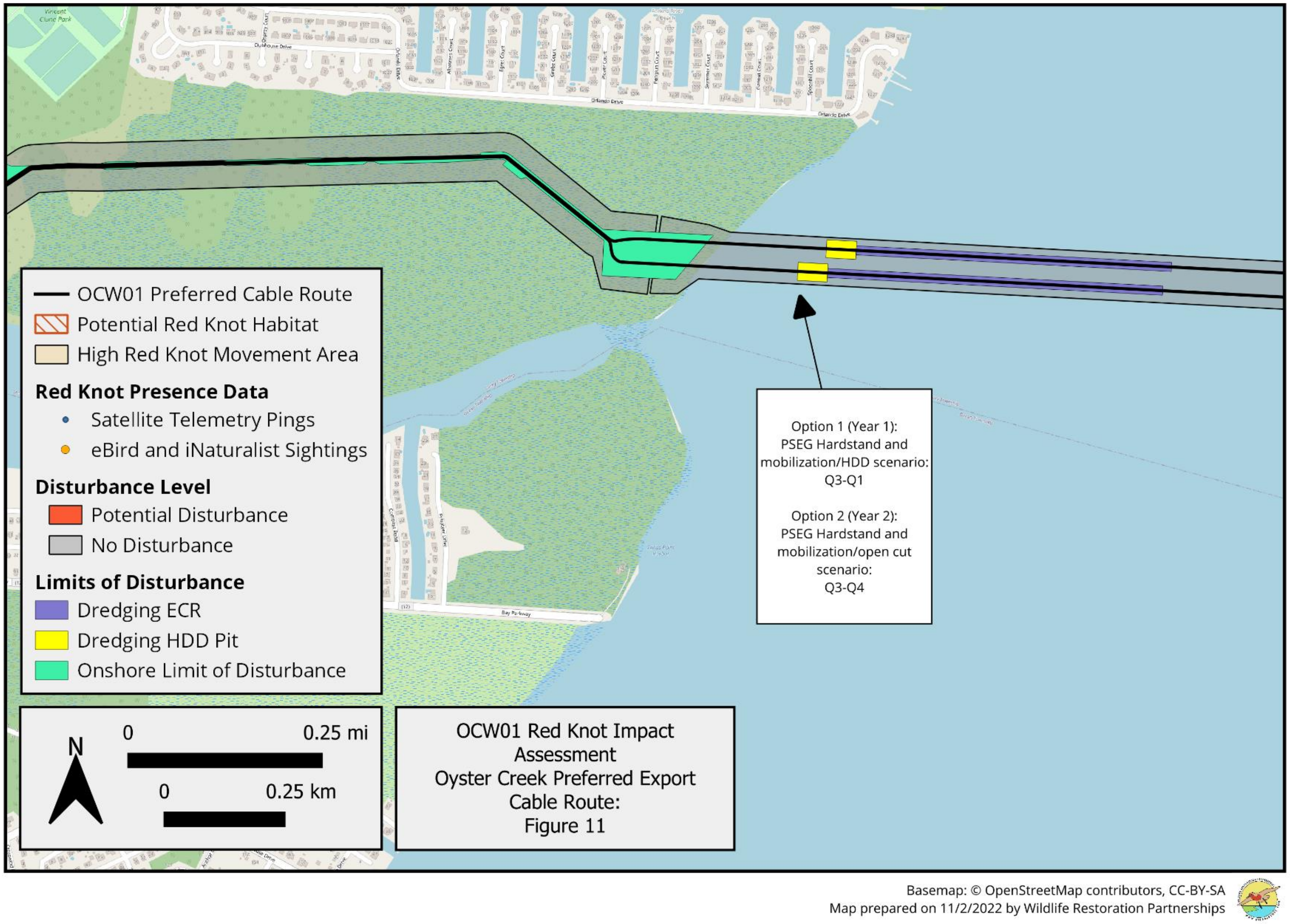


Figure 11. Oyster Creek export route showing area of second HDD onshore activities.

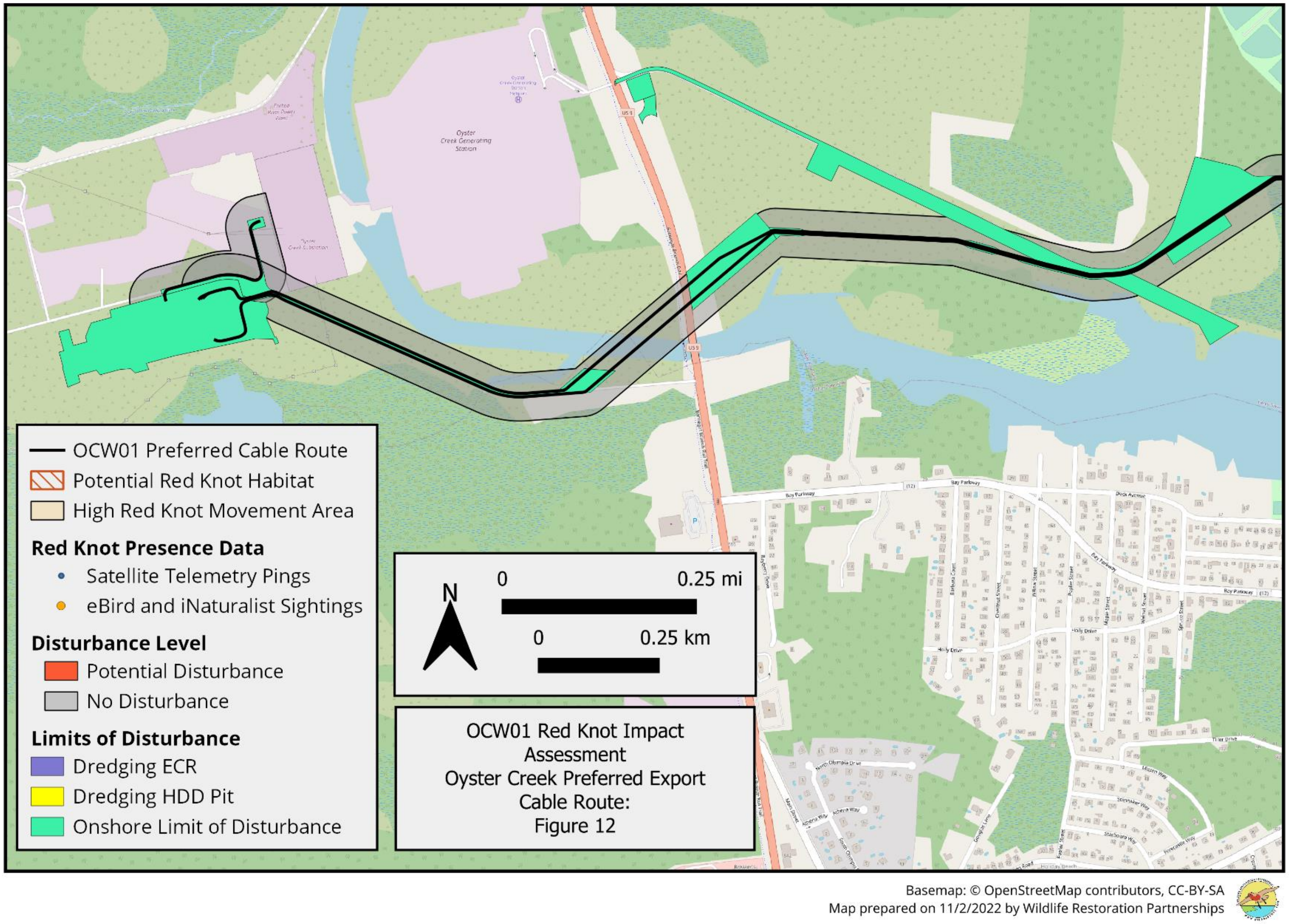


Figure 12. Oyster Creek export route showing export cable route along Oyster Creek.

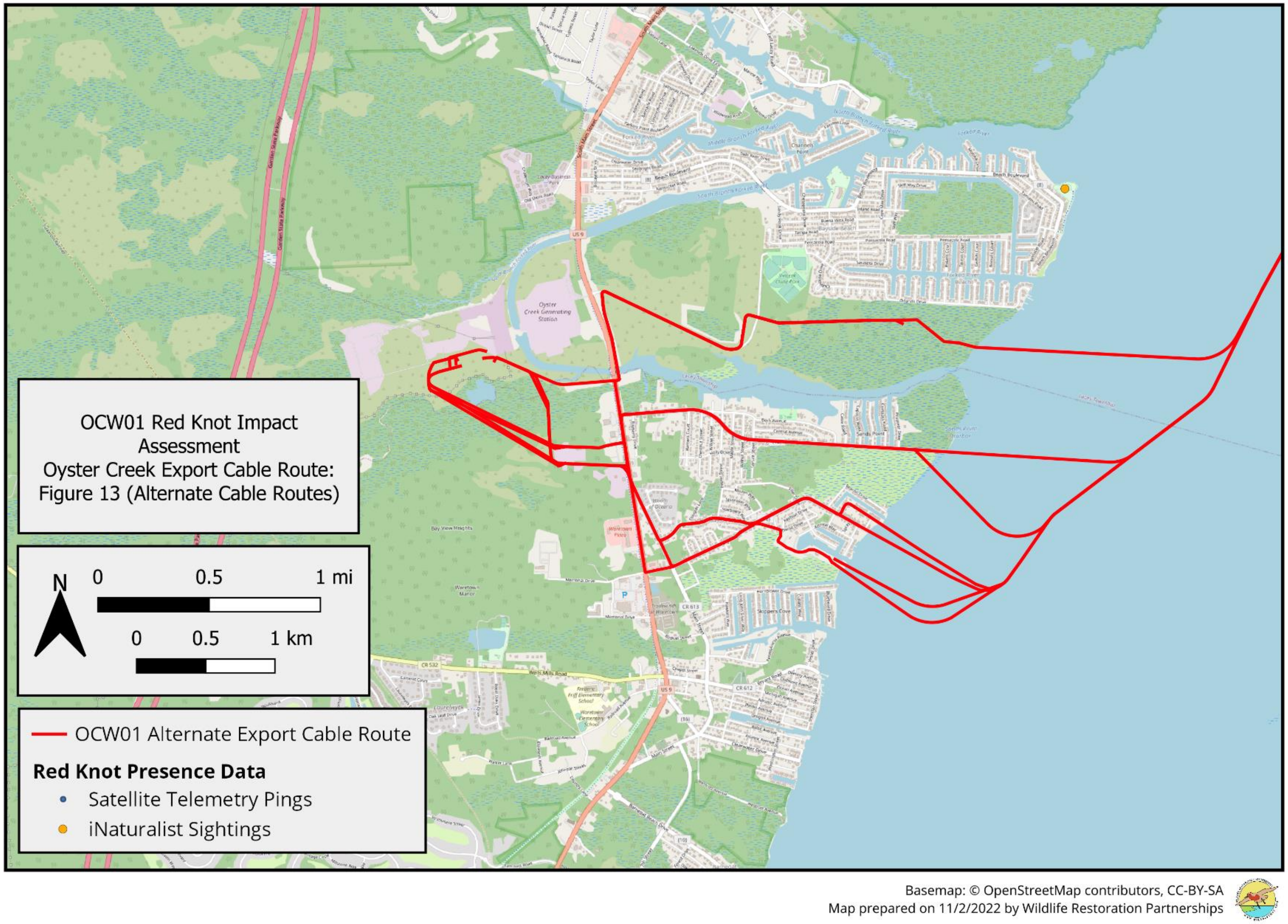


Figure 13. Oyster Creek export route showing full proposed alternative cable route for project.

5. Discussion

Construction activities in potential Red Knot habitat and high Red Knot movement areas are constrained by regulatory time of year restrictions, and such construction in this area is expected to occur in fall and winter months, minimizing impacts to Red Knots.

5.1. BL England Export Route

Satellite tag points show Red Knot use of the Ocean City Beach near the BL England Project site during proposed construction (Q3-Q2), though disturbance to Red Knots will be minimal. All cables will be routed under the beach, generating no impact to the Red Knot habitat along the shoreline. Potential disturbance at this site will be limited to noise disturbance from HDD activities (as labeled on the map). This disturbance will be insignificant as it will be along the road behind beach and dune habitat and during late fall/winter months when Red Knot numbers in New Jersey are lower. Moreover, the site is part of Ocean City's high use recreational beach. While recreational use of this beach subsides in the fall, significant and regular use during peak months (July – mid September) diminishes habitat quality for Red Knots significantly, making this a lower priority site for them on their southbound migration (Burger et al. 2012). Additionally, while there is one Red Knot sighting in marsh habitat next to the onshore facilities under Crook Horn Creek (Figure 4), this marsh habitat will not be affected by construction activities. Therefore, construction in this section of the site will have little/no impacts on Red Knots. All other sites along this cable route are unlikely to have any impacts on Red Knots and are not Red Knot habitat (Figures 5 & 6).

Satellite tag point data as well as eBird and iNaturalist sightings data can be seen on the maps (Figure *3* through Figure *6*). Disturbance will be minimal and limited to noise only from HDD activities. While this is a high Red Knot use area, we believe any impacts will be minimal due to the nature of the activities. All cables will be routed under any potential Red Knot habitat, HDD activities are restricted to times of low Red Knot use of the Atlantic Coast, and noise from machinery is not within immediate red knot habitat.

5.2. Oyster Creek Export Route

Based on proposed construction activities and schedule (fall-winter) there will not be an impact on red knot habitat along the Oyster Creek route. Any potential disturbance would be limited to noise disturbance which would be minimal based on location for onshore activities and very low Red Knot sightings in the area. Moreover, Island Beach State Park is an important recreational beach during the summer and early fall tourist seasons. Additionally, the NJ Division of Parks and Forestry allows motor vehicle traffic on the Island beach site from September 15 until the spring, making it unusable by knots for most of the early fall through winter seasons.

At the Oyster Creek site general iNaturalist data can be seen at the site (Figure *4*). Any potential disturbance again would be limited to noise disturbance; however, there are very few Red Knot sightings in this area. This area is not a high use red knot area. Any potential impact will be minimal as crossing this area would occur in the winter outside of the seasonal habitat use.

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7. Appendix 1 Site Photos:

7.1. Site 1 BL England

Site photo 1: Ocean City Beach

Site photo 2&3: HDD onshore activities adjacent to overpass at Crook Horn Creek


NO
BOAT OR
TRAILER
PARKING
NO OVERNIGHT
PARKING
NO PRIVATE BOAT

7.2. Site 2 Oyster Creek

Site Photo 1&2: Island Beach State Park Beach

Site photo 3: HDD onshore activities in parking lot behind beach and dune at Island Beach State Park

Site photo 4: Second onshore HDD activity location for cable export route.

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Swamp Pink Survey

Swamp Pink Survey – Based on correspondence with the United States Fish and Wildlife (USFWS) and the New Jersey Natural Heritage Program (NJNHP), HDR conducted a swamp pink (*Helonias bullata*) survey on 28 April 2021 on Block 100, Lot 1.06 ("the Finiger's Farm Parcel") in Lacey Township, Ocean County, NJ owned by Holtec International. Swamp pink is federally listed as a threatened species by USFWS and as a state listed endangered species by the NJNHP. The USFWS recommended conducting swamp pink surveys in forested wetlands along the Oyster Creek Export Cable Route that may be directly or indirectly impacted by the proposed project. The field survey was conducted by two HDR scientists, Mr. Zachary Lehmann, and Mr. Stephen Seymour, PWS, both of whom have previously conducted swamp pink and other rare plant surveys within New Jersey. The survey followed the protocol outlined in the USFWS New Jersey field office guidance. The crew spent six hours on the site searching appropriate habitats for swamp pink. Figure 1 depicts the previously mapped wetlands by wetland type, and illustrates (in red) the walking routes for the swamp pink survey. A photolog is also attached; photograph numbers are cited in the text.

A prior wetland delineation was conducted on the site by HDR in June 2019; no swamp pink plants were observed. Both Mr. Lehmann and Mr. Seymour participated in those surveys Wetlands A, C, D, E, and F were studied for the presence of swamp pink in April 2021. Tidally influenced portions of Wetland A south of the main berm were not assessed due to the species being restricted to freshwater habitats. Swamp pink is listed an obligate freshwater wetland species by the "National List of Plant Species That Occur in Wetlands" (2016).

The Finiger's Farm parcel site was extensively ditched (Photograph 1) in the past (1950's) for a salt hay farm, presumably to lower the water table on the site. The smaller ditches generally run north to south; two larger ditches run west to east. The ditches are eight to 15 feet in width, and appear to be permanently flooded with a very deep organic substrate. No discernable flow was evident in the ditches except where the flow was constricted by culverts running through the berms in two locations. Several weathered concrete headwalls and discarded cast iron pipes remain on the site from the farming operation. Upland ridges of sidecast soil run parallel to the ditches; these ridges are typically 20 feet wide and up to four feet above the surrounding ground elevation. Several soil berms previously used as roadways/access are also present. With the exception of the sidecast soils and the berms the site is essentially level. Vegetative succession has been taking place on the site for over 30 years, resulting in a mix of young forest, upland meadows, and extensive non-tidal and tidal emergent wetlands connected by the ditches. There are no flowing freshwater streams entering the parcel that could transport swamp pink seeds into the parcel.

The forested wetlands on the Finiger's Farm parcel are identified as "PF01Bd" (Palustrine Forested, Broad-Leaved Deciduous Vegetation, Seasonally Saturated, Partially Drained/Ditched)) by NWI and generally consists of fringes (Photograph 2) adjacent to the dug ditches. The sparse tree canopy consists of red maple (*Acer rubrum*), black gum (*Nyassa sylvatica*), and American holly (*Ilex opaca*). The shrub layer is very dense and consists of Northern bayberry (*Myrica pensylvanicum*), sweet pepperbush (*Clethra alnifolia*), highbush blueberry (*Vaccinium corymbosum*), arrow-wood (*Viburnum dentatum*), and palustrine rose (*Rosa palustris*). The herbaceous layer is generally sparse and consists of tussock sedge (*Carex stricta;* Photograph 3), swamp loosestrife (*Decodon verticillus*), sensitive (*Onoclea sensibilis*) and cinnamon fern (*Osmunda cinnamomea*), and sphagnum moss (*Sphagnum sp.*). Some patches of common reed (*Phragmites communis;* Photograph 4) are present where the tree canopy is sparse.

The field survey was timed to coincide with the blooming period for the swamp pink. The survey focused on the limited acreage of forested (red maple-dominated) wetlands on the parcel, though some herbaceous and shrub/scrub wetlands were also evaluated. The map depicting the routes walked for the survey is attached; short opportunistic walks into other wetland areas and small wet pockets were also conducted. As the shrub (highbush blueberry and Northern bayberry) layer had not fully leafed out yet, visibility was excellent, and the crew was able to assess the fringe of forested wetlands bordering the ditches. No swamp pink plants were observed.

Previously (2020) delineated Wetlands A and E east of Route 9 and south of the Oyster Creek channel were also examined for the presence of swamp pink. Wetland E is a very dense Atlantic white cedar swamp with limited ground cover due to the tree canopy shading. No swamp pink habitat was present in either Wetland A or E.

No swamp pink plants were observed. As cited above, the type of habitat and prior site disturbance would greatly limit the potential for swamp pink to occur on the site.

OCEAN WIND - OYSTER CREEK LANDING

SWAMP PINK SURVEY MAP

FIGURE 1

Photo Log for the Swamp Pink Survey at Oyster Creek Site – 28 April 2021

Figure 1 – Flooded Pocket on Eastern Side of Main Berm

Figure 2 – Forested/Flooded Area North of the Sand Pit

Figure 3 – Tussock Sedge-dominated Pocket North of the Sand Pit

Figure 4 – Formerly Inundated Pocket Dominated by Common Reed and Red Maple Saplings

Photo 5 – Forested pocket dominated by red maple, sweetgum, and holly.

Photo 6 – Ditch with common reed – viewing west.

Photo 7 – Wetland E (Atlantic white cedar swamp) viewing east.

Photo 8 – Wet meadow/red maple habitat between the two easternmost ditches, viewing northwest.

SWAMP PINK CERTIFICATION

Signed statement certifying that the proposed activities will not result in any direct or indirect adverse impact to swamp pink (*Helonias bullata*) or its documented habitat. The project consultants completed a species-specific assessment of potentially suitable habitat following USFWS guidelines on the site on 28 April 2021 and found no specimens of swamp pink.

I hereby certify that swamp pink is absent from wetlands that are located on or within the immediate vicinity of proposed project as located in Lacey and Ocean Townships in Ocean County and Ocean City and Upper Township in Cape May County, New Jersey. Therefore the proposed project that is the subject of this NJDEP Freshwater Wetlands, Flood Hazard Area, Waterfront Development, Coastal Wetlands and CAFRA Individual Permit, regulations will not result in direct or indirect adverse impacts to swamp pink and/or its documented habitat.

Applicant

Signature: Stephen M. Seymour Date 11/22/21

Ocean Wind
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Knieskern's Beaked Rush Survey

Knieskern’s Beaked Rush Field Survey

Date: Wednesday, August 18, 2021

Project: Ocean Wind Offshore Windfarm – Oyster Creek Project

Subject: Knieskern’s Beaked Rush Survey and Results

Knieskern’s Beaked Rush Survey – Based on correspondence with the United States Fish and Wildlife (USFWS) dated 12 March 2021 and the New Jersey Natural Heritage Program (NJNHP), HDR conducted a Knieskern’s beaked rush (*Rhynchospora knieskernii*) survey on 28 July 2021 on Block 100, Lot 1.06 (“the Holtec Property”) in Lacey Township, Ocean County, NJ owned by Holtec International. HDR also surveyed portions of previously delineated Wetlands D and K west of Route 9 for Knieskern’s beaked rush. Knieskern’s beaked rush is federally-listed as a threatened species by USFWS and as a state-listed endangered species by the NJNHP. The species is described as requiring groundwater-influenced, constantly fluctuating, successional habitats. The USFWS recommended conducting Knieskern’s beaked rush surveys along ditches, recently disturbed wetland areas, and in emergent wetlands along the Oyster Creek Export Cable Route that may be directly or indirectly impacted by the proposed project.

The field survey was timed to coincide with the fruiting period (July – September) for the Knieskern’s beaked rush. The field survey was conducted by two HDR scientists, Mr. Zachary Lehmann, an ISA-certified arborist, and Mr. Stephen Seymour, PWS, both of whom have previously conducted the April 2021 swamp pink survey on the site and other rare plant surveys within New Jersey. The survey followed the protocol outlined in the USFWS New Jersey field office guidance. The crew spent five hours on the site searching for Knieskern’s beaked rush. Figure 1 depicts the previously mapped wetlands by wetland type, and illustrates (in red) the walking routes for the Knieskern’s beaked rush survey. A photolog is also attached; photograph numbers are cited in the text.

Prior wetland delineations were conducted on the site by HDR in June 2019 and June 2021; both Mr. Lehmann and Mr. Seymour participated in those surveys. Portions of Wetlands B, C, D, E K, and M were studied for the presence of Knieskern’s beaked rush in July 2021. Tidally influenced portions of Wetland A south of the main berm were not assessed due to the species being restricted to freshwater habitats. Knieskern’s beaked rush is listed an obligate (OBL) freshwater wetland species in New Jersey by the “National List of Plant Species That Occur in Wetlands” (2018).

The Holtec Property was extensively ditched (Photograph 1) in the past (1950’s) for agriculture and livestock, presumably to lower the water table on the site. The smaller ditches generally run north to south; two larger ditches run west to east. The ditches are eight to 15 feet in width, and appear to be permanently flooded with a very deep organic substrate. No discernable flow was evident in the ditches except where the flow was constricted by culverts running through the berms in two locations. Several weathered concrete headwalls and discarded cast iron pipes remain on the site from the farming operation. Upland ridges of sidecast soil run parallel to the ditches; these ridges are typically 20 feet wide and up to four feet above the surrounding ground elevation. Several soil berms previously used as roadways/access are also present. With the exception of the sidecast soils and the berms the site is essentially level. Vegetative succession has been taking place on the site for over 30 years, resulting in a mix of young, forested wetlands, upland meadows, and extensive non-tidal and tidal emergent wetlands connected by the ditches. There are no flowing freshwater streams entering the parcel that could transport Knieskern's beaked rush seeds into the parcel. A description of each surveyed area is as follows:

Wetland B/C - The emergent wetlands on the Holtec Property are identified by the National Wetlands Inventory (NWI) as "PEM1B" (Palustrine emergent, persistent vegetation, seasonally saturated) wetlands. The forested wetlands are identified as "PF01Bd" (Palustrine Forested, Broad-Leaved Deciduous Vegetation, Seasonally Saturated, Partially Drained/Ditched)) by the NWI and generally consists of fringes (Photograph 2) adjacent to the historic ditches. The herbaceous community is generally sparse and consists of tussock sedge (*Carex stricta*), swamp loosestrife (*Decodon verticillus*), sensitive (*Onoclea sensibilis*) and cinnamon fern (*Osmunda cinnamomea*), and sphagnum moss (*Sphagnum sp.*). Extensive and dense patches of common reed (*Phragmites communis*) are also present. Edges of the historic ditches in areas that lacked a tree canopy or with a sparse tree canopy were surveyed for the potential presence of Knieskern's beak rush. No specimens of Knieskern's beaked rush were found.

Wetland D – is an emergent wetland south of Discharge Drive west of Route 9. Wetland D is identified by NWI as "PSS1Eh" (Palustrine scrub-shrub, broad-leaved deciduous vegetation, seasonally flooded/saturated, diked/impounded). Dominant vegetation consisted of common reed (*Phragmites communis*), Atlantic white cedar saplings (*Chamaecyparis thyoides*) and pepperbush (*Clethra alnifolia*). Numerous spatulate-leaved sundew (*Drosera intermedia*) plants were also found in this wetland when delineated in 2019; these areas had been overrun by common reed when studied in July 2021. No specimens of Knieskern's beaked rush were found.

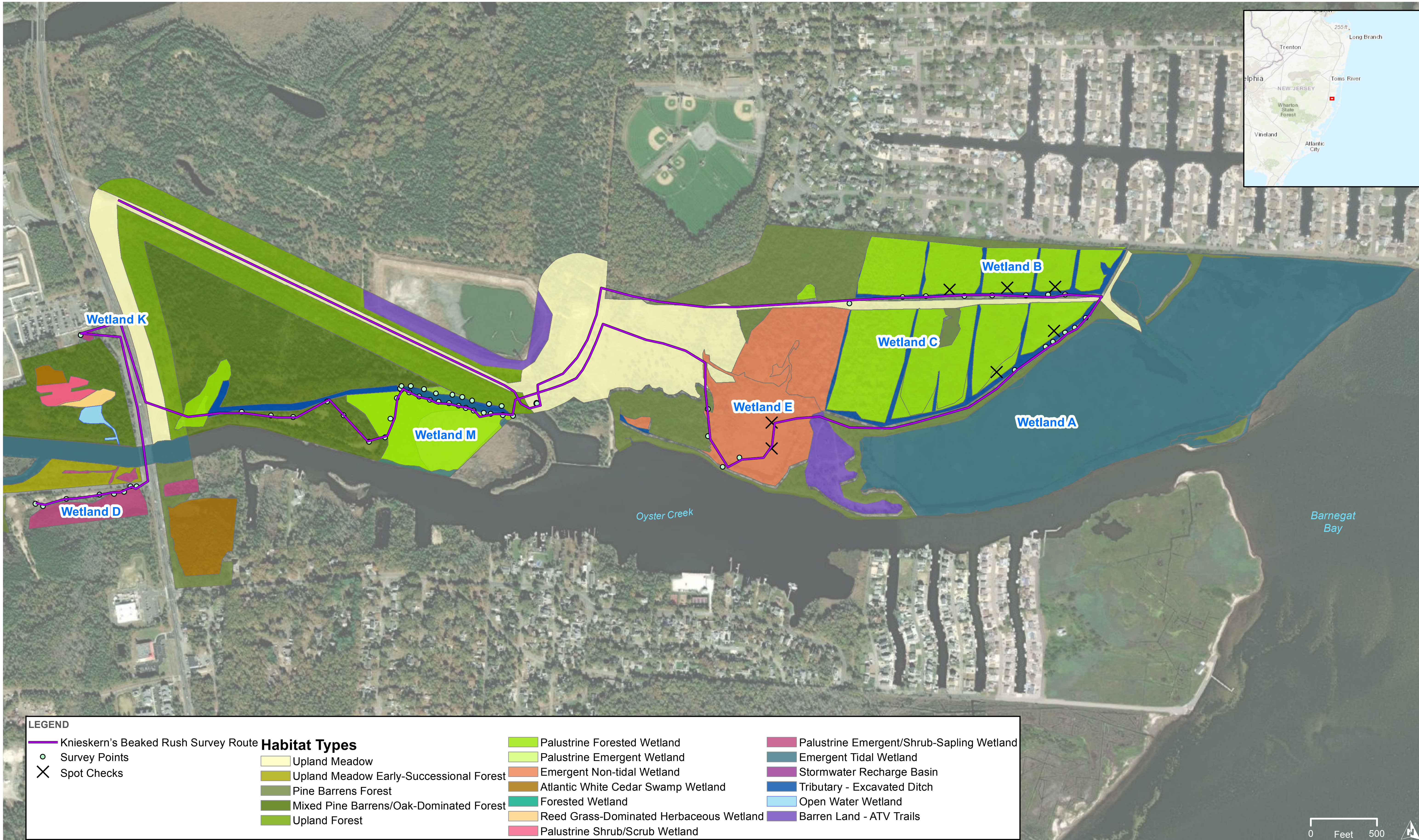
Wetland E – Wetland E is a 23.46-acre palustrine scrub/shrub wetland that receives surface runoff from Watercourses E and F based on Cowardin et al. (1979). Wetland E is identified as "E2EM1P" (Estuarine, Intertidal, Emergent/Persistent Vegetation, Irregularly Flooded) and "PEM1B" (Palustrine, Emergent, Persistent Vegetation, Seasonally Saturated) by NWI. It is dominated by red maple (*Acer rubrum*) trees and highbush blueberry shrubs (*Vaccinium corymbosum*). The herbaceous community is generally sparse and consists of tussock sedge, swamp loosestrife, sensitive and cinnamon fern, and sphagnum moss. Small areas of common reed are also present. No specimens of Knieskern's beaked rush were found.

Wetland K – is a stormwater detention basin 0.13 acres in size west of Route 9 that features a sparse herbaceous layer. It is not mapped by NWI. Dominant vegetation consisted of a 2.5 to 3 foot tall growth of fall panicum (*Panicum virginicum*) and panic grass (*Panicum sp.*). No specimens of Knieskern's beaked rush were found.

Wetland M – is a primarily forested wetland east of Route 9. Wetland M is identified by NWI as "PFO1B" (Palustrine, forested, broad-leaved deciduous, seasonally saturated), "PSS1B" (Palustrine, scrub-shrub, broad-leaved deciduous, seasonally saturated), and "E2EM1P" (Estuarine, intertidal, emergent, persistent, irregularly flooded). Open canopy areas bordering a wide excavated ditch (Watercourse 1) were surveyed. Dominant herbaceous vegetation in the open areas consisted of lurid sedge (*Carex lurida*) and jewelweed (*Impatiens capensis*). Dense patches of Japanese stilt grass (*Microstegium vimineum*) were also present in portions of the wetland and within a dirt access path. No specimens of Knieskern's beaked rush were found.

A map depicting the areas studied for the survey is attached; short opportunistic walks into other wetland areas and areas along the historic ditches were also conducted. Other potential habitat types (recent burns, bog-iron deposits, gravel and clay pits, road cuts, utility and railroad rights-of-way, cleared home sites, eroded areas, cleared edges of Atlantic white cedar swamps, wheel ruts, and muddy swales) listed by NJNHP are not present on the site.

In summary, the most likely habitats were studied at the proper time of year, and no Knieskern's beaked rush plants were observed.

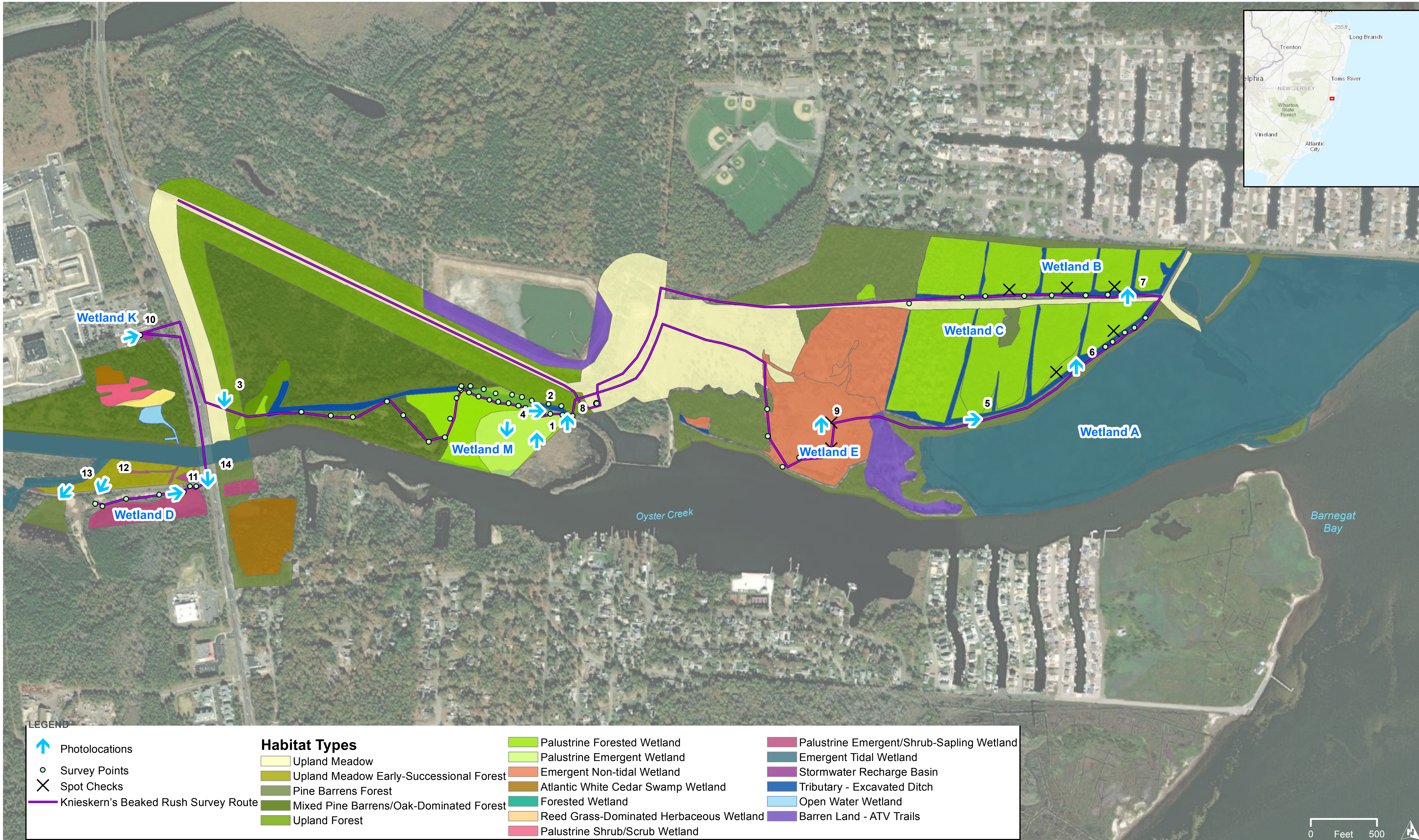


OCEAN WIND - OYSTER CREEK LANDING

KNIESKERN'S BEAKED RUSH SURVEY ROUTE

FIGURE 1

PATH: \\MAHPI-FILE01\ACTIVEPROJECTS\109939\10092078\7.0_GIS_MODELS\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\BIOLOGICAL_ASSESSMENTS\KNIESKERNS_RUSH_SURVEY\OCW_KNIESKERNS_RUSH_SURVEY_FIELD_2022-01-21.MXD - USER: JLANGE - DATE: 1/21/2022



OCEAN WIND - OYSTER CREEK LANDING

KNIESKERN'S BEAKED RUSH SURVEY ROUTE PHOTOLOCATION MAP

PATH: \\MAHPI-FILE01\ACTIVEPROJECTS\109939\10092078\7.0_GIS_MODELS\7.2_WORK_IN_PROGRESS\MAP_DOCS\DRAFT\BIOLOGICAL_ASSESSMENTS\KNIESKERNS_RUSH_SURVEY\OCW_KNIESKERNS_RUSH_SURVEY_PHOTOLOCATIONS_2022-01-21.MXD - USER: JLANGE - DATE: 1/23/2022

Photo 1: Clearing associated with all-terrain vehicle traffic north of canal east of Route 9. No depressed or temporarily wet areas suitable for Knieskern's beaked rush.

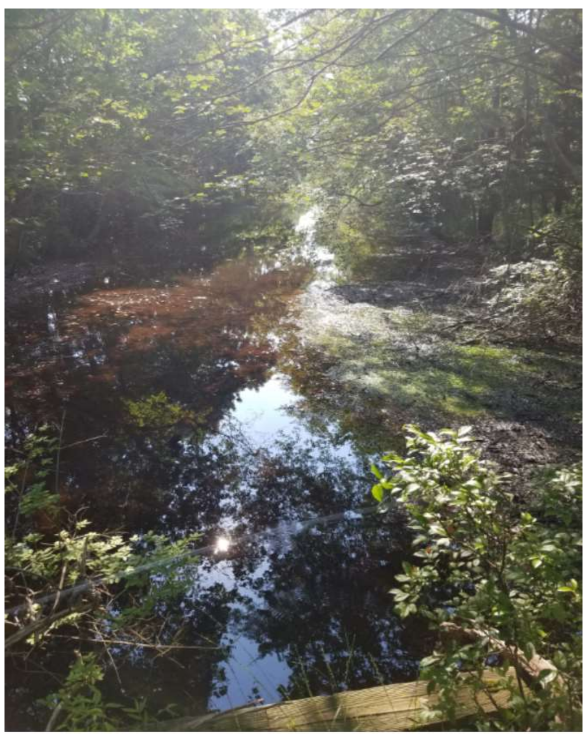


Photo 2: Excavated ditch (Watercourse 1) viewing downstream/east of crossing by Wetland M (to right of photo). No evidence of tidal influence.

Ocean Wind Offshore Windfarm	**Knieskern's Beaked Rush Survey Photography**	DATE:	11/18/21	**PHOTO**
		CREATED BY:	JC	**1 and 2**
		REVIEWED BY:	DB	
		JOB NO:	10092078	

Photo 3: Interior of Wetland M (red maple-dominated forested wetland) viewing west. Dominant vegetation is lurid sedge, stilt grass, and jewelweed.

Photo 4: Concrete outfall pipe from the Confined Disposal Facility east of Route 9. Pipe widens to a six-foot wide splash pad; area immediately below splash pad is flooded at high tide.

Photo 5: Overgrown/shaded ditch south of main access path east of Route 9.

Photo 6: Overgrown/shaded ditch north of main access path east of Route 9.

Ocean Wind Offshore Windfarm	**Knieskern's Beaked Rush Survey Photography**	DATE:	11/18/21	**PHOTO**
		CREATED BY:	JC	**5 and 6**
		REVIEWED BY:	DB	
		JOB NO:	10092078	

Photo 7: Overgrown/shaded ditch north of main access path east of Route 9.

Photo 8: Open ditch south of main access path east of Route 9.

Ocean Wind Offshore Windfarm	**Knieskern's Beaked Rush Survey Photography**	DATE:	11/18/21	**PHOTO**	
		CREATED BY:	JC	**7 and 8**	
		REVIEWED BY:	DB		
		JOB NO:	10092078		

Photo 9: Reed grass-dominated herbaceous wetland area bordering ditch north of the canal on the east side.

Photo 10: Wetland K (Detention Basin) viewing east. Vegetation dominated by fall panicum and panic grass.

Ocean Wind Offshore Windfarm	**Knieskern's Beaked Rush Survey Photography**	DATE:	11/18/21	**PHOTO**
		CREATED BY:	JC	**9 and 10**
		REVIEWED BY:	DB	
		JOB NO:	10092078	

Photo 11: Wetland D south of Discharge Drive – cleared area and reed grass-dominated herbaceous wetland.

Photo 12: Wetland D – flooded herbaceous and scrub/shrub wetland south of Discharge Drive. No habitat for Knieskern's beaked rush. Dominant vegetation is Atlantic white cedar, white water lily, leatherleaf, and sphagnum moss.

Photo 13: Wetland D – flooded herbaceous and scrub/shrub wetland south of Discharge Drive. No habitat for Knieskern's beaked rush.

Photo 14: Wetland D – dense reed grass patches south of Route 9/Discharge Drive intersection. Area was an open herbaceous wetland when delineated in 2019.

Ocean Wind Offshore Windfarm	**Knieskern's Beaked Rush Survey Photography**	DATE:	11/18/21	**PHOTO**
		CREATED BY:	JC	**13 and 14**
		REVIEWED BY:	DB	
		JOB NO:	10092078	

Ocean Wind
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Phase I Bog Turtle Survey

REPORT ON A PHASE I BOG TURTLE SURVEY CONDUCTED AT THE BL ENGLAND GENERATION STATION, UPPER TOWNSHIP, CAPE MAY COUNTY, NEW JERSEY

Report to:

HDR Engineering Inc.
10th Floor, Suite 1000
Mahwah, NJ 07495

Prepared by:

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PO Box 5154
Phillipsburg, NJ 08865

28 June 2021

TABLE OF CONTENTS

1.0 INTRODUCTION

Jason Tesauro Consulting, LLC was retained by HDR, Inc. to conduct a Phase I habitat survey for the state-endangered/federally-threatened bog turtle (*Glyptemys muhlenbergii*) along the inshore export cable route associated with the BL England Generation Station in Upper Township, Cape May County, New Jersey, which has been proposed as an interconnection point for an offshore wind farm operated by Orsted. According to the New Jersey Department of Environmental Protection (NJDEP), bog turtles have been historically reported in Upper Township. In correspondence with regulatory agencies, HDR was advised that a formal Bog Turtle Phase I habitat survey be conducted in all of the delineated freshwater wetlands in the project area. Fieldwork was conducted on 29 April 2021 by U.S. Fish and Wildlife Service Qualified Bog Turtle Surveyor (QBTS), Jason Tesauro with assistance from Stephen Seymour from HDR. The results of the survey are summarized in this report.

Figure 1. Google Earth satellite imagery showing the Bog Turtle Phase I study area

2.0 METHODS

The Bog Turtle Phase 1 study area encompassed a defunct golf course and open space located directly south of the powerplant (Figure 1). Ten freshwater wetlands occur in the study area, comprising six identified in the initial NJDEP letter of interpretation (LOI) and four delineated by HDR. Tesauro was escorted to the wetlands by Seymour, who was familiar with the site and had participated in the initial delineation. For the ease of reporting, Tesauro assigned a unique ID to each wetland consisting of “SA” (survey area) followed by numbers 01-10 (i.e., SA-01, SA-02, etc.). In cases where wetlands were separated by distances of < 50 m (e.g., SA-06/SA-07/SA-08), they were evaluated (and reported) as single unit. Each survey area was evaluated for the presence of the following bog turtle habitat criteria consistent with the federal Bog Turtle Phase I survey guidelines contained with the bog turtle federal recovery plan (USFWS, 2001):

- Saturated, 'mucky' soils characterized by high penetrability
- Hydrologic regime maintained by a consistent supply of groundwater
- Dominance of herbaceous and/or woody (scrub-shrub) hydrophytic vegetation, including the presence of sedges or other hummock forming vegetation

Figure 2. Google Earth satellite imagery showing the 10 wetland survey areas on the BL England Generation Station evaluated for the presence of potential bog turtle habitat

3.0 RESULTS

Suitable bog turtle habitat was not documented in the 10 survey areas. Habitat descriptions, location maps, and photographs of the habitat conditions for each survey are provided on pages 4-19.

SA-01

SA-01 encompasses a tidally influenced wetland in the northeast portion of the site comprised by a mosaic of forest, scrub-shrub, and emergent communities. Woody vegetation observed within the forest and scrub-shrub portions included black gum (*Nyssa sylvatica*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), eastern red cedar (*Juniperus virginiana*), American holly (*Ilex opaca*), bayberry (*Myrica pennsylvanica*), English privet (*Ligustrum vulgare*), high-tide bush (*Iva frutescens*), and autumn olive and (*Eleagnus angustifolia*). Vegetation observed within emergent portions of the habitat included common reed (*Phragmites australis*), Chinese wisteria (*Wisteria sinensis*), Japanese honeysuckle (*Lonicera japonica*), soft rush (*Juncus effusus*), and marsh-mallow (*Althaea officinalis*). The entirety of the wetland had been drained in the past and much of the hydrology is fed by ditch overflow, surface run-off, and occasional storm surge. Groundwater discharge was not observed, and substrates were intermittently saturated and mostly firm. SA-01 does not support potential bog turtle habitat.

Figure 3. Seasonally ponded forest/scrub-shrub wetland habitat with SA-01

Figure 4. Portion of SA-01 where woody community gives way to a common reed marsh

Figure 5. View of SA-01 from the shoreline

Figure 6. A dryish, open-canopy portion of SA-01 comprised by common reed and Chinese wisteria

SA-02

SA-02 encompasses a seasonally flooded, circular basin that overflows out into a mowed wet meadow. Vegetation observed included red maple, common reed, and spike-rush (*Eleocharis*), which was dominant in the mowed section. The hydrology of SA-02 is maintained by surface run-off; substrates contain poor penetrability. SA-02 does not contain potential bog turtle habitat.

Figure 7. Mowed portion of SA-02

Figure 8. Flooded conditions within the forested/scrub-shrub portion of SA-02

SA-03/SA-04

SA-03/SA-04 comprise a narrow strip of forested wetland situated between the facility entrance road and the (former) golf course fairway. Vegetation observed included red maple, eastern red cedar, American holly, highbush blueberry, sweetgum, poison ivy (*Toxicodendron radicans*), and a sparse ground cover of sedges (*Carex*). Hydrology is maintained by surface run-off; substrates contain poor penetrability. SA-03/SA-04 does not contain potential bog turtle habitat.

Figure 9. Habitat conditions within SA-03/SA-04, facing northeast

SA-05

SA-05 is one of several ponds that were developed to serve as 'water hazard' features on the former golf course. SA-05 still holds standing water but in the absence of maintenance has become heavily colonized by common reed. A few woody plants, including sweetgum, have colonized the outer margins of the pond. SA-05 does not support potential bog turtle habitat.

Figure 10. Habitat conditions at SA-05, facing east

SA-06/SA-07/SA-08

SA-06, SA-07, and SA-08 are spatially proximate wetlands in the northwest portion of the study area. SA-06 consists of pond and seasonal drainage area extended northward; SA-07 and SA-08 are depressional/swale-like wetlands separated from SA-06 by a former golf cart trail. The east end of the pond and much of the pond's perimeter contains a well-developed emergent marsh featuring cattail, common reed, marsh-mallow, rushes, and scattered high-tide bush. Open water portions of the pond contain duckweed (*Lemna*) and extensive algal mats. The depressional areas west of the former golf cart trail, contains cattail, soft rush, sedges, and scrub-shrub vegetation. Water was ponded in the swale, creating muddy—but not mucky—conditions. While the pond itself is likely fed by groundwater, the adjacent wetland swale is maintained by surface run-off. Bullfrogs (*Rana catesbiana*) were observed in SA-07, and southern gray treefrogs (*Hyla chrysoscelis*) were heard calling from the distance. This cluster of wetlands does not contain potential bog turtle habitat.

Figure 11. Marsh habitat developed in the former golf course pond within SA-06, facing NW

Figure 12. Representative photo of depressional wetlands (SA-07 & SA-08) bordering the former golf cart trail, facing north

SA-09

SA-09 is another pond that was built as part of the golf course. Common reed is present along the shoreline of the pond, and open water sections are covered by algae. SA-09 does not support potential bog turtle habitat.

Figure 13. Habitat conditions at SA-08, facing south

SA-10

SA-10 is the largest wetland in the study area and is located mostly outside of the boundary of the former golf course. SA-06 is mostly a mature hardwood swamp—containing massive specimens of sweetgum, as well as red maple, black gum, and American holly. A small patch of flooded emergent marsh occurs in the center of the site containing common reed, highbush blueberry, sweet pepperbush (*Clethra alnifolia*), soft rush, and scattered hardwoods. The hydrology of SA-06 is driven primarily by surface water; substrates have low penetrability throughout. Two eastern box turtles (*Terrapene carolina*) were observed. SA-06 is an exemplary occurrence of a coastal hardwood swamp community but does not contain potential bog turtle habitat.

Figure 14. Hardwood swamp community within SA-10

Figure 15. Flooded swamp and marsh habitat within SA-10


Figure 16. Seasonally flooded scrub-shrub/emergent area within SA-10


Figure 17. One of two eastern box turtles observed at SA-10

4.0 CONCLUSIONS

A Phase I bog turtle survey of 10 wetland areas on the BL England Generation Station did not identify suitable bog turtle habitat. The majority of the wetland survey areas were either artificial (e.g., excavated ponds) or had been extensively modified to accommodate the development of a golf course several decades ago. Only SA-10—a relatively large, intact hardwood swamp—appeared to have been spared large-scale impacts and supports valuable habitat for a variety of wildlife. The development of the BL England facility as interconnection site for the offshore wind farm is unlikely to have an adverse effect on the bog turtle.

REFERENCES

U.S. Fish and Wildlife Service. 2001. Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan. Hadley, Mass. 103 pp.

BOG TURTLE CERTIFICATION

Signed statement certifying that the proposed activities will not result in any direct or indirect adverse impact to bog turtle (*Clemmys muhlenbergii*) or its documented habitat. The project consultants completed a species-specific assessment following USFWS guidelines for bog turtles on the site on 29 April 2021 and found no potentially suitable habitat.

I hereby certify that bog turtle and its habitat is absent from wetlands that are located on or within the immediate vicinity of proposed project as located in Lacey and Ocean Townships in Ocean County and Ocean City and Upper Township in Cape May County, New Jersey. Therefore the proposed project that is the subject of this NJDEP Freshwater Wetlands, Flood Hazard Area, Waterfront Development, Coastal Wetlands and CAFRA Individual Permit, regulations will not result in direct or indirect adverse impacts to bog turtle and/or its documented habitat.

Applicant
Signature: Stephen M. Seymour Date 11/22/21

Eastern Black Rail and Saltmarsh Sparrow Habitat Assessment

Ocean Wind 1:
Eastern Black Rail and Saltmarsh Sparrow Habitat Assessment

August 2022
Revised October 2022

Submitted by:

Biodiversity Research Institute
HDR Engineering, Inc

Summary

- To address comments from USFWS on Ocean Wind 1's Biological Assessment, BRI and HDR were tasked with identifying and assessing potential impacts to suitable habitat for Eastern Black Rail and Saltmarsh Sparrow within the Ocean Wind 1 onshore action areas, including Oyster Creek and BL England.
- BRI and HDR assessed 44 wetland areas based on size, location, and habitat for potential suitable habitat for Eastern Black Rails and Saltmarsh Sparrows.
- BRI and HDR also reviewed potential impacts to the assessed wetland areas from proposed onshore activities.
- Within the Oyster Creek Wetland Review Area (OC WRA), the majority of habitat was determined to be unsuitable for either avian species.
- While nearly half of the wetland areas within the BL England Wetland Review Area (BLE WRA) could be suitable habitat for Saltmarsh Sparrows and Eastern Black Rails, proposed onshore activities would entirely avoid disturbing these areas.
- BRI and HDR conclude that further studies to assess suitable habitat for Eastern Black Rails and Saltmarsh Sparrows in the Oyster Creek and BL England areas are not necessary.

Background

Eastern Black Rail

The Eastern Black Rail (*Laterallus jamaicensis jamaicensis*) is a secretive marsh bird found irregularly along the southeastern coast of the United States from Connecticut to Florida. Eastern Black Rails occupy a fairly narrow habitat niche consisting of brackish and freshwater wetlands characterized by very shallow water and dense emergent vegetation (USFWS 2020), including saltmeadow cordgrass (*Spartina patens*), bulrushes, sedges, and cattails. Wherever found, they require high stem density, canopy coverage, and perennially shallow water for foraging and nesting (Atlantic Coast Joint Venture 2020; Eddleman et al. 2020).

No observations of Eastern Black Rails were documented in the vicinity of either the Oyster Creek or BL England onshore development areas during surveys in 2018 and 2019 conducted by the New Jersey Department of Environmental Protection (NJDEP 2018, 2019). However, an area of habitat within the BL England onshore development area was identified as possible suitable habitat for the species (Atlantic Coast Joint Venture (ACJV) 2020). Given the low detection rate of Eastern Black Rails, even when using playbacks in areas known to be occupied by the species, as well as the risk of disturbing them, the U.S. Fish and Wildlife Service (USFWS) does not have a recommended presence/absence survey protocol for Eastern Black Rails. Instead, USFWS assumes that the species may occupy any suitable habitat within its range.

Saltmarsh Sparrow

The Saltmarsh Sparrow (*Ammospiza caudacuta*) is an obligate marsh bird with a breeding and wintering range between Maine and Florida. Similar to Eastern Black Rails, the species has narrow habitat preferences and requires high marsh vegetation with dense layers of thatch for nest construction (Hartley and Weldon 2020). The Saltmarsh Sparrow also requires emergent wetland vegetation; however, the Saltmarsh Sparrow is only found in saltmarshes. In recent years, Saltmarsh Sparrows have not been documented through eBird observations near the BL England area, and few sightings of the species have been reported in the vicinity of the potential cable routes for Oyster Creek (eBird 2022). However, while habitat around Oyster Creek is generally not considered priority marsh habitat for Saltmarsh Sparrows, one patch of salt marsh habitat surrounding BL England area has a relatively high likelihood of supporting the species (patch is ranked 992 of 8680 salt marsh habitat patches, ACJV 2020).

Habitat and Wetland Delineation Report Review

Methods

Based on wetland delineation reports and supporting materials provided by HDR Engineering, Inc. (HDR), Biodiversity Research Institute (BRI) and HDR determined that 35 wetland areas were delineated in the OC WRA, which consists of preferred and alternative landfall and cable route locations (Appendix A, Figures 1-2). In the BLE WRA, which consists of only the preferred landfall and cable route locations (Appendix A, Figures 3-4), 9 wetland areas were delineated.

BRI and HDR each independently reviewed the reports and supplemental materials, which provided information on the vegetative community, soil, and hydrology of each wetland area, to describe the habitat type of each area and assess its suitability for Eastern Black Rail and Saltmarsh Sparrow occupancy. Specifically, BRI and HDR assessed such as variables as hydrology indicators, dominant vegetation, hydric soil indicators, size, and the Cowardin classification system (Cowardin et al. 1979). Habitat was considered suitable for rails and sparrows only if emergent vegetation was dominant and if such emergent vegetation was not predominately common reed (*Phragmites australis*), which is known to severely degrade habitat because of its ability to convert wetlands into dense monocultures. The result is unsuitable habitat for both Eastern Black Rail (USFWS 2020) and Saltmarsh Sparrow (Hartley and Weldon 2020). In addition to assessing habitat suitability, BRI and HDR also reviewed the location of each wetland area in the context of proposed onshore construction activities to assess potential level of disturbance.

Results

In their assessment of the 44 wetland areas, BRI and HDR identified 26 areas as emergent habitat, 13 areas as forested, 2 areas as scrub shrub, and 3 areas as a mix of two or more wetland types as defined by the Cowardin classification system. In the OC WRA, 4 of the 35 areas potentially provide suitable habitat for Saltmarsh Sparrow and Eastern Black Rail (Appendix A, Table 1). These areas include Wetlands J, I (south of Bay Parkway), A (adjacent to Lighthouse Dr.) and E (adjacent to Marina). The areas were characterized as both high and low marsh wetland habitat with vegetation that includes smooth cordgrass (*Spartina alterniflora*), saltmeadow cordgrass, and some common reed. However, because proposed project activities in Oyster Creek would not cross within or be situated adjacent to these four areas, no impacts to the wetland areas are anticipated.

In the BLE WRA, 4 of the 9 wetland areas were characterized as emergent wetland habitat and considered potentially suitable for the two avian species (Appendix A, Table 2). These areas include Wetlands A (south of Roosevelt Blvd.), B (north of Roosevelt Blvd.), and C (north and south of Roosevelt Blvd.), and LOI Coastal Wetlands (2019). The vegetation in these four areas is dominated by *Spartina* species, with some common reed. However, due to the proximity of three of the wetland areas to roadways and infrastructure, the potential value of these wetlands to Saltmarsh Sparrows and Eastern Black Rails is diminished. Furthermore, proposed activities in the BL England area not expected to impact the four emergent wetland areas, as the export cable would pass under them using horizontal directional drilling (HDD), and entry and exit pits would be located entirely within previously disturbed areas. In addition, the BL England substation is sited away from these wetland sites.

<u>Conclusion</u>

Based on the results of this habitat suitability assessment for Eastern Black Rail and Saltmarsh Sparrow, the OC WRA was characterized by predominantly unsuitable habitat for both Eastern Black Rails and Saltmarsh Sparrows, with an apparent absence of Eastern Black Rails, and limited Saltmarsh Sparrow observations. Similarly, neither avian species has been detected in the BL England area in recent years (eBird 2022, NJDEP 2018, 2019), although a greater proportion of the wetland areas delineated in the BLE WRA consisted of potentially suitable habitat for the two avian species.

Across both the WRAs, those wetland areas that might contain suitable habitat for Eastern Black Rails and Saltmarsh Sparrows would not be impacted by onshore construction, operations or maintenance activities associated with the Ocean Wind 1 project, as activities would either entirely avoid suitable habitat, or involve methods that would avoid disturbing the areas, such as HDD. Thus, it is unlikely that either species would be impacted by onshore construction or operation within the Oyster Creek or BL England areas.

As such, based on known habitat requirements of Eastern Black Rail and Saltmarsh Sparrow, documentation of species presence/absence, and the reports and supporting materials provided by HDR, BRI and HDR conclude that a field habitat suitability study for either species is not necessary for the Ocean Wind 1 onshore action area. BRI and HDR also conclude that the conservation measures proposed by USFWS in its 1 July 2022 letter for Eastern Black Rails and Saltmarsh Sparrows in the Oyster Creek and BL England areas would not be necessary.

Works Cited

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Appendix A

Table 1. Assessment of Eastern Black Rail and Saltmarsh suitable habitat in and proposed project impacts to each wetland area delineated in Oyster Creek Wetland Review Area.

Oyster Creek Preferred Alternative			
Oyster Creek East of Route 9			
Wetland ID	**Habitat Suitability**	**Habitat Type/Description**	**Proposed Project Activities within Wetlands**
Oyster Creek Wetland A **Figure 1**	No	EMERGENT - Coastal wetland located within Holtec Property adjacent to Barnegat Bay consists of common reed monoculture with small pockets of open water and man-made ditched areas	***Proposed activities include HDD landfall workspace and matted laydown areas and export cable route to be buried by open trench.***
Oyster Creek Wetland B **Figure 1**	No	FORESTED - Freshwater forested wetland located to the north of the dirt trail within the Holtec Property and dominated by red maple, common reed, sensitive fern, and highbush blueberry. Hydrology is driven by adjacent manmade ditches.	The proposed export cable route will abut the wetland to the south and fall within the wetland buffer. ***There are no anticipated direct impacts to these forested wetlands.***
Oyster Creek Wetland C **Figure 1**	No	FORESTED - Freshwater forested wetland located to the south of the dirt trail within the Holtec Property and dominated by red maple, common reed, sensitive fern, and highbush blueberry. Hydrology is driven by adjacent manmade ditches.	The proposed export cable route will abut the wetland to the north and fall within the wetland buffer. ***There are no anticipated direct impacts to these forested wetlands.***
Oyster Creek Wetland E **Figure 1**	No	EMERGENT - Freshwater scrub/shrub wetland dominated by red maple and common reed with hydrology driven by adjacent manmade ditches.	The proposed export cable route will abut the wetland to the north and fall within the wetland buffer. ***There are no anticipated direct impacts to these forested wetlands.***
Oyster Creek Wetland G2 **Figure 1**	No	FORESTED - Freshwater forested wetland located to the north of the dirt trail within the Holtec Property and dominated by red maple and highbush blueberry. Hydrology is driven by adjacent manmade ditches.	The proposed export cable route will abut the wetland to the south and fall within the wetland buffer. ***There are no anticipated direct impacts to these forested wetlands.***
Oyster Creek Wetland M **Figure 1**	No	FORESTED - Freshwater forested wetland located on the eastern side of Route 9 and abuts the delineated Oyster Creek Tributary. Dominated by red maple and black tupelo trees, highbush blueberry shrubs, and shallow sedge and spotted touch-me-not in the herb stratum	The proposed export cable route will pass approximately 200 feet to the north. ***There are no anticipated direct impacts to these forested wetlands.***

Wetland ID	Habitat Suitability	Habitat Type/Description	Proposed Project Activities within Wetlands
Oyster Creek Wetland N **Figure 1**	No	FORESTED - Freshwater forested wetland located on the eastern side of Route 9 and abuts the delineated Oyster Creek Tributary. Dominated by red maple and black tupelo trees, highbush blueberry shrubs, and shallow sedge in the herb stratum	The proposed export cable route will pass approximately 100 feet to the north and fall within the wetland buffer. ***There are no anticipated direct impacts to these forested wetlands.***
Wetland A (South of Oyster Creek Discharge Channel) **Figure 1**	No	FORESTED - Freshwater forested and emergent wetland located on the eastern side of Route 9 south of the bridge that crosses Oyster Creek. Dominant species observed include Red maple and Eastern red cedar in the tree stratum, Northern bayberry in the shrub stratum, and fall panic grass in the herb stratum.	The proposed export cable route will pass under Oyster Creek Discharge Channel via HDD approximately 500 feet to the northwest and ***no impacts to this wetland are anticipated***.
Wetland E (South of Oyster Creek Discharge Channel) **Figure 1**	No	FORESTED - Freshwater forested wetland dominated by Atlantic white cedar, coastal sweet-pepperbush, southern arrow-wood, highbush blueberry, cinnamon fern, and Eastern poison ivy.	The proposed export cable route will pass under Oyster Creek Discharge Channel via HDD approximately 800 feet to the northwest and ***no impacts to this wetland are anticipated***.
Wetland A (Island Beach State Park) **Figure 2**	No	SCRUB SHRUB - Small freshwater wetland within roadside depression driven by roadside runoff. Dominant vegetation includes red maple, arrowwood, highbush blueberry, common reed, and catbriar.	***Wetland impacts are not anticipated*** within this area as export cable route construction will pass approximately 100 feet to the south of this wetland.
Wetland B (Island Beach State Park) **Figure 2**	No	EMERGENT - Common reed monoculture located west of Shore Road between the road and the western shoreline of Island Beach State Park at Barnegat Bay.	***Temporary impacts are anticipated*** within a small portion of this wetland at the shoreline where the export cable will be installed via open cut trenching.
Wetland C (Island Beach State Park) **Figure 2**	No	SCRUB SHRUB - Small isolated freshwater wetlands dominated by highbush blueberry and common reed.	Export cable will pass immediately to the south of this area but ***no impacts are anticipated to the wetland itself, wetland buffer area could be impacted temporarily***.
Wetland E (Island Beach State Park) **Figure 2**	No	EMERGENT - Isolated Wetland dominated by common reed with hydrology driven by road and parking lot runoff	Export cable route will pass this wetland to the east within the parking lot. ***No wetland impacts anticipated.***

Wetland ID	Habitat Suitability	Habitat Type/Description	Proposed Project Activities within Wetlands
Wetland F (Island Beach State Park) **Figure 2**	No	EMERGENT - Isolated Wetland dominated by common reed with hydrology driven by road and parking lot runoff	Export cable route will pass this wetland to the east within the parking lot. ***No wetland impacts anticipated.***
Wetland G (Island Beach State Park) **Figure 2**	No	EMERGENT - Isolated Wetland dominated by common reed with hydrology driven by road and parking lot runoff	Export cable route will pass this wetland to the east within the parking lot. ***No wetland impacts anticipated.***
Oyster Creek West of Route 9			
Wetland K **Figure 1**	No	EMERGENT - Emergent wetland dominated by panic grass within a stormwater detention/recharge basin.	The proposed export cable route will pass under Oyster Creek Discharge Channel via HDD approximately 1000 feet to the south and ***no impacts to this wetland are anticipated***.
Wetland L **Figure 1**	No	MIXED - Palustrine emergent, shrub/scrub, open water, and forested wetland; dominated by black tupelo and red maple in the tree stratum, highbush blueberry in the shrub stratum, and water shield and common reed in the herb stratum. Atlantic white cedars (*Chamaecyparis thyoides*) are present in the northerly portion of Wetland L and there is a shallow ponded area in the southern portion of Wetland L.	The proposed export cable route will pass under Oyster Creek Discharge Channel via HDD approximately 500 feet to the south and ***no impacts to this wetland are anticipated***.
Wetland B (South of Oyster Creek Discharge Channel) **Figure 1**	No	EMERGENT - Small emergent wetland dominated by common reed with hydrology likely driven by runoff from adjacent access road.	The proposed export cable route will pass under Oyster Creek Discharge Channel via HDD approximately 100 feet to the north and ***no impacts to this wetland are anticipated***.
Wetland C (South of Oyster Creek Discharge Channel) **Figure 1**	No	EMERGENT - Small emergent wetland dominated by common reed and some red maple and sweet coastal pepperbush. Hydrology likely driven by runoff from adjacent access road.	The proposed export cable route will pass under Oyster Creek Discharge Channel via HDD approximately 100 feet to the north and ***no impacts to this wetland are anticipated***.
Wetland D (South of Oyster Creek Discharge Channel) **Figure 1**	No	EMERGENT - Small emergent wetland dominated by common reed with hydrology likely driven by runoff from adjacent access road.	The proposed export cable route HDD will surface within the access road approximately 50 feet to the north of this wetland and then continue to the west within the access road. ***No impacts to this wetland are anticipated***.

Wetland ID	Habitat Suitability	Habitat Type/Description	Proposed Project Activities within Wetlands
Wetland H2 **Figure 1**	No	FORESTED - Atlantic white cedar dominated wetland.	The proposed cable route will pass approximately 50 feet to the north of this wetland and within the access road. ***No impacts to this wetland are anticipated.***
Wetland I **Figure 1**	No	FORESTED - Atlantic white cedar dominated wetland.	The proposed cable route will pass approximately 50 feet to the north of this wetland and within the access road. ***No impacts to this wetland are anticipated.***
Wetland H1 **Figure 1**	No	EMERGENT - Emergent wetland dominated by common reed with hydrology likely driven soil compaction from previous land use.	***This wetland will be filled*** as a result of the construction of the Oyster Creek Substation
Wetland G1 **Figure 1**	No	EMERGENT - Emergent wetland dominated by common reed with hydrology likely driven soil compaction from previous land use.	***This wetland will be filled*** as a result of the construction of the Oyster Creek Substation
LOI Wetland A-B, C-D, E-F, M and N **Figure 1**	No	EMERGENT - Small freshwater wetlands delineated as part of an LOI issued in 2017 by the NJDEP. Wetlands are dominated by common reed with some Atlantic white cedar	***Wetland impacts are not anticipated*** within this area as construction of the Oyster Creek Substation avoids these wetlands. Some development within these wetland buffers is anticipated.
Oyster Creek Export Cable Route Alternatives Evaluated			
Wetland C (South of Wetland I) **Figure 1**	No	FORESTED - Atlantic white cedar dominated wetland.	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***
Wetland D (South of Wetlands I and H2) **Figure 1**	No	FORESTED - Atlantic white cedar dominated wetland.	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***
Wetland B (South of Wetlands I and H2) **Figure 1**	No	FORESTED - Atlantic white cedar dominated wetland.	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***

Wetland ID	Habitat Suitability	Habitat Type/Description	Proposed Project Activities within Wetlands
LOI Wetland (NJDEP 2018) **Figure 1**	No	FORESTED - Freshwater forested wetland dominated by Atlantic White Cedar that was part of an LOI issued by the NJDEP in 2018.	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***
Wetland J **Figure 1**	Yes	EMERGENT - Coastal low marsh wetlands immediately adjacent and north of Bay Parkway dominated by Spartina alterniflora, Spartina patens with some common reed.	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***
Wetland I (South of Bay Parkway) **Figure 1**	Yes	EMERGENT - Coastal low marsh wetlands immediately adjacent and south of Bay Parkway dominated by Spartina alterniflora, Spartina patens with some common reed.	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***
Wetland A (Adjacent to Lighthouse Drive) **Figure 1**	Yes	EMERGENT - Very small coastal high marsh wetland adjacent to sandy beach area with Spartina patens and groundseltree	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***
Wetland E (Adjacent to Marina) **Figure 1**	Yes	EMERGENT - Saline low and high marsh coastal wetlands south of marine and hydrologically Barnegat Bay. Vegetation consists mostly of saltmarsh and saltmeadow cordgrass with some common reed in low marsh areas and groundseltree and marsh elder (Jesuit's bark) in the high marsh area.	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***
Wetland F (Adjacent to Lighthouse Drive) **Figure 1**	No	EMERGENT - Drainage swale dominated by phragmites with hydrology driven by runoff from adjacent paved surfaces	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***
Lighthouse Drive Wetland **Figure 1**	No	EMERGENT - Phragmites dominated wetland and open water area associated with local street drainage	Area was evaluated as part of potential export cable route alternative. Project will not cross within or adjacent to this area and ***no impacts to wetland are anticipated.***

Table 2. Assessment of Eastern Black Rail and Saltmarsh suitable habitat in and proposed project impacts to each wetland area delineated in the BL England Wetland Review Area.

BL England Preferred Alternative			
Wetland ID	**Habitat Suitability**	**Habitat Type/Description**	**Proposed Project Activities within Wetlands**
Wetland A (South of Roosevelt Boulevard) **Figure 4**	Yes	EMERGENT - Coastal wetland located south of Roosevelt Boulevard within Upper Township that extends from the Garden State Parkway southeast to the Roosevelt Boulevard Bridge crossing at Crook Horn Creek. Wetland is dominated by Spartina sp. with some common reed. Suitable habitat with diminished value due to proximity to roadway and development.	***No impacts anticipated to this wetland***. Export cable route will pass under Crook Horn Creek to the south of Roosevelt Boulevard Bridge. Entry/Exit pits will be entirely within previously disturbed areas of the Roosevelt Boulevard right of way. Export cable will then be installed within the Roosevelt Boulevard right of way northwest to North Shore Road (Old Route 9).
Wetland B (North of Roosevelt Boulevard **Figure 4**	Yes	EMERGENT - Coastal wetland located north of Roosevelt Boulevard within Upper Township that extends from the Garden State Parkway southeast to the Roosevelt Boulevard Bridge crossing at Crook Horn Creek. Wetland is dominated by Spartina sp. with some common reed. Suitable habitat with diminished value due to proximity to roadway and development.	***No impacts anticipated to this wetland***. Export cable route will pass under Crook Horn Creek to the south of Roosevelt Boulevard Bridge. Entry/Exit pits will be entirely within previously disturbed areas of the Roosevelt Boulevard right of way. Export cable will then be installed within the Roosevelt Boulevard right of way northwest to North Shore Road (Old Route 9).
Wetland C (North and south of Roosevelt Boulevard) **Figure 4**	Yes	EMERGENT - Coastal wetland located mostly north of south of Roosevelt Boulevard within Ocean City that extends from the Garden State Parkway northwest from 34th Street to the Roosevelt Boulevard Bridge and wraps around under the bridge to the south at the crossing of Crook Horn Creek. Wetland is dominated by Spartina sp. with some common reed. Suitable habitat with diminished value due to proximity to roadway and development.	***No impacts anticipated to this wetland***. Export cable route will pass under Crook Horn Creek to the south of Roosevelt Boulevard Bridge. Entry/Exit pits will be entirely within previously disturbed areas of the Roosevelt Boulevard right of way. Export cable will then be installed within the Roosevelt Boulevard right of way.
Wetland Verification Area A **Figure 3**	No	MIXED - Small freshwater wetland area within the BL England substation parcel verified by NJDEP during site visit with Ocean Wind in November 2021. Area is partially maintained/mowed meadow from former golf course with red maple and sweet gum.	This wetland will be filled as a result of the construction of the BL England Substation
Wetland Verification Area B **Figure 3**	No	EMERGENT - Small freshwater wetland area within the BL England substation parcel verified by NJDEP during site visit with Ocean Wind in November 2021. Area is partially maintained/mowed meadow from former golf course with red maple and sweet gum.	This wetland will be filled as a result of the construction of the BL England Substation
Wetland Verification Area C **Figure 3**	No	EMERGENT - Extremely small (<200SF) pocket wetland consisting of hydrophytic sedges and rushes and confirmed by NJDEP representative during field verification	This wetland will be filled as a result of the construction of the BL England Substation
Wetland Verification Area D **Figure 3**	No	EMERGENT - Small freshwater wetland swale with very low habitat value. Consists of maintained/mowed hydrophytic grasses within an area with a dilapidated drainage system.	This wetland will be partially filled as a result of the construction of the BL England Substation and incorporated into the station's drainage plan

Wetland ID	Habitat Suitability	Habitat Type/Description	Proposed Project Activities within Wetlands
LOI Freshwater Wetlands (2019) **Figure 3**	No	MIXED - Freshwater wetlands east of rail line from previously approved LOI issued in 2019 and confirmed by NJDEP during field verification in November 2021. Wetlands consist of forested, scrub shrub and emergent wetlands, with some associated with former golf course features such as water hazards and sand traps, of which are dominated by common reed monocultures. Forested and scrub shrub wetland areas are dominated by red maple and sweet gum with highbush blueberry in the understory shrub stratums.	***Area will remain undisturbed*** as the BL England substation site will be developed adjacent and/or away from these wetland features.
LOI Coastal Wetlands (2019) **Figure 3**	Yes	EMERGENT - Saline low and high marsh coastal wetlands west of rail line and hydrologically connected to Tuckahoe River. Vegetation consists mostly of saltmarsh and saltmeadow cordgrass with some common reed in low marsh areas and groundseltree and marsh elder (Jesuit's bark) in the high marsh area.	***Area will remain undisturbed*** as the BL England substation site will be developed away from these wetland features.

Figure 1. Wetland areas delineated and reviewed in Oyster Creek Wetland Review Area.

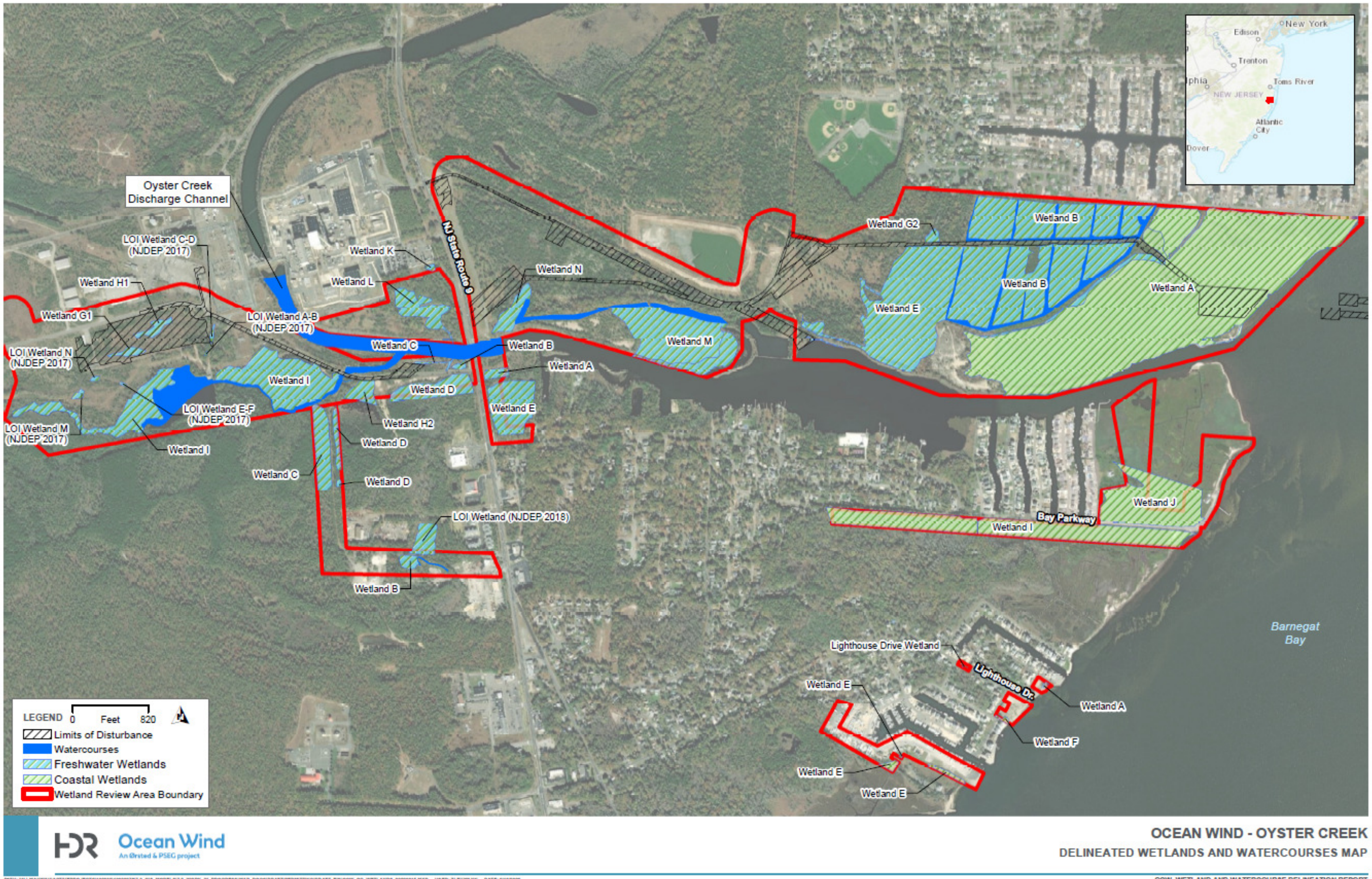


Figure 2. Wetland areas delineated and reviewed in Island Beach State Part in Oyster Creek Wetland Review Area.

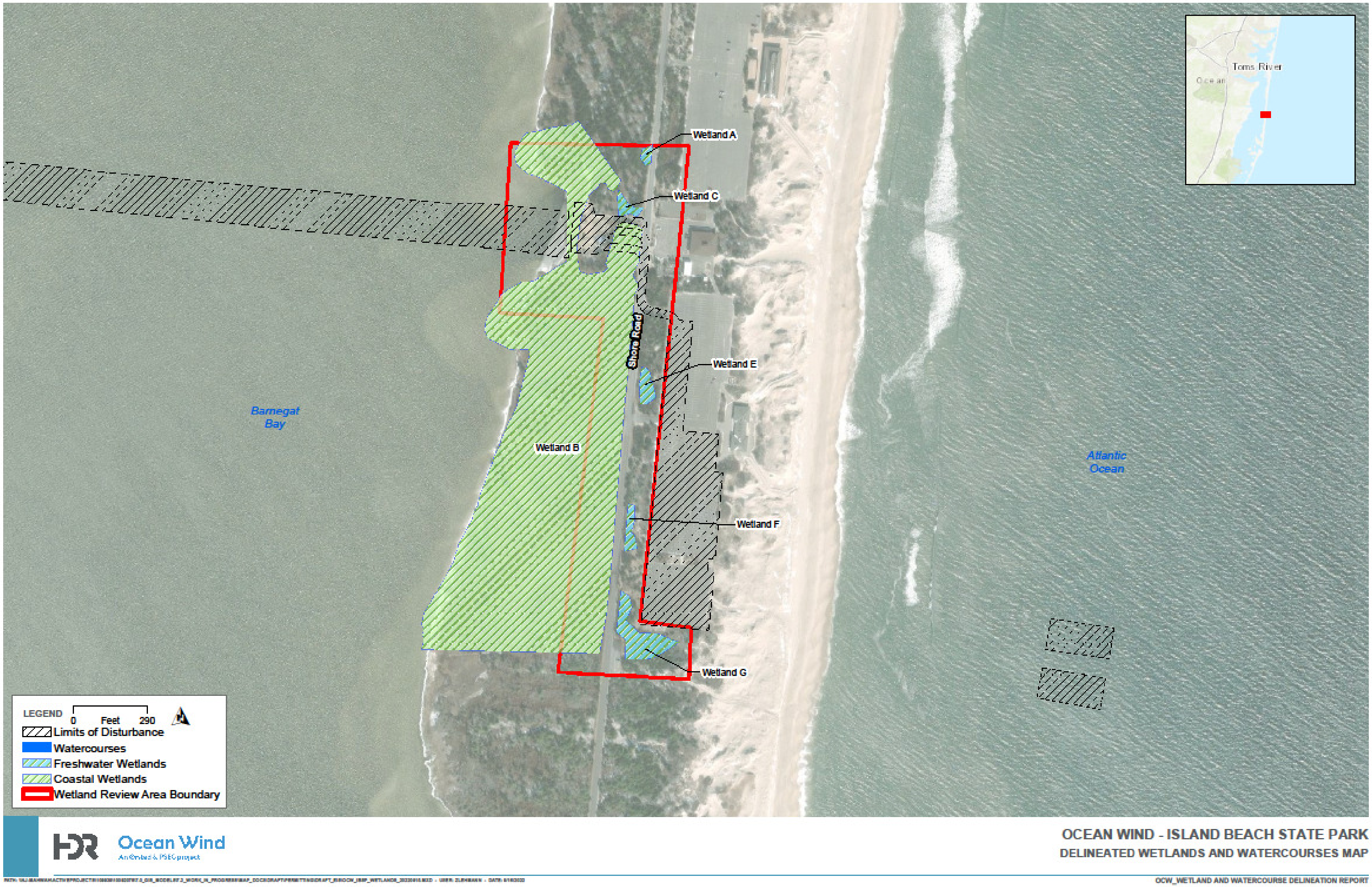
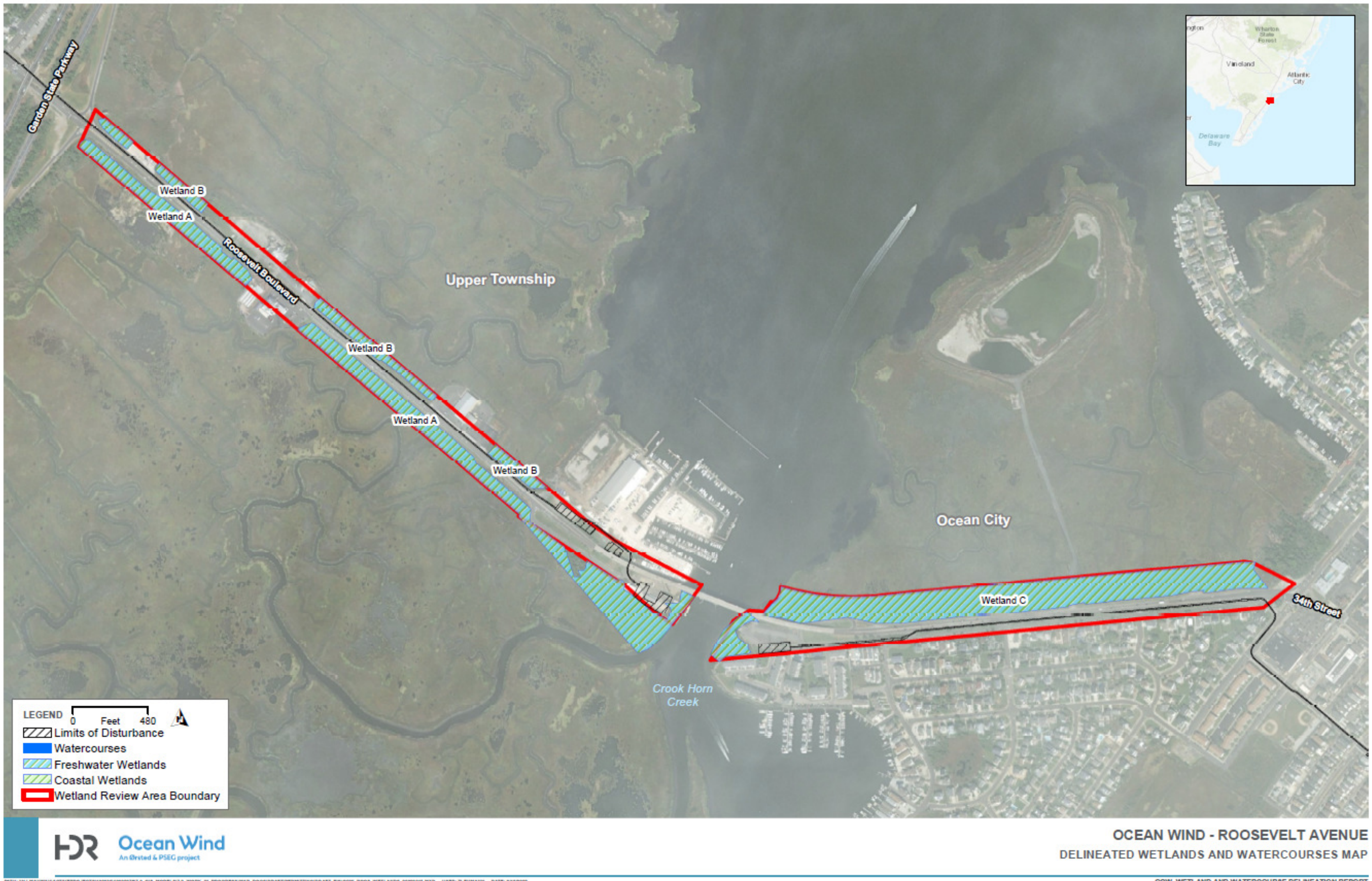


Figure 3. Wetland areas delineated and reviewed in BL England Wetland Review Area.

Figure 4. Wetland areas delineated and reviewed along Roosevelt Avenue in BL England Wetland Review Area.



Ocean Wind
An Ørsted & PSEG project

Acoustic Bat Survey

Acoustic Bat Surveying at Oyster Creek in Waretown, Ocean Township, Ocean County, NJ and B.L. England in Marmora, Upper Township, Cape May County, NJ

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1. Objectives

The following acoustic survey was completed to provide a summary of bat species, including any federally listed Threatened and Endangered (T&E) bat species present within the proposed Ocean Wind 1 project area. This acoustic survey serves as a follow up to the Bat habitat assessment conducted as part of the Ocean Wind 1 Construction and Operations Plan (COP) development at the Onshore Substations and along the Onshore Export Cable Route located in Ocean and Cape May Counties, NJ.

2. Introduction

Bat acoustic surveying was conducted at three New Jersey locations in accordance with the 2022 United States Fish and Wildlife Service (USFWS) Range-wide Indiana Bat & Northern long-eared Bat Survey Guidelines (King et al. 2022). These surveys utilized Pettersson D500x full-spectrum bat detectors with external cabled directional microphones. All recorded Wav files were evaluated by John Chenger at Bat Conservation and Management to obtain Maximum Likelihood Estimates (MLEs) using USFWS-approved automated acoustic bat identification software programs (Kaleidoscope Pro, Bats of North America 4.2.0/A:-1 and SonoBat3 NE).

3. Materials and Methods

Acoustic surveys were initiated in July and concluded by August 15 in order to meet the summer survey season window in accordance with USFWS guidelines (King et al. 2022). Surveys were conducted at three New Jersey locations using three Petterson D 500X detectors. The Oyster Creek substation (SS) and B.L. England (BLE) locations were surveyed using non-linear guidelines, while the proposed Oyster Creek cable route (CR) was surveyed using linear guidelines (King et al. 2022). Two days prior to the beginning of the survey window, all three detectors were deployed approximately 12m (40ft) from a known *Eptesicus fuscus* (Big brown bat) roosting site. Full-spectrum recordings were uploaded to SonoBat and reviewed to confirmed the presence of bat calls. Upon deployment, a “snap test” was used to confirm secure microphone connections and detector sensitivity.

Acoustic detectors were placed in the most suitable habitat sites within the project locations, including forest edges, water edges, small clearings, and forested corridors. For each acoustic survey site, the dates, start and end times, site coordinates, microphone direction, and weather data were recorded. Detector were programed to run from dusk until dawn based on the uploaded GPS coordinates at each site (Appendices, A and C). Once triggered, recordings would last for five seconds with no downtime scheduled in between recordings (Appendix B). Representative photographs of each acoustic survey site were taken (Appendix D). A brief description of each site where a detector was deployed was recorded and can be found in Table 1. The directional microphones were attached to the top of extendable painter’s poles with rubber bands and zip ties. On average, the microphones were elevated approximately three meters (12ft) to minimize ground interference. Microphones were not inhibited by any weatherproofing, however, a PVC capsule was used to protect the connection point between the microphone and microphone cable. In habitat areas with high insect clutter or canopied corridors, microphones were deployed with a directional cone to improve recording quality. For more information on microphone deployments, see Appendix C. Detectors were housed in weatherproof boxes and placed at the base of the painter's poles. Signs stating the purpose of the equipment ("scientific monitoring") and contact information were put on the boxes. If weather conditions, such as persistent rain (more than 30 minutes), strong sustained winds (greater than an average of 14.5kph [nine miles per hour] for more than 30 minutes), or cold temperatures (below 10°C [50°F] for more than 30 minutes), occurred during the first five hours of a survey night, that location was surveyed for additional nights as needed.

Table 1. Brief descriptions of the sites where the detectors were deployed for all events at all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE). Descriptions include nearby vegetation, substrate, human-made structures, roads, power lines, etc.

Location	Event	Site	Site Descriptions
SS	1 & 2	1	NW section of a small stand of short, coniferous trees (~0.06km², 0.04mi²). Many sandy clearings with tall grasses. Many power lines in the surrounding area. Close to decommissioned Forked River Power plant buildings and warehouses. Slightly S of paved roads (~0.03km, 0.02mi). NW of pond (~0.26km, 0.16mi). Microphone pointing E.
		2	NE section of the same stand of trees as Site 1. Slightly S of paved roads (~0.05km, 0.03mi). N of pond (~0.16km, 0.10mi). Microphone pointing W.
CR	1	1	Many short coniferous trees with a few, sporadic, taller coniferous trees. Sandy/grassy corridor (dirt road) with prickly pear cactuses. A lot of ground mosses. SW of quarry (~0.15km, 0.09mi). N of small stream connected to Oyster Creek (~0.04km, 0.02mi). Slightly S of paved road (~0.06km, 0.04mi). Microphone pointing W.
		3	On edge of thick, shrubby forest with medium-height, coniferous and deciduous trees. Blueberry bushes and ferns. Pointed down a grassy, sandy, gravel road right next to marsh. S of large housing development (~0.12km, 0.07mi). Slightly W of marsh pond (~0.02km, 0.01mi). W of Barnegat Bay (~0.52km, 0.32mi). N of Oyster Creek (~0.40km, 0.25mi). Microphone pointing SE.
	2	2	A clearing (relative to surrounding area) with tall, sporadic, deciduous trees and minimal ground cover. Right next to dirt road. N of Oyster Creek (~0.45km, 0.23mi). S of large housing development (~0.18km, 0.11mi). SE of Vincent Clune Park (~0.25km, 0.16mi). W of marsh (~0.73km, 0.45mi). Microphone pointing E down dirt road.
BLE	1	1	NE section of decomissioned B.L. England Golf Course. Long, wide open, grassy clearings interspersed with small stands of mostly tall deciduous trees. Occasional coniferous trees. Close to Great Egg Harbor (~0.22km, 0.14mi). Adjacent to decomissioned B.L. England Generating Station with loud construction. A lot of loud insect clutter. On high ground at N end of easternmost grassy clearing. W of paved road (~0.06km, 0.04mi). N of power lines (~0.09km, 0.06mi). Microphone pointing SW toward power lines.
		2	SW section of the same decomissioned golf course as Site 1. Next to a lone, medium-height, deciduous tree in the middle of second westernmost grassy clearing. SW of paved road (~0.19km, 0.12mi). NE of very small wetland area (~0.05km, 0.03mi). S of power lines (~0.09km, 0.06mi). Microphone pointing NW toward power lines.
		3	SE section of the same decomissioned golf course as Site 1. Of the three sites, farthest from construction. S end of second easternmost grassy clearing. SW of paved road (~0.13km, 0.08mi). W of very small wetland area (~0.02km, 0.01mi). Different wetland area than that by Site 2. NW of large housing development (~0.07km, 0.04mi). Microphone pointing NW.

3.1 Oyster Creek Substation (SS)

The SS location is in Waretown, Ocean Township, Ocean County, New Jersey on the grounds of the decommissioned Fork River Power Plant. This location was surveyed using non-linear guidelines (King et al. 2022). Due to limited property access and power lines, two detectors were placed approximately 230m (755ft) apart on the northern half of the proposed tree-clearing area (Figure 1, Appendix C). Surveying took place for four consecutive nights during two separate events for a total of 16 detector nights. The first event began on July 13 at 20:45 and ended on July 17 at 5:19, surveying the nights of July 13, 14, 15, and 16. The second event began on July 21 at 20:40 and ended on July 25 at 5:25, surveying the nights of July 21, 22, 23, and 24. For both events, both microphones were angled slightly downward to attempt to avoid power line interference with call quality. The weather was mostly clear, dry, and slightly breezy on all nights. For more information on weather, see Appendix A.

Figure 1. Google Earth map depicting bat detector sites and microphone directions at the Oyster Creek substation (SS) location in Ocean County, New Jersey on the nights of July 13 to 16 and 21 to 24, 2022.

3.2 Proposed Oyster Creek Cable Route (CR)

The CR location is in Waretown, Ocean Township, Ocean County, New Jersey. Of the three survey locations, the CR location was the only one that required linear surveying. This location had three detectors positioned approximately 0.80km (0.50mi) apart. Detectors were placed in the most suitable habitat available in a way to maximize coverage of the proposed tree-clearing route (Figure 2, Appendix C). Surveying took place for six consecutive nights at Sites 1 and 3 during the first event and five consecutive nights at Site 2 during the second event. The first event began on July 26 at 20:36 and ended on August 1 at 5:31, surveying the nights of July 26, 27, 28, 29, 30, and 31. Data collected on the night of July 31 were not used due to poor weather conditions. The second event began on August 3 at 20:31 and ended on August 8 at 5:41, surveying the nights of August 3, 4, 5, 6, and 7. Therefore, this location had a total of 15 detector nights. During the first five nights of the first event, the weather was cloudy, dry, and slightly breezy. The weather was clear, dry, and windy on all nights of event 2. For more information on weather, see Appendix A.

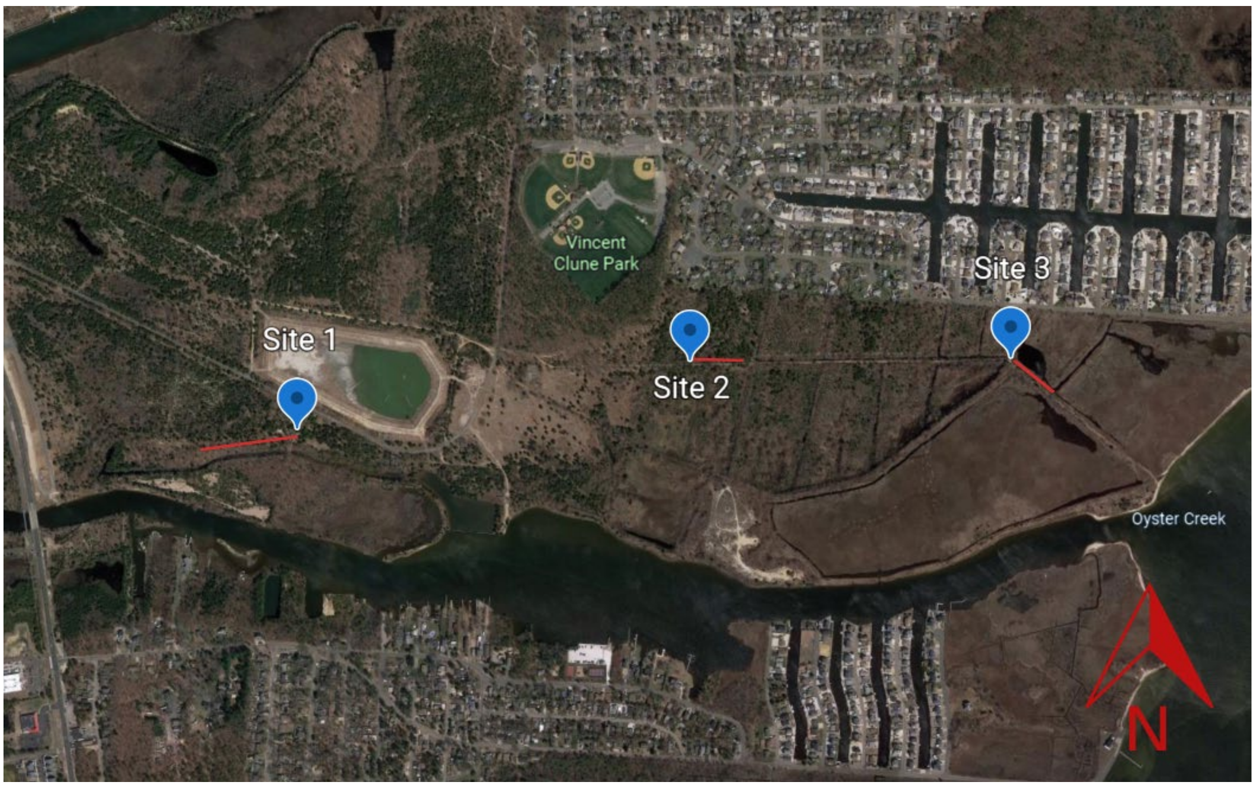

Figure 2. Google Earth map depicting bat detector sites and microphone directions at the proposed Oyster Creek cable route (CR) location in Ocean County, New Jersey on the nights of July 26 to 31 and August 3 to 7, 2022.

3.3 B.L. England (BLE)

The BLE location is in Marmora, Upper Township, Cape May County on the grounds of the decommissioned B.L. England Golf Course and B.L. England Generating Station. There is minimal proposed tree-clearing at the BLE location, but there are multiple cable route options. For this reason, this location was surveyed using non-linear guidelines (King et al. 2022). Detectors were placed in the most suitable habitat that allowed for maximum range of coverage (Figure 3, Appendix C). A preliminary deployment attempt at Sites 1 and 2 resulted in an excess of “noise” data files and battery depletion. Due to construction and insect clutter, trigger sensitivity was adjusted to a medium level. In an attempt to avoid the noise recordings from the nearby construction site, as well as overhead powerlines, Site 2 was adjusted to approximately 180m (591ft) from the Sites 1 and 3. Surveying took place for five consecutive nights for a total of 15 detector nights. Surveying began on August 11 at 20:19 for sites 1 and 3 and 20:23 for site 2. Surveying ended on August 16 at 5:48 for Sites 1 and 3 and 5:45 for Site 2, covering the nights of August 11, 12, 13, 14, and 15. The weather was mostly clear, dry, and breezy on all nights. For more information on weather, see Appendix A.

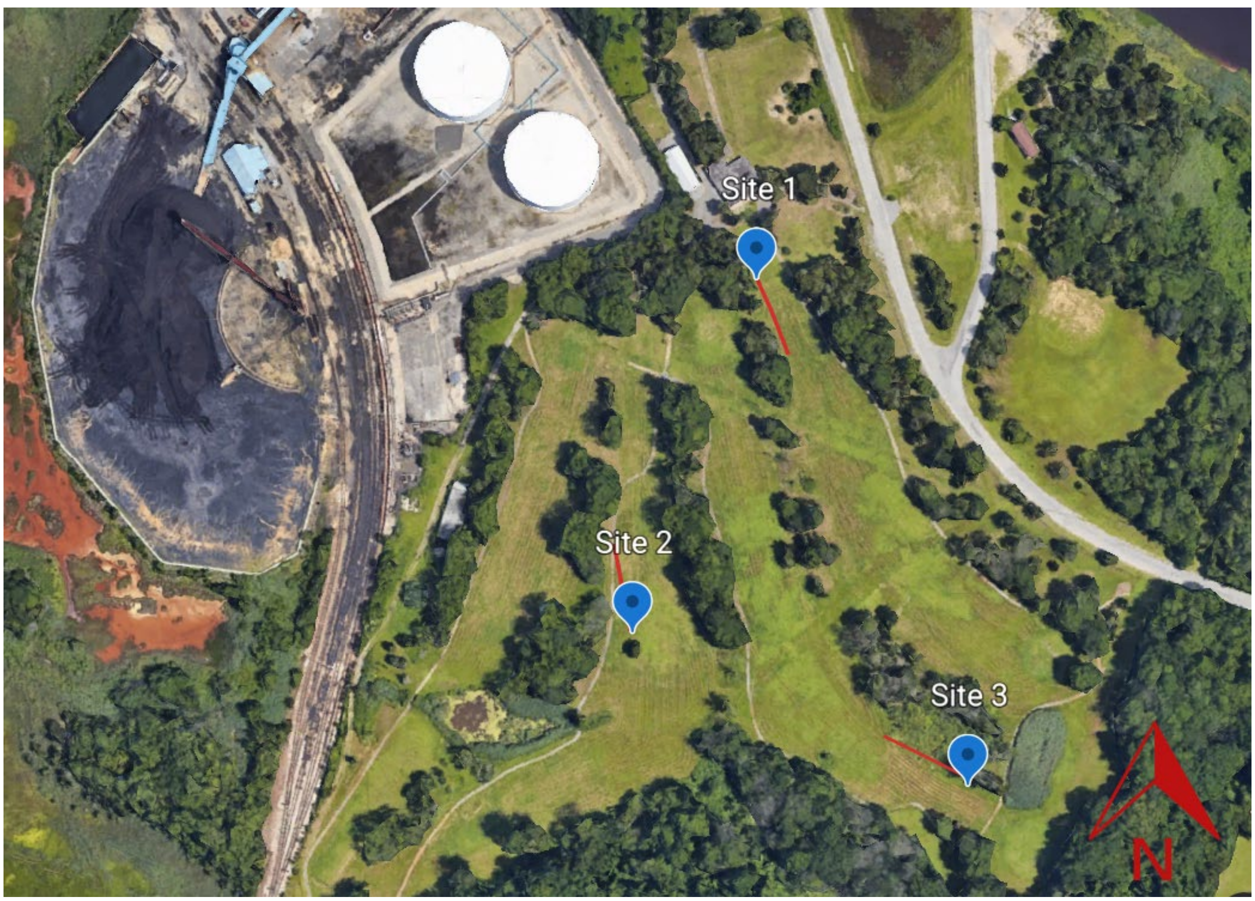

Figure 3. Google Earth map depicting bat detector sites and microphone directions at the B.L. England location in Cape May County, New Jersey on the nights of August 11 to 15, 2022.

4. Analysis

Acoustic data was first filtered and classified using Kaleidoscope Pro, Bats of North America 4.2.0/A:-1 (Table 2). Species presence was also cross-validated using SonoBat 3 with the Northeast regional classifier (Table 3). During the qualitative full-spectrum analysis, a subset of files of each species from each site was manually reviewed to confirm presence. Additionally, all calls automatically classified by either software program as a species in the *Myotis* genus was manually reviewed. During the manual review, calls lacking sufficient detail to be confidently identified at the species level were classified as either "HF-UID," indicating the presence of a species that makes high frequency calls, "LF-UID," indicating the presence of a species that makes low frequency calls, or "2bat," indicating the presence of two individual bats simultaneously. A change in call patterns when an individual bat encounters another, make these "2bat" calls difficult to identify to a species level. The manual review also determined that the majority of mis-classified files were calls from the repertoire of the *Lasiurus borealis* (Eastern red bat). These most often are some phase of an Eastern red bat approach, but sometimes were simple search calls as well. There were no "search phase" calls with descending tails, as would be required for *myotis* search calls. Additionally, those call sequences often showed varied characteristic frequencies as would be expected from an Eastern red bat rather than any myotis species.

5. Results

Over the course of the survey, which took place on various nights between July 13 and August 15, 3,874 total bat calls were recorded. A quantitative analysis of the recorded data revealed a MLE of < 0.05 for the presence of *Eptesicus fuscus* (Big brown bat), *Lasiurus borealis* (Eastern red bat), and *Myotis lucifugus* (Little brown bat; Table 4). Upon manual review of 510 call files, it was determined that there were no *Myotis* species present in the dataset (Table 5).

Table 2. Summary of bat calls recorded from July 13 to August 15, 2022 on all survey nights at all detector sites at all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE), as classified by Kaleidoscope Pro, Bats of North America 4.2.0/A:-1.

Common Name				Big brown bat	Eastern red bat	Hoary bat	Silver-haired bat	Eastern small-footed bat	Little brown bat	Northern long-eared bat	Indiana bat	Evening bat	Tricolored bat	Total
Scientific Name				Eptesicus	Lasiurus	Lasiurus	Lasionycteris	Myotis	Myotis	Myotis	Myotis	Nycticeius	Perimyotis	
Location	Event	Site	Date	fuscus	borealis	cinereus	noctivagans	leibii	lucifugus	septentrionalis	sodalis	humeralis	subflavus	
SS	1	1	13-Jul	1	0	0	5	0	0	0	0	0	0	6
			14-Jul	3	0	2	0	0	0	0	0	0	0	5
			15-Jul	0	0	1	1	0	0	0	0	0	0	2
			16-Jul	0	2	2	2	0	0	0	0	1	0	7
		2	13-Jul	2	2	1	2	0	0	0	0	0	0	7
			14-Jul	1	0	0	1	0	0	0	0	0	0	2
			15-Jul	0	0	1	1	0	0	0	0	0	0	2
			16-Jul	3	0	1	2	0	0	0	0	0	0	6
	2	1	21-Jul	1	0	1	1	0	0	0	0	0	0	3
			22-Jul	4	1	1	3	0	0	0	0	0	0	9
			23-Jul	10	1	0	7	0	0	0	0	0	0	18
			24-Jul	5	0	1	2	0	0	0	0	0	0	8
		2	21-Jul	2	0	0	1	0	0	0	0	1	0	4
			22-Jul	3	0	2	0	0	0	0	0	0	0	5
			23-Jul	1	0	1	1	0	0	0	0	0	0	3
			24-Jul	1	0	3	1	0	0	0	0	0	0	5
CR	1	1	26-Jul	32	16	1	10	0	1	0	1	1	2	64
			27-Jul	29	5	6	10	0	0	0	0	2	0	52
			28-Jul	19	1	0	4	0	2	0	0	0	0	26
			29-Jul	13	7	3	5	0	1	0	0	2	0	31
			30-Jul	7	4	2	2	0	2	0	0	0	0	17
		3	26-Jul	3	0	3	10	0	0	0	0	1	0	17
			27-Jul	31	0	5	59	0	1	0	0	0	0	96
			28-Jul	33	2	2	15	0	0	0	0	1	0	53
			29-Jul	17	1	3	24	0	3	0	0	0	0	48
			30-Jul	7	1	0	1	0	1	0	0	1	0	11
	2	2	3-Aug	44	68	2	6	0	35	0	2	31	3	191
			4-Aug	221	44	10	18	1	27	0	2	17	6	346
			5-Aug	62	44	1	5	0	35	0	1	18	0	166
			6-Aug	194	73	5	8	0	110	1	5	23	4	423
			7-Aug	47	76	0	2	0	95	0	3	23	1	247
BLE	1	1	11-Aug	171	30	1	1	0	20	1	1	4	2	231
			12-Aug	44	4	1	0	0	5	0	1	1	1	57
			13-Aug	25	6	0	0	0	2	0	0	2	0	35
			14-Aug	379	3	0	0	0	1	0	0	0	0	383
			15-Aug	356	6	0	0	0	4	1	0	2	0	369
		2	11-Aug	104	5	3	6	0	5	0	0	3	4	130
			12-Aug	15	2	7	3	0	2	0	0	2	2	33
			13-Aug	4	2	0	0	0	1	0	0	2	0	9
			14-Aug	18	3	0	0	0	1	1	0	3	0	26
			15-Aug	48	0	0	0	0	1	0	0	0	0	49
		3	11-Aug	231	18	3	3	0	6	0	1	3	2	267
			12-Aug	41	8	7	2	0	3	1	0	2	3	67
			13-Aug	20	5	3	0	0	4	0	0	3	1	36
			14-Aug	85	18	0	5	0	5	1	0	8	2	124
			15-Aug	146	17	0	11	0	0	1	0	2	1	178
			Total	2483	475	85	240	1	373	7	17	159	34	3874

Table 3. Summary of bat calls recorded from July 13 to August 15, 2022 on all survey nights at all detector sites at all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE), as classified by SonoBat 3 with the Northeast regional classifier.

Common Name				HF-UID*	Big brown bat	Eastern red bat	Hoary bat	Silver-haired bat	Little brown bat	Indiana bat	Evening bat	Tricolored bat	Total
Scientific Name					Eptesicus fuscus	Lasiurus borealis	Lasiurus cinereus	Lasionycteris noctivagans	Myotis lucifugus	Myotis sodalis	Nycticeius humeralis	Perimyotis subflavus	
Location	Event	Site	Date										
SS	1	1	13-Jul	0	2	0	0	4	0	0	0	0	6
			14-Jul	0	4	0	1	0	0	0	0	0	5
			15-Jul	0	2	0	0	0	0	0	0	0	2
			16-Jul	0	1	2	0	2	0	0	0	0	5
		2	13-Jul	0	3	2	1	0	0	0	0	0	6
			14-Jul	0	2	0	0	0	0	0	0	0	2
			15-Jul	0	1	0	0	0	0	0	0	0	1
			16-Jul	0	4	0	0	1	0	0	0	0	5
	2	1	21-Jul	0	3	0	0	0	0	0	0	0	3
			22-Jul	0	5	0	0	1	0	0	0	0	6
			23-Jul	0	14	0	0	0	0	0	0	0	14
			24-Jul	0	7	0	0	1	0	0	0	0	8
		2	21-Jul	0	2	1	0	1	0	0	0	0	4
			22-Jul	0	4	0	0	1	0	0	0	0	5
			23-Jul	0	3	0	0	0	0	0	0	0	3
			24-Jul	0	3	0	0	0	0	0	0	0	3
CR	1	1	26-Jul	0	35	13	0	5	0	0	1	0	54
			27-Jul	0	37	4	0	3	0	0	0	0	44
			28-Jul	0	18	2	0	1	0	0	0	0	21
			29-Jul	0	15	5	2	0	0	0	0	0	22
			30-Jul	0	8	3	1	0	0	0	0	0	12
		3	26-Jul	0	5	0	1	3	0	0	0	0	9
			27-Jul	0	21	1	0	24	0	0	0	0	46
			28-Jul	0	30	1	2	2	0	0	0	0	35
			29-Jul	0	14	1	1	9	0	0	0	0	25
			30-Jul	0	6	1	0	1	0	0	0	0	8
	2	2	3-Aug	1	41	81	3	4	0	0	0	0	130
			4-Aug	0	209	49	1	5	1	1	1	2	269
			5-Aug	0	60	69	1	0	1	0	0	0	131
			6-Aug	2	172	67	1	1	1	1	2	0	247
			7-Aug	5	44	118	1	0	2	0	0	0	170
BLE	1	1	11-Aug	1	173	35	1	1	1	1	0	0	213
			12-Aug	0	42	4	0	0	0	0	0	0	46
			13-Aug	0	25	4	0	0	0	0	1	0	30
			14-Aug	0	376	2	0	1	0	0	0	0	379
			15-Aug	0	356	4	0	0	0	0	0	0	360
		2	11-Aug	0	108	9	2	3	0	0	0	0	122
			12-Aug	0	17	1	6	1	0	0	0	0	25
			13-Aug	0	4	2	0	0	0	0	0	0	6
			14-Aug	0	17	5	0	0	0	0	0	0	22
			15-Aug	0	48	0	0	0	0	0	0	0	48
		3	11-Aug	0	229	19	3	1	0	0	0	0	252
			12-Aug	0	45	5	4	0	0	0	0	0	54
			13-Aug	0	19	5	2	0	0	0	0	0	26
			14-Aug	0	85	15	0	3	0	0	0	0	103
			15-Aug	0	148	12	0	1	0	0	0	0	161
Total				9	2467	542	34	80	6	3	5	2	3148

*These calls were made by species with high frequency calls, but lack sufficient detail to be identified at the species level.

Table 4. Summary of Maximum Likelihood Estimates (MLEs) calculated by Kaleidoscope Pro, Bats of North America 4.2.0/A:-1, from July 13 to August 15, 2022 on all survey nights at all detector sites at all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE).

Common Name				Big brown bat	Eastern red bat	Hoary bat	Silver-haired bat	Eastern small-footed bat	Little brown bat	Northern long-eared bat	Indiana bat	Evening bat	Tricolored bat
Scientific Name				Eptesicus fuscus	Lasiurus borealis	Lasiurus cinereus	Lasionycteris noctivagans	Myotis leibii	Myotis lucifugus	Myotis septentrionalis	Myotis sodalis	Nycticeius humeralis	Perimyotis subflavus
Location	Event	Site	Date										
SS	1	1	13-Jul	0.98	1.00	1.00	**2.94E-03**	1.00	1.00	1.00	1.00	1.00	1.00
			14-Jul	**0.01**	1.00	0.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00
			15-Jul	1.00	1.00	0.18	0.61	1.00	1.00	1.00	1.00	1.00	1.00
			16-Jul	1.00	0.08	**0.03**	0.38	1.00	1.00	1.00	1.00	1.00	1.00
		2	13-Jul	0.24	**0.03**	0.53	0.50	1.00	1.00	1.00	1.00	1.00	1.00
			14-Jul	0.47	1.00	1.00	0.61	1.00	1.00	1.00	1.00	1.00	1.00
			15-Jul	1.00	1.00	0.18	0.61	1.00	1.00	1.00	1.00	1.00	1.00
			16-Jul	0.06	1.00	0.64	0.66	1.00	1.00	1.00	1.00	1.00	1.00
	2	1	21-Jul	0.52	1.00	0.33	0.80	1.00	1.00	1.00	1.00	1.00	1.00
			22-Jul	**0.03**	0.18	0.76	0.43	1.00	1.00	1.00	1.00	1.00	1.00
			23-Jul	**8.30E-05**	0.18	1.00	0.11	1.00	1.00	1.00	1.00	1.00	1.00
			24-Jul	**2.45E-03**	1.00	0.79	0.89	1.00	1.00	1.00	1.00	1.00	1.00
		2	21-Jul	0.11	1.00	1.00	0.84	1.00	1.00	1.00	1.00	0.39	1.00
			22-Jul	**0.01**	1.00	0.13	1.00	1.00	1.00	1.00	1.00	1.00	1.00
			23-Jul	0.52	1.00	0.33	0.80	1.00	1.00	1.00	1.00	1.00	1.00
			24-Jul	0.64	1.00	**4.62E-03**	0.98	1.00	1.00	1.00	1.00	1.00	1.00
CR	1	1	26-Jul	**0.00**	**0.00**	1.00	0.75	1.00	1.00	1.00	0.55	1.00	1.00
			27-Jul	**0.00**	**1.18E-03**	0.21	0.77	1.00	1.00	1.00	1.00	1.00	1.00
			28-Jul	**0.00**	0.42	1.00	1.00	1.00	0.08	1.00	1.00	1.00	1.00
			29-Jul	**1.00E-07**	**2.06E-05**	0.39	0.80	1.00	1.00	1.00	1.00	1.00	1.00
			30-Jul	**1.02E-04**	**1.89E-03**	0.40	1.00	1.00	0.37	1.00	1.00	1.00	1.00
		3	26-Jul	0.69	1.00	0.12	**3.07E-04**	1.00	1.00	1.00	1.00	0.39	1.00
			27-Jul	**2.60E-06**	1.00	0.99	**0.00**	1.00	0.12	1.00	1.00	1.00	1.00
			28-Jul	**0.00**	0.08	1.00	0.14	1.00	1.00	1.00	1.00	1.00	1.00
			29-Jul	**5.95E-05**	0.55	0.90	**4.00E-07**	1.00	**0.01**	1.00	1.00	1.00	1.00
			30-Jul	**1.79E-05**	0.42	1.00	1.00	1.00	0.58	1.00	1.00	0.95	1.00
	2	2	3-Aug	**0.00**	**0.00**	1.00	1.00	1.00	**5.50E-06**	1.00	1.00	1.00	1.00
			4-Aug	**0.00**	**0.00**	1.00	1.00	1.00	**1.00E-05**	1.00	1.00	1.00	1.00
			5-Aug	**0.00**	**0.00**	1.00	1.00	1.00	**0.00**	1.00	1.00	1.00	1.00
			6-Aug	**0.00**	**0.00**	1.00	1.00	1.00	**0.00**	1.00	1.00	1.00	1.00
			7-Aug	**0.00**	**0.00**	1.00	1.00	1.00	**0.00**	1.00	1.00	1.00	1.00
BLE	1	1	11-Aug	**0.00**	**0.00**	1.00	1.00	1.00	**1.50E-06**	1.00	1.00	1.00	1.00
			12-Aug	**0.00**	**6.34E-03**	1.00	1.00	1.00	**1.29E-02**	1.00	0.97	1.00	1.00
			13-Aug	**0.00**	**1.76E-04**	1.00	1.00	1.00	0.74	1.00	1.00	1.00	1.00
			14-Aug	**0.00**	**6.93E-03**	1.00	1.00	1.00	0.76	1.00	1.00	1.00	1.00
			15-Aug	**0.00**	**3.91E-04**	1.00	1.00	1.00	0.11	0.67	1.00	1.00	1.00
		2	11-Aug	**0.00**	**2.18E-03**	1.00	1.00	1.00	0.10	1.00	1.00	1.00	0.35
			12-Aug	**0.00**	0.13	**4.18E-03**	1.00	1.00	0.50	1.00	1.00	0.98	0.58
			13-Aug	**8.20E-04**	0.15	1.00	1.00	1.00	0.81	1.00	1.00	0.91	1.00
			14-Aug	**0.00**	0.05	1.00	1.00	1.00	0.91	0.27	1.00	0.86	1.00
			15-Aug	**0.00**	1.00	1.00	1.00	1.00	0.12	1.00	1.00	1.00	1.00
		3	11-Aug	**0.00**	**0.00**	1.00	1.00	1.00	0.25	1.00	0.99	1.00	1.00
			12-Aug	**0.00**	**3.10E-06**	0.25	1.00	1.00	0.60	0.53	1.00	1.00	0.82
			13-Aug	**0.00**	**1.55E-03**	0.65	1.00	1.00	0.18	1.00	1.00	1.00	1.00
			14-Aug	**0.00**	**0.00**	1.00	1.00	1.00	0.73	0.68	1.00	1.00	1.00
			15-Aug	**0.00**	**0.00**	1.00	1.00	1.00	1.00	0.28	1.00	1.00	1.00
			Overall	**0.00**	**0.00**	1.00	1.00	1.00	**0.00**	1.00	1.00	1.00	1.00

Note: Maximum Likelihood Estimates (MLE's) interpretation – values <0.05 indicate there is 95% confidence that the species is present. **Bold** values indicate significance.

Table 5. Summary of bat calls recorded from July 13 to August 15, 2022 on all survey nights at all detector sites at all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE), as manually classified by John Chenger at Bat Conservation and Management.

Common Name				2bat[1]	HF-UID[2]	LF-UID[3]	Noise[4]	Big brown bat	Eastern red bat	Hoary bat	Evening bat	Tricolored bat	Total
Scientific Name								Eptesicus fuscus	Lasiurus borealis	Lasiurus cinereus	Nycticeius humeralis	Perimyotis subflavus	
Location	Event	Site	Date										
SS	1	1	13-Jul	0	0	0	0	0	0	0	0	0	0
			14-Jul	0	0	0	0	0	0	1	0	0	1
			15-Jul	0	0	0	0	0	0	0	0	0	0
			16-Jul	0	0	0	0	0	1	0	0	0	1
		2	13-Jul	0	0	0	0	0	0	1	0	0	1
			14-Jul	0	0	0	0	0	0	0	0	0	0
			15-Jul	0	0	0	0	0	0	0	0	0	0
			16-Jul	0	0	0	0	0	0	0	0	0	0
	2	1	21-Jul	0	0	0	0	0	0	0	0	0	0
			22-Jul	0	0	0	0	0	0	0	0	0	0
			23-Jul	0	0	0	0	0	0	0	0	0	0
			24-Jul	0	0	0	0	0	0	0	0	0	0
		2	21-Jul	0	0	0	0	0	1	0	0	0	1
			22-Jul	0	0	0	0	0	0	0	0	0	0
			23-Jul	0	0	0	0	0	0	0	0	0	0
			24-Jul	0	0	0	0	0	0	0	0	0	0
CR	1	1	26-Jul	1	1	0	0	0	3	0	0	0	5
			27-Jul	0	0	0	0	0	0	0	0	0	0
			28-Jul	0	0	0	0	0	2	0	0	0	2
			29-Jul	0	0	0	0	0	1	1	0	0	2
			30-Jul	0	0	0	0	0	2	1	0	0	3
		3	26-Jul	0	0	0	0	0	0	1	0	0	1
			27-Jul	0	0	0	0	0	1	0	0	0	1
			28-Jul	1	0	0	0	0	0	0	0	0	1
			29-Jul	0	0	0	0	0	3	0	0	0	3
			30-Jul	0	0	0	0	0	1	0	0	0	1
	2	2	3-Aug	2	6	0	0	3	33	1	0	0	45
			4-Aug	8	4	0	0	0	27	0	0	2	41
			5-Aug	2	0	0	0	0	34	0	0	0	36
			6-Aug	6	17	1	0	0	101	0	0	0	125
			7-Aug	2	7	0	0	0	92	0	0	0	101
BLE	1	1	11-Aug	5	3	1	0	0	20	1	0	0	30
			12-Aug	0	4	1	0	0	4	0	0	0	9
			13-Aug	0	1	0	0	0	2	0	1	0	4
			14-Aug	0	0	0	0	0	1	0	0	0	1
			15-Aug	3	3	0	0	0	2	0	0	0	8
		2	11-Aug	1	4	1	0	0	7	0	0	0	13
			12-Aug	1	2	0	0	0	4	1	0	0	8
			13-Aug	1	0	0	0	0	2	0	0	0	3
			14-Aug	0	0	0	0	0	5	0	0	0	5
			15-Aug	0	0	0	0	0	1	0	0	0	1
		3	11-Aug	3	1	0	0	0	8	0	0	0	12
			12-Aug	0	1	0	0	0	9	0	0	0	10
			13-Aug	0	0	2	0	0	8	0	0	0	10
			14-Aug	2	3	0	0	0	11	0	0	0	16
			15-Aug	1	1	3	2	0	2	0	0	0	9
			Total	39	58	9	2	3	388	8	1	2	510

[1]The manual review determined two or more individual bats were present simultaneously. Bat call patterns change when an individual bat encounters another, making them difficult to identify to a species level.

[2]The manual review determined that these calls were made by species with high frequency calls, but lack sufficient detail to be identified at the species level.

[3] The manual review determined that these calls were made by species with low frequency calls, but lack sufficient detail to be identified at the species level.

[4]Kaleidoscope Pro, Bats of North America 4.2.0/A:-1 identified these data as bat calls. Through manual review, these data were determined to be only miscellaneous noise, not actual bat calls.

APPENDIX A: WEATHER

Descriptions of the weather, including temperature, wind, rain, and average cloud cover from July 13 to August 15, 2022 for each night of each event at each site for all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE).

Location	Event	Date	Temp (°F)	Temp (°C)	Wind (mph)*	Wind (kph)*	Rain	Avg. Cloud Cover (%)
SS	1	13-Jul	71	22	<10	<16	dry	8
		14-Jul	71	22	15	24	dry	26
		15-Jul	68	20	<10	<16	dry	65
		16-Jul	70	21	<10	<16	dry	72
	2	21-Jul	75	24	<10	<16	dry	0
		22-Jul	75	24	<10	<16	dry	3
		23-Jul	74	23	<10	<16	drizzle	0
		24-Jul	74	23	<10	<16	dry	0
CR	1	26-Jul	69	21	<10	<16	dry	67
		27-Jul	70	21	<10	<16	dry	58
		28-Jul	74	23	<10	<16	dry	10
		29-Jul	74	23	<10	<16	0.06in/0.15cm	58
		30-Jul	71	22	<10	<16	dry	19
	2	3-Aug	70	21	12	12	dry	0
		4-Aug	71	22	<10	<16	dry	21
		5-Aug	73	23	<10	<16	dry	6
		6-Aug	72	22	10-15	16-24	dry	0
		7-Aug	75	24	10-15	16-24	dry	3
BLE	1	11-Aug	71	22	<10	<16	0.02in/0.05cm	15
		12-Aug	60	16	15-20	24-32	dry	0
		13-Aug	57	14	10-15	16-24	dry	0
		14-Aug	60	16	<10	<16	dry	8
		15-Aug	71	22	15-20	24-32	dry	0

*Ranges include gust speeds. Wind was not sustained at these speeds all night.

APPENDIX B: EQUIPMENT SETTINGS

Petterson D 500X bat detector settings for each event at each site for all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE).

Location	Event	Site	UTC Time Zone	Sample Freq (kHz)	Pretrig	Rec Len (sec)	HP Filter	Auto Rec	T. Sens	Input Gain	Trig Lev	Interval
SS	1	1	-04	500	OFF	5	YES	YES	MED	45	160	0
		2	-04	500	OFF	5	YES	YES	MED	45	160	0
	2	1	-04	500	OFF	5	YES	YES	MED	45	160	0
		2	-04	500	OFF	5	YES	YES	MED	45	160	0
CR	1	1	-04	500	OFF	5	YES	YES	MED	45	160	0
		3	-04	500	OFF	5	YES	YES	MED	45	160	0
	2	2	-04	500	OFF	5	YES	YES	MED	45	160	0
BLE	1	1	-04	500	OFF	5	YES	YES	LOW	45	160	0
		2	-04	500	OFF	5	YES	YES	LOW	45	160	0
		3	-04	500	OFF	5	YES	YES	LOW	45	160	0

APPENDIX C: DEPLOYMENT DETAILS

Descriptions of detector deployments, including GPS coordinates, dates, and times for each event at each site for all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE).

Location	Event	Site	Latitude (DMS)	Longitude (DMS)	Deployment Date	Deployment Time	Recovery Date	Recovery Time	# Nights Deployed	# Nights Used	Daily Start Time	Daily End Time
SS	1	1	39º48'42" N	74º12'48" W	13-Jul	11:05	17-Jul	10:30	4	4	20:45	5:19
		2	39º48'43" N	74º12'38" W	13-Jul	11:46	17-Jul	10:15	4	4	20:45	5:19
	2	1	39º48'42" N	74º12'48" W	21-Jul	9:00	25-Jul	10:00	4	4	20:40	5:25
		2	39º48'43" N	74º12'38" W	21-Jul	9:15	25-Jul	10:20	4	4	20:40	5:25
CR	1	1	39º48'46" N	74º11'33" W	26-Jul	14:09	1-Aug	10:14	6	5*	20:36	5:31
		3	39º48'52" N	74º10'26" W	26-Jul	12:31	1-Aug	9:53	6	5*	20:36	5:31
	2	2	39º48'51" N	74º10'54" W	3-Aug	8:54	8-Aug	10:15	5	5	20:31	5:41
BLE	1	1	39º17'15" N	74º37'59" W	11-Aug	9:21	16-Aug	10:30	5	5	20:19	5:48
		2	39º17'10" N	74º38'02" W	11-Aug	9:47	16-Aug	10:11	5	5	20:23	5:45
		3	39º17'07" N	74º37'55" W	11-Aug	10:07	16-Aug	10:00	5	5	20:19	5:48

Descriptions of microphone deployments, including height off the ground, horizontal orientation, vertical orientation, and weather a directional cone or weatherproofing was used for each event at each site for all three survey locations, the Oyster Creek substation (SS), the proposed Oyster Creek cable route (CR), and B.L. England (BLE).

Location	Event	Site	~Height (m)	~Height (ft)	Horizontal Orientation	Vertical Orientation*	Directional Cone	Weatherproofing
SS	1	1	3.7	12.0	E	80º	no	no
		2	3.7	12.0	W	80º	no	no
	2	1	3.7	12.0	E	90º	no	no
		2	3.7	12.0	W	90º	no	no
CR	1	1	3.7	12.0	W	90º	no	no
		3	3.7	12.0	SE	90º	yes	no
	2	2	3.7	12.0	E	90º	yes	no
BLE	1	1	3.7	12.0	SE	90º	yes	no
		2	3.7	12.0	N	90º	yes	no
		3	3.0	10.0	W	100º	yes	no

*The vertical orientation angles are in relationship to the painter's pole on top of which the microphone was attached. The pole was sticking straight up out of the ground, therefore, 90º indicates the microphone was completely parallel to the ground, <90° indicates it was pointed down, and >90° indicates it was pointed up.

APPENDIX D: PHOTOGRAPHIC RECORDS

Photo 1. View of bat detector and microphone deployment at Site 1 at the Oyster Creek substation (SS) location.

Photo 2. A view of habitat in the direction of microphone orientation at Site 1 at the Oyster Creek substation (SS) location.

Photo 3. A view of ground coverage in the direction of microphone orientation at Site 2 at the Oyster Creek substation (SS) location

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Photo 5. View of habitat corridor in the direction of microphone orientation at Site 1 at the proposed Oyster Creek cable route (CR) location.

Photo 6. View of bat detector and microphone deployment at Site 1 at the Oyster Creek cable route (CR) location.


Photo 7. View from bat detector showing microphone orientation down forested corridor at Site 2 at the Oyster Creek cable route (CR) location.

Photo 8. View of bat detector and microphone deployment at Site 3 at the Oyster Creek cable route (CR) location.

Photo 9. View of habitat in orientation with microphone deployment at Site 3 at the Oyster Creek cable route (CR) location.

Photo 10. Bat detector and microphone deployment at Site 1 at the B.L. England (BLE) location.

Photo 11. Bat detector and microphone deployment at Site 2 at the B.L. England (BLE) location.

Photo 12. Bat detector and microphone deployment at Site 3 at the B.L. England (BLE) location.

Works Cited

King, Andrew, et al. *Range-Wide Indiana Bat & Northern Long-Eared Bat Survey Guidelines*. U.S. Fish and Wildlife Service, 29 Mar. 2022, https://www.fws.gov/sites/default/files/documents/USFWS_Range-wide_IBat_%26_NLEB_Survey_Guidelines_2022.03.29.pdf.