

## FINDING OF NO SIGNIFICANT IMPACT

### Use of Outer Continental Shelf Sand from the Duval Borrow Area in the Duval County (Florida) Shore Protection Project

Pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500) and Department of the Interior (DOI) regulations implementing NEPA (43 CFR 46), the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), in coordination with the U.S. Army Corps of Engineers (USACE), Jacksonville District, prepared an environmental assessment (EA) to determine whether authorizing use of Outer Continental Shelf (OCS) sand from the Duval Borrow Area in the Duval County (Florida) Shore Protection Project would have a significant effect on the human environment and whether an environmental impact statement (EIS) should be prepared. The BOEMRE has independently reviewed the EA and determined that the potential impacts of the proposed action have been adequately addressed.

The BOEMRE's proposed action is the issuance of a negotiated agreement to authorize use of Area A of the Duval Borrow Area so that the project proponents, the USACE and local sponsor, the City of Jacksonville, can obtain the necessary sand resources for a beach restoration project along Duval County Beaches. The purpose of the BOEMRE proposed action is to respond to a request for use of OCS sand under the authority granted to the Department of the Interior by the Outer Continental Shelf Lands Act (OCSLA). Public Law 103-426 gives the BOEMRE the authority to convey on a noncompetitive basis the rights to OCS sediment resources for use in beach nourishment projects. The USACE's connected action is the construction of the project. The project is needed to reduce shoreline erosion and protect valuable property along the coastline in Duval County, Florida. The Duval County Beach Erosion Control Project was authorized by Section 301 of the rivers and Harbors Act of 1964, Public Law 89-298 (as amended by Section 156 of the Water Resources Development Act of 1976, Public Law 94-987 and Section 934 of the Water Resources Development Act of 1986, Public Law 99-662).

In 1974, the USACE programmatically evaluated potential environmental effects resulting from the proposed action and alternatives to the proposed action in its *Final Environmental Impact Statement (EIS) – Beach Erosion Control Project Duval County, Florida*. The USACE has also prepared two other Environmental Assessments evaluate the potential effects of the beach nourishment project: *Environmental Assessment: Duval County Shore Protection Project & Finding of No Significant Impact* (USACE, 1993; Appendix B) and *Environmental Assessment, Duval County Beach Erosion Control (BEC) Project New Borrow Area & Finding of No Significant Impact* (USACE, 2005a; Appendix C). These EAs, which incorporate by reference from the 1974 EIS, were adopted by the MMS and used to support leasing decisions in 1996 and 2005.

The USACE and BOEMRE identified and reviewed new circumstances and information to determine if any resources should be re-evaluated, or if the new information would contribute to a finding of significant and different effects. This EA incorporates by reference effects analyses determined to still be valid. New information was identified that further supports or elaborates on the analyses or information presented in existing NEPA documents, but consideration of the

information does not affect the conclusions of any of those analyses. Based on the effects analysis presented in the attached EA (Attachment 1), no new significant impacts were identified, nor was it necessary to change the conclusion on the severity, location, and or duration of impacts described in the preceding environmental documents. Potential effects are generally considered reversible because they will be minor to moderate, localized, and short-lived. A suite of mitigation and report requirements will be incorporated into the negotiated agreement to avoid, minimize, and/or reduce and track any foreseeable adverse impacts.

### **Alternatives to the Proposed Action**

The only practical alternative to the BOEMRE's proposed action is to not issue the negotiated agreement. The potential impacts resulting from the BOEMRE' no action actually depend on the course of action subsequently pursued by the USACE and local sponsor, which could include identification of a different offshore or upland sand source. In the case of the no project option, coastal erosion would continue, sea turtle and shorebird nesting habitat would deteriorate, and the likelihood and frequency of property and storm damage would increase. The USACE previously considered a host of structural and non-structural alternatives to beach nourishment, but selected beach nourishment as the course of action.

### **Significance Review**

Pursuant to 40 CFR 1508.27, the BOEMRE evaluated the significance of potential environmental effects considering both CEQ context and intensity factors. The potential significance of environmental effects has been analyzed in both spatial and temporal context. The effects of the underlying activities are site-specific and short-duration, most several months, with a few impacts, such as the recovery of benthic communities, expected to last no more than a few years. Some effects may be focused offshore in marine waters or on the seafloor below, whereas as others will occur at the beach. The CEQ defines intensity as the severity of effect. The following factors have been considered in evaluating the intensity of potential effects resulting from the proposed dredging, conveyance, and placement activities:

*1. Impacts that may be both beneficial and adverse. A beneficial effect of the proposed action will be an increase in knowledge of the geologic structure of the project area.*

Potential adverse effects to the physical environment, biological resources, cultural resources, and socioeconomic resources have been considered. Adverse effects to benthic habitat and communities in the borrow area are expected to be reversible. Adverse effects on fish habitat and fishes are expected within the dredged area due to removal of benthic habitat and changes in shoal topography and in the fill placement area due to burial of existing benthic habitat. Potential effects to sea turtles, migratory birds, marine mammals, and cultural resources in the vicinity of operations have been reduced through tested mitigation. Effects to sea turtles, marine mammals, nesting and courting shorebirds, and water quality will be monitored.

*2. The degree to which the proposed action affects public health or safety.*

The proposed activities are not expected to significantly affect public health. Construction noise will temporarily increase ambient noise levels and equipment emissions decrease air quality in the immediate vicinity of placement activities. The public is typically prevented from entering

the segment of beach under construction, so recreational activities will not be occurring in close proximity to operations.

*3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*

There is no unique benthic habitat in the project area. The National Marine Fisheries Service (NMFS) considers offshore ridge and swale topography to be important, although not unique fish habitat. The 500 acre borrow area, located in the Duval Ridge Field, consists of several shoal bodies. The comparatively larger Duval Ridge Field features numerous, comparable sand bodies which have not been disturbed and function as equivalent benthic and fish habitat. Dredging will locally modify the overall geometry of several sand ridges. Similar microhabitat will exist pre and post dredging although topographic relief will be reduced. Benthic re-colonization should occur within a few years given recruitment from adjacent undisturbed communities. Demersal and pelagic fishes may temporarily avoid the dredged area because of locally reduced prey availability, but will return following benthic re-colonization. The project area is located within critical winter calving and nursing grounds for North Atlantic Right Whales; NMFS has designated critical habitat in the South Atlantic Bight from Cape Fear south to Cape Canaveral. Observer, avoidance, and speed restriction mitigation have been incorporated into the proposed action to minimize in-water strike risk and minor behavioral effects on whales transiting through the project area habitat. No known cultural resources exist in the project area. Geophysical and diver surveys have been performed in the areas where dredging will occur.

*4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

No effects are expected that are scientifically controversial. Effects from beach nourishment projects, including dredging on the OCS, are well studied. The effects analyses in the EA has relied on the best available scientific information, including information collected from previous dredging and nourishment activities in and adjacent to the project area. Numerous studies and monitoring efforts have been undertaken along northeast Florida evaluating the effects of dredging and beach nourishment on shoreline change, benthic communities, nesting and swimming sea turtles, and shorebirds.

*5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*

Beach nourishment is a common solution to coastal erosion problems along the Florida coast. Beach nourishment in Duval County dates to the early 1960s. The same borrow area and adjacent borrow area on the OCS have been used previously; the borrow area is similar to other sand ridges be dredged offshore Florida, with the exception that there is no hard bottom habitat in the project area. No significant adverse effects have been documented during past operations. The proposed activities are similar to those previously undertaken. Mitigation and monitoring efforts are similar to that undertaken for past projects and demonstrated to be effective. The effects of the proposed action are not expected to be highly uncertain, and the proposed action and possible effects do not involve any unique or unknown risks.

6. *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

No precedent for future action or decision in principle for future consideration is being made in BOEMRE's decision to authorize re-use of the Duval Borrow Area. The BOEMRE considers each use of a borrow area on the OCS as a new federal action, despite the fact that Congress has authorized the USACE to design, construct, and maintain the beach nourishment project at necessary intervals over 50 years. The bureau's authorization of the use of the borrow area does not dictate the outcome of future leasing decisions. Future actions will also be subject to the requirements of NEPA and other applicable environmental laws.

7. *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

Significance may exist if it is reasonable to anticipate cumulatively significant impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. The EA identifies those actions and potential impacts related to underlying activities. The EA concludes that the activities related to the proposed action are not reasonably anticipated to incrementally add to the effects of other activities to the extent of producing significant effects. The proposed action is not directly related to other actions with cumulatively significant impacts.

8. *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

The proposed action is not expected to adversely affect historic resources. Seafloor-disturbing activities (e.g., dredging, anchoring, pipeline emplacement and relocation) may occur during proposed construction activities. The greatest risk to cultural resources exists in the borrow area where dredging will occur; geophysical and diver surveys have not identified any cultural resources within the borrow area. No bottom-disturbing activities will occur on the OCS outside of the surveyed borrow area. Archival research did not identify any other historic resources are in the project area. The USACE, acting as the lead agency for complying with the National Historic Preservation Act, has coordinated with the Florida State Historic Preservation Office (SHPO). The Florida SHPO concurred with the Corps' no effects determination. The BOEMRE will require implementation of a chance-finds procedure which calls for immediate cessation of operations and notification in the event of an unanticipated discovery of a cultural resource.

9. *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.*

Nesting and swimming sea turtles, manatees, as well as right whales present in the project area during and after construction operations may be adversely affected. There is critical habitat in the project area for right whales. The USACE and BOEMRE have formally consulted with the NMFS and U.S. Fish and Wildlife Service (FWS) pursuant to the Endangered Species Act (ESA). Both resources agencies have issued Biological Opinions addressing the effects of the proposed activities. NMFS and FWS authorized incidental take of protected sea turtles and their nesting habitat without jeopardizing the species' continued existence. During the previous construction cycle in 2005, a loggerhead sea turtle was killed by entrainment in the dredge draghead. Although the risk of entrainment, strike, and degradation of nesting habitat cannot be entirely

eliminated, the risk of lethal and sub-lethal take will be greatly diminished through adoption and effective implementation of the mitigation required by NMFS and FWS. Although the proposed action may adversely affect endangered or threatened species or designated critical habitat, the nature of potential impacts is not significant given the implementation of effective mitigation.

10. *Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.*

As a federal agency, the USACE must comply with all applicable Federal, State, and local laws and requirements. The USACE has acquired all necessary permits and authorizations, including ESA authorizations from NMFS and FWS, as well as the Joint Coastal Permit and consistency concurrence from the Florida Department of Environmental Protection (FDEP). The USACE will implement their Migratory Bird Protection Policy to avoid and monitor for potential effects on migratory birds. Water quality will be monitored to ensure state water quality standards are not violated.

### **Consultations and Public Involvement**

The USACE, serving as the lead Federal agency, and the BOEMRE, in a consulting role, as coordinated with the U.S. FWS, NMFS, FDEP, and the Florida SHPO in support of this leasing decision. Previous NEPA documents prepared by the Corps and adopted by the MMS were subject to public scoping and comment. The local sponsor's 2010 application for a modification to its Joint Coastal Permit was noticed to the public. After signature of this Finding of No Significant Impact (FONSI), a Notice of Availability of the FONSI and EA will be prepared and published by the BOEMRE in the Federal Register or by other appropriate means. The EA and FONSI will be posted to the BOEMRE web site.

### **Conclusion**

The BOEMRE has considered the consequences of issuing a negotiated agreement to authorize use of OCS sand from the Duval Borrow Area. The BOEMRE jointly prepared and independently reviewed the attached EA (Attachment 1) and finds that it complies with the relevant provisions of the CEQ regulations implementing NEPA, DOI regulations implementing NEPA, and other Marine Mineral Program requirements. Based on the NEPA and consultation process coordinated cooperatively by the USACE and BOEMRE, appropriate terms and conditions enforceable by the BOEMRE will be incorporated into the negotiated agreement to avoid, minimize, and/or mitigate any foreseeable adverse impacts.

Based on the evaluation of potential impacts and mitigating measures discussed in the EA, the BOEMRE finds that entering into a negotiated agreement, with the implementation of the mitigating measures, does not constitute a major Federal action significantly affecting the quality of the human environment, in the sense of NEPA Section 102(2)(C), and will not require preparation of an EIS.

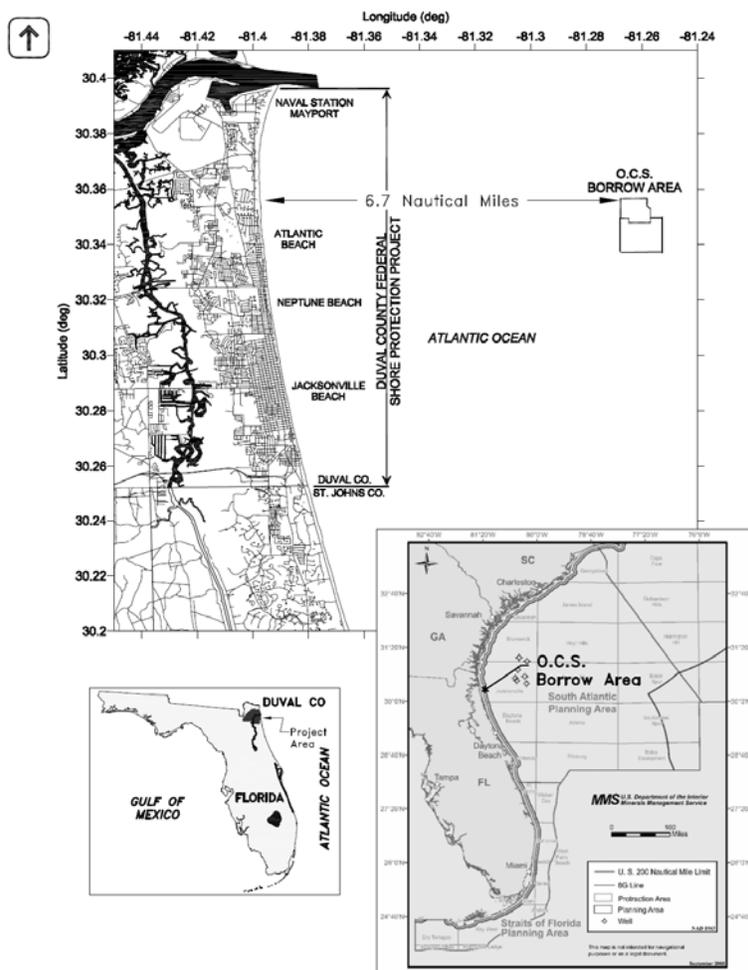
 (Action)

Dr. James Kendall  
Chief, Environmental Division

2/4/11  
Date

# Use of Outer Continental Shelf Sand from the Duval Borrow Area in the Duval County (Florida) Shore Protection Project

## Environmental Assessment



U.S. Department of the Interior  
Bureau of Ocean Energy Management, Regulation and Enforcement  
Environmental Division

# **Use of Outer Continental Shelf Sand from the Duval Borrow Area in the Duval County (Florida) Shore Protection Project**

## **Environmental Assessment**

Prepared by

U.S. Army Corps of Engineers, Jacksonville District  
Planning Division, Environmental Branch

Bureau of Ocean Energy Management, Regulation and Enforcement  
Environmental Division, Branch of Environmental Assessment

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# 1 INTRODUCTION

This Environmental Assessment (EA) presents an updated evaluation of the potential environmental effects associated with using Outer Continental Shelf (OCS) sand from the Duval Borrow Area (DBA) offshore Duval County, Florida in the Duval County Shore Protection Project (SPP). The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), previously known as the Minerals Management Service (MMS), proposes to enter into a negotiated agreement with the U.S Army Corps of Engineers, Jacksonville District (USACE) and the City of Jacksonville so that the project proponents can extract, transport, and place up to 1,200,000 cubic yards of sand from the DBA along the 10-mile Atlantic Ocean shoreline of the Duval County (Figure 1).

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the USACE described the affected environment, evaluated potential environmental effects resulting from beach nourishment, and developed and described alternatives to beach nourishment in its *Final Environmental Impact Statement (EIS) Beach Erosion Control Project Duval County, Florida* (USACE, 1974; Appendix A). Subsequent to the EIS, the USACE prepared two other Environmental Assessments: *Environmental Assessment: Duval County Shore Protection Project & Finding of No Significant Impact* (USACE, 1993; Appendix B) and *Environmental Assessment, Duval County Beach Erosion Control (BEC) Project New Borrow Area & Finding of No Significant Impact* (USACE, 2005a; Appendix C). These EAs, which incorporate by reference from the EIS, were adopted by the MMS and used to support leasing decisions in 1996 and 2005.

The purpose of the EA is to determine if the proposed action, in light of new information or circumstances, could result in different effects and potentially contribute to significant effects on the human environment. This EA, prepared by the USACE and BOEMRE as cooperating agencies, supplements existing analyses and updates potential environmental effects resulting from re-nourishment of the beach. The USACE and BOEMRE identified and reviewed new information to determine if any resources and effects previously analyzed should be re-evaluated or if the new information could alter previous effects determinations. This EA further supports or elaborates on the analyses or information presented in existing NEPA documents, but it does not change the conclusions of any of those analyses. Pursuant to 40 CFR 1506 and 43 CFR 46, the existing analyses are still valid and are incorporated by reference.

## 2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Duval County SPP is to provide storm protection and reduce storm damage to the subaerial beach and shore development and structures at risk from beach erosion along Duval County. Historical causes of erosion include stabilization of the St. Johns River Entrance, navigation channel maintenance, and major storms. Since the last nourishment cycle in 2005, storm activity has continued to severely erode the Duval County shoreline. In 2008 Tropical Storm Fay caused extensive beach erosion. The project is needed as winter and tropical storms continue to erode beaches, lower the cross-shore profile by scouring in areas protected by seawall, and erode dunes along reaches of unprotected beach. The Duval County Beach Erosion Control Project was authorized by Section 301 of the rivers and Harbors Act of 1964, Public

Law 89-298 (as amended by Section 156 of the Water Resources Development Act of 1976, Public Law 94-987 and Section 934 of the Water Resources Development Act of 1986, Public Law 99-662). The authorization provided initial construction and nourishment throughout the 50 year project life between the St. Johns River jetties and Duval – St. Johns county line.

The purpose of the BOEMRE proposed action is to respond to a request for use of OCS sand under the authority granted to the Department of the Interior by the Outer Continental Shelf Lands Act (OCSLA). The proposed action is necessary because the Secretary of the Interior delegated the authority granted in the OCSLA to the BOEMRE to authorize the use of OCS sand resources for the purpose of shore protection and beach restoration.

### **3 PROJECT HISTORY**

The 1990 General Reevaluation report describes chronic erosion problems and coastal engineering responses dating to mid-century (USACE, 1990). Beach nourishment dates to as early as 1963. Initial construction of the Duval County SPP began in 1978 and was completed in 1980. The first construction phase placed 1,268,000 cubic yards along a 3.7 mile reach from Hanna Park south to Atlantic Boulevard. The second construction phase extended the beach fill south to the Duval County / St. Johns County line, placing approximately 1,609,200 cubic yards along 5 miles of shoreline. Subsequent nourishments were completed in 1985-1987 (2,442,820 cubic yards on Atlantic to Jacksonville Beach), 1991 (300,000 cubic yards on Atlantic Beach), 1995 (1,187,279 cubic yards on Atlantic to Jacksonville Beach), and 2003 (120,000 cubic yards on Jacksonville Beach). For the 1995 cycle, the MMS authorized the use of an OCS borrow area approximately 8 miles northeast of Jacksonville Beach. Smaller-scale beach fills were placed along the northernmost 1-2 miles of the project area during maintenance dredging of the Federal navigation project at Jacksonville Harbor in 1980, 1985, 1990, 1993, 1995, and 2002. A more complete history is provided in the Corps' 2005 Post-Construction Monitoring Report for the Duval County SPPP (USACE, 2005b). The Duval County SPP was last re-nourished in 2005; the project was constructed in two reaches totaling 5.9 miles in length. The northern reach included Atlantic Beach from Florida DEP monuments R-43 to R-53. The southern reach extended from monuments R-57 to R-80, encompassing the southern portion of Neptune Beach and Jacksonville Beach. A 140-foot wide berm at + 11.0 feet mean low water (mlw) elevation was constructed along the northern reach, whereas a 35 feet wide berm at + 11 feet mlw was constructed along Jacksonville Beach. In 2005 a new borrow area on the OCS was identified and designed immediately east of the original borrow site; only the A-North area of the DBA was used in 2005 (Figure 2). Nourishment events prior to 2005 used borrow areas immediately east and northeast of Area A. The average dredge cut in the borrow area was about 4 to 6 feet, with a maximum cut of about 8 feet (Olsen Associates, 2005). The net volumetric change within the limits of the borrow area was approximately 925,700 cubic yards. The beach fill was 615,198 cubic yards, whereas the dredge contractor's estimated haul volume was 734,700 cubic yards.

## 4 DESCRIPTION OF THE PROPOSED ACTION

The BOEMRE's proposed action is the issuance of a negotiated agreement to authorize use of OCS sand from the DBA (Figure 2). The underlying connected federal action undertaken by the USACE is the dredging, transport, and placement of beach fill for the maintenance construction of the Duval County SPP. The USACE would be authorized to undertake the proposed activities provided design mitigation already proposed, required under separate permit, and or identified in this analysis is implemented.

The detailed description of project area found in the 2005 EA is incorporated by reference (USACE, 2005a). Duval County is located in northeastern Florida along the Atlantic Ocean. The Atlantic shore of Duval County consists of a barrier island bounded to the north by Nassau Sound to the west by the Intracoastal Waterway, and to the south by St. Johns County and the community of Ponte Verda. The DBA is located in an open ocean environment roughly 7 miles east-southeast of the St. Johns River entrance, featuring compound shoals having distinct lobes and coalescing linear sand ridges. The borrow area is located within the Duval Ridge Field, which extends from St. Johns County north to Nassau County, from 3 miles offshore to approximately 20 miles offshore (URS and CPE, 2007). Potential sand resources in the Duval Ridge Field are estimated to range on the order of  $10^9$  cubic yards. The DBA (sub areas A & B1) is approximately 1300 acres in size with existing depths ranging from -46 to -63 feet (NAVD88). From core boring and grain size and color analysis, the borrow material is beach quality sand which meets the compatibility criteria of the Florida Sand Rule (Appendix D). The dredged material will be placed on up to 10 miles of Atlantic shoreline between the St. Johns River in the north and the Duval County-St. Johns County line to the south. The highly developed coastline from Atlantic Beach south to Jacksonville Beach includes single-family residences, high-rise condominiums, and hotels and motels.

The USACE proposes to use a new 277 acre area of Area A (6000 ft by 4500 ft; approximately 660 acres) within the DBA, in addition to the northernmost 225 acres of Area A previously dredged in 2005. Approximately 2.3 million cubic yards of beach compatible sand has been identified in Area A. Existing water depths range from approximately 46 to 60 feet MLLW. Figure 3 shows the preferred borrow area location and maximum dredge cut depths relative to existing bathymetry. The project is anticipated to be constructed using one or more hopper dredges in the April to July 2011 timeframe. Hopper dredging, transport, and placement is expected to occur for approximately 80-90 days to obtain the necessary volume. Efficient dredging practice involves excavating sand in 2-5 foot thicknesses along relatively straight and adjacent runs along the seabed. Dredged depths will not generally exceed 6-8 feet. Maximum depth of cut is illustrated in Figure 3. The sand dredged through dragheads will be discharged into the dredge's open hopper, and most of the turbid seawater effluent will spill over the sides of the hopper. The hopper dredges will transport the dredged material a distance of approximately 6-9 miles to pump-outs positioned approximately 0.5 mile from shore; the material will be pumped directly from the hopper barge via pipeline to the beach. Pump-out buoys will be relocated several times to facilitate pump-out along the nourishment template. Pipeline will be rafted, floated into place, and flooded and submerged to sea floor. The placement and relocation of the nearshore mooring buoys may involve the use of tender tugboats and a barged pipeline hauler or crane. Pump-out buoys may be anchored using multi-ton point anchors and/or clump

weights. Support vessels and tugs may support the hopper dredge in other activities, such as crew rotations and pump-out connection; however, bottom disturbance during these activities is not expected.

Placement operations will occur between St. Johns River/Seminole Beach (Florida Department of Environmental Protection (DEP) Monument V-501) and Jacksonville Beach (Florida DEP Monument R-80). The beach segment presently permitted by the Florida DEP extends from R-37 to R-80. The beach construction template consists of a 135 foot wide berm with an elevation of +11.0 feet mlw (with +/- 0.5-ft tolerance) and a 20:1 slope from berm to the estimated toe of fill. The use of up to three bulldozers and/or pipeline movers and two trucks is projected during beach fill activities. Sand fencing and planting may occur on any restored dune immediately following sand placement and sculpting.

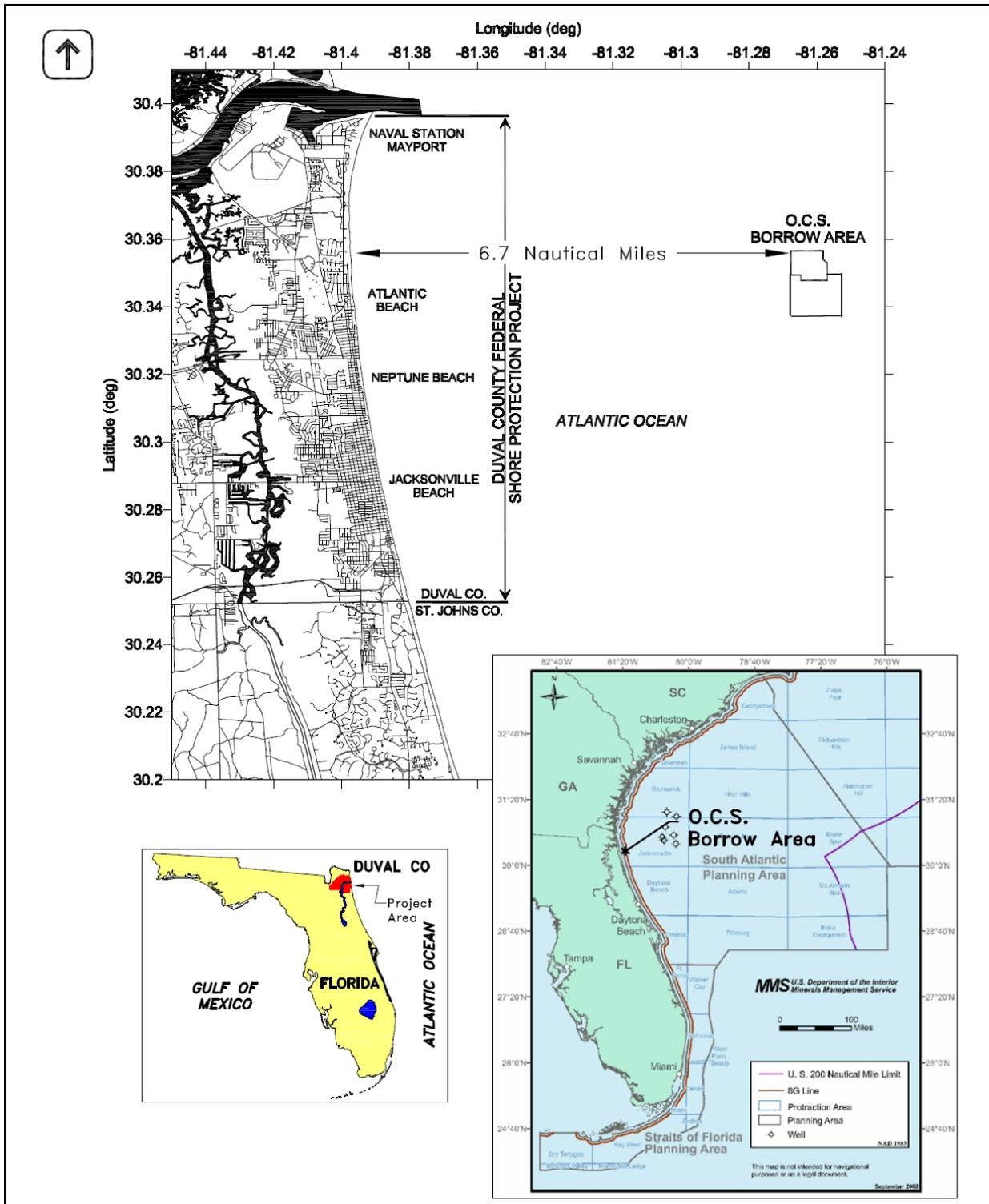
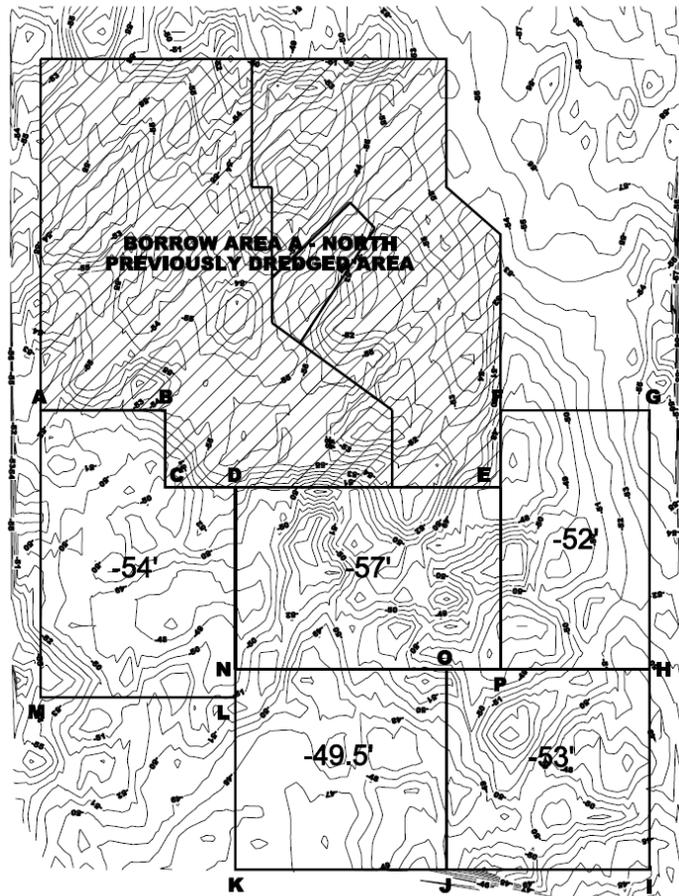
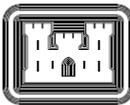


Figure 1: Duval County Shore Protection Project Area



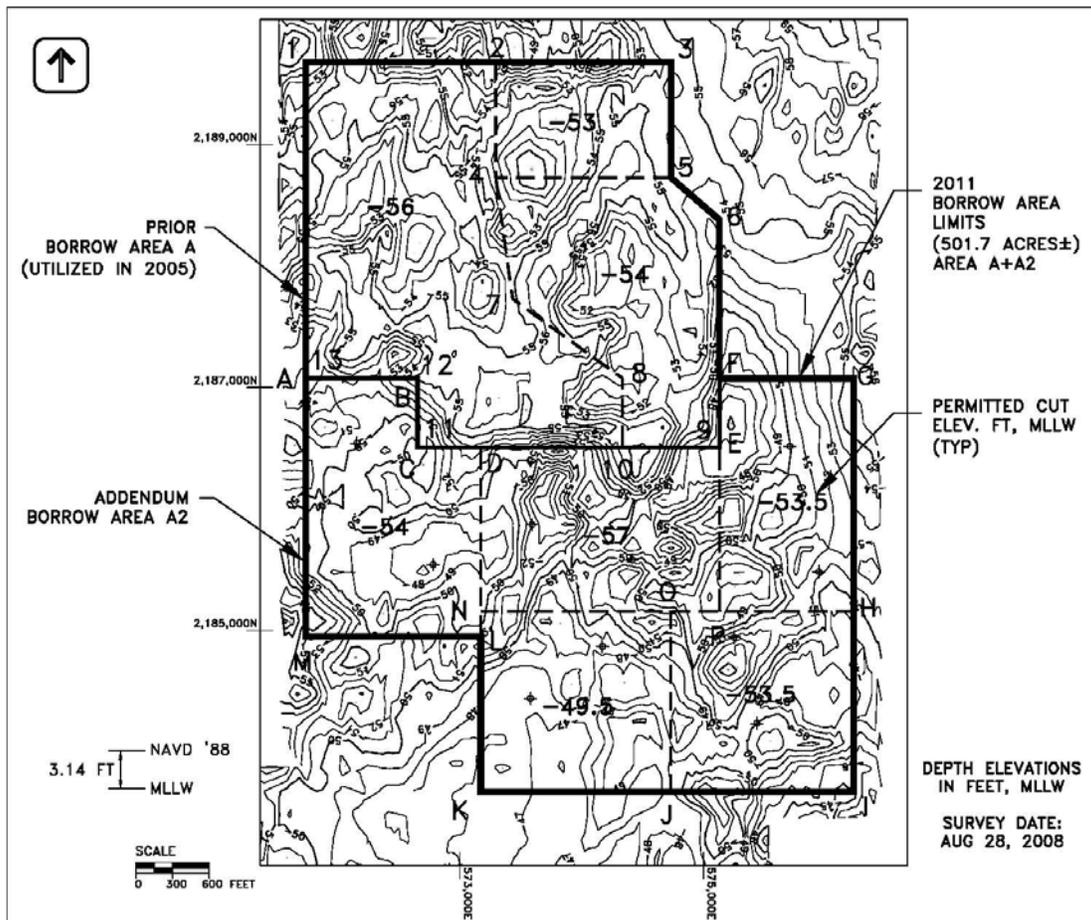
POINT	NAD83 FL EAST (FEET)		DECIMAL DEGREES	
	EASTING (X)	NORTHING (Y)	LATITUDE	LONGITUDE
A	571730.9	2187076.0	30.34934161	81.26769075
B	572650.9	2187076.0	30.34934755	81.26477406
C	572650.9	2186506.0	30.34778028	81.26476984
D	573169.7	2186506.0	30.34778360	81.26312510
E	575130.9	2186506.0	30.34779597	81.25690757
F	575130.9	2187074.3	30.34935856	81.25691165
G	576231.8	2187074.3	30.34936537	81.25342144
H	576231.8	2185159.2	30.34409962	81.25340787
I	576231.8	2183675.9	30.34002114	81.25339737
J	574729.8	2183675.9	30.34001183	81.25815874
K	573169.7	2183675.9	30.34000198	81.26310429
L	573169.7	2184950.4	30.34350634	81.26311366
M	571731.0	2184950.4	30.34349708	81.26767453
N	573169.7	2185159.3	30.34408073	81.26311519
O	574729.8	2185159.2	30.34409031	81.25816944
P	575130.9	2185159.2	30.34409281	81.25689789



 <b>US Army Corps of Engineers</b> JACKSONVILLE DISTRICT	DUVAL COUNTY SHORE PROTECTION PROJECT <b>BORROW AREA LOCATION</b>	DATE: OCT 2009
		SHEET NO.: <b>1</b>

CESAJ-EN-G

Figure 2: Duval Borrow Area Location Showing 2005 Borrow Area (A-North)



Point	EXTERIOR (PERIMETER) LIMITS			
	NAD83 (feet)		Decimal Degrees	
	Easting (X)	Northing (Y)	North Latitude	West Longitude
1	571,730.9	2,189,676.0	30.35649055	81.26771021
3	574,730.9	2,189,676.0	30.35650968	81.25819856
5	574,731.0	2,188,726.0	30.35389754	81.25816937
6	575,131.0	2,188,376.0	30.35293771	81.25692068
F	575,130.9	2,187,074.3	30.34935856	81.25691165
G	576,231.8	2,187,074.3	30.34936537	81.25342144
I	576,231.8	2,183,675.9	30.34002114	81.25339737
K	573,169.7	2,183,675.9	30.34000198	81.26310429
L	573,169.7	2,184,950.4	30.34350634	81.26311366
M	571,731.0	2,184,950.4	30.34349708	81.26767453

Point ID	INTERIOR POINTS				
	NAD 83 FL EAST (feet)		Decimal Degrees		
	Easting (X)	Nothing (Y)	North Latitude	West Longitude	
2	573,290.9	2,189,676.0	30.3565006	81.2627642	
4	573,291.0	2,188,726.0	30.3538975	81.2627344	
7	573,431.0	2,187,726.0	30.3511398	81.2623057	
8	574,331.0	2,187,076.0	30.3493582	81.2594476	
10	574,331.0	2,186,505.9	30.3477907	81.2594435	
9	E	575,131.0	2,186,506.0	30.3477960	81.2568072
11	C	572,651.0	2,186,505.9	30.3477800	81.2647695
12	B	572,651.0	2,187,075.9	30.3493473	81.2647737
13	A	571,730.9	2,187,075.9	30.3493413	81.2678907
D		573,169.7	2,186,506.0	30.34778360	81.26312510
F		575,130.9	2,187,074.3	30.34935856	81.25691165
H		576,231.8	2,185,159.2	30.34409962	81.25340787
J		574,729.8	2,183,675.9	30.34001183	81.25815874
N		573,169.7	2,185,159.3	30.34408073	81.26311519
O		574,729.8	2,185,159.2	30.34409031	81.25816944
P		575,130.9	2,185,159.2	30.34409281	81.25689789

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**olsen**  
associates, inc.  
2618 Harschel Street  
Jacksonville, FL 32204  
(904) 387-8114  
COA No. 3491

DUVAL COUNTY, FL  
SHORE PROTECTION PROJECT  
O.C.S. BORROW AREA A + A2

Date	Revision
6/25/10	Borrow Limits Expanded to South
8/7/10	Notes & Sheet #3 Added

04/23/09  
DRAWN BY:  
ML  
SHEET  
2 of 3

Figure 3: Dredge Cut Depths in Borrow Area

## **5 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND THE ENVIRONMENTAL EFFECTS**

Previous NEPA documents (USACE, 1974; USACE, 1993; USACE, 2005) have described the Affected Environment in detail and evaluated the potential effects on resources of concern, including aesthetics, air quality, benthic resources and habitat, birds and other wildlife, fish and essential fish habitat (EFH), threatened and endangered species, recreation and tourism, and water quality. The conclusions of the existing effects analyses for most resources, except those resources discussed in more detail herein, have been determined to be valid since the project limits and construction methodologies, scope, and timing have remained the same, and relevant Federal laws have not changed in a manner that would require re-evaluation of these resources. Those environmental effects are summarized in Table 1.

This EA also evaluates whether changes in the proposed action, new circumstances not previously analyzed, and information not previously available contribute to a determination of significant, different environmental effects (43 CFR 46.120). The EA provides additional information on the status of and potential effects on archaeology/cultural resources, air quality, benthic resources, birds, fish and essential fish habitat, physical oceanography, non-threatened marine mammals, threatened and endangered species (sea turtles, whales, manatees, and smalltooth sawfish), and cumulative effects. The reasons for providing this additional evaluation include the following: 1) recent cultural resource surveys conducted within the DBA were not described in the previous assessments; 2) criteria-pollutant emission estimates have been revised; 3) recent research offshore northeast Florida provides additional information about benthic resources, birds, fish and essential fish habitat, and physical oceanography; 4) additional information about protected species, marine mammals, and the effectiveness of protective measures is available, and 5) no substantive evaluation of cumulative impacts was included in the previous assessments.

Significance as defined by the CEQ regulations (40 CFR 1500-1508) defines the term “significantly” in terms of both context and intensity (40 CFR 1508.27). Context includes spatial and temporal dimensions of the proposed activities and potential effects. Intensity factors include: (1) the severity of the impact; (2) whether the impact is beneficial or adverse; (3) the degree to which the Proposed Action affects public health and safety; (4) the unique characteristics of the affected area; (5) the degree of controversy; (6) uncertainty; (7) establishing precedence; (8) the cumulative, direct, and indirect aspects of the impact; (9) the effects upon endangered or threatened species; and (10) whether Federal, State, or local laws may be violated. The EA addresses the context and intensity of potential effects to the resources identified above. Impact descriptors, such as negligible, minor, and moderate, are used to scale the context, duration, and intensity of potential effects.

**Table 1. Summary of Environmental Effects**

ENVIRONMENTAL RESOURCE	1974 EIS IMPACTS	1993 EA IMPACTS	2005 EA IMPACTS	2011 EA IMPACTS	MITIGATION
AESTHETICS	Not evaluated.	Temporary adverse visual impact from construction equipment; long-term positive visual impact from restored beach. (9.07)	Enhance natural aesthetics of Duval County beaches by covering exposed beach armorment and enhance dune areas. (4.8)	Not evaluated.	
AIR QUALITY	Not evaluated.	Temporary and localized decrease in air quality from construction-equipment emissions. No long term accumulation of particulates. (9.10)	Temporary and localized decrease in air quality from construction-equipment emissions. No long term accumulation of particulates. (4.11)	Estimated emissions within national ambient air quality standards. Adverse impacts not anticipated.	
ARCHAEOLOGY/ CULTURAL RESOURCES	No impact to known subaerial archaeological sites. Impacts to submerged archaeological resources were not evaluated. (4.09)	No known cultural resources in the project area. (9.04)	Magnetometer and side scan surveys were conducted. Three areas were identified that might contain significant historic resources. No effect with designation of avoidance zones. (4.5)	Remote sensing survey of three target clusters and subsequent diver investigations of two of the clusters identified no potentially significant submerged cultural resources. No effect.	Chance find clause (SHPO and BOEMRE notification)  Prohibit dragging of anchors and pipeline when re-locating pump-out equipment
BEACH COMPATIBILITY / COASTAL HABITAT	Minor impact since grain size of borrow and beach material are compatible. Post-construction survey will be performed to ensure restored beach remains suitable for turtle nesting. Increased beach width will increase available inter-tidal and supra-tidal habitat. (9.0)	Protective beach berm will stall erosion of dunes; beach vegetation may help stabilize dune and beach creating additional foraging habitat. No adverse impacts are anticipated provided beach compaction monitoring. (9.01)	Enhance dune and beach vegetation. Increase foraging habitat (4.1). Increase protection of habitat from waves and storms.	Beach compatibility verified through FDEP JCP permitting process. (Appendix D)	Physical monitoring through beach profiles/ topographic surveys (FDEP)  Implementation of beach compaction monitoring and physical monitoring plan (FDEP/FWS)  Remediation plan for removal of unacceptable material

ENVIRONMENTAL RESOURCE	1974 EIS IMPACTS	1993 EA IMPACTS	2005 EA IMPACTS	2011 EA IMPACTS	MITIGATION
BENTHIC RESOURCES	Lethal effect on benthic organisms and sessile invertebrates from dredge entrainment. Re-colonization and recovery expected within 18 months. Surf zone and inter-tidal beach invertebrates may be buried during placement, but are expected to recover. (4.02)	Short-term and localized reduction in beach infauna. Inter-tidal and supra-tidal invertebrates may be buried, but are expected to avoid and/or recover (9.02). Mortality and displacement at borrow site, but benthic communities are expected to recover.	Possible mortality for nonmotile invertebrates in immediate area of dredging and fill. Temporary and localized defaunation from bottom disturbance, sub-lethal effects from elevation turbidity, burial, and habitat degradation. Long term suppression not expected due to dredging intervals and highly adaptive benthic assemblages. Re-colonization expected to occur. (4.1)  No hard-bottom habitat in the project area.(3.4)	Same as previous.	Turbidity monitoring in the vicinity of dredging and beach fill operations
BIRDS & WILDLIFE RESOURCES	Minor effects on nesting and foraging birds during placement operations, but no injury expected as birds are generally expected to show avoidance behavior. (4.06)	Short and localized disruption of feeding, foraging, and nesting during construction activities owing to increased noise, turbidity, and beach reshaping. Following construction, enhanced beach vegetation may provide additional refuge and foraging opportunities. (9.02 / 9.09)	Short-term and localized disruption of feeding, foraging, and resting for birds, small mammals, and reptiles during construction. Following construction, enhanced beach vegetation may provide additional refuge and foraging opportunities. (4.2)	During dredging and placement activities, bird habitat may be adversely or beneficially affected; similar, short-term and local disturbances may affect individual bird behavior. Implementation of bird protection policy should minimize effects.	Corps's migratory bird protection policy will be implemented  Surveys for nesting shorebirds conducted daily if construction occurs during April-September (FDEP)  300 ft buffer zones around nesting or courting shorebirds  Compaction testing, tilling, and escarpment removal outside of bird nesting season
ENVIRONMENTAL JUSTICE			Proposed action does not overlap with specific groups in a manner that is disproportionately adverse. (6.15)	Not evaluated.	

ENVIRONMENTAL RESOURCE	1974 EIS IMPACTS	1993 EA IMPACTS	2005 EA IMPACTS	2011 EA IMPACTS	MITIGATION
FISH AND ESSENTIAL FISH HABITAT (EFH)	Minor impact on fishes because of mobility. Fishes will avoid effects related to local and short-term increases in turbidity and sedimentation. (4.05)	Not evaluated.	EFH would be temporarily impacted by dredge activity. Fish tend to avoid dredging area. (4.2) Long term suppression not expected due to dredging intervals (Appendix G).	Same as previous.	Turbidity monitoring in the vicinity of dredging and beach fill operations
NON-THREATENED MARINE MAMMALS	Not evaluated.	Not evaluated.	Not evaluated.	Minor behavioral effects related to noise. Minor strike risk as mobile marine mammals can avoid slow moving vessels. Strike risk is minimized with use of observers and speed restrictions.	Use of observers during daylight and avoidance .  Speed restrictions at night.
PHYSICAL OCEANOGRAPHY	Not evaluated.	Not evaluated.	Impacts on wave transformation due to dredging borrow are not expected to be significant due to distance offshore and relative changes in water depth. (Addition to MMS administrative record)	Minor impacts because of distance offshore and relative water depth.	
RECREATION AND TOURISM	Temporary and local restriction of recreational opportunities during construction. Minor effects from limited and localized noise from construction equipment. Post-construction, improved beach will increase recreational opportunities. (4.08)	Substantially increase area for beach recreation. (9.11)	Recreational opportunities and tourism would benefit due to larger beach. Tourism and related economic benefits are expected to increase since public access is readily value to fill areas. (4.12)	Not evaluated.	Issue USCG Local Notice to Mariners

ENVIRONMENTAL RESOURCE	1974 EIS IMPACTS	1993 EA IMPACTS	2005 EA IMPACTS	2011 EA IMPACTS	MITIGATION
THREATENED AND ENDANGERED SPECIES	Beach fill will increase available nesting habitat for sea turtles, since existing shoreline is seawalled. (4.04)	Potential increase of nesting habitat for sea turtles; vessel strike may affect sea turtles, manatees, and right whales. (9.03) Effects to sea turtles, as well as marine mammals, may be avoided or minimized with approved protective measures. (10.0)	Short-term and localized disruption to nesting sea turtles, followed by increase in nesting habitat. (4.3) Hopper dredging may affect marine turtles, right and humpback whales. Effects to marine turtles, as well as marine mammals, may be avoided or minimized with approved protective measures.	Hopper dredging and beach placement may affect marine turtles. Effects to marine turtles, marine mammals, and smalltooth sawfish may be avoided or minimized with approved protective measures.	Terms and conditions of NMFS and FWS Biological Opinions (Appendices H and J). Observer, turtle excluder equipment, relocation trawling, etc. may minimize sea turtle take. Daily nesting surveys, nest relocations, and lighting restrictions minimize adverse effect to nesting sea turtles. Implementation of standard protection measures for manatees and smalltooth sawfish minimize adverse effects.
WATER QUALITY	Temporary, minor impacts (elevated turbidity) to the water column during dredging and beach fill operations. (4.01)	Temporary and localized impacts (elevated turbidity) to the water column during dredging and beach fill placement. State water quality standards will be met (9.05)	Temporary impacts to the water column due to elevated turbidity. Not expected to present detrimental impact. (4.6)	Not evaluated.	Turbidity monitoring in state waters required (optional in OCS).  Implementation of marine pollution control plan.
CUMULATIVE IMPACTS	Not evaluated.	Not evaluated.	Not evaluated.	Incremental contribution of the proposed action to cumulative is small relatively to effects from past, present, and future actions in the vicinity of the project area.	

## Archaeology/Cultural Resources

An archival and literature search was undertaken to identify cultural resources potentially impacted by the Duval County SPP during all phases of construction (USACE, 2005; Hughes, USACE, personal communication 2011). Various project activities such as dredging at the borrow area, pump-out in the nearshore, contractor staging areas, and earth moving activities on the beach were analyzed for potential effects to prehistoric and historic resources (Hughes, USACE, personal communication 2011). Consultation occurred between the Corps and the Florida State Historic Preservation Officer (SHPO) in 1993, 1994, 2000, 2004, 2005, and most recently in 2010 to specifically clarify issues raised in the 2005 Environmental Assessment and resolve issues with potential targets located within the borrow location in 2004. The USACE determined that all areas excluding the borrow area had a very low potential for the presence of cultural resources.

The USACE reviewed the Florida Master Site File database for potential shipwrecks that may be located in the vicinity of pump-out operations, where anchors, clump-weights and submerged pipeline may be in contact with the seafloor. No known resources were recorded within the project area. No inadvertent discoveries have been reported during past nourishment cycles. The USACE reviewed National Oceanic and Atmospheric Administration (NOAA) nautical charts and the Automated Wreck and Obstruction Information System (AWOIS) database, which confirmed the presence of two known obstructions in the nearshore environment approximately two miles north of the project area, but well outside the activity area for any dredging or pump-out operations. To further minimize the already remote risk of damage to undocumented historic properties during pump-out operations, the USACE will ensure that the dredge contractor does not intentionally drag equipment along the seafloor when relocating equipment. The USACE will also provide instruction to the dredge contractor in the event of an unanticipated discovery of a cultural resource, which calls for immediate cessation of operations and notification.

R. Christopher Goodwin & Associates, Inc. completed an archaeological and hazard survey of the DBA on May 28, 2004. A companion assessment was prepared describing the potential for prehistoric and historic properties in the borrow area (R. Christopher Goodwin & Associates, 2004). Three clusters of magnetic anomalies were identified as potential historic sites: Target Cluster #7, Target Cluster #8, and Target Cluster #9. Exclusion zones were established around the three target clusters during dredging operations in 2005. In October 2008, Southeastern Archaeological Research, Inc. (SEARCH) of Jonesville, Florida conducted a refined, high-resolution remote sensing survey and diver investigation to identify and evaluate the three targets. The clustered anomalies were delineated and documented relative to potential historic remains according to National Register of Historic Places (NRHP) criteria.

SEARCH failed to relocate Target Cluster #7 suggesting that the target was no longer at its original location. Review of the original magnetic signature, which consisted of seven small, individual magnetic anomalies and no side scan sonar return, suggests the target was a small, isolated target, possibly a wire cable that has since been displaced or buried by migrating bed forms. The USACE determined that NRHP criteria did not apply to the target and no additional work was necessary for this target area. Target Cluster #8 was successfully relocated with the magnetometer; however, it still remains unidentified. Results of the hydro-probe survey indicate

the target is either deeply buried or represents an object easily missed with the hydro-probe (i.e., wire cable). In addition, the magnetic signature (monopole) suggests the anomaly is a single-point source target. The USACE determined that NRHP criteria did not apply to the target and no additional work was necessary for this target area. Target Cluster #9 was identified as a large iron float with associated dredge pipe. Analysis of the magnetic data and contour map also indicate a linear feature reinforcing the diver identification of a dredge pipe. This object was likely discarded or accidentally lost during previous beach nourishment activities. The lack of rivets, lack of structural components typically associated with a shipwreck site, and presence of a large diameter pipe (indicative of a dredge pipe) suggest that target is modern industrial debris, and therefore, the target does not fulfill criteria established by the NRHP. No additional work was recommended for this target cluster. The USACE determined that the exclusion zones for to the three clusters implemented in 2005 were no longer needed and that the Duval County SPP would have no effect on historic properties. The SHPO concurred with the determination that the debris discovered within DBA were not significant cultural resources via letter dated March 16, 2009 (DHR Project File No.: 2009-00711; Appendix E). No other effects are likely on the OCS since dredge plant and vessel anchoring is prohibited outside the borrow area. The BOEMRE requires implementation of a chance-finds procedure which calls for immediate cessation of operations and notification in the event of an unanticipated discovery of a cultural resource.

## **Air Quality**

Criteria air pollutant emissions were estimated for the proposed action using estimates of power requirements, duration of operations, and emission factors for the various equipment types. Multiplying horsepower rating, activity rating factor, and operating time yields the energy used. The energy used multiplied by an engine-specific emission factor yields the emission estimate. Operational data from the 2005 nourishment cycle was used to estimate power requirements and duration for each phase of the proposed hopper dredging activity. The horsepower rating of the dredge plant was assumed for each activity as follows: propulsion (3,500 hp), dredging (2,000 hp), pumping (2000 hp), and auxiliary (1,165 hp). Different rating or loading factors were used for dredging, propulsion, and pumping. The estimated duration of dredging is approximately 80-90 days. The estimated time to each complete dredge cycle, including idle time, was approximately 5.5 hours per load. It was assumed that approximately 4,000 yd<sup>3</sup> of material would be moved in each cycle, requiring about 350 loads to excavate enough material to place approximately 1,000,000 cubic yards of sand on the beach. The placement and relocation of the nearshore mooring buoys used during pump-out may involve up to two tender tugboats, a derrick barge, two work barges, and pipeline hauler / crane. It was assumed that the buoy would need to be moved multiple times during the project, with each move taking approximately 12 hours. It was assumed that a crew/supply vessel would operate daily for four hours as well. All dredging was assumed to occur on the OCS, whereas 55% of hopper transport and crew/supply vessel activities were assumed to occur over state waters or at the placement site. The beach fill related estimates assumed the use of up to four bulldozers/pipeline movers and two trucks, each operating eighty percent of the time for the duration of the project.

Emission factors for the diesel engines on the hopper dredge, barge, tugboats were obtained from EPA's *Compilation of Air Pollutant Emissions Factors, AP-42, Volume 1* (2002). Emission factors for tiered equipment used in beach construction were derived from NONROAD model

(5a) estimates. Total project emissions of nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), volatile organic compounds (VOC), and particulate matter (PM) are presented in Table 2.

**Table 2: Estimated emissions (tons per year)**

Activity	Emissions (tons)					
	NO <sub>x</sub>	SO <sub>2</sub>	CO	VOC	PM <sub>2.5</sub>	PM <sub>10</sub>
Dredge Plant (Hopper)						
Dredging/Operation	20.3	0.5	6.2	0.7	0.4	0.5
Turning/Sail	28.6	1.1	14.4	1.7	1.0	1.0
Pump-out	9.9	0.1	1.9	0.2	0.1	0.1
Idle / Connect-Disconnect	3.2	0.1	0.9	0.1	0.1	0.1
Supporting Offshore Activities	2.5	<0.1	0.6	0.1	0.1	0.02
Beach Fill	6.2	1.1	2.9	0.4	0.5	0.5
<b>Total Emissions</b>	<b>70.6</b>	<b>2.9</b>	<b>26.9</b>	<b>3.2</b>	<b>2.2</b>	<b>2.2</b>
Total Emissions within State	36.8	1.9	14.1	1.7	1.3	1.3
Total Emissions within OCS	33.8	0.9	12.8	1.5	0.9	0.9
2002 Countywide Emissions Nonpoint + Mobile (Point and Nonpoint + Mobile)	39,335 (72,621)	13,747 (51,963)	299,945 (303,505)	55,912 (57,871)	3,103 (5,751)	9,574 (12,813)
Duval County 2002 emissions from EPA National Emission Inventory <a href="http://www.epa.gov/air/data/">http://www.epa.gov/air/data/</a>						

The proposed action may result in small, localized, temporary increases in concentrations of nitrogen dioxide (NO<sub>2</sub>), SO<sub>2</sub>, CO, VOC, and PM. Since the project is located in an attainment area, there is no requirement to prepare a conformity determination. Nonetheless, estimates were tallied to determine the portion of total emissions that would occur within state limits. Since the Federal OCS waters attainment status is unclassified, there is no provision for any classification in the Clean Air Act for waters outside of the boundaries of state waters. Calculating the increase in emissions that may occur within the state limits was done by subtracting out the dredging-related and 45% of transport emissions, since those activities would take place entirely over Federal waters.

Emissions associated with the dredge plant would be the largest contribution to the inventory. However, the total increases are relatively minor in context of the existing point and nonpoint and mobile source emissions in Duval County. Projected emissions from the proposed action

would not adversely impact air quality given the relatively low level of emissions and the likelihood for prevailing offshore winds. With the proposed action, the criteria pollutant levels would be well within the national ambient air quality standards.

## **Benthic Resources**

Recently-acquired benthic camera video shows that the benthic habitat in the vicinity of the DBA consists of variably defined sand waves overtopping coalescing sand ridge features and flat silty-bottom (Zarillo *et al.*, 2009). Sand waves generally align north-northwest and south-south east. Adjacent flat bottom areas exhibit small depressions, polychaete mounds, and track marks. Polychaetes, amphipods, and bivalve mollusks were dominant benthic assemblages observed in benthic grab samples and video during biological sampling periods in November 2005 and June 2006. Lotspeich and Associates (1997), studying potential impacts associated with the use of adjacent offshore dredged material disposal site, observed polychaetes, mollusks, and arthropods in highest abundance and greatest number of taxa. Dominant epifauna included echinoderms, such as sand dollar and sea stars. Brooks *et al.* (2006) suggested that seasonality is the principal control on species dominance and overall abundance and diversity. In the project area, greater differences in species richness, abundance, and community structure for infauna and epifauna attributed to seasonal compared to spatial variation (Zarillo *et al.*, 2009; Lotspeich and Associates, 1997). Since spring is generally a more productive period, the stress to benthic communities from offshore dredging can be minimized by dredging during less productive periods (Zarillo *et al.*, 2009).

Dredging will result in localized, lethal and sub-lethal impacts to infauna and borrowing and motile epifauna within the dredging footprint due to likely entrainment, burial and sedimentation, and interruption of feeding. Potential effects include temporary and localized decreases in density, abundance, biomass, diversity, and productivity. The benthic communities common to the Northeast Florida shelf are exposed to frequent disturbances such as storms and algal blooms and are expected to be resilient to a more localized physical disturbance. Since the benthic habitat and assemblage in the DBA is similar to that in undistributed, surrounding areas, recruitment and recolonization should occur rapidly. Following dredging, initial colonization by opportunistic species will occur through larval settlement and adult migration. While abundance, species numbers, and diversity of benthic community are anticipated to recover relatively rapidly, species composition may take longer, especially if there are different textural characteristics of the seafloor following dredging. The area targeted for beach fill in the 2005 dredging window may be used in this re-nourishment cycle. Increasing the frequency and scale of dredging activities may prolong recovery relative to areas not previously dredged. However, given the relatively high densities and fecundity of benthic communities, coupled to the relatively small footprint of potential impact, minor impacts to benthic resources are expected.

## **Birds**

Many species of pelagic, migrant, and coastal birds can be found along the coastal beaches, wetlands, and adjacent inner shelf of northeast Florida. The U.S. FWS has designated an extensive number of bird species as priority birds of conservation concern, and the Florida Fish and Wildlife Commission (FWC) has listed several of the same bird species as endangered or

threatened (Appendix F). Some of these shorebirds, waterfowl, wading birds, seabird, raptors, and passerines may be present in or in adjacent to the project area. However, the majority of the species are not expected to nest in the footprint of the project area because the beach and dune areas are highly urbanized and undergo high traffic as recreational beaches (DeMarco, personal communication with Doonan, 2005). Gulls and terns are more likely to forage along the beach. There are no FWC-recognized Important Birding Areas (IBA) in the footprint of the proposed project, as compared to adjacent beach and inter-tidal areas along and north of St Johns River. Many coastal species use a specific habitat for nesting, but forage over a much larger coastal and marine landscape (Guilfoyle et al., 2007). Therefore, offshore sand ridges may be foraging grounds for various waterbirds, including seabirds, loons, and sea ducks. Species most likely to occur in the dredging area are pelagic birds, pelicans, gulls, and terns (Zarillo et al., 2009).

The Florida FWC has monitored solitary and colony nesting along Duval County beaches (<http://www.myfwc.com/shorebirds/BNB>). There has not been any documented shorebird nesting in the last five years within the project limits. Least terns have nested east of the project along the roof tops of private homes and commercial buildings (e.g., 2007 Vista Del Mar least tern roof colony). During the previous beach nourishment in 2005, shorebird monitoring did not find any nesting or courting shorebirds (DeMarco, personal communication; Bodge, personal communication). Solitary or colonial nesting by seabird species, such as least terns, is very unlikely on the beach in the area.

During dredging and placement activities, bird habitat may be adversely or beneficially affected; similar, short-term and local disturbances may affect individual bird behavior (Guilfoyle et al., 2007; Grippo et al., 2007; Cook and Burton, 2010). Bird species may forage for fish in the hopper as it is being filled during dredging since dredging entrains possible prey items. There is a remote risk of injury to and mortality of individual seabirds diving into the hopper during the influx of sediment slurry (Zarillo et al., 2009). Dredging also results in temporary increases in turbidity and sedimentation, removal and burial of benthic species, and displacement of fishes that could adversely impact foraging local opportunities. However those effects are minor given the short-duration (e.g., several months) of activities and widespread availability of equivalent habitat. Temporary displacement and noise related to use of heavy construction equipment could disturb nesting and foraging birds during the nesting season. Birds may forage in the immediate area of equipment operation where heavy equipment is used to shape dewatering sediment discharged from the pipeline. Temporary adverse effects may also occur from a reduction in available food sources following burial. Beach fill alongshore generally occurs at an alongshore rate of 300-500 feet of beach per day; benthic invertebrates can immediately recolonize the newly created habitat (Defeo et al., 2009). Any tilling and scarp removal that must be done to shape the beach to accommodate nesting sea turtles should be done outside the shorebird nesting season (FDEP, 2005). Following construction, the newly created beach will create suitable shorebird nesting habitat. Detailed borrow area and beach compatibility analysis, as required by state law, has been performed to ensure the beach fill matches the native or existing beach (Appendix D).

The USACE, with the U.S. FWS, Florida Freshwater Game and Fish Commission, and Audubon Society has developed a statewide policy to avoid and monitor impacts to birds and bird habitat (<http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DOCS/MigratoryBi>

rdProtection\_DistrictPolicy.pdf). The USACE has developed procedures for dredge contractors to follow during construction operations ([http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DOCS/MigratoryBirdProtection\\_ContractsSpecs.pdf](http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DOCS/MigratoryBirdProtection_ContractsSpecs.pdf)). The Contractor shall keep all dredging and construction activities under surveillance, management, and control to prevent impacts to migratory birds and their nests. The Contractor may be held responsible for harming or harassing the birds, their eggs or their nests as a result of their activities. The Florida DEP JCP permit and Corps' protection policy jointly require monitoring of shore birds and operation restrictions during the nesting season between April and September, when nesting and courting behavior is most prevalent (Appendix D).

- Within the project area, a 300 ft-wide buffer zone will be established around any location where shorebirds have been engaged in courtship or nesting behavior, or around areas where protected birds occur or winter migrants congregate in significant numbers. Any and all construction activities, including movement of vehicles, should be prohibited in the buffer zone.
- If shorebird nesting occurs within the project area, a bulletin board will be placed and maintained in the construction area with the location map of the construction site showing the bird nesting areas and a warning, clearly visible, stating that "BIRD NESTING AREAS ARE PROTECTED BY THE FLORIDA THREATENED AND ENDANGERED SPECIES ACT AND THE FEDERAL MIGRATORY BIRD ACT".
- If it will be necessary to extend construction pipes past a known nesting site or overwintering area, then whenever possible those pipes should be placed landward of the site before birds are active in that area. No sand shall be placed seaward of a known nesting site during the nesting season.

### **Fish and Essential Fish Habitat**

Pelagic, demersal, demersal foraging, and invertebrate species likely to be present in the project area are reported in Zarillo et al. (2009). Fish and macroinvertebrate communities in the vicinity of the borrow area were characterized from otter trawls conducted in November 2005 and June 2006. Most common species observed were striped anchovy, sea robins, lizardfish, whiff, and seabass. White shrimp, sea stars, and Atlantic brief squid were also common. Invertebrates including starfish, sand dollars, horseshoe crabs, and squid were observed. Similar to benthic assemblages, fishes varied strongly by season, suggesting temporal changes in abundance and community composition are more important in structuring faunal assemblage than spatial differences in habitat conditions. Spot was most commonly observed in benthic video; other fish include lizardfish, sea robins, drum, pipefish, kingfish, flounder, and silver fish. Only eight federally-managed fish species of the snapper-grouper reef fish complex were observed during trawling; rock sea bass was the only species commonly observed. Other federally-managed fishery resources that may be in the project area include postlarval and juvenile red drum, white shrimp, pink shrimp, and brown shrimp. The project area may also provide nursery and forage habitat for black drum, Atlantic menhaden, and blue crab, which serve as prey for species managed by the South Atlantic Fishery Management Council, as well as highly migratory species managed by NOAA Fisheries. No sensitive hard-bottom habitat has been identified

within the DBA; it has not been documented within the footprint of the equilibrating shoreface.

The USACE, designated as the lead agency for compliance with the Magnuson-Stevens Fishery Management Conservation Act, fulfilled consultation requirements on February 9, 2005 (Appendix G). Pursuant to 50 CFR 600.920, the completed consultation suffices for both federal actions since it addresses the adverse effects of the action on EFH. Consistent with previous effects conclusions (USACE, 2005a), dredging operations may adversely affect demersal and pelagic fishes through lethal entrainment or sublethal removal of the benthic forage base and interruption of filter feeding. Given the relative mobility of adult pelagic fish and limited reliance on benthic prey in the borrow area, avoidance during and re-colonization (commensurate with availability of prey items) following dredging is expected. The potential impacts to demersal fish will be relatively minor since the duration and footprint of potential impact is limited. Adjacent undisturbed habitat provides a proximate source of recruits of similar species. Community composition may not immediately return to its pre-dredge state if sediment composition changes substantially and/or differences in benthic assemblages persist (Slacum *et al.*, 2010); neither condition is expected unless the dredging footprint and frequency increases drastically.

### **Non-threatened Marine Mammals**

The most common species of marine mammals found in the project area are bottlenose and spotted dolphin (Zarillo *et al.*, 2009). Other dolphin species and non-listed marine mammals, including minke whales, beaked whales, killer whales, pilot whales, and melonhead whales, typically observed in deeper waters of the Atlantic rarely occur in waters less than 100 m deep unless stranded. Since larger marine mammals are generally not expected to be present in nearshore waters offshore Northeast Florida, mammals generally exhibit avoidance behavior in the presence of slow-moving dredge vessels, and trained observers will be on-board during operations, no collision fatalities are expected and behavioral responses are not expected to rise to the level of harassment. Another impact-producing factor potentially affecting marine mammals includes noise from dredge operation or service vessels; dredging may be audible for marine mammals up to several kilometers from the source, depending on conditions. However, the potential take or injury of marine mammals due to noise is considered low since source levels generally do not exceed 180-190 dB re 1 $\mu$ Pa at 1 m, sound levels rapidly dissipate, the overlap in low-frequency noise bandwidth and marine mammal hearing is limited, and the avoidance behavior will likely be exhibited (Thomsen *et al.*, 2009). The mitigation measures required for ESA-listed marine mammals (e.g., observers, vessel speed restrictions; avoidance measures; see *Listed Whales*) also apply to marine mammal species not listed under the ESA, but afforded protection under the Marine Mammal Protection Act (MMPA). With implementation of the proposed mitigation, potential impacts on marine mammals would be minor.

### **Physical Oceanography**

Previous NEPA documents described the physical and geologic environment of the project area (USACE, 1993; USACE, 2005). A more recent description of waves and currents common to the shallow shelf offshore of Northeast Florida can be found in Zarillo *et al.* (2009). Potential impacts to the physical environment from dredging due to the modification of seafloor bathymetry and sediment conditions include effects on near-field and far-field hydrodynamic and

sediment transport processes. Increasing shoal depth generally leads to decreased current velocity, sediment convergence, and infilling. Although local velocities immediately downstream of dredged areas may temporarily increase (in the direction of strong alongshelf flows), the magnitude of change and the size of the footprint are expected to be relatively small. Alterations of near-bed currents may result in local and short-lived changes in sediment transport pathways in the immediate vicinity of the borrow areas, but the pathways are expected to return to pre-dredging conditions following infilling. Also, as waves move landward from deeper water and propagate over bathymetric anomalies resulting from removal of material at the borrow area, the height, direction, and other characteristics of the waves change. Wave shoaling, refraction, reflection, and diffraction, coupled to currents, can increase or decrease the transport of sand at the borrow area and along the shoreline, resulting in localized erosion and accretion. Infilling and migration of, as well as sediment deposited in, borrow depressions are expected to reflect natural variations, including storm characteristics and source material. When evaluating offshore dredging, it is often important to consider the possible effect on nearshore wave transformation and changes to wave-induced longshore sediment transport, which in turn may affect shoreline change. Because of the relative depth and distance offshore, no substantial impacts to shoreline processes in the study area are expected.

Zarillo et al. (2009) implemented a numerical model combining wave-energy (including wind-generated waves) and two-dimensional, vertically-averaged circulation (wind, tidal and sub-tidal). Combined wave, circulation, sediment transport, and morphologic change was simulated from January 1998 through December 1999 using the Coastal Modeling System. Three different scenarios were run including a base case, single use case, and multi-use (or cumulative) case. Modeling results show that under fair-weather conditions there is little influence on the wave and current regime. In general, long-period swells are most influenced by dredging shoal crests. Reduction in wave height was predicted to occur because of the increased depth over borrow area, whereas minor increases occur at borrow margins due to refraction. Extreme storm cases show a decrease in wave height and energy immediately over the borrow area (50 cm), compared to wave focusing on northern and sound boundaries (increase up to 30 cm). Net sediment transport is south-directed, with notable convergences and divergences related to existing wave conditions. Differences in sediment transport were small (<500 m<sup>3</sup>/yr, less than 5% of the annualized longshore transport potential). Predicted bottom elevation changes in the borrow area and upper shoreface are largely produced from net effects of high energy storm conditions. Differences in upper shoreface wave heights were less than 1 cm equating to worst case morphologic change of 4 cm. The general trend shows net erosion on shoreface and lower shoreface deposition; interestingly, there is less elevation change predicted than would occur naturally under the same forcing conditions. Limited morphologic response was modeled in the borrow area. Maximum changes reflected borrow area margin erosion and bottom deposition; elevation changes are less than 40 cm of the modeled two-year period. Borrow area margins may locally erode and relatively deeper depressions migrate until equilibrium is reached. Pre and post-dredging bathymetric observations from 2005 indicate substantial morphologic elements remain following dredging, suggesting the assumptions used to develop scenario-based bathymetric templates were conservative. Minor impacts to physical processes related to dredging are expected.

### **Threatened and Endangered Species**

## *Sea turtles-Offshore*

In 2005, the Bean Stuyvesant hopper dredge *Eagle I* was used to excavate sand from the DBA Area A - North and transport it to the SPP placement area. Dredging was performed in compliance with the terms and conditions of the National Marine Fisheries Service's (NMFS) 1995/97 South Atlantic Regional Biological Opinion (RBO), including the use of rigid turtle deflectors (Appendix H). The deflectors move, or deflect, turtles which may be resting on the bottom away from the draghead. All dredge activities were monitored by two endangered species observers approved by NMFS. The observers periodically checked the dredge equipment and intake screens leading to the hopper for entrained sea turtles and their parts.

Dredging operations occurred over 58 "dredge days" between June 10th and August 7th moving approximately 616,000 cubic yards. During this time frame, two loggerhead sea turtle (*Caretta caretta*) mortalities were documented by observers. These mortalities were reported to NMFS, but only the last one on 7/3/2005 (<http://el.erdc.usace.army.mil/seaturtles/pdfs/saj2005-4-ti740-ir.pdf>) was applied to the USACE-South Atlantic Division authorized annual incidental take limit of 35 loggerhead sea turtles. The first mortality, which was not attributed to entrainment, was found in the port draghead, but its death was estimated to have occurred between 2-4 days prior. NMFS did not attribute this mortality to entrainment or other incident involving the dredge. During 134 hopper dredging days in 1995 (6/14-11/9), removing approximately 1.1 million cubic yards from an adjacent borrow area, no takes were documented.

The USACE has previously determined that the use of a hopper dredge may adversely affect sea turtles (Appendix H; USACE, 2005). Potential effects include entrainment of adult and sub-adult sea turtles and disruption of foraging because of vessel traffic, noise, turbidity and sedimentation, and decline in prey item (Dickerson et al., 2004, Dickerson et al., 2006; Dickerson et al. 2007). The NMFS has concurred with this determination and believes that take resulting from hopper dredging operations will not jeopardize the continued existence of any sea turtle species. In compliance with the NMFS South Atlantic RBO, the following protective measures shall be implemented to minimize the risk of taking sea turtles during proposed hopper dredging activities at DBA:

- The Contractor shall instruct all personnel associated with the project of the potential presence of threatened and endangered species, such as sea turtles, and the need to avoid collisions with these animals or harming them in any way.
- All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing sea turtles, which are protected under the Endangered Species Act. The Contractor may be held responsible for any threatened and endangered species harmed, harassed, or killed as a result of construction activities.
- During dredging operations, an observer approved by the NMFS shall be aboard the dredge to monitor for the presence of sea turtles.
- Any take concerning a sea turtle or sighting of any injured or incapacitated sea turtle shall

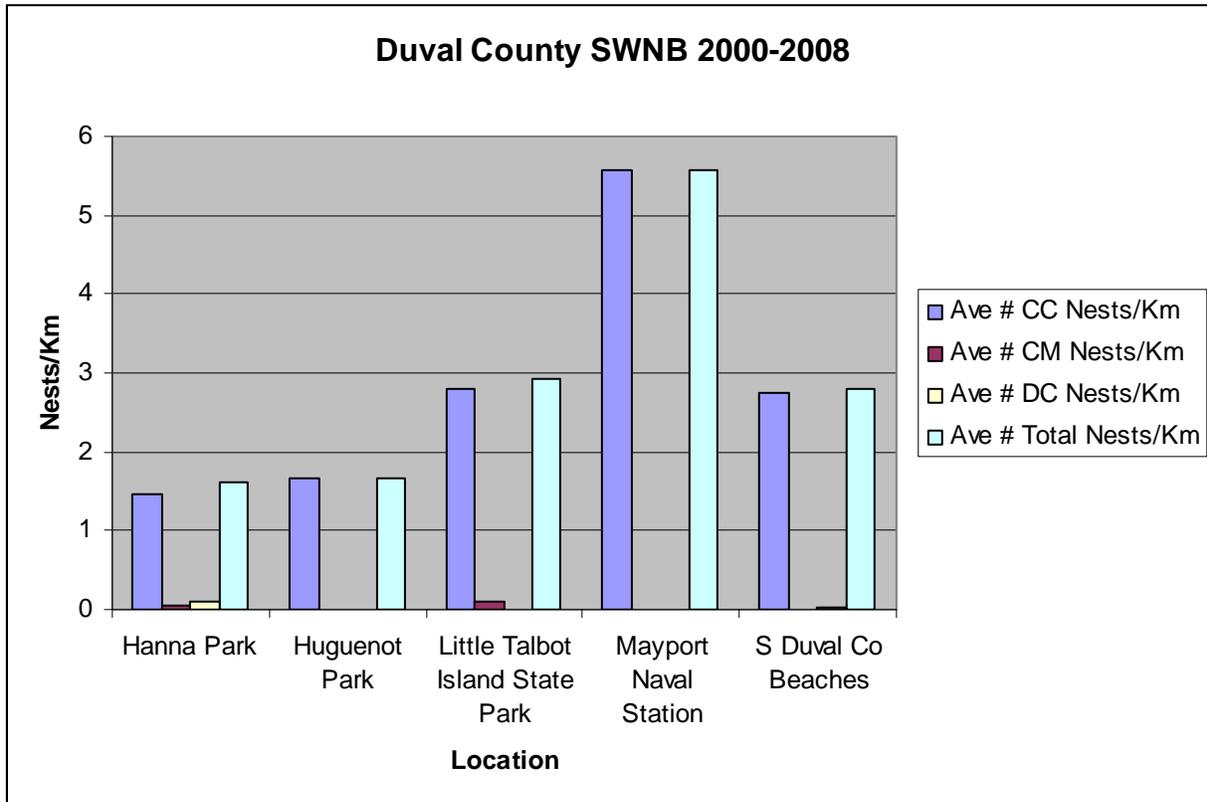
be reported immediately to the USACE contracting officer.

- Hopper dredge drag heads shall be equipped with rigid sea turtle deflectors which are rigidly attached. No dredging shall be performed by a hopper dredge without an installed turtle deflector device approved by the USACE contracting officer.
- The Contractor shall install baskets or screening over the hopper inflow(s) with no greater than 4" x 4" openings. The method selected shall depend on the construction of the dredge used and shall be approved by the contracting officer prior to commencement of dredging. The screening shall provide 100% screening of the hopper inflow(s). The screens and/or baskets shall remain in place throughout the performance of the work.
- The Contractor shall install and maintain floodlights suitable for illumination of the baskets or screening to allow the observer to safely monitor the hopper basket(s) during non-daylight hours or other periods of poor visibility. Safe access shall be provided to the inflow baskets or screens to allow the observer to inspect for turtles, turtle parts or damage.
- The Contractor shall operate the hopper dredge to minimize the possibility of taking sea turtles and to comply with the requirements stated in the Incidental Take Statement provided by the NMFS in their RBO.
- The turtle deflector device and inflow screens shall be maintained in operation condition for the entire dredging operation.
- When initiating dredging, suction through the drag heads shall be allowed just long enough to prime the pumps, and then the drag heads must be placed firmly on the bottom. When lifting the drag heads from the bottom, suction through the drag heads shall be allowed just long enough to clear the lines, and then must cease. Pumping water through the drag heads shall cease while maneuvering or during travel to/from the disposal area.
- Raising the drag head off the bottom to increase suction velocities is not acceptable.
- The Contractor shall keep the drag head buried a minimum of 6 inches in the sediment at all times.
- During turning operations the pumps must either be shut off or reduced in speed to the point where no suction velocity or vacuum exists.

### ***Sea Turtles-Onshore***

Three sea turtle species are known to nest along Duval County beaches. In order of abundance, the species are the loggerhead (*Caretta caretta*), green (*Chelonia mydas*), and leatherback (*Demochelys coriacea*). The nesting and hatching season considering all three species generally extends from April 15 through November 30. The beaches of Duval County are separated into five Statewide Nesting Beach Survey (SWNB) zones. Of the 5 SWNB monitoring zones in

Duval County, only 3 coincide with the project area. These are from north to south, Mayport Naval Station (from the south jetty to 1.9 km south), Hanna Park (1.9 to 4.2 km south of south jetty), and South Duval County Beaches (4.2 km south of south jetty to county line). Average sea turtle nest densities recorded within the project area ranged from 1.6 to 5.6 nests per km between 2000 through 2008 nesting seasons (Figure 4). Sea turtle nest densities in 2009 in the Mayport Naval Station, Hanna Park, and South Duval County monitoring zones were 6.1, 4.2, 6.1, and 3 nests per km respectively.

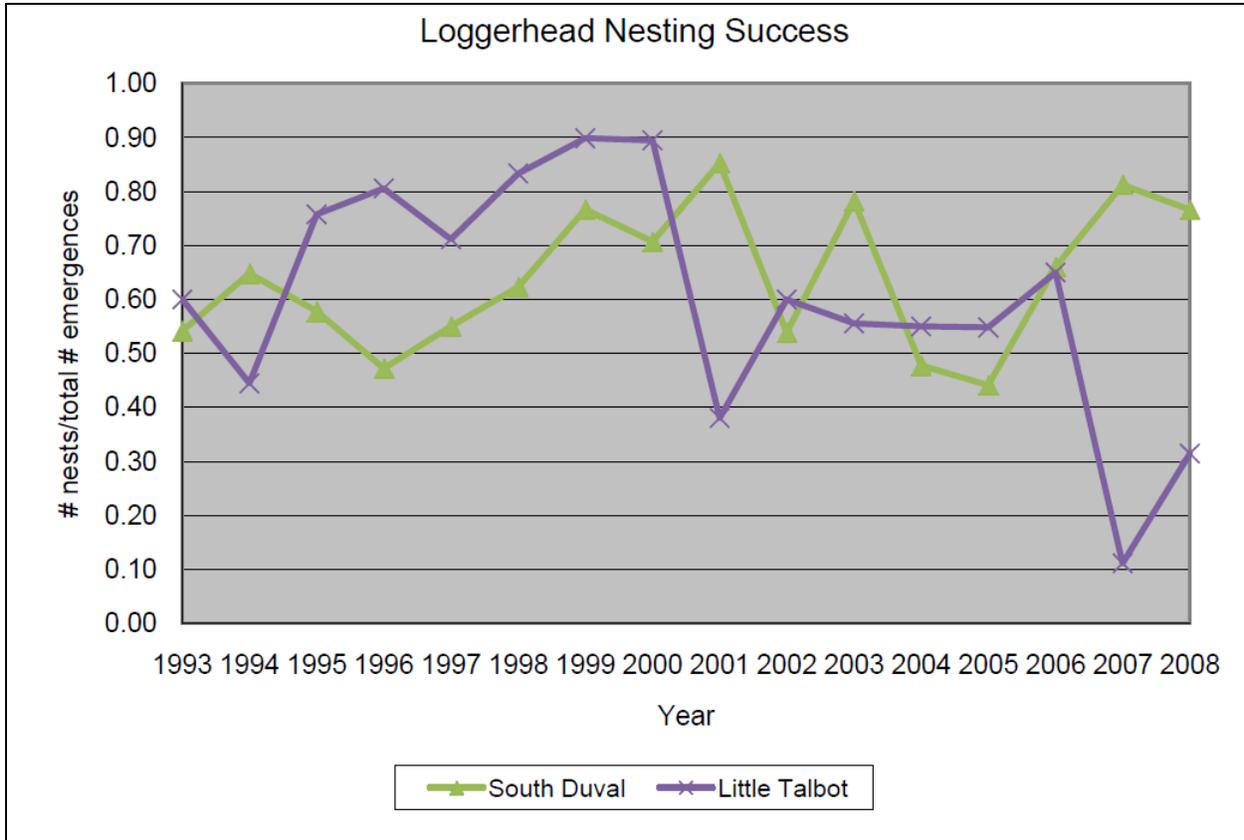


**Figure 4: Duval County Statewide Nesting Beach (SWNB) Survey Data from 2000-2008 (CC: loggerhead; CM: green; DC: leatherback)**

Recent analysis of Florida's long-term loggerhead sea turtle nesting data reveals that nest counts have declined 25 percent from 1998 to 2010, but that the trend over the 22-year period (1989 to 2010) appears to be stabilizing (FFWC, 2010). Densities of loggerhead sea turtle nests reported along Duval County beaches from 2000 through 2008 ranged from 1.47 to 5.56 nests per km (FFWC, 2009). In 2009, 81 loggerhead nests were documented on 28.6 miles of county beaches; 52 were observed in the project area. The annual number of loggerhead nests per year ranged from 27 to 81 between 2005 and 2009. Green sea turtle nest densities reported for the county ranged from 0 to 0.11 nests per km between 2000 through 2008 (FFWC, 2009). In 2009, no green sea turtle nests were documented county-wide. Leatherback nesting in Duval County ranged from 0 to 0.09 nests per km between 2000 and 2008 (FFWC, 2009). In 2009, five leatherback sea turtle nests were documented in the project area.

Results of annual monitoring of sea turtle nesting activity on beaches nourished in 1994 and 2005 indicate that the fill material from the Duval Ridge Field is suitable for sea turtle nesting

purposes and compatible with sea turtle nesting behavior. The South Duval reach has been impacted by highly eroding, narrow beaches and repeat historical beach nourishment activities. Nesting success (the number of nests divided by the total number of emergences) for the south Duval county beaches SWNB monitoring zone averaged 64% for loggerhead sea turtles between 1993 -2008. For four years following the 1994 nourishment, nesting success was below the long-term average. Nesting success has also been above the average since the 2005 nourishment. Nesting success for the Little Talbot Island monitoring zone, north of the inlet and undisturbed by nourishment activities, averaged 60% for the same period. However, the trend shows decline of loggerhead nesting success.



**Figure 5:** South Duval County and Little Talbot Loggerhead Nesting Success (1993-2008)

The USACE has determined that the beach placement of dredged material may affect nesting sea turtles. Potential short-term effects include equipment and escarpment barriers to nesting and hatchling movement, temporary degradation of beach habitat due to the compatibility of beach profile, sediment moisture, and sediment texture, destruction of nests and deposited eggs, reduced hatching success due to egg mortality, disturbance of nesting female turtles, misdirection or disorientation of hatchling turtles because of project lighting, behavior modification resulting in false crawls, and destruction of nets during approved escarpment leveling (Dickerson et al., 2006; Brock et al., 2009). Long-term positive effects, such as increased nesting habitat and nesting success, may also result following construction operations in highly-eroded and narrow beach segments where the quality of nesting habitat is poor (Dickerson et al., 2006). Based on field inspections and grain size analysis, in-place fill material from DBA is comprised of high-quality beach compatible sand with no objectionable material (Appendix D/Appendix I). To

minimize potential adverse impacts, the USACE has incorporated the following design measures into the proposed action, consistent with the terms and conditions derived from previous ESA consultations:

- Use beach quality sand suitable for sea turtle nesting, incubation and hatchling emergence.
- Daily early morning nesting surveys and restricted nest relocation and/or avoidance April 15 to September 30. During night
- Measurement of sand compaction and tilling of the nourished beach if required, prior to April 15, after construction and for three subsequent years.
- Visual surveys for escarpments after construction and for three subsequent years, and removal of escarpments prior to March 1 (and thereafter, pursuant to coordination with the USFWS and FWC) that interfere with sea turtle nesting.
- Requisite meetings between the construction contractor, USFWS, FWC and marine turtle State permit holder.
- Minimization of storage of construction equipment upon the beach from April 15 through November 30.
- Avoidance and minimization of lighting of the beach and nearshore waters, and upon offshore equipment, from April 15 to November 30.

In their August 25, 2010 Biological Opinion, the U.S. FWS concurred with the USACE's determination that the project may adversely affect sea turtles (Appendix J). The proposed action will not result in destruction or adverse impact to critical habitat of nesting sea turtles. The U.S. FWS has determined a suite of reasonable and prudent measures and implementing terms and conditions are necessary to minimize take of nesting sea turtles, including limitations on night-time construction and notification and relocation procedures in the event a sea turtle nest is excavated during construction activities.

### ***Listed Whales***

The project area occurs within critical habitat designated for the North Atlantic right whale. Right whales are known to concentrate off the northeast coast of Florida during November through April. NMFS has established the Southeast Seasonal Management Area between 11/15 to 4/15 since the southeast Atlantic Coast serves as calving and nursery grounds for this endangered species. The Corps has previously determined that hopper dredging activities may affect, but are not likely to adversely affect protected species of whales. Endangered species observers did not record any whale sightings during hopper dredging activities at the DBA in 2005. However, potential effects include lethal and sublethal strike, as well as behavior modification due to interaction with or avoidance of vessels. NMFS has concurred with this determination and believes that takes resulting from hopper dredging activity will not jeopardize the continued existence of right whales. In continued compliance with the NMFS South Atlantic RBO (Appendix H), barges or dredges moving through project waters must implement the following precautionary measures in order to avoid collisions with whales:

- The Contractor shall instruct all personnel associated with the project of the potential presence of threatened and endangered species, such as whales, and the need to avoid collisions with these animals or harming them in any way.
- All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing whales, which are protected under the Endangered Species Act and the Marine Mammal Protection Act. The Contractor may be held responsible for any protected species harmed, harassed, or killed as a result of construction activities.
- During dredging operations, an observer approved by the NMFS shall be aboard the dredge to monitor for the presence of whales.
- During evening hours or when there is limited visibility due to fog or sea states greater than Beaufort 3, the tug/barge or dredge operator shall slow down to 5 knots or less when traversing between areas if whales have been spotted within 15 nautical miles (nm) of the vessels path within the previous 24 hours.
- During the period 1 December through 30 March, daily aerial surveys within 15 nm of the dredging and placement sites will be conducted by others to monitor for the presence of the right whale. Right whale sightings will be immediately communicated by marine radio to the dredging contractor.
- The tug/barge or dredge operator shall maintain a 500-yard buffer between the vessel and any whale.
- If a stranded/injured/incapacitated whale is observed within the construction site, the contractor is requested to immediately contact the NMFS Whale Stranding Network pager number at 305-862-2850.

### ***West Indian Manatee***

Manatees may be found in or adjacent to the proposed action area during spring, summer, and fall. In winter, most manatees move south of Duval County; whereas, during spring and summer, manatees with new calves have been seen in upstream tributaries because those areas tend to be sheltered (Jacksonville University, 2009). No West Indian manatees (*Trichechus manatus*) were sighted during dredging activities during the 2005 event. This was not considered unusual as this species prefers inshore grass beds, structures where macro-algae proliferates, sources of freshwater such as creeks and not the open ocean. This species was not adversely affected by dredging activities.

The USACE has determined that the proposed project may affect, but is not likely to adversely affect the manatee (Appendix I). The standard manatee protection conditions shall be implemented throughout the duration of the project. These conditions include the following:

- The Contractor shall instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with manatees.

- All construction personnel shall be advised that there are civil and criminal penalties for harming, harassing, or killing manatees, which are protected under the Endangered Species Act and Marine Mammal Protection Act. The Contractor may be held responsible for any manatee harmed, harassed, or killed as a result of construction activities.
- If siltation barriers are used, they shall be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. Barriers shall not block manatee entry to or exit from essential habitat.
- All vessels associated with the project shall operate at “no wake/idle” speeds at all times while in waters where the draft of the vessel provides less than a four-foot clearance from the bottom, and vessels shall follow routes of deep water whenever possible. Boats used to transport personnel shall be shallow-draft vessels, preferably of the light-displacement category, where navigational safety permits. Mooring bumpers shall be placed on all barges, tugs, and similar large vessels wherever and whenever there is a potential for manatees to be crushed between two moored vessels. The bumpers shall provide a minimum standoff distance of 4 feet.
- If a manatee is sighted within 100 yards of the project area, all appropriate precautions shall be implemented by the Contractor to ensure protection of the manatee. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee. If a manatee is closer than 50 feet to moving equipment or the project area, the equipment shall be shut down and all construction activities shall cease within the waterway to ensure protection of the manatee. Construction activities shall not resume until the manatee has departed the project area.
- Prior to commencement of construction, each vessel involved in construction activities shall display at the vessel control station or in a prominent location, visible to all employees operating the vessel, a temporary sign at least 8.5 x 11” reading, “CAUTION: MANATEE HABITAT/IDLE SPEED IS REQUIRED IN CONSTRUCTION AREA.” In the absence of a vessel, a temporary 3’ x 4’ sign reading “CAUTION: MANATEE AREA” will be posted adjacent to the issued construction permit. A second temporary sign measuring 8.5 x 11” reading “CAUTION: MANATEE HABITAT. EQUIPMENT MUST BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF OPERATION” shall be posted at the dredge operator control station and at a location prominently adjacent to the issued construction permit. The Contractor shall remove the signs upon completion of construction.
- Any collisions with a manatee or sighting of any injured or incapacitated manatee shall be reported immediately to the USACE. The Contractor shall also immediately report any collision with and/or injury to a manatee to the Florida Fish and Wildlife Conservation Commission “Manatee Hotline” 1-888-404-FWCC (3922) as well as the U.S. Fish and Wildlife Service, Jacksonville Field Office.

In their August 25, 2010 Biological Opinion, the U.S. Fish and Wildlife Service concurred with the determination that the project may affect, but is not likely to adversely affect the Florida manatee if the Standard Manatee Construction Conditions are applied (Appendix J). The activities will not adversely modify critical habitat as there is no critical habitat in the project area.

### ***Smalltooth Sawfish***

Smalltooth sawfish (*Pristis pectinata*), currently listed as endangered by NMFS, may rarely occur within the project area; however, it has not been observed during previous dredging events. The National Sawfish Encounter Database managed by the Florida Museum of Natural History, University of Florida revealed only 3 encounters in Duval County. These were between 1879-1884 (Simpendorfer and Wiley, 2006). All three observations were recorded from the St. Johns River in the vicinity of Jacksonville. Currently, the core of the smalltooth sawfish Distinct Population Segment is surviving and reproducing in the waters of southwest Florida and Florida Bay, primarily within the jurisdictional boundaries of Everglades National Park where important habitat features are still present and less fragmented than in other parts of the historic range. The NMFS finalized critical habitat for the sawfish in 2009, but the project area does not overlap any of these proposed locations.

The USACE has determined that the proposed project will not affect the smalltooth sawfish. The project area is not a known nursery or foraging area for smalltooth sawfish, and it does not support the type of habitat favored by juvenile sawfish. While adults may move through or forage in the project area, the Corps has determined that the project will not impact the sawfish from critical habitat loss or entrainment. The risk of injury is presumed to be discountable due to the species' mobility and the effective implementation of NMFS' Smalltooth Sawfish Construction Conditions. In order to protect this species, the USACE will implement the smalltooth sawfish construction conditions, which include the following:

- The Contractor shall instruct all personnel associated with the project of the potential presence of this species and the need to avoid collisions with smalltooth sawfish. All construction personnel are responsible for observing water-related activities for the presence of sawfish.
- The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing smalltooth sawfish, which are protected under the Endangered Species Act.
- Siltation barriers shall be made of material in which a smalltooth sawfish cannot become entangled, be properly secured, and be regularly monitored to avoid protected species entrapment.
- All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times while in the construction area and while in water depths where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will preferentially follow deep-water routes (e.g., marked channels) whenever possible.

- If a smalltooth sawfish is seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure its protection. These precautions shall include cessation of operation of any moving equipment closer than 50 feet of a smalltooth sawfish. Operation of any mechanical construction equipment shall cease immediately if a smalltooth sawfish is seen within a 50-ft radius of the equipment. Activities may not resume until the protected species has departed the project area of its own volition.
- Any collision with and/or injury to a smalltooth sawfish shall be reported immediately to the National Marine Fisheries Service's Protected Resources Division (727-824-5312) and the local authorized sea turtle stranding/rescue organization.

### **Cumulative Effects**

Cumulative effects are those effects on the environment that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes the other actions. Time crowded perturbations, space crowded perturbations, indirect and synergistic impacts, and combinations thereof are considered in this analysis of cumulative effects.

The time bounds for this cumulative effects analysis are from the early 1960s through the completion of out year maintenance cycles, which under the fifty year project authorization will expires around 2030. The Duval County beaches were first nourished as early as 1963, however a range of beach armoring activities, including the construction of a seawall, preceded the initial nourishment. Duval County beaches south of St. Johns River will likely be re-nourished every 5-10 years depending on the frequency and intensity of storms. It is expected that intervening periods between nourishments will generally allow for physical and biological recovery and equilibration of the subaerial and inter-tidal beach. Trampling, lighting, and other human uses may decrease shorebird and sea turtle nesting habitat and interfere with nesting, foraging, parent care, and hatchling behavior. Behavior modification and displacement from preferred nesting and foraging areas will be temporary. Beach fill should redress those losses adding habitat that would otherwise be lost to erosion. Over the authorized period, beach nourishment will be beneficial to recreation and tourism. Between maintenance cycles, biological resources, including infaunal and epifaunal invertebrates and demersal and pelagic fishes, should substantially recover from disturbances, which include burial, reduced prey availability and emigration (Peterson and Bishop, 2005). Most species in sand dominated environments are adapted to severe physical disturbances since storms are frequent along the northeast Florida coast. Beach-compatible sand from the current offshore borrow areas will likely be depleted over the life of the authorized project, and alternative sand sources, in addition to Area B of the DBA, may have to be identified (Figure 1). The DBA will not be dredged perfectly flat relative to the adjacent seafloor, but the habitat function of these individual shoals, when the vertical relief is modified, may be adversely affected. A comparatively large stretch of comparable and undisturbed sand ridges surround the borrow area and provide substitute habitat.

Other past, present, and future activities that may stress environment resources that occur in the

vicinity of the project area include the construction and maintenance of St. John's River jetty and Jacksonville Harbor navigation channel, as well as beneficial use of dredged material and offshore disposal in Jacksonville Offshore Dredged Material Disposal Site (ODMDS). Coastal development and urbanization, commercial and recreational fishing, recreational boating, shipping, and homeporting and naval exercises associated with the Naval Station Mayport have historically and will continue to contribute to onshore and offshore impacts within the project area. Other future actions potentially contributing to environmental effects include channel deepening, artificial reef creation, adjacent beach nourishment projects in St. Johns County, and beneficial use of dredged material along Seminole Beach and north.

Table 3 summarizes the potential effects of the cumulative actions identifying the past, present, and reasonably foreseeable future conditions of the various resources and or impacts. Both beneficial and adverse cumulative effects may occur when the effects of the proposed action are considered in context. Because the relatively small footprint of effect and short-duration of or reversibility of effects attributable to dredging and placement operations, the proposed action contributes a small to negligible incremental effect to cumulative impacts when added to the impacts of other past, present, and reasonably foreseeable actions affecting the project area.

**Table 3: Summary of Cumulative Effects**

	<b>Past</b>	<b>Present</b>	<b>Future without Proposed Action</b>	<b>Future with Proposed Action</b>
Aesthetics	Coastal development has historically affected viewshed and open space. Construction of St. Johns River jetties contributes to chronic erosion and narrow beach.	Restored beach temporarily enhances aesthetics.	Eroding beach without nourishment increases potential for shoreline hardening and decreased beach width.	Nourished beach enhances shoreline aesthetics through increased beach width. Periodic nourishment and presence of associated equipment temporarily affects aesthetics during temporary construction period.
Air Quality	Emissions increased with increased vessel traffic given navigation improvements and channel maintenance. In attainment with air quality standards.	Emissions temporarily increase during channel maintenance and beneficial placement activities. In attainment with air quality standards.	Locally deteriorated air quality with ongoing maintenance of navigation channels, channel deepening, and potentially increased vessel traffic. In attainment with air quality standards.	Short-lived and localized incremental contribution to offshore emissions from periodic dredging operations. Air quality expected to be in attainment.
Archaeology/Cultural Resources	No historic properties affected by previous dredging activities or channel maintenance.	No known cultural resources in the project area. Undocumented cultural resources may be disturbed by commercial trawling, underwater naval exercises, and ancillary activities supporting channel dredging and ODMDS placement.	Undocumented cultural resources may be disturbed by navigation channel dredging, commercial trawling, and underwater naval exercises. Impacts from federal activities should be avoided through mitigation developed through consultation process.	Incremental impact from dredging should be avoided by implementing avoidance buffers and chance finds clause.
Wildlife Resources	Historic loss of terrestrial habitat with construction of river jetties and sediment trapping. Coastal development and storm erosion further reduces available habitat for wildlife.	Incremental loss of beach habitat for shore and migratory birds and other wildlife due to erosion. Temporary displacement effects associated with beach nourishment and beneficial use placement impact migratory birds and other wildlife with protective measures.	Incremental loss of beach habitat for shore and migratory birds and other wildlife due to erosion.	Minimal incremental impact on shore and migratory birds with protective measures. Other wildlife temporarily and locally displaced during nourishment. Increased beach width provides additional habitat for nesting and foraging.
Benthic Habitat and Communities; Fish	Jetty construction and channel deepening altered sediment	Nourishment temporarily and locally impact benthic organisms	Potential adverse effect on intertidal and nearshore habitat	Locally, sand ridges are diminished or depleted;

	<b>Past</b>	<b>Present</b>	<b>Future without Proposed Action</b>	<b>Future with Proposed Action</b>
and Essential Fish Habitat	transport causing erosion and loss of nearshore habitat. Nourishment and beneficial use of dredged material temporarily and locally impacts benthic and fish habitat and species. Benthic habitat and communities recolonize the beach and borrow areas following dredging during past projects, but individual species recovered at different rates.	and fish in borrow, but expected to recover between nourishment cycles. Commercial trawling may contribute to benthic disturbance and declines in foraging fish because of reduced prey, bi-catch, and over-fishing	through severe erosion and profile deepening. Commercial trawling may contribute to benthic disturbance and declines in foraging fish because of reduced prey, bi-catch, and over-fishing	productive benthic habitat and fisheries habitat is reduced. Recurrent dredging may have a greater effect on the recovery of benthic populations, but benthic and fish communities should recovery following nourishment, especially if dredging occurs outside recruitment windows. Changes in faunal community structure may persist for more than 3 years, but should result in minimal loss of Productivity following cessation of dredging.
Manatees/Whales	Construction of inlet jetties increased vessel traffic in vicinity of St. Johns River and led to increased strike of protected whales and manatees.	Unintended strike from vessel traffic from commercial, recreational, and naval vessel traffic. Strike risk minimized with seasonal management and protection measures.	Unintended strike from vessel traffic from commercial, recreational, and naval vessel traffic. Strike risk minimized with seasonal management and protection measures.	Negligible incremental contribution because of limited duration and frequency of dredging operations and implementation of observer and speed restriction requirements.
Noise	No ongoing effect from past noise.	Temporary noise in the marine environment associated with military exercise, shipping and vessel traffic, dredging and commercial activities may contribute to behavioral and sub-lethal injury effects on marine mammals, fish, and sea turtle.	Temporary noise in the marine environment associated with military exercise, shipping and vessel traffic, dredging and commercial activities may contribute to behavioral and sub-lethal injury effects on marine mammals, fish, and sea turtle.	Additional dredging noise in the marine environment is incrementally small short-lived and localized. Not additive since source levels dissipate rapidly.
Physical Environment	Decrease in sediment bypassing associated with construction of St. Johns River jetties continues to affect sediment transport, beach dynamics, and quality of intra-tidal and subtidal habitat.	Coastal erosion incrementally decreases subaerial beach.	Coastal erosion may result increasingly deteriorating quality of beach habitat. Potentially channel deepening may exacerbate erosion and habitat loss without commensurate increase in sediment bypassing.	Incremental removal of individual shoals. Minor changes in hydrodynamics far-field sediment dynamics and shoreline change. Local hydrodynamics in dredged areas may show small deviations from pre-existing

	Past	Present	Future without Proposed Action	Future with Proposed Action
				conditions, but within range of naturally-occurring conditions.
Recreation Resources	River jetties improved navigational access and safety. Beach nourishment has increased temporarily recreational beach width.	Presence of dredging equipment, commercial fisheries, and other ship and vessel traffic temporarily disrupts recreational boat traffic. Nourishment enhances beach recreation opportunities.	Development, population growth, weather conditions/storm events, coastal erosion and degradation of water quality can adversely impact to recreational experience.	Nourishment increases beach recreation opportunities.
Sea turtles	Construction of St. Johns River jetties disrupted sediment transport affecting nesting areas. Nourishment and beneficial placement temporarily restored historic nesting habitat.	Beach erosion reduces sea turtle nesting habitat. Beach lighting and heavy human traffic on beaches during nesting season can also impact sea turtle nesting success. Sand bypassing and beach nourishment compensates for sand disruption. Suite of turtle mitigation minimizes take and extensive monitoring program tracks habitat availability and nesting success.	Potential loss of nesting habitat due to beach erosion. Potential take from commercial fisheries, channel maintenance and deepening, and vessel strike. Required mitigation for federal actions should minimize lethal injury.	Potential take of turtles from beach nourishment and dredging activities. Take during dredging minimized from use of draghead excluder, trawling, and observers. Temporary impact to nesting while profile equilibrates, but long term benefit through nesting habitat restoration. Subaerial impacts include nest destruction, reduced habitat for nesting, and reduced hatching success.
Water quality	Reduced water quality in the St. Johns River associated with coastal development, pollutant, and poor land-use practices. Debris and hazardous and non-hazardous waste from recreational, commercial fishery, and naval vessels degraded water quality and contributed to seasonal eutrophication. Turbidity varies under natural conditions, especially during storm events and hurricanes.	Pollution prevention measures help maintain Class III designation. Water quality may continue to deteriorate due to anthropogenic sources of pollution such as stormwater and effluent runoff to nearshore coastal areas. Temporary increase in turbidity with nourishment and maintenance dredging activities, bottom trawling, and offshore dredged material disposal.	Some local, short-term turbidity impacts would be avoided. Natural sedimentation and turbidity rates would continue based upon storm activity, rainfall, currents, and other natural phenomena. Water quality may deteriorate due to unrelated anthropogenic Sources, maintenance dredging, and offshore disposal.	Local, short-term impacts of turbidity and sedimentation will occur adjacent to the beach fill sites and offshore borrow area. Preventative measures and monitoring during construction should minimize impact.

## **6 ALTERNATIVE TO THE PROPOSED ACTION**

The No Action alternative is for the BOEMRE to not authorize use of OCS sand resources for construction of the Duval County SPP Project. The project proponents could either: (a) re-evaluate the project to choose another alternative method to restore shorelines, or (b) locate an onshore source of comparable high-quality sand. The USACE has previously considered a range of structural and non-structural alternatives to beach fill (USACE, 1974; USACE, 1993). The USACE selected beach fill using offshore borrow areas as its preferred alternative.

Option A would not minimize overall environmental effects because of need to protect the shorelines associated with the Duval County project by either constructing new or augmenting existing protection mechanisms for the beaches. Option B is not considered to be viable as sources of approved onshore sand are limited. In addition, even if a sufficient amount of high-quality sand is located onshore, Option B is likely to result in increased environmental disruption/effect from the onshore excavation of and overland transport.

The no-action alternative will allow for continued erosion of beaches, increasing the potential for storm related property damage, decreasing property values, and decreasing footprint and quality of sea turtle and shorebird nesting habitat.

## **7 INTEGRATION WITH OTHER ENVIRONMENTAL REQUIREMENTS**

The BOEMRE has integrated the process of NEPA compliance with several other environmental requirements, including the Endangered Species Act (ESA), Magnuson-Stevens Fishery Management and Conservation Act (FCMA), Coastal Zone Management Act (CZMA), and National Historic Preservation Act (NHPA). The USACE served in the role of lead federal agency for environmental compliance activities, while the BOEMRE has acted in a consulting or cooperating role.

The potential impacts on sea turtles and North Atlantic right whales were previously coordinated with NMFS pursuant to the ESA and are covered under the 1997 Regional Biological Opinion (Appendix G). The USACE determined that the proposed action will not affect smalltooth sawfish or its critical habitat. The USACE notified NMFS of its intention to apply the 1997 South Atlantic RBO to the project in July 2010. A Biological Assessment was submitted to the U.S. Fish and Wildlife Service (FWS) on March 24, 2010 to re-initiate formal consultation with regard to nesting sea turtles and the West Indian manatee (Appendix H). On August 25, 2010, the U.S. FWS issued a biological opinion, concurring with the USACE's effects determinations on nesting sea turtles and manatee (Appendix I).

The USACE has fulfilled consultation requirements for the Duval County SPP (Spinning, personal communication, July 2010). As the lead federal agency, the USACE initiated consultation with NMFS concerning Essential Fish Habitat in 2004 using the October 2004 Draft Environmental Assessment. NMFS issued Conservation Recommendations on January 12, 2005 (Appendix F). NMFS recommended the USACE prepare a programmatic environmental

evaluation of all beach nourishment and dredging operations along the east coast of Florida to examine the cumulative effects of disturbing offshore and nearshore habitat through excavation, burial, and turbidity, as well as the larger scale effects of coastal engineering. Unless congressionally-authorized, the Corps cannot undertake such an effort. The Northeast Florida Regional Sediment Management Program previously evaluated the benefits of bypassing sediment around coastal inlets along northern Florida beaches, but the concept was not explored further because of the prohibitive cost related to relatively shallow water depths and the need for specialized equipment and vessel traffic routes. Moreover, pursuing another alternative to beach nourishment, such as bypassing, would require separate congressional authorization. NMFS also expressed interest in forming of an interagency working group to develop programmatic alternatives to traditional beach nourishment. In response to the Conservation Recommendations, the USACE indicated their willingness to participate in an interagency working group. No such group has formed to date.

The USACE initiated additional coordination in 2009 regarding Section 106 compliance with the Florida SHPO (Appendix E). The SHPO concurred on March 16, 2009 with the USACE's determination that the magnetic anomalies previously identified within the DBA were not significant cultural resources (DHR Project File No.: 2009-00711).

Pursuant to Subpart D of the implementing regulations for the CZMA (15 CFR 930), the City of Jacksonville obtained a consistency concurrence from the FDEP, dated April 18, 2005, indicating the Duval County SPP was consistent with the Florida's Coastal Zone Management Program (No. 0228528-001-JC). The Florida DEP issued a Joint Coast Permit, constituting the finding of consistence and certification of compliance with state water quality standards. The JCP provides general and specific conditions to minimize the extent of environmental impacts from the proposed activity. On June 25, 2010 the City of Jacksonville applied for a minor modification to the JCP to ensure a new subarea in the borrow area was included (Appendix D).

## 8 PROPOSED MITIGATION

### *BOEMRE Mitigation*

The following mitigation measures and reporting requirements are proposed by the BOEMRE to avoid, reduce, or eliminate environmental impacts associated with the proposed action (herein referred to as the “Project”). Mitigation measures in the form of terms and conditions are added to the negotiated agreement and are considered enforceable as part of the agreement. Application of terms and conditions will be considered by the Director or Associate Director of the BOEMRE in his or her decision-making. Minor modifications to the proposed mitigation measures may be made during the noncompetitive negotiated agreement process if comments indicate changes are necessary or if conditions warrant.

### **Plans and Performance Requirements**

The USACE will provide the BOEMRE with a copy of the Project’s “Construction Solicitation and Specifications Plan” prior to construction (herein referred to as the “Plan”). No activity or operation authorized by the negotiated agreement (herein referred to as the Memorandum of Agreement or MOA) at the DBA shall be carried out until the BOEMRE has had an opportunity to review the Plan, thus ensuring that each activity or operation is conducted in a manner that is in compliance with the provisions and requirements of the MOA. The USACE will ensure that all operations at the DBA are conducted in accordance with the final approved Plan and all terms and conditions in this MOA, as well as all applicable regulations, orders, guidelines, and directives specified or referenced herein.

The preferred method of obtaining and conveying sediment from the DBA involves the use of a hopper dredge. The USACE will allow the BOEMRE to review and comment on modifications to the Plan, including the use of a cutterhead dredge and/or submerged or floated pipelines to convey sediment, that may affect the project area, before implementation of the modification. Said comments shall be delivered in a timely fashion in order to not delay the Corps’ construction contract or schedule.

The USACE, at the reasonable request of the BOEMRE, shall allow access, at the site of any operation subject to safety regulations, to any authorized Federal inspector and shall provide the BOEMRE any documents and records that are pertinent to occupational or public health, safety, or environmental protection as may be requested.

### **Notification of Activity in or near the Borrow Area**

The USACE will notify the BOEMRE at [dredgeinfo@boemre.gov](mailto:dredgeinfo@boemre.gov) of the commencement and termination of operations at the DBA within 24 hours after the USACE receives such notification from its contractor(s) for the Project. The BOEMRE will notify the USACE in a timely manner of any OCS activity within the jurisdiction of the DOI that may adversely affect the USACE’s ability to use OCS sand for the Project.

### **Environmental Responsibilities and Environmental Compliance**

The USACE is the lead agency on behalf of the Federal government to ensure the Project complies with applicable environmental laws, including but not limited to the Endangered

Species Act, Magnuson-Stevens Fishery Management and Conservation Act, Migratory Bird Treaty Act, National Historic Preservation Act, and Coastal Zone Management Act.

The USACE will serve as the lead federal agency for Endangered Species Act (ESA) Section 7 compliance concerning protected species under the purview of U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS). The USACE will instruct its contractor to implement the mitigation terms, conditions, and measures required by the FWS, NMFS, Florida Department of Environmental Protection (DEP), and BOEMRE pursuant to applicable federal laws and regulations. The required mitigation terms, conditions, and measures are reflected in the attached Biological Opinions, Conservation Recommendations, and Consistency Determination/JCP Permit. Copies of all relevant correspondence, monitoring, and reporting shall be provided to the BOEMRE at [dredgeinfo@boemre.gov](mailto:dredgeinfo@boemre.gov).

### **Dredge Positioning**

During all phases of the Project, the USACE will ensure that the dredge and any bottom disturbing equipment is outfitted with an onboard global positioning system (GPS) capable of maintaining and recording location within an accuracy range of no more than plus or minus 3 meters. The GPS must be installed as close to the cutterhead or draghead as practicable. During dredging operations, the USACE will immediately notify the BOEMRE at [dredgeinfo@boemre.gov](mailto:dredgeinfo@boemre.gov) if dredging occurs outside of the approved borrow area. Anchoring, spudding, or other bottom disturbing activity is to be avoided outside the authorized borrow area on the OCS.

The USACE will provide the BOEMRE all Dredging Quality Management (DQM) data acquired during the project using procedures jointly developed by the National Dredging Quality Management Data Program Support Center and BOEMRE. The USACE will submit the DQM data to [dredgeinfo@boemre.gov](mailto:dredgeinfo@boemre.gov) biweekly. A complete DQM dataset will be submitted within 45 days of completion of the Project.

### **Submittal of Production and Volume Information**

The USACE, in cooperation with the dredge operator, shall submit to the BOEMRE on a biweekly basis a summary of the dredge track lines, outlining any deviations from the original Plan. A color-coded plot of the cutterhead or drag arms will be submitted, showing any horizontal or vertical dredge violations. The dredge track lines shall show dredge status: hotelling, dredging, transiting, or unloading. This map will be provided in PDF format.

The USACE will provide at least a biweekly update of the construction progress including estimated volumetric production rates to BOEMRE. The biweekly deliverables will be provided electronically to [dredgeinfo@boemre.gov](mailto:dredgeinfo@boemre.gov). The project completion report, as described in paragraph 13 below, will also include production and volume information, including Daily Operational Reports or Daily Form 27As.

### **Local Notice to Mariners**

The USACE shall require its contractor(s) for the Project to place a notice in the U.S. Coast Guard Local Notice to Mariners regarding the timeframe and location of dredging and

construction operations in advance of commencement of dredging.

### **Marine Pollution Control and Contingency Plan**

The USACE will require its contractors and subcontractors to prepare for and take all necessary precautions to prevent discharges of oil and releases of waste and hazardous materials that may impair water quality. In the event of an occurrence, notification and response will be in accordance with applicable requirements of 40 C.F.R. 300. All dredging and support operations shall be compliant with U.S. Coast Guard regulations and the Environmental Protection Agency's Vessel General Permit, as applicable. The USACE will notify the BOEMRE of any occurrences and remedial actions and provide copies of reports of the incident and resultant actions at [dredgeinfo@boemre.gov](mailto:dredgeinfo@boemre.gov).

### **Encounter of Ordinance**

If any ordinance is encountered while conducting dredging activities at the Duval Borrow Area, the USACE will report the discovery within 24 hours to Ms. Renee Orr, Chief, BOEMRE Leasing Division, at (703) 787-1215 and [dredgeinfo@boemre.gov](mailto:dredgeinfo@boemre.gov).

### **Bathymetric Surveys**

The USACE will provide the BOEMRE with pre- and post-dredging bathymetric surveys of the Duval Borrow Area. The pre-dredging survey will be conducted within 30 days prior to dredging. The post-dredging survey will be conducted within 30 days after the completion of dredging. Additional bathymetry surveys are recommended at 1 year and 3 years following the completion of dredging. Hydrographic surveys will be performed in accordance with the U.S. Army Corps of Engineers Hydrographic Surveying Manual EM 1110-2-1003 unless specified otherwise. One hundred percent coverage using interferometric swath or multibeam bathymetry data is preferred over single-beam data. All bathymetric data shall be roll, pitch, heave, and tide corrected. Survey lines of the specific dredge area, within the Duval Borrow Area, will be established at no greater than 50 m intervals perpendicular to a baseline. Three equidistant cross-tie lines will be established parallel to the same baseline. Survey lines will extend at least 50 m beyond the edge of the dredge areas. All data shall be collected in such a manner that post-dredging bathymetry surveys are compatible with the pre-dredging bathymetric survey data to enable the latter to be subtracted from the former to calculate the volume of sand removed, the shape of the excavation, and nature of post-dredging bathymetric change.

Copies of pre-dredging and post-dredging hydrographic data will be submitted to BOEMRE within thirty (30) days after each survey is completed. The delivery format for data submission is an ASCII file containing x,y,z data. The horizontal data will be provided in the North American Datum of 1983 (NAD '83) Florida State Plane East Zone, U.S. survey feet. Vertical data will be provided in the North American Vertical Datum of 1988 (NAVD '88), U.S. survey feet. An 8.5x11" plan view plot of the pre- and post-construction data will be provided showing the individual survey points, as well as contour lines at appropriate elevation intervals. These plots will be provided in PDF format. All data will be submitted to [dredgeinfo@boemre.gov](mailto:dredgeinfo@boemre.gov) within 30 days of completion.

### **Archaeological Resources**

*Onshore Prehistoric or Historic Resources*

If the USACE discovers any previously unknown historic or archeological remains while accomplishing activity in Duval County, the USACE will notify the BOEMRE of any finding. The USACE will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

*Offshore Prehistoric or Historic Resources*

In the event that the dredge operators discover any archaeological resource while conducting dredging operations in the Duval Borrow Area or in the vicinity of pump-out operations, the USACE shall require that dredge and/or pump-out operations be halted immediately within 1000 feet of the area of discovery. The USACE shall then immediately report the discovery to Ms. Renee Orr, Chief, BOEMRE Leasing Division, at (703) 787-1215. If investigations determine that the resource is significant, the parties shall together determine how best to protect it.

To minimize the risk of inadvertent damage to undiscovered archaeological or historic resources, the USACE shall ensure that the dredge contractor does not intentionally drag equipment along the nearshore bottom during pump-out relocation procedures.

**Project Completion Report**

A project completion report will be submitted by the USACE and/or Duval County to the BOEMRE within 120 days following completion of the activities authorized under this MOA. This report and supporting materials should be sent to Ms. Renee Orr, Chief, BOEMRE Leasing Division, 381 Elden Street, MS 4010, Herndon, Virginia 20170 and dredgeinfo@boemre.gov. The report shall contain, at a minimum, the following information:

- the names and titles of the project managers overseeing the effort (for USACE, the engineering firm (if applicable), and the contractor), including contact information (phone numbers, mailing addresses, and email addresses);
- the location and description of the project, including the final total volume of material extracted from the borrow area and the volume of material actually placed on the beach or shoreline (including a description of the volume calculation method used to determine these volumes);
- ASCII files containing the x,y,z and time stamp of the cutterhead or drag arm locations;
- a narrative describing the final, as-built features, boundaries, and acreage, including the restored beach width and length;
- a table, an example of which is illustrated below, showing the various key project cost elements;

	Project Cost Estimate (\$)	Cost Incurred as of Construction Completion (\$)
Construction		
Engineering and Design		
Inspections/Contract Administration		
Total		

- a table, an example of which is illustrated below, showing the various items of work construction, final quantities, and monetary amounts;

Item No.	Item	Estimated Quantity	Unit	Unit Price	Estimated Amount	Final Quantity	Bid Unit Price	Final Amount	% Over/ Under
1	Mobilization and Demobilization								
2	Beach Fill								
3	Any beach or offshore hard structure placed or removed								

- a listing of construction and construction oversight information, including the prime and subcontractors, contract costs, etc.;
- a list of all major equipment used to construct the project;
- a narrative discussing the construction sequences and activities, and, if applicable, any problems encountered and solutions;
- a list and description of any construction change orders issued, if applicable;
- a list and description of any safety-related issues or accidents reported during the life of the project;
- a narrative and any appropriate tables describing any environmental surveys or efforts associated with the project and costs associated with these surveys or efforts;
- a table listing significant construction dates beginning with bid opening and ending with final acceptance of the project by the USACE;
- digital appendices containing the as-built drawings, beach-fill cross-sections, and survey data; and any additional pertinent comments.

### ***Other Mitigation***

Other design measures proposed by the USACE and incorporated into the proposed action and other mitigation and monitoring specifically identified or referenced in this EA or appendices under other Federal or State authorities are required to avoid or minimize adverse environmental effects. Mitigation concerning impacts to birds, cultural resources, sea turtles, marine mammals, and water quality are identified in this EA for completeness. The BOEMRE is not responsible for the enforcement of mitigation or monitoring requirements that are required under other Federal or State authorities.

## **9 CONSULTATION AND COORDINATION**

### List of agencies and persons consulted:

National Marine Fisheries Service, Southeast Regional Office  
U.S. Fish and Wildlife Service, North Florida Ecological Services Office  
Dr. Kevin Bodge, Coastal Engineer, Olsen Associates, Jacksonville, FL  
Grady Caulk, Archaeologist, USACE, Jacksonville, FL  
Daniel Hughes, Archaeologist, USACE, Jacksonville, FL

### Preparers:

Paul DeMarco, Biologist, USACE, Jacksonville, FL  
Geoffrey Wikel, Oceanographer, BOEMRE, Herndon, VA

### Reviewers:

David Ball, Archaeologist, BOEMRE, Camarillo, CA  
Dr. Brian Jordan, Archaeologist, BOEMRE, Herndon, VA  
Kimberly Skrupky, Marine Biologist, BOEMRE, Herndon, VA  
Dr. Sally Valdes, Ecologist, BOEMRE, Herndon, VA  
Dr. James Woehr, Avian Biologist, BOEMRE, Herndon, VA

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## **11 APPENDICES**

- Appendix A. U.S. Army Corps of Engineers Environmental Impact Statement (1974)
- Appendix B. U.S. Army Corps of Engineers Environmental Assessment (1993)
- Appendix C. U.S. Army Corps of Engineers Environmental Assessment (2005)
- Appendix D. Florida Department of Environmental Protection, Joint Coastal Permit (2005) and Modification (2011)
- Appendix E. Florida State Historic Preservation Officer Coordination (2009)
- Appendix F. Birds of Conservation Concern and Florida FWCC-Listed Birds
- Appendix G. NMFS Essential Fish Habitat Conservation Recommendations and U.S. Army Corps of Engineers Response (2005)
- Appendix H. National Marine Fisheries Service (NMFS) Application of South Atlantic RBO (1997)
- Appendix I. U.S. Army Corps of Engineers Biological Assessment (2010)
- Appendix J. U.S. Fish and Wildlife Service Biological Opinion (2010)



## **The Department of the Interior Mission**

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

## **The Bureau of Ocean Energy Management, Regulation and Enforcement Mission**

As a bureau of the Department of the Interior, the Bureau of Ocean Energy Management, Regulation and Enforcement's (BOEMRE's) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

The BOEMRE strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending BOEMRE's assistance and expertise to economic development and environmental protection.