Appendix G: Mitigation and Monitoring

Appendix G. Mitigation and Monitoring

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G.1 Mitigation and Monitoring

The Draft Environmental Impact Statement (EIS) assesses the potential biological, socioeconomic, physical, and cultural impacts that could result from the construction, operations and maintenance (O&M), and conceptual decommissioning of the Maryland Offshore Wind Project (Project) proposed by US Wind, LLC (US Wind), in its Construction and Operations Plan (COP) (US Wind 2023[1]). The proposed Project described in the COP and this Draft EIS would be up to 2,000 megawatts (MW) in scale and sited 11.5 statute miles (mi) (18.5 kilometers [km]) off the coast of Maryland, within the area of Renewable Energy Lease Number OCS-A 0490 (Lease Area). The Project is designed to serve demand for renewable energy in the Delmarva Peninsula, including Maryland.

As part of the Project, US Wind has committed to implementing lessee-proposed measures (LPMs) to avoid, reduce, mitigate, or monitor impacts on the resources discussed in Chapter 3, *Affected Environment and Environmental Consequences*, of the Draft EIS. These LPMs are described in Table G-1 of this appendix. The U.S. Department of the Interior, Bureau of Ocean Energy Management (BOEM) considers as part of the Proposed Action only those measures that US Wind has committed to in Volume II, Section 1.5 of the COP (US Wind 2023).

BOEM may select alternatives and require additional mitigation or monitoring measures to further protect and monitor these resources. Additional mitigation and monitoring measures may result from reviews under several environmental statutes (e.g., Clean Air Act, Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, and National Historic Preservation Act) that are described in Appendix A of the Draft EIS. Additional mitigation measures identified by BOEM, as well as those that may result from reviews under these statutes, are provided in Table G-2. Please note that some of these mitigation measures are outside of BOEM's statutory and regulatory authority but could be adopted and imposed by other governmental entities. Table G-2 provides descriptions of these mitigation or monitoring measures, as well as those that BOEM has identified for analysis in the Draft EIS.

If BOEM decides to approve the COP, the Record of Decision (ROD) would state which of the mitigation and monitoring measures identified by BOEM in Table G-2 have been adopted, and if not, why they were not. As such, the ROD would inform terms and conditions of COP approval and would compel compliance with or execution of identified mitigation and monitoring measures (40 Code of Federal Regulations [CFR] 1505.3). US Wind would be required to certify compliance with terms and conditions, as required under 30 CFR 285.633. On January 31, 2023, a Final Rule published in the Federal Register (FR) reassigning existing regulations governing safety and environmental oversight and enforcement of OCS renewable energy activities from BOEM to BSEE (88 FR 6376). JOINT NTL No. 2023-N01 provides information and guidance regarding the reassignment of oversight and enforcement to BSEE. Thus, BSEE will be responsible for providing oversight of enforcement and compliance and review of the activities

[1] US Wind. 2023. Construction and Operations Plan: Maryland Offshore Wind Project. July 2023. TRC Companies. Waltham (MA). 2 vols + appendices. https://www.boem.gov/renewable-energy/state-activities/us-wind-construction-and-operations-plan.

conducted under the approved COP. The frequency and extent of the review would be based on the significance of any changes in available information and on onshore or offshore conditions affecting, or affected by, the activities conducted under the COP.

Monitoring measures may be required to evaluate the effectiveness of a mitigation measure or to identify if resources are responding as predicted to impacts from the Proposed Action. Monitoring programs would be developed in coordination among BOEM and agencies with jurisdiction over the resource to be monitored. The information generated by monitoring may be used to (1) adapt how a mitigation measure identified in the COP or ROD is being implemented, (2) revise or develop new mitigation or monitoring measures required under the COP in accordance with 30 CFR 585.634(b) or develop measures for future projects, or (3) contribute to regional efforts for better understanding of the impacts and benefits resulting from offshore wind energy projects in the Atlantic (e.g., potential cumulative impact assessment tool). Unless specified, the proposed mitigation measures described below would not change the impact ratings on the affected resource, as described in Chapter 3, *Affected Environment and Environmental Consequences*, of the Draft EIS, but would further reduce expected impacts or inform the development of additional mitigation measures if required.

USACE is serving as a co-action agency and will adopt the Final EIS to meet their NEPA compliance requirements. BOEM, in coordination with cooperating agencies, considered potential mitigation measures to avoid, minimize, or mitigate impacts on the resources assessed in this document. Mitigation measures incorporated into the ROD for the EIS are enforceable. Enforcement of specific mitigation measures will fall to the relevant permitting agency.

Table G-1. Lessee-proposed mitigation and monitoring measures

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Air Quality	C	Air emissions	Diesel fuel for use in the diesel engines will meet the per gallon fuel standards of 40 CFR 80.510(b) as applicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	O&M	Air emissions	Diesel fuel for use in the diesel engines will meet the per gallon fuel standards of 40 CFR 80.510(b) as applicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	C	Air emissions	Engines will be operated and maintained in accordance with the manufacturer's recommendations and industry practices.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	O&M	Air emissions	Engines will be operated and maintained in accordance with the manufacturer's recommendations and industry practices.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	C	Air emissions	Land based engines that meet the EPA non-road engine standards will be used, as applicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	O&M	Air emissions	Land based engines that meet the EPA non-road engine standards will be used, as applicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	C	Air emissions	Unnecessary idling of engines will be limited, where practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	O&M	Air emissions	Unnecessary idling of engines will be limited, where practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	C	Air emissions	US Wind will obtain any necessary Clean Air Act permits under the state of Maryland's delegated program and comply with applicable permit conditions.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	O&M	Air emissions	US Wind will obtain any necessary Clean Air Act permits under the state of Maryland's delegated program and comply with applicable permit conditions.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	C	Air emissions	Vessel engines will meet the applicable EPA and International Maritime Organization (IMO) marine engine emission standards.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	O&M	Air emissions	Vessel engines will meet the applicable EPA and International Maritime Organization (IMO) marine engine emission standards.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Air Quality	C	Air emissions	Where practicable, engines with add-on emission controls will be used.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Air Quality	O&M	Air emissions	Where practicable, engines with add-on emission controls will be used.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Bats	C	Land disturbance	Tree clearing activities required for Project construction are not planned between June 1 and July 31 to avoid or minimize impacts to northern long-eared bat during the summer maternity period.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, USFWS
Bats	C	Land disturbance and Presence of structures	US Wind will compile a comprehensive wildlife survey and observation information database to include surveys, PSO data, and other wildlife monitoring records. Data will be made available to government, research, and environmental groups, among others. Information is provided on the following website: https://remote.normandeau.com/uswind_home.php.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, USFWS
Bats	C	No specific IPF	Acoustic recorders to collect incidental bat calls offshore have been deployed on survey vessels throughout the Lease area and along the Offshore Export Cable Corridors.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USFWS
Bats	C	No specific IPF	The Metocean Buoy has been equipped with a bat acoustic recorder to monitor for the nocturnal calls of bats within the Lease area for up to two years.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USFWS
Benthic Resources	C	Anchoring	Potential impacts from anchoring will be minimized by avoiding locations with sensitive habitats and utilizing mid-line anchor buoys.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Benthic Resources	C	Cable emplacement and maintenance	US Wind assumes all construction within Indian River Bay, including any dredging, would occur in October-March window, observing the general time of year restrictions for summer flounder and other species. Time of year restrictions would be determined through consultations with DNREC.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, DNREC
Benthic Resources	C	Cable emplacement and maintenance	Minimize sediment disturbance by utilizing the best available technologies to achieve deep burial of submarine cable into a stable sediment layer (i.e., jet plow technology, HDD, gravity cells, etc.).	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Benthic Resources	C	Cable emplacement and maintenance	To the greatest extent practicable, select areas with suitable seabed conditions for cable installation during cable route planning.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Benthic Resources	O&M	Cable emplacement and maintenance	To the greatest extent practicable, select areas with suitable seabed conditions for cable installation during cable route planning.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Benthic Resources	C	Electric and magnetic fields (EMFs) and cable heat	Use submarine cables that have proper electrical shielding and bury the cables in the seafloor, when practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Benthic Resources	O&M	Electric and magnetic fields (EMFs) and cable heat	Conduct a site-specific study of potential EMF impacts on electrosensitive marine organisms.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Benthic Resources	C	Presence of structures	Minimize the amount of scour protection required.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Benthic Resources	O&M	Presence of structures	Minimize the amount of scour protection required.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Benthic Resources	C	Presence of structures	Select suitable geological locations for the installation of the WTG, OSS and Met Tower foundations and design foundations appropriate to geological conditions.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Benthic Resources	O&M	Presence of structures	Select suitable geological locations for the installation of the WTG, OSS and Met Tower foundations and design foundations appropriate to geological conditions.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Birds	C	Land disturbance and Presence of structures	US Wind will compile a comprehensive wildlife survey and observation information database to include surveys, PSO data, and other wildlife monitoring records. Data will be made available to government, research, and environmental groups, among others. Information is provided on the following website: https://remote.normandeau.com/uswind_home.php.	COP, Volume II, Section 1.5 (US Wind 2023)	USFWS
Birds	C	Lighting	Measures that minimize lighting impacts on avian species will be implemented where feasible, as approved by FAA, BOEM, USCG and other regulatory agencies.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USFWS
Birds	O&M	Lighting	Measures that minimize lighting impacts on avian species will be implemented where feasible, as approved by FAA, BOEM, USCG and other regulatory agencies.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USFWS
Birds	O&M	Presence of structures	Anti-perching measures may be installed on the deck/access platform of the WTGs to discourage birds from resting on and congregating around the structures.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USFWS
Birds	C	Presence of structures	Avian monitoring equipment, including nanotag antennas and acoustic sensors, have been installed on the Metocean Buoy.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USFWS
Birds	C	Presence of structures	US Wind proposes preconstruction and post-construction aerial, digital surveys to monitor for avoidance and displacement of avian species (See COP, Appendix II-N2; US Wind 2023).	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USFWS
Coastal Habitat and Fauna	C	Accidental releases	Project-specific Spill Prevention, Control, and Countermeasure (SPCC) Plan will be prepared prior to construction and for operations activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Coastal Habitat and Fauna	O&M	Accidental releases	Project-specific Spill Prevention, Control, and Countermeasure (SPCC) Plan will be prepared prior to construction and for operations activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Coastal Habitat and Fauna	C	Accidental releases	US Wind will develop a Stormwater Pollution Prevention Plan (SWPPP) for onshore construction activities, as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	USEPA, DNREC
Coastal Habitat and Fauna	O&M	Accidental releases	US Wind will develop a Stormwater Pollution Prevention Plan (SWPPP) for onshore construction activities, as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	USEPA, DNREC
Coastal Habitat and Fauna	C	Air emissions	Methods to reduce engine emissions will be implemented during construction and operation of the proposed Project where practicable, including restricting engine idling.	COP, Volume II, Section 1.5 (US Wind 2023)	USEPA, MDE
Coastal Habitat and Fauna	O&M	Air emissions	Methods to reduce engine emissions will be implemented during construction and operation of the proposed Project where practicable, including restricting engine idling.	COP, Volume II, Section 1.5 (US Wind 2023)	USEPA, MDE
Coastal Habitat and Fauna	C	Cable emplacement and maintenance	Cables will be installed using a jet plow to the greatest extent possible. Any dredging needed is expected to be limited to the gravity cells.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Coastal Habitat and Fauna	C	Cable emplacement and maintenance	Horizontal Directional Drilling (HDD) will be used at landfall locations.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Coastal Habitat and Fauna	C	Cable emplacement and maintenance	Shellfish relocation/restoration along Inshore Export Cable Corridor 1 (“Inshore Export Cable Route") will be evaluated pre- and post- installation if warranted.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, DNREC
Coastal Habitat and Fauna	C	Cable emplacement and maintenance	The Project has been sited to avoid sensitive or rare habitats (such as high-density clam beds) where feasible, and habitat disturbance will be minimized to the extent practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, DNREC
Coastal Habitat and Fauna	C	Cable emplacement and maintenance	US Wind will install cables using HDD to avoid impacts to coastal dunes and interdunal wetlands and to minimize bottom disturbance.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, DNREC
Coastal Habitat and Fauna	C	Cable emplacement and maintenance	US Wind will locate cable landfalls and onshore facilities so as to avoid impacts to known nesting beaches, where feasible. The use of HDD for cable installation under the Barrier Beach Landfalls will avoid impacts on beaches.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE< DNREC
Coastal Habitat and Fauna	C	Cable emplacement and maintenance	US Wind will minimize ground disturbance by confining cable infrastructure, such as transition vaults and HDD operations, to previously disturbed lands as much as practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, DNREC

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Coastal Habitat and Fauna	C	Cable emplacement and maintenance	US Wind will minimize impacts on submerged aquatic vegetation where practicable. No submerged aquatic vegetation has been identified in areas proposed for permanent or temporary disturbance.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE, DNREC
Coastal Habitat and Fauna	C	Cable emplacement, Presence of structures	US Wind would prioritize beneficial reuse of dredge material (i.e., wetland restoration, beach renourishment), based on the material characteristics and opportunities as they present themselves, over placement in offshore or onshore disposal areas.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE, DNREC
Coastal Habitat and Fauna	C	Cable emplacement, Presence of structures	US Wind will compile a comprehensive wildlife survey and observation information database to include surveys, PSO data, and other wildlife monitoring records. Data will be made available to government, research, and environmental groups, among others. . Information is provided on the following website: https://remote.normandeau.com/uswind_home.php.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, DNREC
Coastal Habitat and Fauna	O&M	Electric and magnetic fields (EMFs) and cable heat	Conduct a site-specific study of potential EMF impacts on electrosensitive marine organisms.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Coastal Habitat and Fauna	O&M	Electric and magnetic fields (EMFs) and cable heat	Use submarine cables that have proper electrical shielding and bury the cables in the seafloor, when practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Coastal Habitat and Fauna	C	Land disturbance	Agency consultation and monitoring regarding coastal habitats and species will be conducted as needed to mitigate disturbances, as practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	USFWS, DNREC
Coastal Habitat and Fauna	C	Land disturbance	Between May 1 and August 1, construction activities will not occur within 100 m (328 ft) of hummocks in Indian River Bay in order to avoid impacts to nesting terns.	COP, Volume II, Section 1.5 (US Wind 2023)	USFWS, DNREC
Coastal Habitat and Fauna	C	Land disturbance	Construction is anticipated to occur outside of turtle nesting season. Agency consultation and monitoring will be conducted as needed to mitigate disturbances.	COP, Volume II, Section 1.5 (US Wind 2023)	USFWS, DNREC
Coastal Habitat and Fauna	C	Land disturbance	Onshore construction activities will be scheduled to avoid impacting sensitive coastal habitats, where practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	USFWS, DNREC
Coastal Habitat and Fauna	C	Land disturbance	Previously disturbed areas will be used for the construction laydown area and access roads where feasible.	COP, Volume II, Section 1.5 (US Wind 2023)	USFWS, DNREC
Coastal Habitat and Fauna	C	Land disturbance	Tree clearing activities required for Project construction are not planned between June 1 and July 31 to avoid or minimize impacts to northern long-eared bat during the summer maternity period.	COP, Volume II, Section 1.5 (US Wind 2023)	USFWS, DNREC
Coastal Habitat and Fauna	C	Land disturbance	US Wind will develop a Stormwater Pollution Prevention Plan (SWPPP) for onshore construction activities, as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, DNREC

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Coastal Habitat and Fauna	C	Land disturbance	US Wind will establish and maintain buffers around wetlands, implement best management practices (BMPs) to minimize erosion and control sediments and maintain natural surface drainage patterns, as practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, DNREC
Coastal Habitat and Fauna	O&M	Lighting	Lighting-related impacts will be minimized by using BMPs where feasible. Examples of BMPs to minimize the adverse impacts of artificial lighting will include not lighting the onshore facility at night except in the case of an emergency that requires an immediate response, and the use of down-shielded light fixtures to reduce the visibility of light by birds, bats, and insects flying above the facility.	COP, Volume II, Section 1.5 (US Wind 2023)	USACE, DNREC
Commercial Fisheries and For-hire Recreational Fishing	C	Cable emplacement and maintenance and Presence of structures	US Wind will conduct pre- and post-construction monitoring for regionally important species, in a partnership with the University of Maryland Center for Environmental Science to study black sea bass, to identify commercial and recreational fishing impact.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Commercial Fisheries and For-hire Recreational Fishing	O&M	Cable emplacement and maintenance and Presence of structures	US Wind will conduct pre- and post-construction monitoring for regionally important species, in a partnership with the University of Maryland Center for Environmental Science to study black sea bass, to identify commercial and recreational fishing impact.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Commercial Fisheries and For-hire Recreational Fishing	O&M	Electric and magnetic fields (EMFs) and cable heat	Conduct a site-specific study of potential EMF impacts on electrosensitive marine organisms.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Commercial Fisheries and For-hire Recreational Fishing	C	Gear utilization	US Wind established a process for gear loss compensation for commercial fishermen.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Commercial Fisheries and For-hire Recreational Fishing	O&M	Gear utilization	US Wind established a process for gear loss compensation for commercial fishermen.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Commercial Fisheries and For-hire Recreational Fishing	C	Traffic	US Wind developed a Fisheries Communication Plan, in conjunction with the designated Fisheries Liaison Officer and will work with fisheries stakeholders to update it as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Commercial Fisheries and For-hire Recreational Fishing	O&M	Traffic	US Wind developed a Fisheries Communication Plan, in conjunction with the designated Fisheries Liaison Officer and will work with fisheries stakeholders to update it as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Commercial Fisheries and For-hire Recreational Fishing	C	Traffic	US Wind will work cooperatively with commercial/recreational fishing entities and interests to review planned activities and ensure that the construction and operation activities will minimize potential conflicts.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Commercial Fisheries and For-hire Recreational Fishing	O&M	Traffic	US Wind will work cooperatively with commercial/recreational fishing entities and interests to review planned activities and ensure that the construction and operation activities will minimize potential conflicts.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Cultural Resources	C	Anchoring, Cable emplacement, and Presence of structures	The results of HRG and geotechnical surveys have been used to identify potential marine cultural resources and preserved submerged landforms. US Wind will avoid impacts to potential marine cultural resources and submerged landforms by micro-siting Project elements and planning construction around established avoidance areas.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Cultural Resources	C	Land disturbance	Planning has taken into account previously recorded cultural resources and areas of high archaeological probability, as well as the extent of prior disturbance, in order to minimize project impacts to known or potential archaeological resources. US Wind will avoid potential terrestrial cultural resources identified.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Cultural Resources	C	Land disturbance	US Wind will develop an Unanticipated Discovery Plan to be implemented during onshore and offshore construction.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Cultural Resources	C	Multiple IPFs	US Wind will continue to coordinate with the appropriate SHPO and Native American tribes to refine measures to minimize and mitigate impacts to potential cultural resources generally and if particular resources are identified.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Cultural Resources	C	Multiple IPFs	Mitigation measures commensurate with potential adverse effects to historic properties impacted by views to the Project are proposed in a Historic Preservation Treatment Plan, through continuing coordination with SHPOs and consulting parties.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Demographics, Employment, and Economics	C	No specific IPF	US Wind has a strong interest in the welfare of workers employed by the construction managers, contractors and subcontractors on all components of the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Demographics, Employment, and Economics	O&M	No specific IPF	US Wind has a strong interest in the welfare of workers employed by the construction managers, contractors and subcontractors on all components of the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Demographics, Employment, and Economics	C	No specific IPF	US Wind is committed to achieving substantial involvement of Maryland-based small businesses in all phases of the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Demographics, Employment, and Economics	O&M	No specific IPF	US Wind is committed to achieving substantial involvement of Maryland-based small businesses in all phases of the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Demographics, Employment, and Economics	C	No specific IPF	US Wind is committed to creating opportunities for Delaware-based companies able to deliver supply chain components and/or perform on-site work in Delaware.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Demographics, Employment, and Economics	O&M	No specific IPF	US Wind is committed to creating opportunities for Delaware-based companies able to deliver supply chain components and/or perform on-site work in Delaware.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Demographics, Employment, and Economics	C	No specific IPF	US Wind is coordinating with area organized labor organizations to develop a skilled local workforce for the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Demographics, Employment, and Economics	O&M	No specific IPF	US Wind is coordinating with area organized labor organizations to develop a skilled local workforce for the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Environmental Justice	C	No specific IPF	US Wind has a particular focus on creating meaningful economic opportunities for environmental justice communities in the Baltimore, Maryland area.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Environmental Justice	O&M	No specific IPF	US Wind has a particular focus on creating meaningful economic opportunities for environmental justice communities in the Baltimore, Maryland area.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Environmental Justice	C	No specific IPF	US Wind has hired a team of MBE participation and compliance experts to lead the company's outreach efforts to minority businesses and community organizations.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Environmental Justice	O&M	No specific IPF	US Wind has hired a team of MBE participation and compliance experts to lead the company's outreach efforts to minority businesses and community organizations.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Environmental Justice	C	No specific IPF	US Wind is committed to creating full and equitable business opportunities for minority, women-owned, veteran-owned, and HUBZone businesses in the development of the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Environmental Justice	O&M	No specific IPF	US Wind is committed to creating full and equitable business opportunities for minority, women-owned, veteran-owned, and HUBZone businesses in the development of the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Environmental Justice	C	No specific IPF	US Wind will support workforce initiatives that are focused on providing support to minority and low-income populations, women, veterans, and underserved communities.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Environmental Justice	O&M	No specific IPF	US Wind will support workforce initiatives that are focused on providing support to minority and low-income populations, women, veterans, and underserved communities.	COP, Volume II, Section 1.5 (US Wind 2023)	Best practice - not an enforceable measure
Finfish, Invertebrates, and EFH	C	Accidental releases	Project-specific Spill Prevention, Control, and Countermeasure (SPCC) Plan and Oil Spill Response Plan (OSRP) will be prepared prior to construction and for operations activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Finfish, Invertebrates, and EFH	C	Accidental releases	Vessel operators, employees, and contractors will be briefed on marine trash and debris awareness elimination as described in BSEE NTL No. 2015-G03 ("Marine Trash and Debris Awareness and Elimination"), per BOEM guidelines for marine trash and debris prevention.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Anchoring	Impacts to summer flounder HAPC will be minimized by using dynamic positioning where feasible to minimize the need for construction vessels to anchor to the seafloor and using midline buoys to reduce seafloor scarring when construction vessels need to anchor.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Cable emplacement and maintenance	US Wind assumes all construction within Indian River Bay, including any dredging, would occur in October-March window, observing the general time of year restrictions for summer flounder and other species. Time of year restrictions would be determined through consultations with DNREC.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, DNREC

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Finfish, Invertebrates, and EFH	C	Cable emplacement and maintenance	Conduct surveys and review existing data to identify important, sensitive, and unique marine habitats to be avoided.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Cable emplacement and maintenance	Minimize construction activities as practicable in areas containing anadromous fish during migration periods.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Cable emplacement and maintenance	Seafloor disturbance during construction will be minimized as practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Cable emplacement and maintenance	Sediment disturbance associated with submarine cable laying will be minimized by jet plowing, HDD techniques and the use of gravity cells where feasible.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Cable emplacement, Presence of structures	US Wind will compile a comprehensive wildlife survey and observation information database to include surveys, PSO data, and other wildlife monitoring records. Data will be made available to government, research, and environmental groups, among others. Information is provided on the following website: https://remote.normandeau.com/uswind_home.php.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Discharges/intakes	Vessels will adhere to United States Coast Guard (USCG) guidelines; follow applicable regulations related to the discharge of bilge water, gray water, and sanitary waste; maintain discharge permits, as appropriate; follow good maintenance and housekeeping procedures to prevent releases of oil and other chemicals to the sea; maintain up-to-date Oil Spill Response Plans (OSRPs) to prevent, contain, and clean up any accidental spills.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	O&M	Electric and magnetic fields (EMFs) and cable heat	Conduct a site-specific study of potential EMF impacts on electrosensitive marine organisms.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	O&M	Electric and magnetic fields (EMFs) and cable heat	Use submarine cables that have proper electrical shielding and bury the cables in the seafloor, when practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Lighting	Work lighting will be limited to the extent practicable to areas of active construction in coordination with USCG and other agencies as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Noise	Soft-start procedures and sound attenuation will be used during foundation pile driving.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Finfish, Invertebrates, and EFH	C	Presence of structures	Fish monitoring equipment including nanotag antennas has been installed on the Metocean Buoy.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Land Use and Coastal Infrastructure	C	Land disturbance	US Wind has sited and developed Project elements to minimize disturbance to resources, to the extent practicable, enjoyed by residents of and visitors to the region.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE, Local Authority

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Land Use and Coastal Infrastructure	C	Traffic	US Wind will work with local officials to develop a traffic management plan to reduce impacts to local traffic during construction.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, Local Authority
Marine Mammals	C	Accidental releases	Vessel operators, employees, and contractors will be briefed on marine trash and debris awareness elimination as described in BSEE NTL No. 2015-G03 ("Marine Trash and Debris Awareness and Elimination"), per BOEM guidelines for marine trash and debris prevention.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Marine Mammals	C	Discharges/intakes	Vessels will adhere to United States Coast Guard (USCG) guidelines; follow applicable regulations related to the discharge of bilge water, gray water, and sanitary waste; maintain discharge permits, as appropriate; follow good maintenance and housekeeping procedures to prevent releases of oil and other chemicals to the sea; maintain up-to-date Oil Spill Response Plans (OSRPs) to prevent, contain, and clean up any accidental spills.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Marine Mammals	O&M	Electric and magnetic fields (EMFs) and cable heat	Use submarine cables that have proper electrical shielding and bury the cables in the seafloor, when practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Marine Mammals	C	Noise	Additional restrictions on pile-driving will include: no simultaneous pile-driving; no more than one monopile driven per day; daylight pile driving only unless health and safety issues require completion of a pile; and initiation will not begin within 1.5 hours of civil sunset or in times of low visibility when the visual clearance zone and exclusion zone cannot be visually monitored, as determined by the lead PSO on duty.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Noise	Establish a clearance zone prior to pile driving using a combination of visual and acoustic monitoring for large whales. The clearance zone is to be monitored for a minimum of 60 minutes and the zone must be clear for 30 minutes before beginning soft-start procedure.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Noise	Establish an exclusion zone using a combination of visual and acoustic monitoring for large whales. Pile-driving will be halted if species enters defined exclusion zone, with exceptions for health and safety considerations as well as technical feasibility.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Noise	Implement sound attenuation technologies such as double bubble curtains and nearfield attenuation devices to reduce underwater pile driving noise by 10 dB, with a target of 20 dB.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Noise	Once clearance zone is confirmed clear of marine mammals, pile-driving will begin with minimum hammering at low energy for no less than 30 minutes (soft-start).	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Noise	Pile-driving is planned between May 1 and November 30. Pile driving, if necessary, in November, may require additional mitigation measures such as larger clearance or exclusion zones.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Noise	Prepare a pile-driving monitoring plan, to include details about the measures listed below, prior to construction activities. Mitigation measures may be modified to reflect conditions set by NMFS following the application for IHA or LOA associated with construction activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Noise	Visual clearance and exclusion zones will be monitored by PSOs which are individuals with a current NMFS approval letter as a PSO.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Marine Mammals	C	Presence of structures, Traffic	US Wind will compile a comprehensive wildlife survey and observation information database to include surveys, PSO data, and other wildlife monitoring records. Data will be made available to government, research, and environmental groups, among others. Information is provided on the following website: https://remote.normandeau.com/uswind_home.php.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Marine Mammals	C	Traffic	Additional opportunities to support passive acoustic monitoring of marine mammals in and around the Lease area in conjunction with ongoing research efforts by others, such as the University of Maryland Center for Environmental Science, will continue to be explored.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Marine Mammals	O&M	Traffic	Additional opportunities to support passive acoustic monitoring of marine mammals in and around the Lease area in conjunction with ongoing research efforts by others, such as the University of Maryland Center for Environmental Science, will continue to be explored.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Marine Mammals	C	Traffic	All vessels will maintain a minimum separation distance of 100 m (328 ft) or greater from any sighted non-delphinid cetacean other than the NARW. If a non-delphinid cetacean is sighted within this exclusion zone while underway, the vessel operator would immediately reduce speed and promptly shift the engine to neutral. The vessel operator would not engage the engines until the non-delphinid cetacean has moved beyond 100 m (328 ft). If the vessel is stationary, the operator would not engage engines until the non-delphinid cetacean has moved beyond 100 m (328 ft).	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Traffic	All vessels will maintain a minimum separation distance of 50 m (164 ft) or greater from any sighted delphinid cetacean or pinniped, except if the mammal approaches the vessel. If a delphinid cetacean or pinniped approaches an underway vessel, the vessel would avoid excessive speed or abrupt changes in direction to avoid injury to these organisms. Additionally, vessels underway may not divert to approach any delphinid cetacean or pinniped.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Traffic	All vessels will maintain a minimum separation distance of 500 m (1,640 ft) or greater from any sighted NARW. If a NARW is sighted within this exclusion zone while underway, the vessel would steer a course away from the whale at 10 knots (18.5 km/hr) or less until the 500 m (1,640 ft) minimum separation distance has been established. If a NARW is sighted within 100 m (328 ft) of an underway vessel, the vessel operator would immediately reduce speed and promptly shift the engine to neutral. If the vessel is stationary, the operator would not engage engines until the NARW has moved beyond 100 m (328 ft).	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Traffic	PSOs or trained observers will be present on crew vessels and other project vessels.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Traffic	The Metocean Buoy includes acoustic recorders to detect and identify marine mammal calls.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Marine Mammals	O&M	Traffic	US Wind will compile a comprehensive wildlife survey and observation information database to include surveys, PSO data, and other wildlife monitoring records. Data will be made available to government, research, and environmental groups, among others. Information is provided on the following website: https://remote.normandeau.com/uswind_home.php.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Marine Mammals	C	Traffic	US Wind will continue to evaluate technologies that may increase the ability to detect marine mammals from vessels, such as thermal detection technologies.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Marine Mammals	C	Traffic	US Wind will ensure that from November 1 through April 30, vessel operators monitor NMFS NARW reporting systems (e.g., Early Warning System, Sighting Advisory System, and Mandatory Ship Reporting System) for the presence of NARWs.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Marine Mammals	C	Traffic	Vessels 19.8 m (65 ft) or larger will operate at 10 knots or less in NARW Special Management Areas (SMAs). Additionally, all vessels would operate at speeds of 10 knots or less in Right Whale Slow Zones, identical to Dynamic Management Areas (DMAs), to protect visually or acoustically detected NARW. US Wind will incorporate the proposed revision to the NARW vessel speed rule for vessels 10.6-19.8 m (35-65 ft) in length upon implementation.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Multiple resources	C	No specific IPF	Prepare an MEC/UXO Emergency Risk Management Plan prior to construction.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Multiple resources	C	No specific IPF	Prior to construction activities, provide an MEC/UXO awareness briefing to vessel crews.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Multiple resources	C	Presence of structures, Cable emplacement	Prior to construction, analyze survey data at installation locations to identify potential MEC/UXO and plan avoidance or clearance in line with industry best practices.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Navigation and Vessel Traffic	O&M	Presence of structures	A proposed 1 nmi (1.9 km) buffer zone between Project structures and the TSS outer boundary.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	C	Cable emplacement and maintenance	Route Offshore Export Cable Corridors to avoid marine mineral resources areas to the extent practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Lighting	Lighting and marking will be implemented following guidelines as practicable and in consultation with FAA, BOEM, USCG and other regulatory agencies.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Lighting	US Wind commits to use ADLS if commercially feasible and approved by BOEM in consultation with FAA, USCG and other agencies.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	No specific IPF	Meteorological and ocean observations from the Met Tower will be made available to the public.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Presence of structures	Uniform spacing of WTGs and OSSs of 1.02 NM (1.89 km) N/S and 0.77 NM (1.43 km) E/W	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Navigation and Vessel Traffic	C	Traffic	Coordinate with the appropriate regulatory agencies and other stakeholders during construction to provide timely and effective communications regarding planned vessel movements and construction activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Navigation and Vessel Traffic	C	Traffic	Use existing transit lanes for construction and maintenance vessels to the extent practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	C	Traffic	Develop emergency procedures for potential vessel allisions with Project structures and other maritime emergencies, such as search and rescue, in consultation (e.g., coordinated drills) with relevant agencies and stakeholders. Establish appropriate chain of command with US Coast Guard and Maryland Department of Natural Resources to respond to emergencies in a timely, efficient manner and address ongoing issues. Procedures and potential equipment packages to benefit mariners, e.g., WTG cameras or data connectivity enhancements, will be developed through stakeholder outreach.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Traffic	Develop emergency procedures for potential vessel allisions with Project structures and other maritime emergencies, such as search and rescue, in consultation (e.g., coordinated drills) with relevant agencies and stakeholders. Establish appropriate chain of command with US Coast Guard and Maryland Department of Natural Resources to respond to emergencies in a timely, efficient manner and address ongoing issues. Procedures and potential equipment packages to benefit mariners, e.g., WTG cameras or data connectivity enhancements, will be developed through stakeholder outreach.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	C	Traffic	Work with USCG to establish and maintain safety zones around active construction areas, and mark areas with highly visible marking and lighting.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Traffic	Monitor Project operations continuously and maintain Project emergency contact channels with the USCG and other relevant agencies and stakeholders.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	C	Traffic	Route Offshore Export Cable Corridors to avoid USCG proposed anchorage.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Traffic	Bury submarine cables at least 2 m (6 ft) below the Indian River Bay federal navigation channel.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Traffic	US Wind will work with the USCG to identify measures that may increase mariner and responder situational awareness in the vicinity of the Lease area such as cameras, distinct markings on towers, and enhanced communication connectivity.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Traffic	Use existing transit lanes for construction and maintenance vessels to the extent practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Recreation and Tourism	O&M	Accidental releases	US Wind will implement practices and operating procedures to reduce the likelihood of vessel accidents and fuel spills. An Oil Spill Response Plan (OSRP) has been prepared and will be implemented for construction and for operations activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Recreation and Tourism	C	Land disturbance	US Wind will concentrate onshore construction activities outside of the summer recreation season to the greatest extent practicable and will coordinate with DNREC Parks and Recreation to minimize interference with beach activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Recreation and Tourism	C	Presence of structures	US Wind will coordinate with local stakeholders to develop opportunities for eco-tourism related to the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Recreation and Tourism	O&M	Presence of structures	US Wind will coordinate with local stakeholders to develop opportunities for eco-tourism related to the Project.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Sea Turtles	C	Accidental releases	Vessel operators, employees, and contractors will be briefed on marine trash and debris awareness elimination as described in BSEE NTL No. 2015-G03 (“Marine Trash and Debris Awareness and Elimination”), per BOEM guidelines for marine trash and debris prevention.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Cable emplacement and maintenance	US Wind will locate cable landfalls and onshore facilities so as to avoid impacts to known nesting beaches, where feasible. The use of HDD for cable installation under the Barrier Beach Landfalls will avoid impacts on beaches.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Discharges/intakes	Vessels will adhere to United States Coast Guard (USCG) guidelines; follow applicable regulations related to the discharge of bilge water, gray water, and sanitary waste; maintain discharge permits, as appropriate; follow good maintenance and housekeeping procedures to prevent releases of oil and other chemicals to the sea; maintain up-to-date Oil Spill Response Plans (OSRPs) to prevent, contain, and clean up any accidental spills.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	O&M	Electric and magnetic fields (EMFs) and cable heat	Conduct a site-specific study of potential EMF impacts on electrosensitive marine organisms.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	O&M	Electric and magnetic fields (EMFs) and cable heat	Submarine cables that have electrical shielding will be used and the cables will be buried in the seafloor, where practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Land disturbance	Construction is anticipated to occur outside of turtle nesting season. Agency consultation and monitoring will be conducted as needed to mitigate disturbances.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS, USFWS
Sea Turtles	C	Noise	Additional restrictions on pile-driving will include: no simultaneous pile-driving; no more than one monopile driven per day; daylight pile-driving only unless health and safety issues require completion of a pile; and initiation will not begin within 1.5 hours of civil sunset or in times of low visibility when the visual clearance zone and exclusion zone cannot be visually monitored, as determined by the lead PSO on duty.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Noise	Establish a clearance zone prior to pile driving using visual monitoring for sea turtles. Once clearance zone is confirmed clear of protected species, pile-driving will begin with minimum hammering at low energy for no less than 30 minutes (soft-start).	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Noise	Establish an exclusion zone using visual monitoring for sea turtles. Pile-driving will be halted if species enters defined exclusion zone, with exceptions for health and safety considerations as well as technical feasibility.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Sea Turtles	C	Noise	Implement sound attenuation technologies such as double bubble curtains and nearfield attenuation devices to reduce underwater pile driving noise by 10 dB, with a target of 20 dB.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Noise	Visual clearance and exclusion zones will be monitored by PSOs which are individuals with a current NMFS approval letter as a PSO.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Traffic	Trained observers will be present on crew vessels and other project vessels without PSOs.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Traffic	US Wind will compile a comprehensive wildlife survey and observation information database to include surveys, PSO data, and other wildlife monitoring records. Data will be made available to government, research, and environmental groups, among others. Information is provided on the following website: https://remote.normandeau.com/uswind_home.php.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Sea Turtles	C	Traffic	Vessels will observe NMFS collision avoidance guidance, such as establishing minimum separation distances from sea turtles.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, NMFS
Visual Resources	O&M	Cable emplacement and maintenance	All offshore and onshore export cables are planned to be buried, or in locations where burial may not be achievable, protected to the greatest extent practicable.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Visual Resources	O&M	Cable emplacement and maintenance	Onshore cables and facilities at the Barrier Beach Landfalls will be buried.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Visual Resources	O&M	Cable emplacement and maintenance	Submarine cables will be buried and regularly inspected to maintain cable burial.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Visual Resources	O&M	Lighting	Lighting and marking will be implemented following guidelines as practicable and in consultation with FAA, BOEM, USCG and other regulatory agencies.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Visual Resources	O&M	Lighting	The Project will minimize aviation lighting impacts, such as aiming lighting upward and using the longest permissible off cycles, in consultation with the FAA and BOEM.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Visual Resources	O&M	Lighting	US Wind commits to use ADLS if commercially feasible and approved by BOEM in consultation with FAA, USCG and other agencies.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Visual Resources	O&M	Presence of structures	Use an FAA-recommended paint color that is not pure white (RAL 90) for any WTG components visible from shore. The WTG paint color will be determined in consultation with BOEM, FAA, and USCG.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Visual Resources	O&M	Presence of structures	Uniform spacing of WTGs and OSSs.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Visual Resources	O&M	Presence of structures	WTGs, OSSs, and the Met Tower will be marked per USCG guidelines in consultation with USCG, BOEM and other regulatory agencies as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Water Quality	C	Accidental releases	Project-specific Spill Prevention, Control, and Countermeasure (SPCC) Plan and Oil Spill Response Plan (OSRP) will be prepared prior to construction and for operations activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Water Quality	O&M	Accidental releases	Project-specific Spill Prevention, Control, and Countermeasure (SPCC) Plan and Oil Spill Response Plan (OSRP) will be prepared prior to construction and for operations activities.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Water Quality	C	Accidental releases	US Wind will develop a Stormwater Pollution Prevention Plan (SWPPP) for onshore construction activities, as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Water Quality	O&M	Accidental releases	US Wind will develop a Stormwater Pollution Prevention Plan (SWPPP) for onshore construction activities, as appropriate.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA
Water Quality	C	Accidental releases	US Wind will monitor for and report any environmental release or fish kill to the appropriate authorities, e.g., in Delaware state waters, reports will be made via DNREC 24-hour hotline.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA, DNREC
Water Quality	O&M	Accidental releases	US Wind will monitor for and report any environmental release or fish kill to the appropriate authorities, e.g., in Delaware state waters, reports will be made via DNREC 24-hour hotline.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USEPA, DNREC
Water Quality	C	Accidental releases	Vessel operators, employees, and contractors will be briefed on marine trash and debris awareness elimination as described in BSEE NTL No. 2015-G03 ("Marine Trash and Debris Awareness and Elimination"), per BOEM guidelines for marine trash and debris prevention.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Water Quality	O&M	Accidental releases	Vessel operators, employees, and contractors will be briefed on marine trash and debris awareness elimination as described in BSEE NTL No. 2015-G03 ("Marine Trash and Debris Awareness and Elimination"), per BOEM guidelines for marine trash and debris prevention.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE
Water Quality	C	Cable emplacement and maintenance	US Wind assumes all construction within Indian River Bay, including any dredging, would occur in October-March window, observing the general time of year restrictions for summer flounder and other species. Time of year restrictions would be determined through consultations with DNREC.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, DNREC
Water Quality	C	Cable emplacement and maintenance	Sediment disturbance associated with submarine cable laying will be minimized by jet plowing, HDD techniques and the use of gravity cells where feasible.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE

Resource Area Mitigated	Project Stage*	Impact-Producing Factor (IPF)	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Water Quality	C	Cable emplacement and maintenance	Turbidity monitoring will be conducted during construction as required by the permitting authorities. Conduct TSS and water quality monitoring during cable installation activities and post installation as needed.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Water Quality	C	Discharges/intakes	A drilling fluid fracture contingency plan will be in place prior to the start of HDD activities. Operations will be shut down immediately in the event a frac-out occurs.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USACE
Water Quality	C	Discharges/intakes	Vessels will adhere to United States Coast Guard (USCG) guidelines; follow applicable regulations related to the discharge of bilge water, gray water, and sanitary waste; maintain discharge permits, as appropriate; follow good maintenance and housekeeping procedures to prevent releases of oil and other chemicals to the sea; maintain up-to-date Oil Spill Response Plans (OSRPs) to prevent, contain, and clean up any accidental spills.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG
Water Quality	O&M	Discharges/intakes	Vessels will adhere to United States Coast Guard (USCG) guidelines; follow applicable regulations related to the discharge of bilge water, gray water, and sanitary waste; maintain discharge permits, as appropriate; follow good maintenance and housekeeping procedures to prevent releases of oil and other chemicals to the sea; maintain up-to-date Oil Spill Response Plans (OSRPs) to prevent, contain, and clean up any accidental spills.	COP, Volume II, Section 1.5 (US Wind 2023)	BSEE, USCG

*C = Construction; O&M = Operations and Maintenance

ADLS = aircraft detection lighting system; BOEM = Bureau of Ocean Energy Management; BSEE = Bureau of Safety and Environmental Enforcement; CFR = Code of Federal Regulations; COP = Construction and Operations Plan; DNREC = Department of Natural Resources and Environmental Control; EFH= essential fish habitat; EMF= electromagnetic field; EPA = Environmental Protection Agency; FAA = Federal Aviation Administration; HAPC = habitat area of particular concern; HDD = horizontal directional drilling; HRG = high-resolution geophysical; IHA = Incidental Harassment Authorization; IMO = International Maritime Organization; IPF = impact producing factor; LOA = Letter of Authorization; MBE = Minority Business Enterprise; MEC = munitions and explosives of concern; NARW = North Atlantic right whale; NMFS = National Marine Fisheries Service; NTL = Notice to Lessees; OSS = Offshore Substation; PSO = Protected species observer; SHPO = State Historic Preservation Officer; TSS = Traffic Separation Scheme; USCG = U.S. Coast Guard; UXO = unexploded ordnance; WTG = wind turbine generator

Table G-2. Other potential mitigation and monitoring measures analyzed

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Birds	C, O&M, D	Presence of structures	Report bird mortality annually during construction, operation, and decommissioning. The Lessee must submit an annual report covering each calendar year, due by February 1 of the following year, documenting any dead (or injured) birds or bats found on vessels and structures during construction, operations, and decommissioning. The report must be submitted to BOEM (at renewable_reporting@boem.gov) and BSEE (at protectedspecies@bsee.gov and through TIMSWeb) and USFWS. The report must contain the following information: the name of species, date found, location, a picture to confirm the species' identity (if possible), and any other relevant information. Carcasses with federal or research bands must be reported to the USGS Bird Band Laboratory.	BOEM COP approval FWS ESA consultation	BSEE, USFWS
Birds	C, O&M, D	Presence of structures	Any occurrence of dead or injured ESA birds or bats must be reported to BOEM, BSEE, and USFWS as soon as practicable (taking into account crew and vessel safety), but no later than 24 hours after the sighting, and if practicable, carefully collect the dead specimen and preserve the material in the best possible state.	BOEM COP approval	BSEE, USFWS
Birds	O&M	Presence of structures	Use bird-deterrent devices during operation. To minimize attracting birds to operating WTGs, the Lessee must install bird-deterrent devices on WTGs and the OSSs. The location of bird-deterrent devices must be proposed by the Lessee based on BMPs applicable to the appropriate operation and safe installation of the devices. The Lessee must provide the location and type of bird-deterrent devices as part of the FDR and provide in as-built documentation.	BOEM COP approval FWS ESA consultation	BSEE, USFWS
Birds, Bats	C, O&M	Presence of structures	Develop an avian and bat monitoring program during construction and operation. At least 180 calendar days before beginning surveys, the Lessee must complete, obtain concurrence from DOI, and adopt an Avian and Bat Monitoring Plan, including coordination with interested stakeholders, as identified by US Wind in the Avian and Bat Monitoring Plan. DOI will review the Avian and Bat Monitoring Plan and provide any comments on the plan within 60 calendar days of its submittal. The Lessee must resolve all comments on the Avian and Bat Monitoring Plan to DOI's satisfaction before implementing the plan. The Lessee may conclude that DOI has concurred in the Avian and Bat Monitoring Plan if DOI provides no comments on the plan within 60 calendar days of its submittal date. Under this condition the Lessee must allow for: • Annual Monitoring Reports. The Lessee must submit to BOEM (at renewable_reporting@boem.gov) and BSEE (at protectedspecies@bsee.gov and TIMSWeb) a comprehensive report after each full year of monitoring (pre- and post-construction) within 6 months of completion of the last avian survey. The report must include all data, analyses, and summaries regarding ESA-listed and non- ESA-listed birds and bats. DOI will use the annual monitoring reports to assess the need for adjustments and revisions (based on subject matter expert analysis) to the Avian and Bat Monitoring Plan. DOI reserves the right to require adjustments and revisions to the Avian and Bat Monitoring Plan and may require new technologies as they become available for use in offshore environments. • Post-Construction Quarterly Progress Reports. The Lessee must submit quarterly progress reports during the implementation of the Avian and Bat Monitoring Plan to BOEM (at renewable_reporting@boem.gov), BSEE (at protectedspecies@bsee.gov and TIMSWeb), and USFWS by the 15th day of the month following the end of each quarter during the first full year that the Project is operational. The progress reports must include a summary of all work performed, an explanation of overall progress, and any technical problems encountered. • Monitoring Plan Revisions. Within 15 calendar days of submitting the annual monitoring report, the Lessee must meet with BOEM and USFWS to discuss the following: the monitoring results; the potential need for revisions to the Avian and Bat Monitoring Plan, including technical refinements or additional monitoring; and the potential need for any additional efforts to reduce impacts. If DOI determines after this discussion that revisions to the Avian and Bat Monitoring Plan are necessary, DOI may require the Lessee to modify the Avian and Bat Monitoring Plan. If the reported monitoring results deviate substantially from the impact analysis included in the Final EIS, the Lessee must transmit to DOI recommendations for new mitigation measures or monitoring methods. • Operational Reporting (Operations). The Lessee must submit to BOEM (at renewable_reporting@boem.gov) and BSEE (at protectedspecies@bsee.gov and TIMSWeb) an annual report with the following monthly operational data in tabular format: the proportion of time the turbines were operational (spinning) each month, the average monthly revolutions per minute (rpm) of spinning turbines, and the average pitch angle of blades (degrees relative to rotor plane). DOI will use this information as inputs for avian collision risk models to assess whether the results deviate substantially from the impact analysis included in the Final EIS. • Raw Data. The Lessee must store the raw data from all avian and bat surveys and monitoring activities according to accepted archiving practices. Such data must remain accessible to DOI and USFWS upon request for the duration of the Lease. The Lessee must work with BOEM to ensure the data are publicly available.	BOEM COP approval FWS ESA consultation	BSEE, USFWS

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Commercial Fisheries and For-hire Recreational Fishing	C, O&M, D	Presence of structures	BOEM would require that US Wind implement a compensation program for lost income for commercial and recreational fishermen and other eligible fishing interests for construction and operations consistent with BOEM's draft guidance for Mitigating Impacts to Commercial and Recreational Fisheries on the Outer Continental Shelf Pursuant to 30 CFR 585 or as modified in response to public comment. This measure, if adopted, would reduce impacts from the impact- producing factor (IPF) presence of structures by compensating commercial and recreational fishing interests for lost income during construction and a minimum of 5 years post-construction. If adopted, this measure would reduce the negligible to major impact level from the presence of structures to negligible to moderate. This is because a compensation scheme will mitigate "indefinite" impacts to a level where the fishing community would have to adjust somewhat to account for disruptions due to impacts but income losses would be mitigated.	BOEM COP approval	BSEE
Cultural Resources	C	Cable emplacement and maintenance	US Wind must establish and comply with requirements for all protective buffers recommended by the Qualified Marine Archaeologist for each marine cultural resource (i.e., archaeological resource and ancient submerged landform feature) based on the size and dimension of the resource. Protective buffers extend outward from the maximum discernable limit of each resource and are intended to minimize the risk of disturbance during construction.	NHPA Section 106 Mitigation Measures	BSEE, USACE
Cultural Resources	C	Cable emplacement and maintenance	US Wind must establish and implement a monitoring program to review impacts of construction or any seabed-disturbing activities on ancient, submerged landform feature locations if such landforms will not be avoided and will be impacted. An Unanticipated Discovery Plan must be developed and implemented to address inadvertent discoveries.	NHPA Section 106 Mitigation Measures	BSEE, USACE
Cultural Resources	C	Land disturbance	US Wind must avoid any identified terrestrial archaeological resource. If avoidance of a resource is not feasible, additional investigations must be conducted for the purpose of determining eligibility for listing in the National Register of Historical Places (NRHP). If any such resource is determined eligible for listing, US Wind must conduct Phase III data recovery investigations for the purposes of resolving adverse effects in accordance with 36 CFR 800.6.	NHPA Section 106 Mitigation Measures	BSEE, USACE
Cultural Resources	C	Land disturbance	US Wind must conduct archaeological monitoring during onshore construction in areas identified as having high or moderate archaeological sensitivity and must prepare and implement a monitoring plan as well as a terrestrial archaeological post review discovery plan.	NHPA Section 106 Mitigation Measures	BSEE, USACE
Cultural Resources	C	Land disturbance	BOEM and BSEE, with the assistance of US Wind, will develop and implement an offshore and onshore Historic Property Treatment Plans (HPTPs) to address impacts on historic properties and shipwrecks that cannot be avoided. The HPTP(s) will be developed in consultation with federally recognized Native American Tribes, property owners, and consulting parties who have demonstrated interest in specific historic properties. The HPTP(s) will provide details and specifications for mitigation measures to resolve adverse visual effects, including cumulative effects.	NHPA Section 106 Mitigation Measures	BSEE, USACE
ESA-listed Species	C, O&M, D	Multiple IPFs	US Wind will report to BOEM, BSEE, NMFS, and/or USFWS within 24-hours of confirmation any incidental take of an endangered or threatened species.	BOEM COP approval; NMFS ESA consultation; USFWS ESA consultation	BSEE, NMFS, USFWS
ESA-listed Species	C, O&M, D	Noise, Traffic	BSEE would ensure that US Wind implements the following reporting requirements necessary to document the amount or extent of take that occurs during all phases of the Proposed Action: • All reports would be sent to: nmfs.gar.incidental-take@noaa.gov and BSEE at protectedspecies@bsee.gov and TIMSWeb. • During the construction phase and for the first year of operations, US Wind would compile and submit monthly reports that include a summary of all project activities carried out in the previous month, including vessel transits (number, type of vessel, and route), and piles installed, and all observations of ESA-listed species. Monthly reports are due on the 15th of the month for the previous month. • Beginning in year 2 of operations, US Wind would compile and submit annual reports that include a summary of all project activities carried out in the previous year, including vessel transits (number, type of vessel, and route), repair and maintenance activities, survey activities, and all observations of ESA-listed species. These reports are due by April 1 of each year (i.e., the 2026 report is due by April 1, 2027). Upon mutual agreement of NMFS, BOEM, and BSEE, the frequency of reports can be changed.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Finfish, Invertebrates, and EFH	C, O&M	Presence of structures	BOEM would require US Wind to develop a Lionfish Monitoring and Adaptive Management Plan.	BOEM COP approval; NMFS EFH Consultation	BSEE, NMFS
Finfish, Invertebrates, and EFH	C, O&M, D	Multiple IPFs	The measures required by the final Essential Fish Habitat consultation would be incorporated into COP approval, and BOEM and/or NMFS would monitor compliance with these measures.	BOEM COP approval; NMFS EFH Consultation	BSEE, NMFS
Marine Mammals	C	Noise	BOEM and BSEE would ensure that US Wind prepares a PAM Plan that describes all proposed equipment, deployment locations, detection review methodology and other procedures, and protocols related to the proposed uses of PAM for mitigation and long-term monitoring. This plan would be submitted to NMFS, BSEE, USACE, and BOEM for review and concurrence at least 180 days prior to the planned start of activities requiring PAM.	BOEM COP approval; NMFS MMPA IHA/LOA	BSEE, NMFS
Marine Mammals	C	Noise	BOEM and BSEE would ensure that US Wind prepare and submit a Pile Driving Monitoring Plan to BOEM, BSEE, and NMFS for review and concurrence at least 90 days before start of pile driving. The plan would detail all plans and procedures for sound attenuation as well as for monitoring ESA-listed whales and sea turtles during all impact pile driving. The plan would also describe how BOEM, BSEE, and US Wind would determine the number of whales exposed to noise above the Level B harassment threshold during pile driving to install the cofferdam at the sea to shore transition. US Wind would obtain NMFS' concurrence with this plan prior to starting any pile driving.	BOEM COP approval; NMFS MMPA IHA/LOA	BSEE, NMFS
Marine Mammals	C, O&M, D	Noise, Traffic	Long-term Passive Acoustic Monitoring (PAM) will be used to monitor changes in the presence of marine species as well as changes in ambient noise throughout the course of offshore wind development, operations, and decommissioning. It is BOEM's practice to require that archival, continuous recording systems be deployed at least 30 days prior to foundation pile driving and their use continued without interruption until decommissioning. The number of devices in each lease area should be sufficient to ensure that vocalizing baleen whales could be detected, based on the assumption of a 10 km detection range for North Atlantic right whale calls. The sampling rate of the recorders should prioritize the detection of baleen whale vocalizations but must also have at a minimum the capability to detect and store acoustic data on noise from vessels, pile-driving, and WTG operation. Following the RWSC PAM data management *best practices document* will ensure that the appropriate steps are taken prior to deployment, that sufficient metadata is captured, and that the data are processed and archived in a standardized fashion. The data shall be processed to document, at the very least, the presence of baleen whale vocalizations as well as standard metrics of ambient noise. Archiving the full acoustic record at the National Centers for Ecological Information will allow for complete transparency of the data. Baleen whale detections shall also be submitted to BOEM, BSEE, and NMFS at least twice a year. As an alternative to conducting PAM in its project area, the lessee may opt to meet this monitoring requirement through an annual deposit to BOEM's Environmental Studies Program in support of its Partnership for an Offshore Wind Energy Regional Observation Network (POWERON) initiative. The lessee's contribution would cover activities within its lease area, such as the purchase of instruments, annual deployments and refurbishment, data processing, and long-term data archiving. Funding from BOEM, other partners, and potentially other lessees will support long-term PAM throughout the region which will enable broader-scale analyses on cumulative effects to marine species. Under this option, the lessee will be expected to cooperate with the POWERON team to facilitate deployment and retrieval of instruments within the project area. If necessary, the lessee may request temporary withholding of the public release of acoustic data that has been collected within its project area.	BOEM COP approval	BSEE, NMFS
Marine Mammals	C, O&M	Noise, Traffic	The measures required by the final MMPA LOA would be incorporated into COP approval, and BSEE would monitor compliance with these measures.	BOEM COP approval; NMFS MMPA IHA/LOA	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Marine Mammals	C, O&M	Noise, Traffic	BOEM and BSEE would require US Wind to conduct long-term Passive Acoustic Monitoring (PAM) to record ambient and operational noise and marine species vocalizations in the Lease Area. Analysis of PAM data collected within the lease area allows for comparisons with pre-construction periods, both in terms of the soniferous species that are present, as well as any changes to ambient noise due to the operation of the wind farm, which could affect species' distributions and/or behaviors. In addition, data collected within a lease area can be compared to data collected throughout the broader region, thus supporting cumulative effects analysis for highly migratory species. BOEM requires that archival, continuous recording systems be deployed at least 30 days prior to foundation pile driving, must continue through initial operations, and must be sustained for the lifetime of the lease. The number of devices in each lease area must be sufficient to ensure that vocalizing North Atlantic Right Whales could be detected, based on the assumption of a 10 km detection range for their calls. The sampling rate of the recorders should prioritize the detection of baleen whale detections, but must also have a minimum capability of detecting and storing acoustic data on vessel noise, pile-driving, and WTG operation. Throughout deployments and data analysis, the lessee will be expected to follow the best practices outlined in the RWSC best practices document. They must also process the data to document, at the very least, the presence of baleen whale vocalizations and metrics of ambient noise. They will be expected to archive the full acoustic record at National Centers for Ecological Information and to submit baleen whale detections to BOEM, BSEE, and NMFS on a regular basis. As an alternative to conducting PAM in their project area, the lessee may opt to pay into a Regional PAM fund on an annual basis to support long-term monitoring. Their contribution would cover the purchase of instruments, annual deployments and refurbishment, data processing, and long-term data archiving. Funding from BOEM and other partners will contribute to the Regional PAM fund, which will support PAM on non-lease areas and enable broader-scale analyses on cumulative effects to marine species.	BOEM COP approval; NMFS MMPA IHA/LOA	BSEE, NMFS
Marine Mammals and Sea Turtles	C, O&M, D	Traffic	• As part of vessel strike avoidance, a training program will be implemented. The training program will be provided to NMFS for review and approval prior to the start of surveys. Confirmation of the training and understanding of the requirements will be documented on a training course log sheet. Signing the log sheet will certify that the crew members understand and will comply with the necessary requirements throughout the survey event. • Vessel operators and crew must maintain a vigilant watch for marine mammals and sea turtles by slowing down or stopping their vessels to avoid striking these protected species. Vessel crew members responsible for navigation duties will receive site-specific training on marine mammal sighting/reporting and vessel strike avoidance measures. Vessel strike avoidance measures will include, but are not limited to the following, except under extraordinary circumstances when complying with these measures would put the safety of the vessel or the crew at risk: ○ If underway, vessels must steer a course away from any sighted NARW at 10 knots (18.5 km/hr) or less until the 500 m (1,640 ft) minimum separation distance has been established. If a NARW is sighted in a vessel's path, or within 100 m (330 ft) of an underway vessel, the underway vessel must reduce speed and shift the engine to neutral. Engines will not be engaged until the NARW has moved outside of the vessel's path and beyond 100 m. If stationary, the vessel must not engage engines until the NARW has moved beyond 100 m; ○ All vessels will maintain a separation distance of 100 m (330 ft) or greater of any sighted whales, with the exception of NARW. If sighted, the vessel underway must reduce speed and shift the engine to neutral, and must not engage the engines until the whale has moved outside the vessel's path and beyond 100 m. If a survey vessel is stationary, the vessel will not engage engines until the whale has moved out of the vessel's path and beyond 100 m; ○ Vessel operators will use all available sources of information of NARW presence, including daily monitoring of the Right Whale Sightings Advisory System, WhaleAlert app, and monitoring of Coast Guard VHF Channel 16 to receive notifications of right whale detections, SMAs, DMAs, and Slow Zones to plan vessel routes to minimize the potential for co-occurrence with right whales.	BOEM COP approval; NMFS MMPA IHA/LOA	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Marine Mammals, Sea Turtles	C	Noise	BOEM, BSEE, and NMFS would ensure that PSO coverage is sufficient to reliably detect marine mammals and sea turtles at the surface in the identified clearance and shutdown zones to execute any pile driving delays or shutdown requirements. This will include a PSO/ PAM team on the construction vessel and 2 additional PSO vessels each with a visual monitoring team. The following equipment and personnel at a minimum will be on each associated vessel: ***Construction Vessel:*** • 2, visual PSOs on watch • 2, (7x) or (10x) reticle binoculars calibrated for observer height off the water. • 2 (25x or similar) mounted "big eye" binoculars if vessel is deemed appropriate to provide a platform in which use of the big eye binoculars would be effective. • 1, PAM operator on duty • 1, mounted thermal/IR camera system • 2, (25x or similar) "big eye" binoculars mounted 180 deg apart • 1, monitoring station for real-time PAM system • 2, handheld or wearable NVDs with IR spotlights • 1, Data collection software system • 2, PSO-dedicated VHF radios • 1, digital single lens reflex camera equipped with a 300-mm lens Each Additional PSO Vessels (2): • 2, visual PSOs on watch • 2, (7x) or (10x) reticle binoculars calibrated for observer height off the water. • 1, (25x or similar) mounted "big eye" binoculars if vessel is deemed appropriate to provide a platform in which use of the big eye binoculars would be effective. • 1, mounted thermal/IR camera system • 1, handheld or wearable NVD with IR spotlight • 1, Data collection software system • 2, PSO-dedicated VHF radios • 1, digital single lens reflex camera equipped with a 300-mm lens If, at any point prior to or during construction, the PSO coverage that is included as part of the Proposed Action is determined not to be sufficient to reliably detect ESA-listed whales and sea turtles within the clearance and shutdown zones, additional PSOs and/or platforms must be deployed. Determinations prior to construction will be based on review of the Pile Driving Monitoring Plan. Determinations during construction will be based on review of the weekly pile driving reports and other information, as appropriate.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS
Marine Mammals, Sea Turtles	C	Noise	BOEM and BSEE would require US Wind to develop an impact pile driving sound field verification plan to confirm noise generated by foundation installation is below modeled ensonification levels used for estimating environmental impacts. The plan will include details for measurements of thorough and abbreviated sound field verification. At a minimum, the abbreviated measurements must verify noise from each foundation at a distance of approximately 750 m from that foundation. The thorough measurements must include at least three additional acoustic recorders at increasing ranges from the foundations for the first foundation installation in each calendar year, and for any subsequent foundations that vary substantially from thoroughly monitored foundations. The plan will include measurement procedures and results reporting that meet ISO standard 18406:2017 (Underwater acoustics – Measurement of radiated underwater sound from percussive pile driving). The submission of raw acoustic data or data products associated with SFV to BOEM, BSEE, and NMFS will be required.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS
Marine Mammals, Sea Turtles	C	Noise	BOEM and BSEE would ensure that if the clearance and/or shutdown zones are expanded due to the verification of sound fields from Project activities, PSO coverage is sufficient to reliably monitor the expanded clearance and/or shutdown zones. Additional observers would be deployed on additional platforms for every 1,500 meters that a clearance or shutdown zone is expanded beyond the distances modeled prior to verification.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Marine Mammals, Sea Turtles	C	Noise	BOEM and BSEE may consider reductions in the shutdown zones for sei, fin or sperm whales based on thorough (at least 4 recorder locations) sound field verification of a minimum of 3 foundations with piles of the same size; however, BOEM/BSEE/USACE would ensure that the shutdown zone for sei whales, fin whales, blue whales, and sperm whales is not reduced to less than 1,000 meters, or 500 meters for sea turtles. No reductions in the clearance or shutdown zones for NARWs would be considered regardless of the results of sound field verification of a minimum of three piles.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS
Marine Mammals, Sea Turtles	C	Noise	In order to commence pile driving at foundations, PSOs must be able to visually monitor up to a 5,250-m radius (monopile), 1,400-m radius (skirt pile, 100-m radius (pin pile) from their observation points for at least 60 minutes immediately prior to piling commencement. Radii are derived from the modeling done by US Wind for the LOA. Acceptable visibility will be determined by the Lead PSO.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS
Marine Mammals, Sea Turtles	C	Noise	US Wind must not conduct pile driving operations at any time when lighting or weather conditions (e.g., darkness, rain, fog, sea state) prevent visual monitoring of the full extent of the clearance and shutdown zones. • US Wind must submit an AMP to BOEM, BSEE, and NMFS for review and approval at least 6 months prior to the planned start of pile-driving. This plan may include deploying additional observers, alternative monitoring technologies such as night vision, thermal, and infrared technologies, or use of PAM and must demonstrate the ability and effectiveness to maintain all clearance and shutdown zones during daytime as outlined below in Part 1 and nighttime as outlined in Part 2 to BOEM's, BSEE's, and NMFS's satisfaction. • The AMP must include two stand-alone components as described below: ○ Part 1 – Daytime when lighting or weather (e.g., fog, rain, sea state) conditions prevent visual monitoring of the full extent of the clearance and shutdown zones. Daytime being defined as 1 hour after civil sunrise to 1.5 hours before civil sunset. ○ Part 2 – Nighttime inclusive of weather conditions (e.g., fog, rain, sea state). Nighttime being defined as 1.5 hours before civil sunset to 1 hour after civil sunrise. • If a protected marine mammal or sea turtle is observed entering or found within the shutdown zones after impact pile-driving has commenced, US Wind would follow the shutdown procedures. US Wind would notify BOEM, BSEE, and NMFS of any shutdown occurrence during piling driving operations within 24 hours of the occurrence unless otherwise authorized by BOEM, BSEE, and NMFS. • The AMP should include, but is not limited to the following information: ○ Identification of night vision devices (e.g., mounted thermal/infrared camera systems, hand-held or wearable NVDs, infrared spotlights), if proposed for use to detect protected marine mammal and sea turtle species. ○ The AMP must demonstrate (through empirical evidence) the capability of the proposed monitoring methodology to detect marine mammals and sea turtles within the full extent of the established clearance and shutdown zones (i.e., species can be detected at the same distances and with similar confidence) with the same effectiveness as daytime visual monitoring (i.e., same detection probability). Only devices and methods demonstrated as being capable of detecting marine mammals and sea turtles to the maximum extent of the clearance and shutdown zones will be acceptable. ○ Evidence and discussion of the efficacy (range and accuracy) of each device proposed for low visibility monitoring must include an assessment of the results of field studies (e.g., Thayer Mahan demonstration), as well as supporting documentation regarding the efficacy of all proposed alternative monitoring methods (e.g., best scientific data available). ○ Reporting procedures, contacts and timeframes. BOEM and BSEE may request additional information, when appropriate and as needed, to assess the efficacy of the AMP.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Marine Mammals, Sea Turtles	C	Noise	BOEM and BSEE would require that sound fields generated during percussive pile driving may not exceed NMFS' Level A permanent threshold shift (PTS) limits for low frequency cetaceans (LFC) at distances greater than 2,900 m (9,514.5 ft) from each monopile, 1,400 m (4,593 ft) from each skirt pile, and 50 m (164 ft) from each pin pile foundation. These distances are based on the project-specific acoustic modeling for PTS thresholds for LFC species. This ensures protection from PTS for species of greater concern, such as North Atlantic right whales and other baleen whales (all considered LFC). Current NMFS PTS levels for LFCs are set at 183 weighted LF SEL (dB re 1 μPa^2s) or 202 unweighted Lpk (dB re 1 μPa^2), but lessees must adhere to any updated thresholds updated by NMFS as of the start of installation of piles. Although developed for LFCs, implementation of this requirement would afford protection to some other groups of marine mammals, such as mid-frequency cetaceans and also pinnipeds, as well as sea turtles and fishes. BOEM and BSEE intend to develop a second Received Sound Level Limit (RSLL) aimed at reducing Level B Harassment (e.g., potential to disrupt important behaviors), especially for LFCs. Although the application of the Level A LFC RSLL also reduces Level B zones to some extent, more Level B reduction may be required to meet MMPA negligible impacts determinations, especially in areas of higher presence of low population species like the NARW. BOEM and BSEE will advise lessees once a second RSLL is developed in order to consider implementation concerns, if any.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS
Marine Mammals, Sea Turtles	C, O&M	Gear Utilization	All sampling gear would be hauled at least once every 30 days, and all gear would be removed from the water and stored on land between survey seasons to minimize risk of entanglement.	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS
Marine Mammals, Sea Turtles	C, O&M	Gear Utilization	To facilitate identification of gear on any entangled animals, all trap/pot gear used in the surveys would be uniquely marked to distinguish it from other commercial or recreational gear. Using black and yellow striped duct tape, place a 3-foot-long mark within 2 fathoms of a buoy. In addition, using black and white paint or duct tape, place 3 additional marks on the top, middle and bottom of the line. These gear marking colors are proposed as they are not gear markings used in other fisheries and are, therefore, distinct. Any changes in marking would not be made without notification and approval from NMFS.	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS
Marine Mammals, Sea Turtles	C, O&M	Gear Utilization	If any survey gear is lost, all reasonable efforts that do not compromise human safety would be undertaken to recover the gear. All lost gear would be reported to NMFS (mailto:nmfs.gar.incidental-take@noaa.gov and BSEE at marinedebris@bsee.gov and TIMSWeb) within 24 hours of the documented time of missing or lost gear. This report would include information on any markings on the gear and any efforts undertaken or planned to recover the gear.	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS
Marine Mammals, Sea Turtles	C, O&M	Gear Utilization	At least one of the survey staff onboard the trawl surveys and ventless trap surveys would have completed Northeast Fisheries Observer Program (NEFOP) observer training (within the last 5 years) or other training in protected species identification and safe handling (inclusive of taking genetic samples from Atlantic sturgeon). Reference materials for identification, disentanglement, safe handling, and genetic sampling procedures would be available on board each survey vessel. BOEM would ensure that US Wind prepares a training plan that addresses how this requirement would be met and that the plan is submitted to NMFS in advance of any trawl or trap surveys. This requirement is in place for any trips where gear is set or hauled.	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS
Marine Mammals; Sea Turtles; Finfish, Invertebrates, and EFH; Benthic Resources	C, O&M	Noise, Traffic, Accidental Releases	BOEM will require US Wind comply with all the Project Design Criteria and Best Management Practices for Protected Species at https://www.boem.gov/sites/default/files/documents//PDCs%20and%20BMPs%20for%20Atlantic%20Data%20Collection%2011222021.pdf, that implement the integrated requirements for threatened and endangered species resulting from the June 29, 2021, programmatic consultation under the ESA, revised September 1, 2021. This requirement also applies to non-ESA-listed marine mammals that are found in that document. Consultation conditions occurring in State waters outside of BOEM jurisdiction may apply to co-action agencies issuing permits and authorizations under this consultation	BOEM COP approval; NMFS MMPA IHA/LOA; NMFS ESA consultation	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Marine Mammals; Sea Turtles; Finfish, Invertebrates, and EFH; Benthic Resources	C, O&M, D	Accidental releases	US Wind would ensure that vessel operators, employees, and contractors engaged in offshore activities pursuant to the approved COP complete marine trash and debris awareness training annually. The training consists of two parts: (1) viewing a marine trash and debris training video or slide show (described below); and (2) receiving an explanation from management personnel that emphasizes their commitment to the requirements. The marine trash and debris training videos, training slide packs, and other marine debris related educational material may be obtained at https://www.bsee.gov/debris or by contacting BSEE. The training videos, slides, and related material may be downloaded directly from the website. Operators engaged in marine survey activities would continue to develop and use a marine trash and debris awareness training and certification process that reasonably assures that their employees and contractors are in fact trained. The training process would include the following elements: • Viewing of either a video or slide show by the personnel specified above; • An explanation from management personnel that emphasizes their commitment to the requirements; • Attendance measures (initial and annual); and • Record keeping and the availability of records for inspection by BSEE. By February 1 of each year, US Wind would submit to BSEE an annual report that describes its marine trash and debris awareness training process and certifies that the training process has been followed for the previous calendar year. US Wind would send the reports via email to BOEM (at renewable_reporting@boem.gov) and to BSEE (at marinedebris@bsee.gov).	BOEM COP approval	BSEE
Marine Mammals; Sea Turtles; Finfish, Invertebrates, and EFH; Benthic Resources	O&M	Accidental releases	US Wind must monitor indirect effects associated with charter and recreational fishing gear lost from expected increases in fishing around WTG foundations by surveying at least 10 of the WTGs located closest to shore in the US Wind Lease Area annually. Survey design and effort may be modified with review and concurrence by BOEM and BSEE. US Wind may conduct surveys by remotely operated vehicles, divers, or other means to determine the frequency and locations of marine debris. US Wind must report the results of the surveys to BOEM (at renewable_reporting@boem.gov) and BSEE (at marinedebris@bsee.gov and TIMSWeb) in an annual report, submitted by April 30, for the preceding calendar year. Photographic and videographic materials must be provided with the submission in TIMSWeb (TIFF or Motion JPEG 2000). Annual reports must include survey reports that include: the survey date; contact information of the operator; the location and pile identification number; photographic and/or video documentation of the survey and debris encountered; any animals sighted; and the disposition of any located debris (i.e., removed or left in place). Annual reports must also include claim data attributable to the Project from US Wind corporate gear loss compensation policy and procedures. Required data and reports may be archived, analyzed, published, and disseminated by BOEM or BSEE.	BOEM COP approval	BSEE
Multiple resource	C, O&M, D	Multiple IPFS	US Wind will comply with all mitigation required by USACE for CWA Section 404 and Section 10 impacts.	USACE Section 404/10 permit	USACE
Multiple resources	C, O&M, D	Lighting	US Wind will comply with BOEM's detailed Lighting and Marking Guidelines and NPS sustainable lighting best practices.	BOEM COP approval	BSEE, NPS
Navigation and Vessel Traffic	C	Traffic	BOEM and BSEE would ensure that US Wind coordinates with the U.S. Coast Guard in advance of export cable installation to develop a navigation safety plan, which may include: establishing a safety zone around the cable laying vessel(s); monitoring plan; mitigation plan; schedule; private aids to navigation; and, local notice to mariners.	BOEM COP approval	BOEM, BSEE, USCG
Navigation and Vessel Traffic	C, O&M, D	Cable emplacement and maintenance	US Wind will install a cable alert system that alerts vessels to the presence of cables, which could shift over time both horizontally and vertically. Such a system would be prudent in high traffic areas (e.g., navigation channels, crossing TSS, near offshore anchorage).	BOEM COP approval	BOEM and BSEE

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Navigation and Vessel Traffic	C, O&M, D	Traffic	US Wind will develop and implement a Mariner Communication and Outreach Plan that covers all project phases from preconstruction to decommissioning and that facilitates coordination with all mariners, including the commercial shipping industry, commercial and for-hire fishing industries, and other recreational users. The Mariner Communication and Outreach Plan will include the following components: During Project design, routinely coordinating in-water construction activities and phasing to avoid and minimize disruptions; At least 90 days prior to commencing in-water construction activities in any construction season, consultation with stakeholders on an approximate schedule of activities and existing uses within the Project area. Make good faith efforts to accommodate those existing uses. The results of these good faith consultations will be summarized in a report and submitted to the federal agency(ies) prior to the start of each construction season; Following COP approval, notice of proposed changes which have the potential to impact fishing or maritime resources or activities; Notices to commence construction activities, conduct maintenance activities, and commence decommissioning; Status reports during construction with specific information on construction activities and locations for upcoming activities in the next 1-2 weeks; Post-construction notice of: (i) all cable protection measure locations (including protection type and charted location); (ii) any areas where the identified burial depth is less than target burial depth; and (iii) other obstructions to navigation created by the Project; During operations, notice of locations where cables have shifted outside the cable area identified in Electronic Navigation Charts; and Post all notices described above to the Project website with information on how to opt-in for alerts	BOEM COP approval	BOEM and BSEE
Navigation and Vessel Traffic	O&M	Cable emplacement and maintenance	BOEM and BSEE would ensure that US Wind develops a cable maintenance and monitoring plan that outlines a process for identifying when cable burial depths reach unacceptable risks, requires prompt remediation of exposed and shallow-buried cable segments, and includes review to address repeat exposures	BOEM COP approval	BOEM and BSEE
Navigation and Vessel Traffic	C, O&M, D	Cable emplacement and maintenance	US Wind would design the inshore export cable corridor to avoid—to the greatest extent feasible—the federally designated, state-maintained Indian River Inlet and Bay navigation channel. Where the inshore export cable corridor crosses this navigation channel, US Wind would bury the cable deep enough to safely allow dredging to the depths established by USACE.	BOEM COP approval USACE Section 408 permit.	BOEM, BSEE, USACE, and DNREC
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	C, O&M	Traffic	Require the developer to coordinate prior to mobilization and provide schedule updates to U.S. Fleet Forces Command (USFFC) and the Naval Air Warfare Center Aviation Division (NAWCAD). Following construction, require coordination with USFFC and NAWCAD on relevant operations and maintenance activities.	BOEM COP approval	BOEM and BSEE
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Presence of structures	Inclusion of a condition related to the deployment of distributed fiber optic sensing technology and passive acoustic monitoring by the developer, to facilitate a Department of the Navy (DON) risk assessment and require the developer to mitigate risk to national security if identified.	BOEM COP approval	BOEM and BSEE
Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)			The DON requests a condition to provide DoD/DON notification and opportunity to assess risk related to foreign investment and material vendors for the project, and to address risk to national security requiring mitigation, if identified.	BOEM COP approval	BOEM and BSEE

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency

Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Presence of structures	US Wind will enter into a mitigation agreement with DoD for impacts on air route surveillance radar (ARSR)-4 and for airport surveillance radar (ASR)-8/9 radars. Possible mitigation measures might include the following:
			• Lessee will notify NORAD 30-60 days ahead of project completion and when the project is complete and operational for Radar Adverse Impact Management (RAM) scheduling
			• Lessee will contribute funds ($80,000) toward the execution of the RAM
			• Curtailment for National Security or Defense Purposes as described in the leasing agreement
			• Passive aircraft tracking using Automatic Dependent Surveillance-Broadcast (ADS-B) or signal/transponder
			• Increasing aircraft altitude near radar
			• Sensitivity time control (range-dependent attenuation)
			• Range azimuth gating (ability to isolate/ignore signals from specific range-angle gates)
			• Track initiation inhibit, velocity editing, plot amplitude thresholding (limiting the amplitude of certain signals)
			• Modification mitigations for ARSR-4 and for ASR-8/9 systems:
			  ○ Utilizing the dual beams of the radar simultaneously
			  ○ In-fill radars
				BOEM OCS Study 2020-039 – Radar Systems Mitigations to Operations	BSEE, DoD

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency

Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Presence of structures	US Wind will enter into a mitigation agreement with NOAA, to mitigate operational impacts on oceanographic high-frequency radars. Possible mitigation measures might include the following:
			• US Wind's Project has the potential to interfere with oceanographic high-frequency (HF) radar systems in the U.S. Integrated Ocean Observing System (IOOS), which is managed by the IOOS Office within the National Oceanic and Atmospheric Administration (NOAA) pursuant to the Integrated Coastal and Ocean Observation System Act of 2009 (Pub. L. 111-11), as amended by the Coordinated Ocean Observation and Research Act of 2020 (Public Law 116-271, Title I), codified at 33 U.S.C. 3601–3610 (referred to herein as "IOOS HF-radar"). IOOS HF-radar measures the sea state, including ocean surface current velocity and waves in near real time. These data have many vital uses ("mission objectives"), including tracking and predicting the movement of spills of hazardous materials or other pollutants, monitoring water quality, and predicting sea state for safe marine navigation. The U.S. Coast Guard also integrates IOOS HF-radar data into its Search and Rescue systems. US Wind's Project is within the measurement range of 1 IOOS HF-radar SeaSonde® system operated by the University of Delaware in Cape Henlopen, DE, 2 IOOS HF-radar SeaSonde systems operated by Old Dominion University in Assateague Island, MD and Cedar Island, VA, and 6 IOOS HF-radar SeaSonde systems operated by Rutgers University in: Brigantine, NJ; Cape May Point, NJ; Loveladies, NJ; North Wildwood, NJ; Strathmere, NJ; and Wildwood, NJ.
			  ○ Coordination: Due to the potential interference with IOOS HF-radar and the risk to public health, safety, and the environment, US Wind is obligated to mitigate unacceptable interference with IOOS HF-radar from the US Wind's Project at all times US Wind's Project is in operation. Interference is considered unacceptable if, as determined by BOEM in consultation with NOAA's IOOS Office, IOOS HF-radar performance is or may become no longer within the specific radar systems' operational parameters or fails or may fail to meet IOOS's mission objectives.
			  ○ Mitigation Approval: After the above coordination, at least 60 calendar days prior to completion of construction or initiation of commercial operations (whichever is earlier), US Wind must submit to BOEM documentation demonstrating how it will mitigate interference with IOOS HF-radar at all times during operation of US Wind's project. If, after consultation with the NOAA IOOS Office, BOEM deems the mitigation acceptable, the mitigation will be considered required as a term of US Wind's permit. If at any time the NOAA IOOS Office or a HF-radar operator informs US Wind that the Project will cause a HF-radar system to fall outside of its operational parameters or fail to meet mission objectives, US Wind must notify the Department of the Interior (DOI) of the determination as soon as possible and no later than 30 calendar days from the date on which the determination was communicated.
			• Mitigation Agreement: US Wind is encouraged to enter into an agreement with the NOAA IOOS Office to implement mitigation, and any such Mitigation Agreement may satisfy the requirement to mitigate interference with IOOS HF-radar. The point-of-contact for development of a Mitigation Agreement with the NOAA IOOS Office is the Surface Currents Program Manager, whose contact information is available at https://ioos.noaa.gov/about/meet-the-ioos-program-office/ and upon request from BOEM. A Mitigation Agreement may serve the purpose of implementing Sections 1.2. If there is any discrepancy between Section 1.2 and the terms of a Mitigation Agreement, the terms of the Mitigation Agreement will prevail.
			• Mitigation Implementation: Mitigation required under the above Mitigation Agreement must address the following:
			  ○ Before rotor blades are installed within the Project, and continuing throughout the life of the Project until the point of decommissioning where all rotor blades are removed, US Wind must make publicly available via IOOS near real-time accurate numerical telemetry of surface current velocity, wave height, wave period, wave direction, and other oceanographic data measured at Project locations selected by US Wind in coordination with the NOAA IOOS Office.
			  ○ If requested by the NOAA IOOS Office, US Wind must share with IOOS accurate numerical time-series data of blade rotation rates, nacelle bearing angles, and other information about the operational state of each turbine in the Project to aid interference mitigation.
			• Additional Notification: If a mitigation measure other than that identified in Section 1.2 is agreed to by US Wind and BOEM, in consultation with the NOAA IOOS Office, then US Wind must submit information on the proposed mitigation measure to DOI for its review and concurrence. If, after consultation with the NOAA IOOS Office, BOEM deems the mitigation acceptable, the mitigation will be considered required as a term of US Wind's permit.
				IOOS Surface Currents Program in consultation with NOAA's Office of General Counsel and provided to BOEM's Andrew McGuffin and team	BSEE, NOAA

Other Uses (Marine Minerals, Military, Aviation, Scientific Research, and Surveys)	O&M	Presence of structures	US Wind will enter into a mitigation agreement with NOAA, coordinating through the National Information Telecommunications Administration (NTIA). Operational mitigations to NEXRAD weather radar systems include: • Wind farm curtailment agreement • Research is ongoing to determine whether impacts on weather radar can be mitigated using current technology as well as phased array radars to achieve a null in the antenna radiation pattern in the direction of the wind turbine.	BOEM OCS Study 2020-039 – Radar Systems Mitigations to Operations	BSEE, NOAA

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Sea Turtles	C	Noise	BOEM and BSEE would ensure that US Wind monitors the full extent of the area where noise would exceed the root-mean-square sound pressure level (SPL) 175 dB re 1 µPa behavioral disturbance threshold for turtles for the full duration of all pile driving activities and for 30 minutes following the cessation of pile driving activities and record all observations in order to ensure that all take that occurs is documented.	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS
Sea Turtles	C, O&M	Gear Utilization	Vessels deploying fixed gear (e.g., pots/traps) would have adequate disentanglement equipment (i.e., knife and boathook) onboard. Any disentanglement would occur consistent with the Northeast Atlantic Coast Sea Turtle Disentanglement Network (STDN) Disentanglement Guidelines at https://www.reginfo.gov/public/do/DownloadDocument?objectID=102486501 and the procedures described in "Careful Release Protocols for Sea Turtle Release with Minimal Injury" (NOAA Technical Memorandum 580; https://repository.library.noaa.gov/view/noaa/3773).	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS
Sea Turtles	C, O&M	Traffic	• For all vessels operating north of the Virginia/North Carolina border, between June 1 and November 30, US Wind would have a trained lookout posted on all vessel transits during all phases of the project to observe for sea turtles. The trained lookout would communicate any sightings, in real time, to the captain so that the requirements in I below can be implemented. • The trained lookout would monitor https://seaturtlesightings.org/ prior to each trip and report any observations of sea turtles in the vicinity of the planned transit to all vessel operators/captains and lookouts on duty that day. • The trained lookout would maintain a vigilant watch and monitor a Vessel Strike Avoidance Zone (500 meters) at all times to maintain minimum separation distances from ESA-listed species. Alternative monitoring technology (e.g., night vision, thermal cameras, etc.) would be available to ensure effective watch at night and in any other low visibility conditions. If the trained lookout is a vessel crew member, this would be their designated role and primary responsibility while the vessel is transiting. Any designated crew lookouts would receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements. • If a sea turtle is sighted within 100 meters or less of the operating vessel's forward path, the vessel operator would slow down to 4 knots (unless unsafe to do so) and then proceed away from the turtle at a speed of 4 knots or less until there is a separation distance of at least 100 meters, at which time the vessel may resume normal operations. If a sea turtle is sighted within 50 meters of the forward path of the operating vessel, the vessel operator would shift to neutral when safe to do so and then proceed away from the turtle at a speed of 4 knots. The vessel may resume normal operations once it has passed the turtle. • Vessel captains/operators would avoid transiting through areas of visible jellyfish aggregations or floating sargassum lines or mats. In the event that operational safety prevents avoidance of such areas, vessels would slow to 4 knots while transiting through such areas. • All vessel crew members would be briefed in the identification of sea turtles and in regulations and best practices for avoiding vessel collisions. Reference materials would be available aboard all project vessels for identification of sea turtles. The expectation and process for reporting of sea turtles (including live, entangled, and dead individuals) would be clearly communicated and posted in highly visible locations aboard all project vessels, so that there is an expectation for reporting to the designated vessel contact (such as the lookout or the vessel captain), as well as a communication channel and process for crew members to do so. • The only exception is when the safety of the vessel or crew necessitates deviation from these requirements on an emergency basis. If any such incidents occur, they would be reported to NMFS within 24 hours. • If a vessel is carrying a PSO or trained lookout for the purposes of maintaining watch for NARWs, an additional lookout is not required and this PSO or trained lookout would maintain watch for marine mammals and sea turtles. • Vessel transits to and from the Offshore Project area, that require PSOs will maintain a speed commensurate with weather conditions and effectively detecting sea turtles prior to reaching the 100 meters avoidance measure.	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS
Sea Turtles	O&M	Traffic	To facilitate monitoring of the incidental take exemption for sea turtles, through the first year of operations, BOEM, BSEE, and NMFS would meet twice annually to review sea turtle observation records. These meetings/conference calls would be bi-annually) and would use the best available information on sea turtle presence, distribution, and abundance, project vessel activity, and observations to estimate the total number of sea turtle vessel strikes in the action area that are attributable to project operations. These meetings would continue on an annual basis following year 1 of operations. Upon mutual agreement of NMFS, BSEE, and BOEM, the frequency of these meetings can be changed.	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Sea Turtles, ESA-listed fish	C, O&M	Gear Utilization	Any sea turtles or ESA-listed fish caught and/or retrieved in any fisheries survey gear would first be identified to species or species group. Each ESA-listed species caught and/or retrieved would then be properly documented using appropriate equipment and data collection forms. Biological data, samples, and tagging would occur as outlined below. Live, uninjured animals should be returned to the water as quickly as possible after completing the required handling and documentation. • The Sturgeon and Sea Turtle Take Standard Operating Procedures would be followed (download at: https://media.fisheries.noaa.gov/2021-11/Sturgeon%20%26%20Sea%20Turtle%20Take%20SOPs_external_11032021.pdf). • Survey vessels would have a passive integrated transponder (PIT) tag reader onboard capable of reading 134.2 kHz and 125 kHz encrypted tags (e.g., Biomark GPR Plus Handheld PIT Tag Reader) and this reader be used to scan any captured sea turtles and sturgeon for tags. Any recorded tags would be recorded on the take reporting form (see below). • Genetic samples would be taken from all captured ESA-listed fish (alive or dead) to allow for identification of the DPS of origin of captured individuals and tracking of the amount of incidental take. This would be done in accordance with the Procedures for Obtaining Sturgeon Fin Clips (download at: https://media.fisheries.noaa.gov/2021-11/Sturgeon%20%26%20Sea%20Turtle%20Take%20SOPs_external_11032021.pdf). o Fin clips would be sent to a NMFS approved laboratory capable of performing genetic analysis and assignment to DPS of origin. To the extent authorized by law, BOEM is responsible for the cost of the genetic analysis. Arrangements would be made for shipping and analysis in advance of submission of any samples; these arrangements would be confirmed in writing to NMFS within 60 days of the receipt of this ITS. Results of genetic analysis, including assigned DPS of origin would be submitted to NMFS within 6 months of the sample collection. o Subsamples of all fin clips and accompanying metadata forms would be held and submitted to a tissue repository (e.g., the Atlantic Coast Sturgeon Tissue Research Repository) on a quarterly basis. The Sturgeon Genetic Sample Submission Form is available for download at: https://media.fisheries.noaa.gov/2021-02/Sturgeon%20Genetic%20Sample%20Submission%20sheet%20for%20S7_v1.1_Form%20to%20Use.xlsx?null. • All captured sea turtles and ESA-listed fish would be documented with required measurements and photographs. The animal's condition and any marks or injuries would be described. This information would be entered as part of the record for each incidental take. A NMFS Take Report Form would be filled out for each individual sturgeon and sea turtle (download at: https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null) and submitted to NMFS as described below.	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS
Sea Turtles, ESA-listed fish	C, O&M	Gear Utilization	Any sea turtles or ESA-listed fish caught and retrieved in gear used in fisheries surveys would be handled and resuscitated (if unresponsive) according to established protocols and whenever at-sea conditions are safe for those handling and resuscitating the animal(s) to do so. Specifically: • Priority would be given to the handling and resuscitation of any sea turtles or ESA-listed fish that are captured in the gear being used, if conditions at sea are safe to do so. Handling times for these species should be minimized (i.e., kept to 15 minutes or less) to limit the amount of stress placed on the animals. • All survey vessels would have copies of the sea turtle handling and resuscitation requirements found at 50 CFR 223.206(d)(1) prior to the commencement of any on-water activity (download at: https://media.fisheries.noaa.gov/dam-migration/sea_turtle_handling_and_resuscitation_measures.pdf). These handling and resuscitation procedures would be carried out any time a sea turtle is incidentally captured and brought onboard the vessel during the Proposed Actions. • If any sea turtles that appear injured, sick, or distressed, are caught and retrieved in fisheries survey gear, survey staff would immediately contact the Greater Atlantic Region Marine Animal Hotline at 866-755-6622 for further instructions and guidance on handling the animal, and potential coordination of transfer to a rehabilitation facility. If unable to contact the hotline (e.g., due to distance from shore or lack of ability to communicate via phone), the USCG should be contacted via VHF marine radio on Channel 16. If required, hard-shelled sea turtles (i.e., non-leatherbacks) may be held on board for up to 24 hours following handling instructions provided by the Hotline, prior to transfer to a rehabilitation facility. • Attempts would be made to resuscitate any ESA-listed fish that are unresponsive or comatose by providing a running source of water over the gills as described in the Sturgeon Resuscitation Guidelines (download at: https://media.fisheries.noaa.gov/dam-migration/sturgeon_resuscitation_card_06122020_508.pdf). • Provided that appropriate cold storage facilities are available on the survey vessel, following the report of a dead sea turtle or sturgeon to NMFS, and if NMFS requests, any dead sea turtle or ESA-listed fish would be retained on board the survey vessel for transfer to an appropriately permitted partner or facility on shore as safe to do so. • Any live sea turtles or ESA-listed fish caught and retrieved in gear used in any fisheries survey would ultimately be released according to established protocols and whenever at-sea conditions are safe for those releasing the animal(s) to do so.	BOEM-Proposed Mitigation and Monitoring Measures in the NMFS BA	BSEE

Resource Area Mitigated	Project Stage*	Impact Producing Factor	Mitigation and Monitoring Measures	Source	Anticipated Enforcing Agency
Sea Turtles, ESA-listed fish	C, O&M	Gear Utilization	GARFO PRD would be notified as soon as possible of all observed takes of sea turtles and ESA-listed fish occurring as a result of any fisheries survey. Specifically: • GARFO PRD and BSEE would be notified within 24 hours of any interaction with a sea turtle or ESA-listed fish (nmfs.gar.incidental-take@noaa.gov). The report would include at a minimum: (1) survey name and applicable information (e.g., vessel name, station number); (2) GPS coordinates describing the location of the interaction (in decimal degrees); (3) gear type involved (e.g., bottom trawl, gillnet, longline); (4) soak time, gear configuration and any other pertinent gear information; (5) time and date of the interaction; and (6) identification of the animal to the species level. Additionally, the email would transmit a copy of the NMFS Take Report Form (download at: https://media.fisheries.noaa.gov/2021-07/Take%20Report%20Form%2007162021.pdf?null) and a link to or acknowledgement that a clear photograph or video of the animal was taken (multiple photographs are suggested, including at least one photograph of the head scutes). If reporting within 24 hours is not possible due to distance from shore or lack of ability to communicate via phone, fax, or email, reports would be submitted as soon as possible; late reports would be submitted with an explanation for the delay. • At the end of each survey season, US Wind would prepare a report that would be sent to NMFS that compiles all information on any observations and interactions with ESA-listed species. This report would also contain information on all survey activities that took place during the season including location of gear set, duration of soak/trawl, and total effort. The report on survey activities would be comprehensive of all activities, regardless of whether ESA-listed species were observed.	BOEM COP approval; NMFS ESA consultation	BSEE, NMFS

*C = Construction; O&M = Operations and Maintenance; D = Decommissioning

AMP = alternative monitoring plan; BOEM = Bureau of Ocean Energy Management; BSEE = Bureau of Safety and Environmental Enforcement; CFR = Code of Federal Regulations; COP = Construction and Operations Plan; CWA = Clean Water Act; DOI = Department of the interior ; DPS = distinct population segment; EFH = Essential Fish Habitat; EIS = Environmental Impact Statement; ESA = Endangered Species Act; GARFO PRD = Greater Atlantic Regional Fisheries Office Protected Resources Division; IOOS = Integrated Ocean Observing System; ITS = Incidental Take Statement; LOA = Letter of Authorization; MMPA = Marine Mammals Protection Act; MOA = Memorandum of Agreement; NARW = North Atlantic right whale; NHPA = National Historic Preservation Act; NMFS = National Marine Fisheries Service; NPS = National Park Service; NTL = Notice to Lessees; NVD = night vision devices; OCS = Outer Continental Shelf; PAM = passive acoustic monitoring; PSO = protected species observer; ROD = Record of Decision; SPL = sound pressure level; USACE = U.S. Army Corps of Engineers; USCG = U.S. Coast Guard; USFWS = U.S. Fish and Wildlife Service; USGS = U.S. Geological Survey; WTG = wind turbine generator