Community Offshore Wind

NJDEP Coastal General Permit 23
Application for Geotechnical Sampling

Manasquan, Sea Girt, and Middletown Township, Monmouth County, New Jersey

September 11, 2023

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Executive Summary

Community Offshore Wind, LLC (COSW) is the lease holder of Bureau of Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0539 (the Lease Area) located in the New York Bight. As part of preliminary activities necessary for the routing of offshore export cables to carry energy generated by turbines proposed to be constructed in the Lease Area, COSW is proposing to obtain geotechnical samples from up to 21 locations in New Jersey State coastal waters off the Borough of Manasquan, the Borough of Sea Girt, and Middletown Township, all in Monmouth County, New Jersey (the Project). The data collected from these samples will be used to support routing assessments, design, and installation of the proposed offshore export cables.

This document provides the required information for an NJDEP Coastal General Permit 23 for geotechnical survey borings. Based on the review of available information, the Project complies with all requirements for an NJDEP Coastal General Permit 23, and authorization under that general permit and issuance of a Coastal Zone Consistency Determination is requested.

1.0 INTRODUCTION

Community Offshore Wind, LLC (COSW), a joint venture between National Grid Ventures and RWE, proposes to advance the development of the COSW project in Lease OCS-A 0539, located in the New York Bight. Lease OCS-A 0539 is comprised of approximately 125,964 acres and is located approximately 104 kilometers (km), or 56 nautical miles (nm), from the closest point on land in New York (NY) and approximately 59 km (32 nm) from the closest point on land in New Jersey (NJ).

COSW has identified potential offshore cabling routes for delivery of electricity generated at the Lease Area and is proposing to conduct a geotechnical assessment of the seabed along the proposed routes. The proposed geotechnical investigations are for the portions of the potential offshore export cable corridor that pass through New Jersey state waters and are subject to the applicable State regulations.

This permit application is intended to provide all the necessary information to meet the requirements of the Coastal Zone Management Rules (N.J.A.C. 7:7) General Permit (GP) #23 for geotechnical sampling, Section 401 Water Quality Certification, as well as to support a Coastal Zone Consistency Determination. All proposed disturbances will be temporary, with no permanent features proposed as part of the activities.

2.0 PHYSICAL SETTING

The following sections briefly discuss the general expected characteristics of the proposed Project area.

2.1 GENERAL DESCRIPTION AND PROJECT LOCATIONS

A total of up to 21 geotechnical sampling locations are proposed within New Jersey State coastal waters off the Borough of Manasquan, the Borough of Sea Girt, and Middletown Township, all in Monmouth County (the Project). Each sample location will temporarily impact less than one square foot of bottom sediments. The data collected from these sample locations will be used to support routing assessments, design, and installation of the proposed offshore export cables.

The table below presents the approximate State plane northing and easting locations for each proposed sample location. Note that these are approximate coordinates and final boring locations will be dictated by environmental conditions, physical conditions, marine archaeological resources, and project need. Bore locations will be confined to the Project area.

Figures 1A and 1B depict the general project area where the proposed geotechnical sampling will be conducted. Copies of the USGS topographic maps depicting the Project area are included as **Figures 2A and 2B**[1]. A street map depicting the Project area is included as **Figure 3**[2]. As all work will be completed offshore, a tax map depicting the Project locations is not applicable.

2.2 EXISTING CONDITIONS

2.2.1 Bathymetry

Evaluation of the Electronic Navigational Charts (ENCs) viewer [Office of Coast Survey (noaa.gov)] for the Sea Girt approach identifies the bottom depth as ranging from approximately 37 to 74 feet (11.3 meters to 22.6 meters) in the proposed survey corridor. In the Sandy Hook approach off Middletown Township, soundings range from approximately 16 feet to 59 feet (4.9 meters to 18.0 meters), with minimum project depths in the Lower Bay-Ambrose Channel of 53 feet (16.1 meters) (NOAA, 2023a).

[1] Figures 2A and 2B contain confidential commercially sensitive business information and have been provided under separate cover.
[2] Figure 3 contains confidential commercially sensitive business information and has been provided under separate cover.

The primary surface sediments found along the continental shelf off the New Jersey coast consists of sand deposited due to current and wave action (Byrnes et al., 2000). These sands are generally composed of quartz, and may overlay subsurface layers of quartz, glauconite, silt, clay, and sand in ridge or shoal features (Geo-Marine and NJDEP, 2010).

2.2.2 Faunal Communities

Infaunal communities in the nearshore continental shelf off the New Jersey coast generally consist of assemblages of polychaetous annelids, mollusks, crustaceans, and echinoderms (Byrnes et al., 2000). These assemblages are typical of the communities found on sandy northeastern Atlantic Ocean bottoms, though the community distributions vary significantly both spatially and seasonally (Byrnes et al., 2000). In particular, multiple species of polychaetes, amphipods, and bivalves including the Atlantic surfclam (*Spisula solidissima*) have been identified as the significant infauna in nearshore communities in the New York Bight. Epibenthic taxa identified on the New Jersey continental shelf include crustaceans (crabs and shrimp), echinoderms (sand dollars, sea stars, sea urchins), and gastropod mollusks (sea snails) (Byrnes at al., 2000). It can be expected that a variety of benthic invertebrates may be present in the vicinity of proposed sample locations.

Finfish in coastal New Jersey waters generally consist of demersal (bottom-dwelling) and free-swimming species. Demersal species are generally transient and seasonally variable, with a low number of species accounting for the majority of bottom fishes present in New Jersey coastal waters at any given time, with lowest abundance and diversity in the winter months (Byrnes et al., 2000). Similarly, pelagic fishes are generally transient, moving into waters off the coast of New Jersey in response to seasonal temperature variations in their home range (Byrnes et al., 2000).

2.3 SAMPLING METHODOLOGY

Geotechnical data in each sampling location may be collected via one or both of cone penetration testing (CPT) borings or vibracore sampling. If both methods are used, the borings will be offset to ensure that data collected using each method provides accurate data, but will be advanced in generally the same location. Each sample location will temporarily impact less than one square foot of bottom sediments.

2.3.1 Cone Penetration Testing

CPT involves the advancement of a solid cone tip at the end of a direct push rod. The unit is lowered into the water via crane to the seabed, and the rod is advanced from the unit into the substrate via hydraulic push, a typical cone diameter of 3.5cm to 4.5cm (1.4in to 1.6in; disturbance area 10cm^2 to 15cm^2 or 0.010ft^2 to 0.017ft^2). All data is received in real time, and no physical samples are collected, resistance data is transmitted directly

through cables housed in the rod to equipment on the surface vessel where substrate geotechnical data is interpreted and converted into visual logs. At standard rates of advancement, each proposed boring will require less than 20 minutes to complete, and will provide a continuous subsurface profile to the completed boring depth. CPT borings can provide tip resistance, sleeve friction, dynamic and static pore pressure, temperature, and inclination data which can be used to determine the substrate materials encountered, thicknesses and depths of substrate layers, and hydraulic parameters.

2.3.2 Vibracore Sampling

In contrast to CPT, vibracore sampling involves the collection of physical samples which are taken to a laboratory and are then analyzed for characteristics, including grain size and distribution, specific gravity, color, parent material, and plasticity. The coring apparatus generally consists of a frame with spreading support legs placed on the seabed from the surface support vessel. Sampling tubes are advanced using high frequency vibration which causes liquefaction of sediments along the sampler wall and allows the sampling tube to collect an undisturbed central soil core. The core is removed and cut into 1m sections on site. The ends of the cores will be logged by a field geologist logging sediment stratigraphy, texture, and other observable characteristics. Sediment cores are then sealed, labeled and stored for laboratory analysis. The detailed logging of the samples will take place in an onshore facility within the controlled laboratory environment.

Typical vibracore samples collected for the Project will be collected using a 6-meter (19.685-foot) long sampling core with an outer diameter of approximately 4-inches (surface area 0.087ft^2) with a clear, hard plastic inner liner. Core retainers and nose cutters will be utilized at the tip of the sampler to increase sediment recovery. Cores will be advanced to their full length unless refusal is encountered on rock, gravel or other consolidated material. These data are used to characterize the material types and support sediment fate studies resulting from jet trenching, erosional potential, and design the cable properties.

An area of one square foot of total temporary disturbance per sampling location has been conservatively assumed. It is anticipated that boreholes will fill naturally due to currents and sediment on the seafloor. No backfilling with non-native materials will be required.

3.0 COMPLIANCE WITH COASTAL GENERAL PERMIT 23 CHECKLIST ITEMS

3.1 PROPERTY OWNER CERTIFICATION FORM

A copy of the property owner certification form is included in **Appendix A**.

3.2 PROOF OF PUBLIC NOTICE

Public notice mailings were completed for the Project as required. The Project is proposed within waters offshore of three (3) municipalities within Monmouth County:

- Borough of Manasquan
- Borough of Sea Girt
- Middletown Township

A full copy of the permit package was sent to each of the Municipal clerks:

Dawn Harriman, RMC, CMR
Clerk, Borough of Sea Girt
Borough Hall
321 Baltimore Boulevard
PO Box 296
Sea Girt, NJ 08750

Heidi R. Brunt, RMC/MMC, CPM
Township Clerk, Middletown Township
1 Kings Highway
Middletown, NJ 07748

Barbara Ilaria
Clerk, Borough of Manasquan
201 East Main Street
Manasquan, New Jersey 08736

A copy of the notice letter and Site plan was sent to the following governmental agencies:

Planning Board
Borough of Manasquan
201 East Main Street
Manasquan, New Jersey 08736

Construction Official
Borough of Manasquan
201 East Main Street
Manasquan, New Jersey 08736

Environmental Commission
Borough of Manasquan
201 East Main Street
Manasquan, New Jersey 08736

Planning Board
Borough of Sea Girt

Construction Official
Borough of Sea Girt

Environmental Commission
Borough of Sea Girt

Borough Hall
321 Baltimore Boulevard
PO Box 296
Sea Girt, NJ 08750

423 Warren Avenue
PO Box 638
Spring Lake, NJ 07762
United States

Borough Hall
321 Baltimore Boulevard
PO Box 296
Sea Girt, NJ 08750

Planning Board
Middletown Township
1 Kings Highway
Middletown, NJ 07748

Construction Official
Middletown Township
1 Kings Highway
Middletown, NJ 07748

Environmental Commission
Middletown Township
1 Kings Highway
Middletown, NJ 07748

Planning Board
Monmouth County
Monmouth County Hall of Records
One East Main Street
P.O. Box 1255
Freehold, NJ 07728

As no property owners are located within 200 feet of the Project, and in accordance with guidance received during the pre-application meeting on August 02, 2023, certified mailings to property owners were not conducted. Newspaper notice is scheduled to be published in the Asbury Park Press on September 14, 2023.

Proof of public notice, including the Public Notice Form, copies of notice letters and proof of mailing, and proof of submittal of the newspaper notice, are included in **Appendix B**. Proof of publication of the newspaper notice will be provided following the advertisement's publication.

3.3 APPLICATION FEE

The application fee will be provided electronically.

3.4 SITE PLANS

A copy of the Site Plan for the proposed Project is included in **Appendix C**.

3.5 PHOTOGRAPHS

As the sample locations are proposed offshore below the ocean surface, photographs of the Project are not included.

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321 Baltimore Boulevard
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Sea Girt, NJ 08750

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3.6 MAPS

Copies of the USGS topographic maps depicting the Project area and proposed sample locations are included as **Figures 2A and 2B**[3]. A street map depicting the Project area is included as **Figure 3**[4]. As all work will be completed offshore, a tax map depicting the Project locations is not applicable.

[3] Figures 2A and 2B contain confidential commercially sensitive business information and have been provided under separate cover.
[4] Figure 3 contains confidential commercially sensitive business information and has been provided under separate cover.

4.0 COMPLIANCE WITH N.J.A.C. 7:7

The following sections review the requirements applicable to the General Permit 23, as well as those requirements applicable to specific areas and all permits. Requirements are in italics and an explanation of compliance is included in plain text.

4.1 COMPLIANCE WITH GENERAL PERMIT 23 – GEOTECHNICAL BORINGS (N.J.A.C. 7:7-6.23) REQUIREMENTS

(a) This general permit authorizes geotechnical survey borings including survey borings or excavations constructed for the purpose of obtaining information on subsurface conditions, for the purpose of determining the presence or extent of contamination in subsurface soils or groundwater, and for obtaining seismic information, provided the following conditions are met.

> *1. Borings and related site disturbance shall not be located in shellfish habitat (N.J.A.C. 7:7-9.2), submerged vegetation habitat (N.J.A.C. 7:7-9.6) or endangered or threatened wildlife or plant species habitats (N.J.A.C. 7:7-9.36).*

Examination of the NJDEP Shellfish distribution maps for Raritan and Sandy Hook Bay, Perth Amboy to Sandy Hook, Long Branch to the Manasquan River and Shrewsbury River to Long Branch indicate that sample locations are not proposed within these areas, or within the mapped shellfish habitat as defined in N.J.A.C. 7:7-9.2. Therefore, the proposed Project is in compliance with these requirements.

The proposed sample locations are located offshore in deepwater habitats, and not within any mapped areas of submerged aquatic vegetation identified on the NJDEP's submerged aquatic vegetation maps of Asbury Park, Long Branch, or Sandy Hook or eelgrass maps of the Manasquan and Metedeconk Rivers and Navesink and Shrewsbury Rivers. Therefore, the sample locations are not located in submerged aquatic vegetation habitat as defined in N.J.A.C. 7:7-9.6, and the proposed Project is in compliance with these requirements.

Evaluation of the New Jersey Landscape Project v. 3.3 dataset for the Marine region indicates the potential presence of the following endangered or threatened species:

- Fin whale (*Balaenoptera physalus*, Federal/State endangered)
- Humpback whale (*Megaptera novaeangliae*, Federal/State endangered)
- North Atlantic right whale (*Eubalaena glacialis*, Federal/State endangered)
- Black skimmer (*Rynchops niger*, State endangered)
- Least tern (*Sternula antillarum*, State endangered)
- Roseate tern (*Sterna dougallii*, Federal/State endangered)

- Osprey (*Pandion haliaetus*, State threatened)
- Atlantic leatherback (*Dermochelys coriacea*, Federal/State endangered)

As the geotechnical borings will be conducted on the sea floor and these species are generally pelagic swimmers or surface-foraging birds rather than benthic-dwelling species, the borings will not be located directly in these species' habitat and no impact to endangered and threatened species habitat is anticipated due to the proposed Project. These are mobile species, and their potential range of habitat consists of the larger coast. Therefore, the temporary impacts associated with the Geotech activities are not anticipated to negatively impact noted endangered and threatened species.

In addition, consultation was requested from the New Jersey Natural Heritage Program (NJNHP) and the United States Fish and Wildlife Service (USFWS). The NJNHP provided two responses: one for the Project area near Manasquan and Sea Girt and a second for the Project area near Middletown Township.

The results of the NJNHP consultations did not identify any additional species not identified during review of the New Jersey Landscape Project mapping. The consultation letters for both areas identified the least tern, osprey, fin whale, humpback whale, and north Atlantic right whale as being potentially present in the vicinity of Project activities. Additionally, the black skimmer and roseate tern were identified as potentially present in the vicinity of the Middletown Township Project area (Lower Bay approach), while the Atlantic leatherback was identified as potentially present in the vicinity of the Sea Girt approach.

USFWS Information for Planning and Consulting (IPaC) results indicated the potential presence of the following species:

- Piping plover (*Charadrius melodus*, Federal threatened)
- Red knot (*Calidris canutus rufa*, Federal threatened)
- Roseate tern (Sterna dougallii, Federal endangered)
- Monarch butterfly (*Danaus plexippus*, Candidate species)

With the exception of the roseate tern which also appears on State mapping and is addressed above, the identified species are all generally terrestrial or wading foragers, therefore no impact to occupied habitat is proposed.

NOAA issued a programmatic consultation in conjunction with BOEM regarding survey activities conducted as part of the design process for offshore energy development projects. The consultation found that benthic impacts due to sampling activities such as those described in this permit request will be small and temporary, and that the activities

covered in this permit request were not likely to have adverse effects on listed species or critical habitat.

The Project will be conducted in accordance with existing timing restrictions, as well as avoidance measures established in any specific authorization pursuant to General Permit 23, as well as the best management practices included in the NOAA programmatic consultation. This will act to further limit impact to endangered or threatened species or their habitat. Copies of the NJDEP Natural Heritage response letter, the USFWS IPaC consultation letter are included as **Appendix D**, and the NOAA Programmatic consultation letter is included as **Appendix E**.

> *2. Borings and related site disturbance shall comply with wild and scenic river corridors, (N.J.A.C. 7:7-9.44), wetlands (N.J.A.C. 7:7-9.27), and wetlands buffers (N.J.A.C. 7:7-9.28).*

The sample locations are located offshore in the Atlantic Ocean and are not proposed within any wild and scenic river corridor, wetland, or wetland buffer. The proposed Project is therefore in compliance with these requirements.

> *3. Borings for remedial investigation shall be permitted, constructed, and completed in accordance with the Well Construction and Maintenance; Sealing of Abandoned Well rules, N.J.A.C. 7:9D, and N.J.A.C. 7:26E-1.5(b) and 4 of the Technical Requirements for Site Remediation;*

Borings proposed as part of the Project are for geotechnical purposes and not as a part of any remedial investigation. Therefore, these requirements are not applicable.

> *4. Disturbance shall be limited to that which is necessary to access and conduct the geotechnical borings.*

As the borings will be conducted from a vessel on the water surface, no ground disturbance is anticipated beyond the radius of the borehole, and all disturbance will be temporary. Therefore, the Project is in compliance with this requirement.

> *5. Borings and related site disturbance shall not be conducted during the following time periods:*
>
> *i. During the migration of anadromous fish from April 1 thru June 30 (inclusive);*

All sampling will be conducted outside of the migration timeframe. Additionally, the NOAA National Marine Fisheries Service (NMFS) published a letter with the findings of their 2021 Programmatic Consultation which was submitted to BOEM, in which NMFS

determined that boring activities being conducted as part of offshore wind geotechnical survey campaigns is not anticipated to kill, physically harm, significantly modify or degrade the habitat of, impair the essential behavioral patterns of, or annoy to such an extent as to significantly disrupt the normal behavior of Atlantic sturgeon. The Project is in compliance with this requirement.

> *ii. During the period from March 1 thru June 30 and from October 1 thru November 30 (inclusive), within and adjacent to waters on the Delaware River System from the mouth of bay to Delaware Memorial Bridge and tidal Maurice River, identified as American shad migratory pathways; and*
>
> *iii. During the period from April 1 thru June 30 and from September 1 thru November 30 (inclusive), within and adjacent to waters on the Delaware River System from the Delaware Memorial Bridge to the New York State line and tidal portions of Rancocas and Raccoon Creeks, identified as American shad migratory pathways.*

No sampling will be conducted within the Delaware Bay, the Delaware River, or its tributaries; therefore these requirements are not applicable.

> *6. Bore holes shall be backfilled to the original surface level with appropriate, noncontaminated, soil material.*

It is anticipated that boreholes will fill naturally to grade due to currents and sediment deposition occurring naturally on the floor of the Atlantic Ocean. The required backfilling will occur naturally. Additionally, no backfilling with non-native materials will occur or be required. The Project is in compliance with this requirement.

> *i. Sand may not be used for backfilling in either freshwater or coastal wetlands. Restoration of all bore holes must maintain the hydrologic integrity of the wetlands. To avoid the potential for draining a wetland by puncturing a hard-pan or confining layer, all borings must be sealed with grout or bentonite in accordance with the Department's Water Monitoring Management Program rules, N.J.A.C. 7:9-6.*

No geotechnical sampling will be conducted within coastal or freshwater wetlands; therefore, these requirements are not applicable.

> *ii. Water used to flush a boring may be discharged to the ground provided the boring is not conducted in proximity to a stream or in an area of hazardous waste or acid producing soils. When the boring is performed in proximity to a stream, and water or drilling fluid is used to remove soil from*

the hole, the sediment-laden water shall not be allowed to flow overland such that it would enter the stream. Soil erosion and sediment control measures shall be used as necessary to contain/filter excess water. Drilling fluid shall be contained when working adjacent to a fish-populated watercourse during the relevant restricted period, and in any other situation where containment represents the only method of ensuring that there is no impact to adjacent streams.

Borings will not be flushed with water; therefore, these requirements are not applicable.

4.2 AREA-SPECIFIC REQUIREMENTS (N.J.A.C. 7:7-9, 7:7-12.1 – 7:7.12.24, AND & 7:7-13)

The following table identifies the special areas as defined in N.J.A.C. 7:7-9 which are applicable to the Project activities. Those special areas identified as potentially being impacted are discussed further in the applicable sections below. The general water area rules at N.J.A.C. 7:7-12.1 through 7:7-12.23 are not applicable as the proposed geotechnical borings do not fall under any of the activities listed, as such, they are discussed under 7:7-12.24, Miscellaneous Uses. As no regulated activities are proposed to take place on land, the general land area rules at N.J.A.C. 7:7-13 are not applicable.

Special Areas		**Applicable**	**Not Applicable**
7:7-9.2	shellfish habitat		X
7:7-9.3	surf clam areas	X	
7:7-9.4	prime fishing area	X	
7:7-9.5	finfish migratory pathways		X
7:7-9.6	submerged vegetation habitat		X
7:7-9.7	navigation channels	X	
7:7-9.8	canals		X
7:7-9.9	inlets		X
7:7-9.10	marina moorings		X
7:7-9.11	ports		X
7:7-9.12	submerged infrastructure routes	X	
7:7-9.13	Shipwreck and artificial reef habitats	X	
7:7-9.14	wet borrow pits		X
7:7-9.15	intertidal and subtidal shallows		X
7:7-9.16	dunes		X
7:7-9.17	overwash areas		X
7:7-9.18	coastal high hazard area		X

Special Areas		Applicable	Not Applicable
7:7-9.19	erosion hazard areas		X
7:7-9.20	barrier island corridor		X
7:7-9.21	bay islands		X
7:7-9.22	beaches		X
7:7-9.23	filled water's edge		X
7:7-9.24	existing lagoon edges		X
7:7-9.25	flood hazard areas		X
7:7-9.26	riparian zones		X
7:7-9.27	wetlands		X
7:7-9.28	wetlands buffers		X
7:7-9.29	coastal bluffs		X
7:7-9.30	intermittent stream corridors		X
7:7-9.31	farmland conservation areas		X
7:7-9.32	steep slopes		X
7:7-9.33	dry borrow pits		X
7:7-9.34	historic and archaeological resources	X	
7:7-9.35	specimen trees		X
7:7-9.36	endangered or threatened wildlife or plant species habitats	X	
7:7-9.37	critical wildlife habitat		X
7:7-9.38	public open space		X
7:7-9.39	special hazard areas		X
7:7-9.40	excluded Federal lands		X
7:7-9.41	special urban areas		X
7:7-9.42	Pinelands national reserve and pinelands protection area		X
7:7-9.43	Meadowlands district		X
7:7-9.44	wild and scenic river corridors		X
7:7-9.45	geodetic control reference marks		X
7:7-9.46	Hudson River waterfront area		X
7:7-9.47	Atlantic City		X
7:7-9.48	lands and waters subject to public trust rights		X
7:7-9.49	dredge material management areas		X

7:7-9.3 Surf Clam Areas

(a) Surf clam areas are coastal waters which can be demonstrated to support significant commercially harvestable quantities of surf clams (Spisula solidissima), or areas important for recruitment of surf clam stocks. This includes areas where fishing is prohibited for

research sanctuary or conservation purposes by N.J.A.C. 7:25-12.1(d)4. Surf clams are a marine fish and therefore are also subject to the marine fish and fisheries rule, N.J.A.C. 7:7-16.2.

(b) Development which would result in the destruction, condemnation, or contamination of surf clam areas is prohibited except for the following:

1. Development that is of national interest provided:

i. There are no prudent and feasible alternative sites; and

ii. Impacts to the surf clam area are minimized.

The proposed geotechnical sample locations are located within approved shellfish harvest areas offshore of the coast in the Atlantic Ocean. As such, it is assumed that these areas may produce surf clams in harvestable quantities. As the development of offshore wind generation capacity and the requisite cabling to provide electricity generated to onshore facilities are in both the State and national interest, and potential surf clam habitat exists throughout areas seaward of the State shoreline, no feasible alternative location for geotechnical sampling exists which would avoid such areas. A total of up to 21 sample locations are proposed within New Jersey State waters with a surface area of less than one square foot each. This small temporary disturbance will not affect shellfish harvest areas.

7:7-9.4 Prime Fishing Areas

(a) Prime fishing areas include tidal water areas and water's edge areas which have a demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity. These areas include all coastal jetties, groins, public fishing piers or docks, and artificial reefs. Prime fishing areas also include features such as rock outcroppings, sand ridges or lumps, rough bottoms, aggregates such as cobblestones, coral, shell and tubeworms, slough areas and offshore canyons. Prime fishing areas also include areas identified in "New Jersey's Recreational and Commercial Fishing Grounds of Raritan Bay, Sandy Hook Bay and Delaware Bay and The Shellfish Resources of Raritan Bay and Sandy Hook Bay" Figley and McCloy (1988) and those areas identified on the map titled, "New Jersey's Specific Sport Ocean Fishing Grounds." This map is available through the Coastal Management Program's website athttps://www.nj.gov/dep/cmp.

(b) Standards relevant to prime fishing areas are as follows:

1. Permissible uses of prime fishing areas include recreational and commercial finfishing and shellfishing, as presently regulated by the Department's Division of Fish and Wildlife, scuba diving and other water related recreational activities.

2. Prohibited uses include sand or gravel submarine mining which would alter existing bathymetry to a significant degree so as to reduce the high fishery productivity of these areas. Disposal of domestic or industrial wastes must meet applicable State and Federal effluent limitations and water quality standards.

Proposed geotechnical sample locations are located in prime fishing areas. However, each sample location will temporarily impact less than one square foot of bottom sediments. Therefore, sampling will have a negligible impact on the existing bathymetry and prime fishing areas.

7:7-9.7 Navigation Channels

(a) Navigation channels are tidal water areas including the Atlantic Ocean, inlets, bays, rivers and tidal guts with sufficient depth to provide safe navigation. Navigation channels include all areas between the top of the channel slopes on either side. These navigation channels are often marked with buoys or stakes. Major navigation channels are shown on NOAA/National Ocean Service Charts.

(b) Standards relevant to navigation channels are as follows:

1. Development which would cause terrestrial soil and shoreline erosion and siltation in navigation channels shall utilize appropriate mitigation measures;

2. Development which would result in loss of navigability is prohibited;

3. Any construction which would extend into a navigation channel is prohibited;

4. The placement of structures within 50 feet of any authorized navigation channel is discouraged, unless it can be demonstrated that the proposed structure will not hinder navigation;

5. Maintenance dredging, as defined in N.J.A.C. 7:7-12.6, of navigation channels to provide for safe navigation is conditionally acceptable, provided the dredging operation and the management of the dredged material meet the requirements of N.J.A.C. 7:7-12.6 and Appendix G; and

6. New dredging, as defined in N.J.A.C. 7:7-12.7, to expand the depth, length, and/or width of a previously authorized navigational channel to provide for safe navigation is conditionally acceptable provided the dredging operation and the management of the dredged material meet the requirements of N.J.A.C. 7:7-12.7 and Appendix G.

One of the proposed geotechnical sample locations is located within a mapped shipping channel. Less than one foot of bottom sediments will be temporarily impacted, resulting in no impacts on the bottom bathymetry of the navigation channel. The

sampling will be completed within one hour and thus there will be no impacts to vessel traffic. Therefore, the Project is in compliance with these requirements.

7:7-9.12 Submerged Infrastructure Routes

(a) A submerged infrastructure route is the corridor in which a pipe or cable runs on or below a submerged land surface.

(b) Any activity which would increase the likelihood of infrastructure damage or breakage, or interfere with maintenance operations is prohibited.

Proposed geotechnical sample locations will be located at least 100 feet from submerged infrastructure and will not impact this infrastructure.

7:7-9.13 Shipwreck and Artificial Reef Habitats

(a) The shipwreck and artificial reef habitats special area includes all permanently submerged or abandoned remains of vessels and other structures, including, but not limited to, artificial reefs, anchors, quarry rocks or lost cargo, which serve as a special marine habitat or are fragile historic and cultural resources. An artificial reef is a man-made imitation of a natural reef created by placing hard structures on the sea floor for the purpose of enhancing fish habitat and fish stock. In time, an artificial reef will attain many of the biological and ecological attributes of a natural reef. Artificial reefs do not include shore protection structures, pipelines and other structures not constructed for the sole purpose of fish habitat.

> *1. Known sites include those shown either on National Ocean Survey (N.O.S.) charts or listed in the following publications: W. Krotee and R. Krotee, Shipwrecks Off the New Jersey Coast (1966); B.L. Freeman and L.A. Walford, Angler's Guide to the United States Atlantic Coast Fish, Fishing Grounds, and Fishing Facilities (1974); B. Preim, J. Carlson, B. Figley, A Guide to Fishing and Diving New Jersey Reefs, (2000); and the NJDEP Fisherman Magazine and the Artificial Reefs Association publication, Shipwrecks of New Jersey's Reefs (2003). In addition to known sites, unidentified remains of vessels may exist within tidal waters. Shipwrecks may also be considered historic or archaeological resources pursuant to N.J.A.C. 7:7-9.34.*
>
> *2. Shipwreck and artificial reef habitats may be subject to the marine fish and fisheries rule, N.J.A.C. 7:7-16.2.*

(b) Acceptable uses of shipwreck and artificial reef habitats include finfishing, shellfishing, and scuba diving.

(c) Any use, except archeological research, which would significantly adversely affect the usefulness of this special area as a fish habitat is prohibited. Persons conducting archeological research which significantly affects the usefulness of a shipwreck for

fisheries purpose shall compensate for this loss by creation of an artificial reef of equal habitat value.

Proposed geotechnical sample locations are not located near mapped artificial reefs. Based on information available from the New Jersey Maritime Museum (2023), one shipwreck, the steam freighter *Delaware*, is located within the Project area but is approximately 900 feet from the nearest proposed sampling location. No other shipwrecks are mapped within the Project area or within 1,000 feet of any proposed boring location. Sample locations will also be cleared by a qualified marine archaeologist (QMA) prior to sampling. The Project is therefore in compliance with these requirements.

7:7-9.34 Historic and archaeological resources

(a) Historic and archaeological resources include objects, structures, shipwrecks, buildings, neighborhoods, districts, and man-made or man-modified features of the landscape and seascape, including historic and prehistoric archaeological sites, which either are on or are eligible for inclusion on the New Jersey or National Register of Historic Places.

(b) Development that detracts from, encroaches upon, damages, or destroys the value of historic and archaeological resources is discouraged.

The proposed geotechnical sample locations are not located near any properties listed within the State or National registers of historic places, nor are they located within any mapped archaeological grid. Sample locations will also be cleared by a qualified marine archaeologist (QMA) prior to sampling. The proposed geotechnical sample locations are each less than one square foot, indicating they are unlikely to damage unmapped archaeological resources. If potential historic resources are identified during boring activities, or if information becomes available identifying the potential presence of historic or archaeological resources in the vicinity of one or more borings, the State Historic Preservation Office (SHPO) will be contacted, and boring locations will be re-evaluated based on the new information. Therefore, the Project is in compliance with this requirement.

7:7-9.36 Endangered or threatened wildlife or plant species habitats

The assessment of potential impacts to endangered or threatened wildlife species, or their habitat, are discussed in Section 4.1, above. The minimal footprint and highly localized nature of the proposed geotechnical survey activity pose a *de minimus* effect to endangered or threatened wildlife species or habitat identified via consultation with the NJNHP and USFWS IPaC. Furthermore, programmatic consultation by NOAA, in conjunction with BOEM, regarding survey activities conducted as part of the design

process for offshore energy development projects indicate these activities are not likely to adversely affect marine endangered and threatened species..

7:7-12.24 Miscellaneous Uses

(a) (a) Miscellaneous uses are uses of water areas not specifically defined in this section or addressed in the use rules, N.J.A.C. 7:7-15.

As geotechnical borings are not identified in the specific uses in 7:7-12.1-12.23, they fall under miscellaneous uses and are discussed here.

b) Water dependent uses of water areas not identified in the use rules will be analyzed on a case-by-case basis to ensure that adverse impacts are minimized. Non-water dependent uses are discouraged in all water areas.

Geotechnical borings are not water-dependent uses, however, the location of the potential future submarine cable necessitates the advancement of geotechnical borings in the Project area. Each sample location will temporarily impact less than one square foot of bottom sediments, ensuring that impacts to water areas are minimized.

4.3 COMPLIANCE WITH USE RULES (N.J.A.C. 7:7-15) AND RESOURCE RULES (N.J.A.C. 16)

The proposed Project does not involve any of the uses identified in N.J.A.C. 7:7-15, therefore these requirements are not applicable. The proposed Project does not utilize or otherwise impact any of the resources identified in N.J.A.C. 7:7-16.3 through 16.14. As demonstrated in section 4.2, above, impacts to fisheries (surfclam and prime fishing areas) will be minimal and temporary in nature. The Project is in compliance with these requirements.

4.4 COMPLIANCE WITH CONDITIONS THAT APPLY TO ALL COASTAL PERMITS (N.J.A.C. 7:7-27.2)

(a) The Department places conditions on a coastal permit to ensure that the approved project complies with this chapter. The conditions that apply to all coastal permits are set forth in (c) below, and the additional conditions that apply to all coastal permits except permits-by-rule are set forth in (d) below.

(b) If a permittee undertakes any regulated activity authorized under a coastal permit, such action shall constitute the permittee's acceptance of the permit in its entirety as well as the permittee's agreement to abide by the permit and all conditions therein.

(c) The following conditions apply to all coastal permits:

1. The issuance of a permit shall in no way expose the State of New Jersey or the Department to liability for the sufficiency or correctness of the design of any construction or structure(s). Neither the State nor the Department shall, in any way, be liable for any loss of life or property that may occur by virtue of the activity or development conducted as authorized under a permit;

2. The issuance of a permit does not convey any property rights or any exclusive privilege;

3. The permittee shall obtain all applicable Federal, State, and local approvals prior to commencement of regulated activities authorized under a coastal permit;

4. A permittee conducting an activity involving soil disturbance, the creation of drainage structures, or changes in natural contours shall obtain any required approvals from the Soil Conservation District or designee having jurisdiction over the site;

5. The permittee shall take all reasonable steps to prevent, minimize, or correct any adverse impact on the environment resulting from activities conducted pursuant to the permit, or from noncompliance with the permit;

6. The permittee shall immediately inform the Department of any unanticipated adverse effects on the environment not described in the application or in the conditions of the permit. The Department may, upon discovery of such unanticipated adverse effects, and upon the failure of the permittee to submit a report thereon, notify the permittee of its intent to suspend the permit, pursuant to N.J.A.C. 7:7-27.7;

7. The permittee shall immediately inform the Department by telephone at (877) 927-6337 (Warn DEP Hotline) of any noncompliance that may endanger the public health, safety, and welfare, or the environment. The permittee shall inform the Division of Land Use Regulation by telephone at (609) 292-0060 of any other noncompliance within two working days of the time the permittee becomes aware of the noncompliance, and in writing within five working days of the time the permittee becomes aware of the noncompliance. Such notice shall not, however, serve as a defense to enforcement action if the project is found to be in violation of this chapter. The written notice shall include:

i. A description of the noncompliance and its cause;

ii. The period of noncompliance, including exact dates and times;

iii. If the noncompliance has not been corrected, the anticipated length of time it is expected to continue; and

iv. The steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance;

8. Any noncompliance with a permit constitutes a violation of this chapter and is grounds for enforcement action under N.J.A.C. 7:7-29, as well as, in the appropriate case, suspension and/or termination of the permit;

9. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the authorized activity in order to maintain compliance with the conditions of the permit;

10. The permittee shall employ appropriate measures to minimize noise where necessary during construction, as specified in N.J.S.A. 13:1G-1 et seq. and N.J.A.C. 7:29;

11. The issuance of a permit does not relinquish the State's tidelands ownership or claim to any portion of the subject property or adjacent properties;

12. The issuance of a permit does not relinquish public rights to access and use tidal waterways and their shores; and

13. The permittee shall allow an authorized representative of the Department, upon the presentation of credentials, to:

i. Enter upon the permittee's premises where a regulated activity is located or conducted, or where records must be kept under the conditions of the permit;

ii. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit; and

iii. Inspect at reasonable times any facilities, equipment, practices, or operations regulated or required under the permit. Failure to allow reasonable access under this paragraph shall be considered a violation of this chapter and subject the permittee to enforcement action under N.J.A.C. 7:7-29.

(d) In addition to the conditions at (c) above, the following conditions apply to all coastal permits except permits-by-rule:

1. The permittee and its contractors and subcontractors shall comply with all conditions, site plans, and supporting documents approved by the permit;

2. All conditions, site plans, and supporting documents approved by a permit shall remain in full force and effect so long as the development or any portion thereof is in existence, unless the permit is modified pursuant to N.J.A.C. 7:7-27.5;

3. The permittee shall record the permit, including all conditions listed therein, with the Office of the County Clerk (the Registrar of Deeds and Mortgages, if applicable) of each county in which the site is located. The permit shall be recorded within 30 calendar days of receipt by the permittee, unless the permit authorizes activities within two or more counties, in which case the permit shall be recorded within 90 calendar days of receipt.

Upon completion of all recording, a copy of the recorded permit shall be forwarded to the Division of Land Use Regulation at the address set forth at N.J.A.C. 7:7-1.6;

4. The permittee shall notify the Department in writing within five working days prior to commencement of operation of a CAFRA individual permit. At this time, the permittee shall certify that all conditions of the permit that must be met prior to operation of the development have been met;

5. The permittee shall perform any mitigation required under the permit prior to or concurrently with regulated activities in accordance with N.J.A.C. 7:7-18;

6. If any condition or permit is determined to be legally unenforceable, modifications and additional conditions may be imposed by the Department as necessary to protect public health, safety, and welfare, or the environment;

7. Any permit condition that does not establish a specific time frame within which the condition must be satisfied (for example, prior to commencement of construction) shall be satisfied within six months of the effective date of the permit;

8. A copy of the permit and all approved site plans and supporting documents shall be maintained at the site at all times and made available to Department representatives or their designated agents immediately upon request;

9. The permittee shall provide monitoring results to the Department at the intervals specified in the permit;

10. A permit shall be transferred to another person only in accordance with N.J.A.C. 7:7-27.4;

11. A permit can be suspended or terminated by the Department for cause;

12. The submittal of a request to modify a permit by the permittee, or a notification of planned changes or anticipated noncompliance, does not stay any condition of a permit;

13. Where the permittee becomes aware that it failed to submit any relevant facts in an application, or submitted incorrect information in an application or in any report to the Department, it shall promptly submit such facts or information; and

14. The permittee shall submit written notification to the Bureau of Coastal and Land Use Compliance and Enforcement, 401 East State Street, 4th Floor, P.O. Box 420, Mail Code 401-04C, Trenton, NJ 08625, at least three working days prior to the commencement of site preparation or of regulated activities, whichever comes first.

The Project will comply with these requirements, as well as any other additional requirements established in any specific authorization issued by NJDEP pursuant to General Permit 23.

5.0 CONCLUSIONS

The proposed Project involves geotechnical sampling in up to 21 locations within State waters in the Atlantic Ocean. The sampling activities will result in less than one square foot of temporary bottom sediment disturbance in each location for a total of up to 21 square feet of disturbance. Based on the information reviewed, the proposed Project is in compliance with NJDEP Coastal GP23 for geotechnical survey and issuance of a Coastal Zone Consistency Determination and Section 401 Water Quality Certification are requested.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment.

Prann, Ronald Digitally signed by Prann, Ronald
Date: 2023.08.31 10:14:05
-04'00'

Ronald Prann, Ph.D Date
Stantec Consulting Services, Inc.
Agent

6.0 REFERENCES

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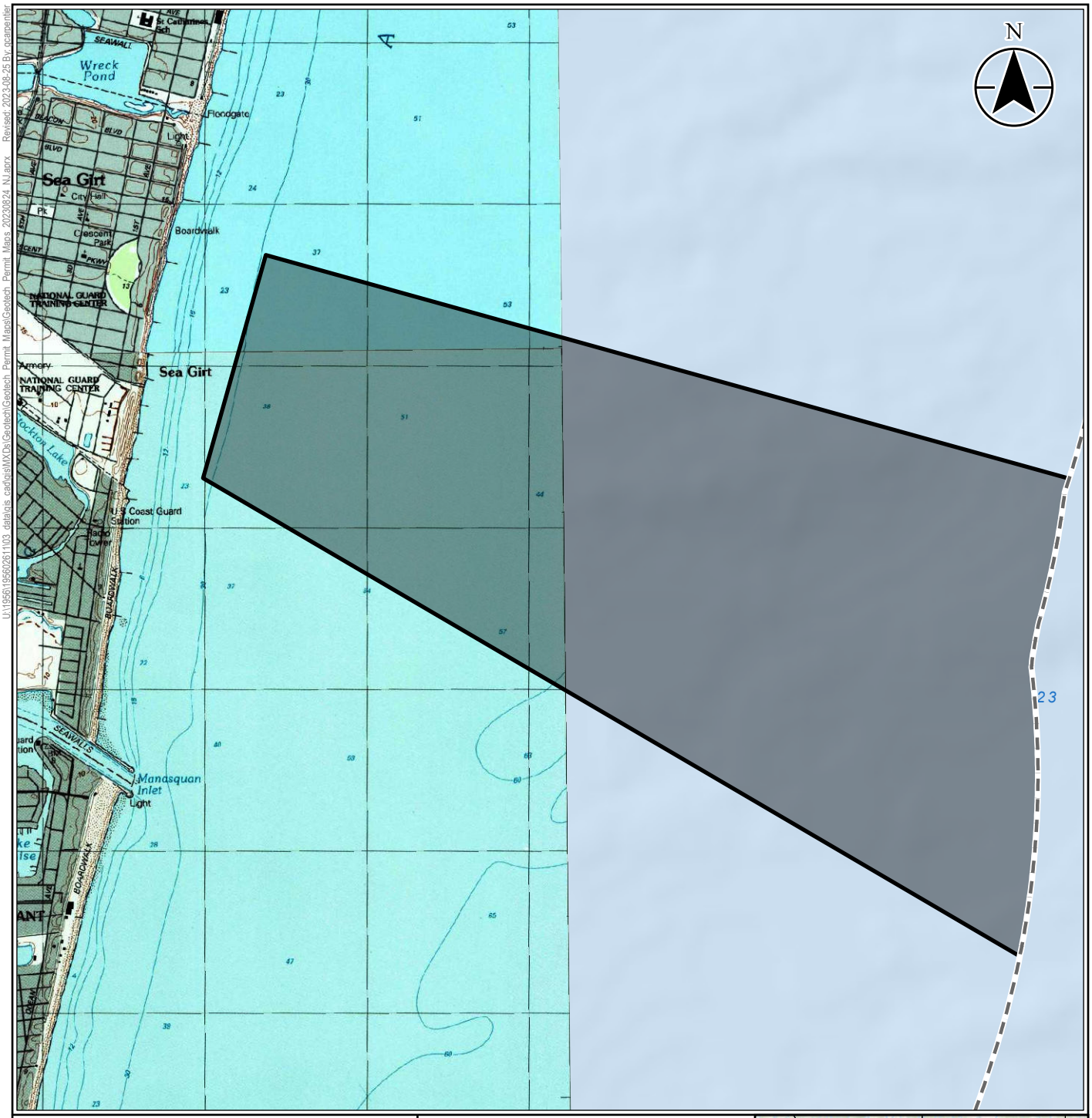
FIGURES



Legend

- Geotechnical Survey Area
- 3-nm State Waters Boundary

Notes
Sources: BOEM, NOAA, USGS
Base Map: USGS 1:24,000 Quadrangles Point Pleasant and Asbury Park

Project
Community Offshore Wind

Title
Figure 1A – Proposed Approximate Geotechnical Investigation Area – Topographic Map

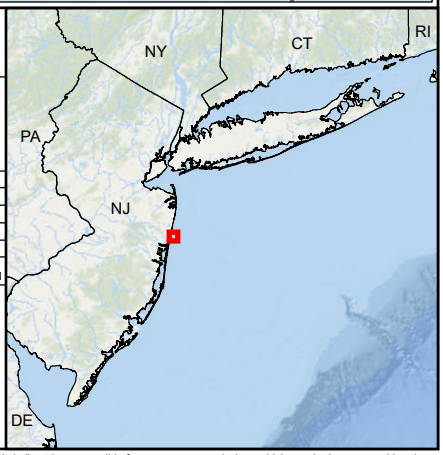
VER	DATE	REMARKS	DRAWN	CHECKED
1	06/20/2023	First Issue	GC	SBG
2	08/25/2023	QC Edits	GC	AN

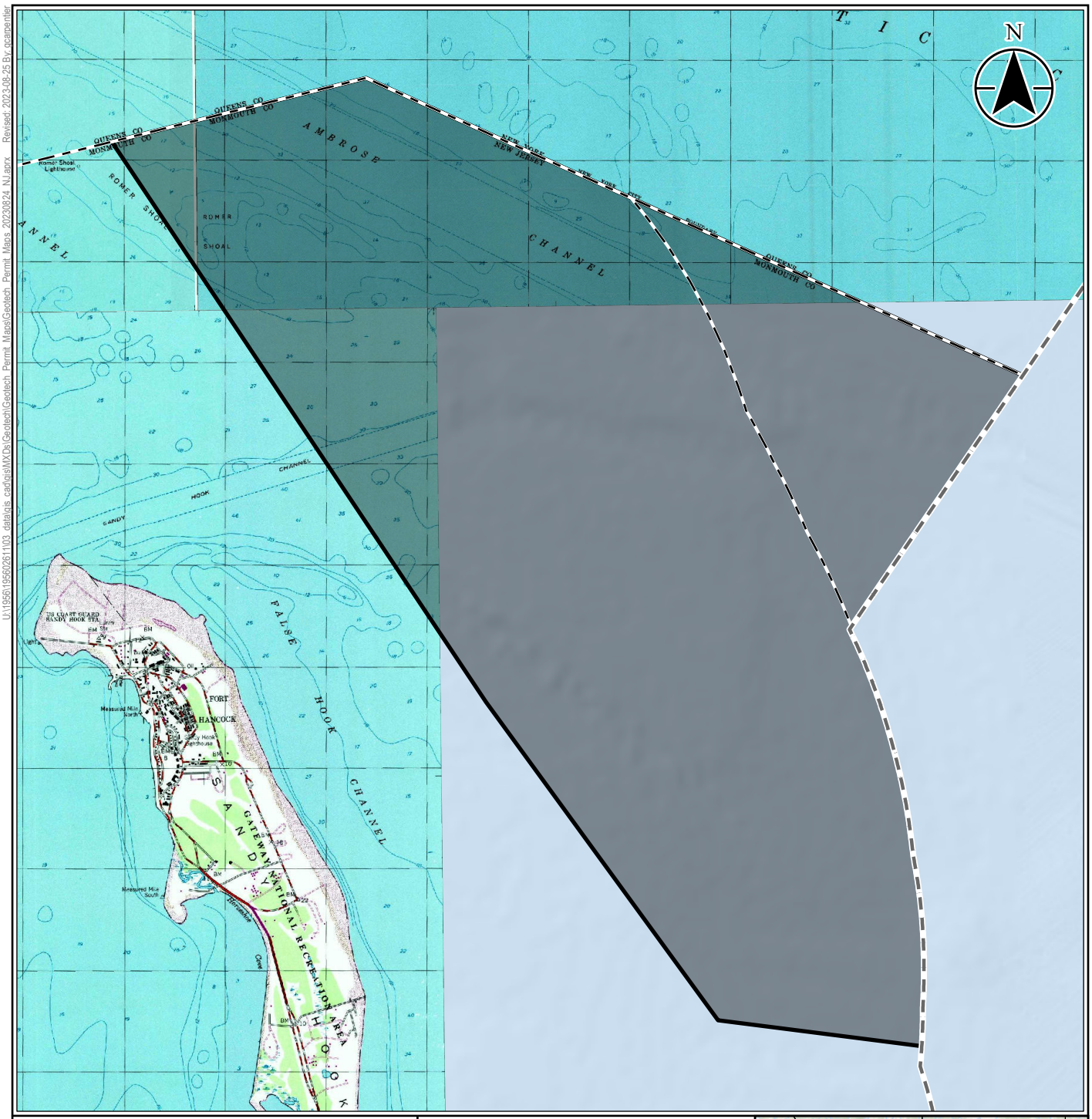
SCALE	PLOT SIZE	PROJECTION
1:36,000	8.5"x11"	NAD 1983 2011 UTM Zone 18N

0 900 Meters

0 3,000 Feet

COMMUNITY offshore wind
A joint venture of RWE nationalgrid





Legend

- Geotechnical Survey Area
- State Boundary
- 3-nm State Waters Boundary

Project

Community Offshore Wind

Title

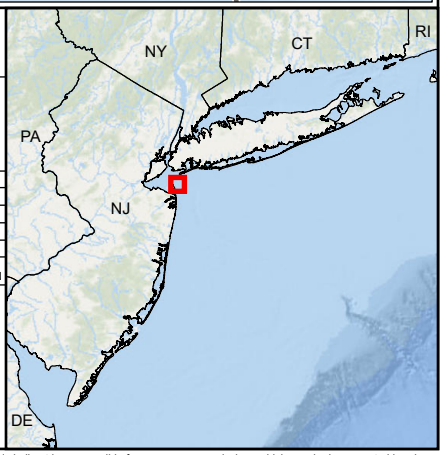
Figure 1B – Proposed Approximate Geotechnical Investigation Area – Topographic Map

VER	DATE	REMARKS	DRAWN	CHECKED
1	06/20/2023	First Issue	GC	SBG
2	08/25/2023	QC Edits	GC	AN

SCALE	PLOT SIZE	PROJECTION
1:57,600	8.5"x11"	NAD 1983 2011 UTM Zone 18N

0 1.5 KM

0 4,800 Feet



Notes

Sources: BOEM, NOAA, USGS

Base Map: USGS 1:24,000 Quadrangles Sandy Hook, The Narrows, and Coney Island

Figure 2A, 2B, and 3 contain confidential commercially sensitive business information and have been provided under separate cover.

APPENDICES

Appendix A PROPERTY OWNER CERTIFICATION FORM

New Jersey Department of Environmental Protection
Land Use Management Program
Division of Land Use Regulation

PROPERTY OWNER CERTIFICATION

INSTRUCTIONS: All applicants are required to complete Sections A and B of this form. Applicants who are individual owners of record of the property upon which the activities will occur must also complete Section C.

All other persons who are required to certify to this application in accordance with N.J.A.C. 7:7-23.2(d), N.J.A.C. 7:7A-16.2(d), and N.J.A.C. 7:13-18.2(d) must complete Sections A and C.

Separate forms may be submitted for each signatory, or a single form may be submitted with all required signatures.

SECTION A. SITE INFORMATION (required)

Project Name: Community Offshore Wind Geotechnical Survey

Applicant's Name: Community Offshore Wind

Street Address: N/A, Offshore Atlantic Ocean

Municipality: Sea Girt; Manasquan; Middletown County: Monmouth Zip Code: Multiple

Blocks and Lots: N/A, Offshore Atlantic Ocean

SECTION B. SIGNATURE OF APPLICANT

The undersigned applicant hereby certifies that he/she is one of the following: 1) an owner of the site on which the activity is proposed or conducted; 2) an agent designated by the site owner(s) to obtain the permit, verification, or letter of interpretation on the owner's behalf; 3) a representative of a public entity proposing an activity within a right-of-way or easement that is held or controlled by that entity or that will be appropriated by the entity under the power of eminent domain; OR 4) a person with the legal authority to perform the proposed activities.

The undersigned applicant also certifies to the following:

1. Does the application include any activities within an easement or right-of-way? ☐ Yes ☒ No

   If "**Yes**," has written consent from all easement or right-of-way holders in accordance with N.J.A.C. 7:7-23.2(g), 7:7A-16.2(g), and 7:13-18.2(g) been attached to this form? ☐ Yes ☐ No
2. Will any part of the project be located within property belonging to the State of New Jersey? ☒ Yes ☐ No
3. Does the application include activities on any property owned by any public agency that would be encumbered by Green Acres? ☐ Yes ☒ No
4. Does this project require a Section 106 (National Register of Historic Places) Determination as part of a federal approval? ☒ Yes ☐ No

Applicant's Name: Community Offshore Wind, LLC, attn Douglas Perkins Date: 9/6/2023

Applicant's Signature: Perkins, Douglas (UI902061) Digitally signed by Perkins, Douglas (UI902061) Date: 2023.09.06 12:55:47 -04'00'

Applicant's Name: _____ Date: _____

Applicant's Signature: _____

Applicant's Name: _____ Date: _____

Applicant's Signature: _____

Applicant's Name: _____ Date: _____

Applicant's Signature: _____

SECTION C. PROPERTY OWNER'S CERTIFICATION

All individual owners of record of the property upon which the activities will occur must certify to this application unless the applicant is a corporation, partnership, sole proprietorship, municipality, or State, Federal, or other public entity. If the applicant is a corporation, a principal executive officer of at least the level of vice president must certify below. In the case of partnerships and sole proprietorships, a general partner or the proprietor, respectively, is required to certify. For a municipality or for a State, Federal, or other public entity, the certification must be provided by either a principal executive officer or ranking elected official.

A duly authorized representative may sign this application on behalf of any individual who is required to certify provided that the authorization is made in writing and is submitted as part of this application. Please note that in lieu of a property owner's signature, a legal agreement with the current property owner may be attached to this form. Acceptable legal agreements include, but are not limited to, certificates of eminent domain and certificates of inverse condemnation. **Please note that contracts of sale are not considered an acceptable substitute for a property owner's signature.**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining and preparing the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment. I hereby grant permission for the conduct of the proposed activities and consent to allow access to the site by representatives or agents of the Department for the purpose of conducting a site inspection(s) of the property in question.

Name of Owner/Easement Holder: Community Offshore Wind, LLC; Douglas Perkins Date: 9/6/2023

Signature: Perkins, Douglas (UI902061) Digitally signed by Perkins, Douglas (UI902061) Date: 2023.09.06 12:56:27 -04'00'

Specific Block(s) and Lot(s) Owned: _____

Name of Owner/Easement Holder: _____ Date: _____

Signature: _____

Specific Block(s) and Lot(s) Owned: _____

Name of Owner/Easement Holder: _____ Date: _____

Signature: _____

Specific Block(s) and Lot(s) Owned: _____

Name of Owner/Easement Holder: _____ Date: _____

Signature: _____

Specific Block(s) and Lot(s) Owned: _____

Name of Owner/Easement Holder: _____ Date: _____

Signature: _____

Specific Block(s) and Lot(s) Owned: _____

Name of Owner/Easement Holder: _____ Date: _____

Signature: _____

Specific Block(s) and Lot(s) Owned: _____

Appendix B PROOF OF PUBLIC NOTICE

New Jersey Department of Environmental Protection
Land Use Management Program
Division of Land Use Regulation

PUBLIC NOTICE

SECTION A. SITE INFORMATION

Applicant's Name: Community Offshore Wind, LLC

Street Address: N/A, Atlantic Ocean Offshore

Municipality: Sea Girt; Manasquan; Middletown County: Monmouth Zip Code: _____

Blocks and Lots: N/A, Atlantic Ocean Offshore

SECTION B. STANDARD NOTICE REQUIREMENTS

Except as provided at item 6 below, public notice of the application shall be provided no more than 30 calendar days prior to submitting the application and no later than the date the application is submitted to the Department.

1. Public notice is required for all of the following (*check all that apply*):

- ☐ A flood hazard area general permit authorization (except general permit 1)
- ☐ A flood hazard area individual permit
- ☐ A flood hazard area verification
- ☒ A coastal general permit authorization
- ☐ A CAFRA individual permit
- ☐ An in-water waterfront development individual permit
- ☐ An upland waterfront development individual permit
- ☐ A coastal wetlands individual permit
- ☐ A freshwater wetlands individual permit
- ☐ A freshwater wetlands transition area waiver
- ☐ A freshwater wetlands general permit authorization (except general permit 15)
- ☐ A freshwater wetlands general permit 15 **(please skip to Section C)**

2. Has a copy of the entire application been sent to the municipal clerk of each municipality in which the proposed activity or project is located? ☒ Yes ☐ No

Note: For electronic submissions, the application consists of a description of the project, which must include the lot and block, municipality, and county, the specific permit(s)/authorization(s) being sought, and all items that will be uploaded to the submission service, including all required items on the applicable application checklist(s).

If "**Yes**," did you attach a copy of the certified United States Postal Service white mailing receipt, or other written receipt, and a copy of any letter sent with the application to this form? ☒ Yes ☐ No

3. Have both a notice letter, including a brief description of the proposed activity or project, and a legible copy of the site plans been sent to the all following applicable agencies? ☒ Yes ☐ No

- The construction official of each municipality in which the site is located
- The environmental commission, or other government agency with similar responsibilities, of each municipality in which the site is located
- The planning board of each municipality in which the site is located
- The planning board of each county in which the site is located

If "**Yes**," did you attach **both** of the following to this form? ☒ Yes ☐ No

- A copy of the certified United States Postal Service white mailing receipt or other written receipt
- A copy of the notice letter

4. Is the application for a coastal permit for an activity within the 12-mile circle with Delaware, as described at N.J.A.C. 7:7-1.2(c), or within 200 feet of the 12-mile circle? ☐ Yes ☒ No

   If "**Yes**," have both a notice letter, including a brief description of the proposed activity or project, and a legible copy of the site plans been sent to the State of Delaware, Department of Natural Resources & Environmental Control, Delaware Coastal Management Program, 89 Kings Highway, Dover, DE 19901? ☐ Yes ☐ No

   If "**Yes**," did you attach **both** of the following to this form? ☐ Yes ☐ No

   - A copy of the certified United States Postal Service white mailing receipt or other written receipt
   - A copy of the notice letter

5. Is the application for a waterfront development individual permit to install a submarine cable in the ocean or to perform sand mining in the ocean? ☐ Yes ☒ No

   If "**Yes**," have you submitted a description of the project, the specific permit(s)/authorization(s) being sought, and a copy of the NOAA nautical chart showing the proposed cable route or the limits of the proposed sand mining area to **all** of the following entities? ☐ Yes ☐ No

   - Garden State Seafood Association
   - National Fisheries Institute
   - North Atlantic Clam Association
   - Rutgers Cooperative Extension
   - New Jersey Shellfisheries Council
   - New Jersey Marine Fisheries Council

6. Does the application include a CAFRA individual permit? ☐ Yes ☒ No

   If "**No**," skip to Question 7.

   If "**Yes**," has newspaper notice, consisting of a legal notice or display advertisement, been published in the official newspaper of the municipality in which the site is located or a newspaper of general circulation in the municipality? ☐ Yes ☐ No

   If "**Yes**," did you attach a copy of the published newspaper notice, the date of publication, and the name of the newspaper to this form? ☐ Yes ☐ No

   If "**No**," did you verify that a newspaper notice, consisting of a legal notice or display advertisement, will be published in the official newspaper of the municipality in which the site is located or a newspaper of general circulation in the municipality no more than **10 calendar days** after the application is submitted to the Department? ☐ Yes ☐ No

   Note: A copy of the published newspaper notice, the date of publication, and the name of the newspaper must be submitted to the Department within this timeframe.

7. Does the application include one or more of the activities listed below (**other than those proposed in a freshwater wetlands individual permit application**)? ☐ Yes ☒ No

   - A delineation of one-half mile or longer of a regulated water
   - A mosquito control activity subject to flood hazard general permit 2
   - A linear project of one-half mile or longer
   - A shore protection development, including beach nourishment, beach and dune maintenance, or dune creation of one-half mile or longer
   - A public development on a site of 50 acres or more
   - An industrial or commercial development on a site of 100 acres or more
   - A project to remove sediment or debris from a channel of one-half mile or longer
   - Maintenance dredging of a State navigation channel of one-half mile or longer
   - A trail or boardwalk of one-half mile or longer subject to a freshwater wetlands general permit or transition area waiver

If you answered "**No**," to question 7:

Have both a notice letter, including a brief description of the proposed activity or project, and a legible copy of the site plans been sent to all owners of real property, including easements, located **within 200 feet of the property boundary of the site**? N/A ☐ Yes ☐ No

If "**Yes**," did you attach **all** of the following to this form? ☐ Yes ☐ No

- A copy of the certified United States Postal Service white mailing receipt or other written receipt
- A copy of the notice letter
- A certified list of all owners of real property, including easements, within 200 feet of the property boundary, prepared by the municipality with a date of certification no earlier than one year prior to the date of the application

If you answered "**Yes**," to question 7, answer questions I. and II. below:

I. Have both a notice letter, including a brief description of the proposed activity or project, and a legible copy of the site plans been sent to all owners of property, including easements, **within 200 feet of any proposed above-ground structure**? NA ☐ Yes ☐ No

If "**Yes**," did you attach **all** of the following to this form? ☐ Yes ☐ No

- A copy of the certified United States Postal Service white mailing receipt or other written receipt
- A copy of the notice letter
- A certified list of all owners of real property, including easements, within 200 feet of the property boundary, prepared by the municipality with a date of certification no earlier than one year prior to the date of the application

II. For all applications, **except CAFRA individual permits**, has newspaper notice, consisting of a legal notice or display advertisement been published in the official newspaper of the municipality in which the site is located or a newspaper of general circulation in the municipality? ☒ Yes ☐ No

If "**Yes**," did you attach a copy of the published newspaper notice, the date of publication, and the name of the newspaper to this form? ☒ Yes ☐ No

8. Will the proposed activity or project disturb 5,000 square feet of land or more? ☐ Yes ☒ No

If "**Yes**," have both a notice letter, including a brief description of the proposed activity or project, and a legible copy of the site plans been sent to the local Soil Conservation District? ☐ Yes ☐ No

If "**Yes**," did you attach a copy of the certified United States Postal Service white mailing receipt or other written receipt **and** a copy of the notice letter to this form? ☐ Yes ☐ No

9. Is the proposed activity or project located within the Pinelands Area as designated under the Pinelands Protection Act at N.J.S.A. 13:18A-11(a)? ☐ Yes ☒ No

If "Yes," you are also required to complete Section D of this form.

10. Does the application include a freshwater wetlands individual permit application? ☐ Yes ☒ No

If "**No**," skip to Question 11.

If "**Yes**," does the proposed project involve more than 10 acres of fill? ☐ Yes ☐ No

If "**Yes**," has newspaper notice been published in a newspaper with regional circulation in the region in which the site is located? ☐ Yes ☐ No

If "**Yes**," did you attach a copy of the published newspaper notice, the date of publication, and the name of the newspaper to this form? ☐ Yes ☐ No

If "**No**," has newspaper notice consisting of a legal notice or display advertisement been published in the official newspaper of the municipality in which the site is located or a newspaper of general circulation in the municipality? ☐ Yes ☐ No

If "**Yes**," did you attach a copy of the published newspaper notice, the date of publication, and the name of the newspaper to this form? ☐ Yes ☐ No

11. Does the application include a flood hazard individual permit based on a hardship exception? ☐ Yes ☒ No

If "**Yes**," do all notice letters and published newspaper notices attached to this form (under questions 3, 4, 7, and 8 above, as applicable) include a description of the nature of the hardship as well as the citation and subject matter of each requirement for which the hardship exception is being requested? ☐ Yes ☐ No

SECTION C. FRESHWATER WETLANDS GENERAL PERMIT 15

This section only applies to applications that include a freshwater wetlands general permit 15.

1. Is the applicant a Federal agency conducting activities on Federal land? ☐ Yes ☐ No

If "Yes," public notice is not required for this activity.

2. Has a display advertisement describing the proposed activities, at least four column inches in size, been published in a newspaper with local circulation (including the municipality) and in a newspaper with regional circulation (including the county)? ☐ Yes ☐ No

If "**Yes**," did you attach a copy of the published newspaper notices, the dates of publication, and the names of the newspapers to this form? ☐ Yes ☐ No

SECTION D. PINELANDS

This section only applies to applications where the proposed activity or project is located within the Pinelands Area as designated under the Pinelands Protection Act at N.J.S.A. 13:18A-11.a.

1. Does the application include a flood hazard general permit or individual permit? ☐ Yes ☐ No

If "**Yes**," has a description of the project, including the lot and block, municipality, county, and specific permit(s)/authorization(s) being sought, been sent to the New Jersey Pinelands Commission? ☐ Yes ☐ No

If "**Yes**," did you attach a copy of the certified United States Postal Service white mailing receipt or other written receipt and a copy of any letter provided with the project description to this form? ☐ Yes ☐ No

2. Does the application include a coastal general permit or individual permit? ☐ Yes ☐ No

If "**Yes**," has a copy of the entire application been sent to the New Jersey Pinelands Commission? ☐ Yes ☐ No

Note: For electronic submissions, the application consists of a description of the project, which must include the lot and block, municipality, and county, the specific permit(s)/authorization(s) being sought, and all items that will be uploaded to the submission service, including all required items on the applicable application checklist(s).

If "**Yes**," did you attach a copy of the certified United States Postal Service white mailing receipt or other written receipt and a copy of any letter provided with the application to this form? ☐ Yes ☐ No

3. Is the application solely for a freshwater wetlands general permit(s)? ☐ Yes ☐ No

If "Yes," do not submit the application to the Department. Submit the application to the New Jersey Pinelands Commission.

A GANNETT COMPANY

app

ASBURY PARK PRESS

Classified Ad Receipt
(For Info Only - NOT A BILL)

Customer: ADAM NOWICKI

Address: 10000 MIDLANTIC DR STE 300W
MOUNT LAUREL NJ 08054
USA

Ad No.: 0005822724
Pymt Method Invoice
Order Amount $59.64

Run Times: 1

No. of Affidavits: 1

Run Dates: 09/14/23

Text of Ad:

This notice is intended to provide legal notification that an application for an authorization under Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the following proposed project:

Installation of geotechnical borings offshore in the floor of the Atlantic Ocean to approximately 20 feet beneath the sea floor. These borings will be advanced in the waters off of the municipalities of Sea Girt, Manasquan, and Middletown, Monmouth County, New Jersey.

The complete permit application package can be reviewed at either the municipal clerk's office in the municipality in which the site subject to the application is located, or by appointment at the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site.

Please submit your written comments within 15 calendar days of this notice to:

New Jersey Department of Environmental Protection
Division of Land Resource Protection
P.O. Box 420, Code 501-02A
Trenton, New Jersey 08625
Attn: Sea Girt, Manasquan, Sea Bright, or Middletown Supervisor
($24.64)

0005822724-01

ORIGIN ID:WWDA (856) 242-6049
CHERYL HICKSON
STANTEC
10000 MIDLANTIC DRIVE
SUITE 300 WEST
MT. LAUREL, NJ 08054
UNITED STATES US

SHIP DATE: 11SEP23
ACTWGT: 1.00 LB
CAD: 258732226/INET4535

BILL SENDER

TO **BARBARA ILARIA**
CLERK, BOROUGH OF MANASQUAN
201 EAST MAIN STREET

MANASQUAN NJ 08736
(856) 360-5776 REF:
INV:
PO: DEPT:

58314/8B35/9AE3

FedEx Express

J233123073101uv

TUE - 12 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7733 7075 2484**

08736

E2 MJXA

NJ-US EWR

After printing this label:
CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH
1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:WWDA (856) 242-6049
CHERYL HICKSON
STANTEC
10000 MIDLANTIC DRIVE
SUITE 300 WEST
MT. LAUREL, NJ 08054
UNITED STATES US

SHIP DATE: 11SEP23
ACTWGT: 1.00 LB
CAD: 258732226/INET4535

BILL SENDER

TO **HEIDI R. BRUNT, RMC/MMC,CPM**
TOWNSHIP CLERK, MIDDLETOWN TOWNSHIP
1 KINGS HIGHWAY

MIDDLETOWN NJ 07748
(856) 360-5576 REF:
INV:
PO: DEPT:

58314/8B35/9AE3

FedEx Express

J233123073101uv

TUE - 12 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7733 7097 0386**

07748

E2 BLMA

NJ-US **EWR**

After printing this label:
CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH
1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID:WWDA (856) 242-6049
CHERYL HICKSON
STANTEC
10000 MIDLANTIC DRIVE
SUITE 300 WEST
MT. LAUREL, NJ 08054
UNITED STATES US

SHIP DATE: 11SEP23
ACTWGT: 1.00 LB
CAD: 258732226/INET4535

BILL SENDER

TO **DAWN HARRIMAN, RMC,CMR**
CLERK, BOROUGH OF SEAGIRT BORO HALL
321 BALTIMORE BOULEVARD
P.O.BOX 296
SEA GIRT NJ 08750
(856) 360-5776 REF:
INV:
PO: DEPT:

58314/8B35/9AE3

FedEx Express

J233123073101uv

TUE - 12 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **7733 7148 1880**

08750

E2 MJXA

NJ-US **EWR**

After printing this label:
CONSIGNEE COPY - PLEASE PLACE IN FRONT OF POUCH
1. Fold the printed page along the horizontal line.
2. Place label in shipping pouch and affix it to your shipment.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

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Manasquan, NJ 08736

Certified Mail Fee	$4.35
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

0054 21

Postmark Here
SEP - 7 2023
09/07/2023

Sent To: Planning Board Borough of Manasquan
Street and Apt. No., or PO Box No.: 201 E. Main St, Manasquan NJ 08736
City, State, ZIP+4®: Manasquan, New Jersey 08736

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

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Extra Services & Fees (check box, add fee as appropriate)	
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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

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Postmark Here
SEP - 7
09/07/2023

Sent To: Construction Official Boro. of Manaqu
Street and Apt. No., or PO Box No.: 201 E. Main St.
City, State, ZIP+4®: Manasquan, NJ 08736

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

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Manasquan, NJ 08736

Certified Mail Fee	$4.35
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

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Postmark Here
SEP - 7 2023
09/07/2023

Sent To: Environmental Commission, Boro of Manasqu
Street and Apt. No., or PO Box No.: 201 East Main Street
City, State, ZIP+4®: Manasquan, New Jersey 08736

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

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Freehold, NJ 07728

Certified Mail Fee	$4.35
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

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SEP - 7 2023
09/07/2023

Sent To: Planning Board Monmouth County Hall of Records
Street and Apt. No., or PO Box No.: 1 East Main St. P.O. Box 1255
City, State, ZIP+4®: Freehold, New Jersey 07728

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

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For delivery information, visit our website at *www.usps.com®*.

Spring Lake, NJ 07762

Certified Mail Fee	$4.35
Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

0054 21

Postmark Here
SEP - 7
09/07/2023

Sent To: Construction Official/Boro of Sea Girt
Street and Apt. No., or PO Box No.: 423 Warren Avenue P.O. Box 638
City, State, ZIP+4®: Spring Lake, New Jersey 07762

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 0739 4136 42

U.S. Postal Service™
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Sea Girt, NJ 08750

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Extra Services & Fees (check box, add fee as appropriate)	
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

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Postmark Here
SEP - 7 2023
09/07/2023

Sent To: Planning Board Boro of Sea Girt
Street and Apt. No., or PO Box No.: 321 Baltimore Boulevard P.O. Box 296
City, State, ZIP+4®: Sea Girt, NJ 08750

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 0739 4136 66

U.S. Postal Service™
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For delivery information, visit our website at *www.usps.com®*.
Sea Girt, NJ 08750

Certified Mail Fee	$4.35
Extra Services & Fees (check box, add fee as appropriate)	$3.55
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

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Postmark Here
SEP -7 2023
09/07/2023

Sent To: Environmental Commission Boro of Sea Girt
Street and Apt. No., or PO Box No.: 321 Baltimore Boulevard - Boro Hall
City, State, ZIP+4®: Sea Girt, NJ 08750 / P.O. Box 296

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 0739 4136 97

U.S. Postal Service™
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For delivery information, visit our website at *www.usps.com®*.
Middletown, NJ 07748

Certified Mail Fee	$4.35
Extra Services & Fees (check box, add fee as appropriate)	$3.55
☐ Return Receipt (hardcopy)	$0.00
☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

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Postmark Here
SEP -7 2023
09/07/2023

Sent To: Construction Official Middletown Twp.
Street and Apt. No., or PO Box No.: 1 Kings Highway
City, State, ZIP+4®: Middletown New Jersey 07748

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

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Certified Mail Fee	$4.35
Extra Services & Fees (check box, add fee as appropriate)	$3.55
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☐ Return Receipt (electronic)	$0.00
☐ Certified Mail Restricted Delivery	$0.00
☐ Adult Signature Required	$0.00
☐ Adult Signature Restricted Delivery	$
Postage	$0.66
Total Postage and Fees	$8.56

0054 21

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SEP -7 2023
09/07/2023

Sent To: Environmental Commission Middletown Twp
Street and Apt. No., or PO Box No.: 1 Kings Highway
City, State, ZIP+4®: Middletown, New Jersey 07748

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

9589 0710 5270 0739 4136 73

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SEP -7 2023
09/07/2023

Sent To: Planning Board Middletown Township
Street and Apt. No., or PO Box No.: 1 Kings Highway
City, State, ZIP+4®: Middletown, N. Jersey 07748

PS Form 3800, January 2023 PSN 7530-02-000-9047 See Reverse for Instructions

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 11, 2023

Attention: Dawn Harriman, RMC, CMR
Clerk, Borough of Sea Girt
Borough Hall
321 Baltimore Boulevard
PO Box 296
Sea Girt, NJ 08750

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Ms. Harriman,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection. A full copy of the application is enclosed for review by the municipality and the public, and a brief description of the proposed project follows:

> Installation of geotechnical borings offshore in the floor of the Atlantic Ocean to approximately 20 feet beneath the sea floor. These borings will be advanced in the waters off of the municipalities of Sea Girt, Manasquan, and Middletown; Monmouth County, New Jersey. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site.

Please submit your written comments within 15 calendar days of receiving this letter to:

> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Sea Girt Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Full Application Package Copy

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 11, 2023

Attention: Barbara Ilaria
Clerk, Borough of Manasquan
201 East Main Street
Manasquan, New Jersey 08736

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Ms. Ilaria,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection. A full copy of the application is enclosed for review by the municipality and the public, and a brief description of the proposed project follows:

> Installation of geotechnical borings offshore in the floor of the Atlantic Ocean to approximately 20 feet beneath the sea floor. These borings will be advanced in the waters off of the municipalities of Sea Girt, Manasquan, Sea Bright, and Middletown; Monmouth County, New Jersey. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site.

Please submit your written comments within 15 calendar days of receiving this letter to:

> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Manasquan Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Full Application Package Copy

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 11, 2023

Attention: Heidi R. Brunt, RMC/MMC, CPM
Township Clerk, Middletown Township
1 Kings Highway
Middletown, NJ 07748

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Ms. Brunt,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection. A full copy of the application is enclosed for review by the municipality and the public, and a brief description of the proposed project follows:

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> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Middletown Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Full Application Package Copy

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Planning Board
Borough of Sea Girt
Borough Hall
321 Baltimore Boulevard
PO Box 296
Sea Girt, NJ 08750

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the development shown on the enclosed plans. A brief description of the proposed project follows:

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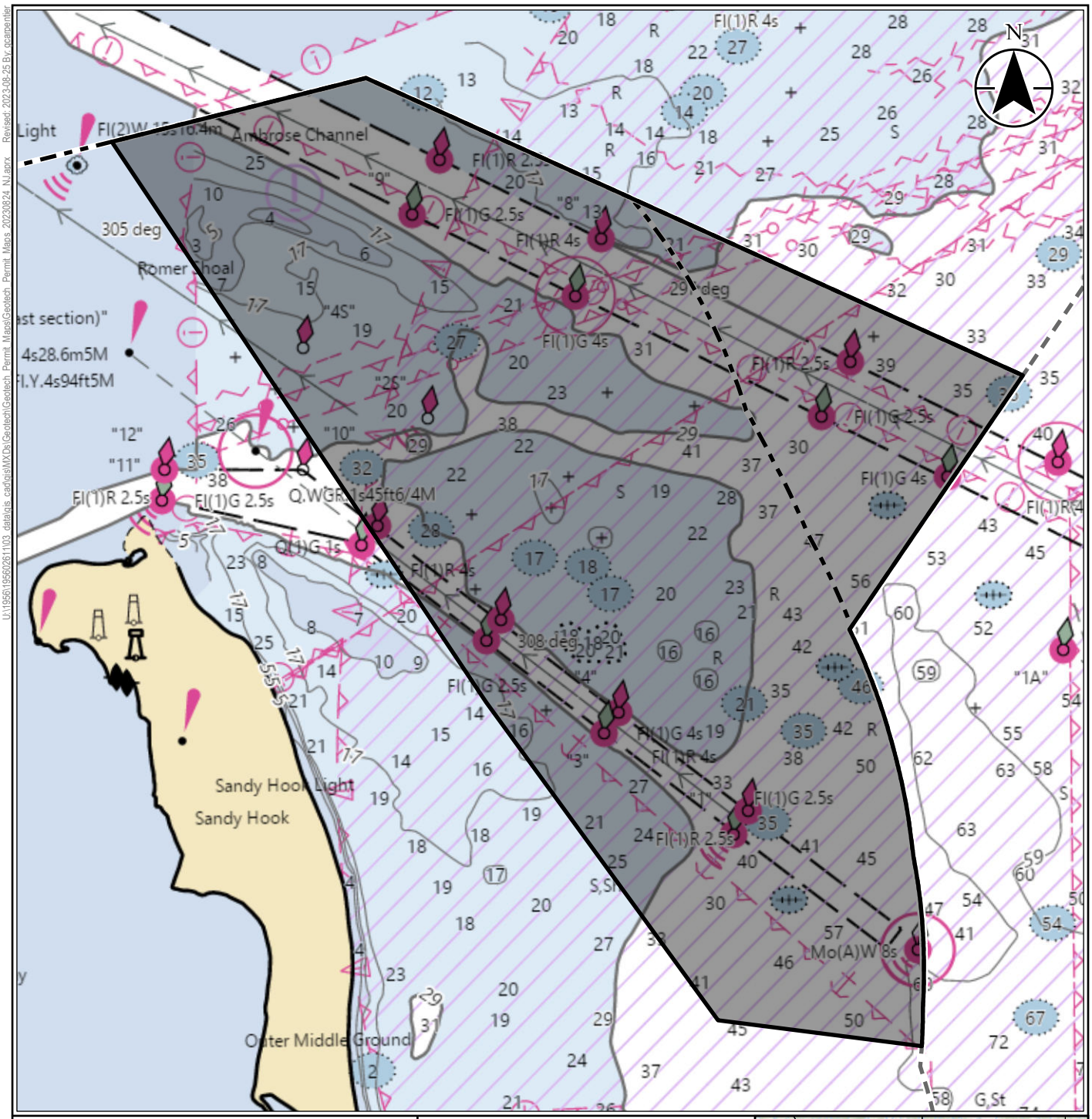
> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Sea Girt Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan



Legend

- Geotechnical Survey Area
- State Boundary
- 3-nm State Waters Boundary

Notes
Sources: BOEM, NOAA
Base Map: NOAA Electronic Chart Display map service

Project
Community Offshore Wind

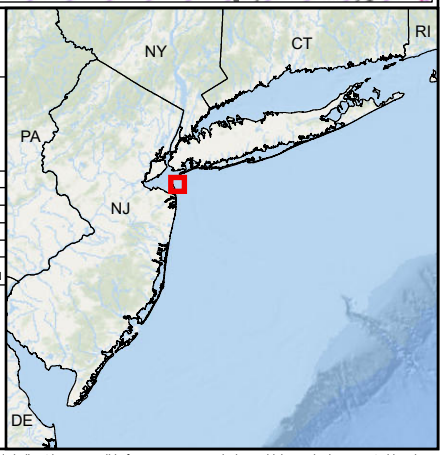
Title
Proposed Approximate Geotechnical Investigation Area – Site Plan

VER	DATE	REMARKS	DRAWN	CHECKED
1	06/20/2023	First Issue	GC	SBG
2	08/25/2023	QC Edits	GC	AN

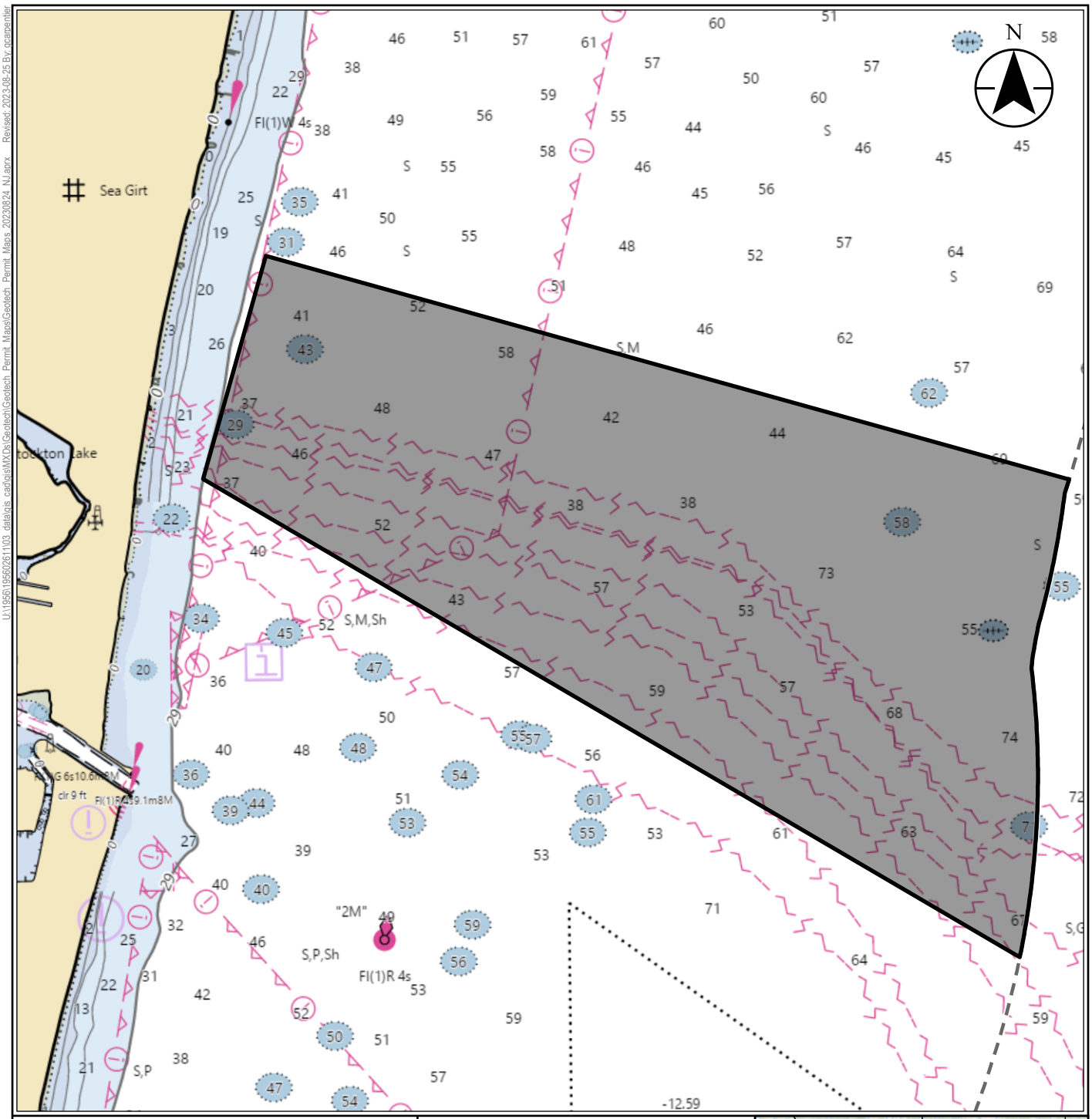
SCALE	PLOT SIZE	PROJECTION
1:57,600	8.5"x11"	NAD 1983 2011 UTM Zone 18N

0 1.5 KM

0 4,800 Feet



Clifton W. Quay, PE, PP
NJ Professional Engineer License #42670



Legend

- Geotechnical Survey Area
- 3-nm State Waters Boundary

Notes
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Base Map: NOAA Electronic Chart Display map service

Project
Community Offshore Wind

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SCALE	PLOT SIZE	PROJECTION
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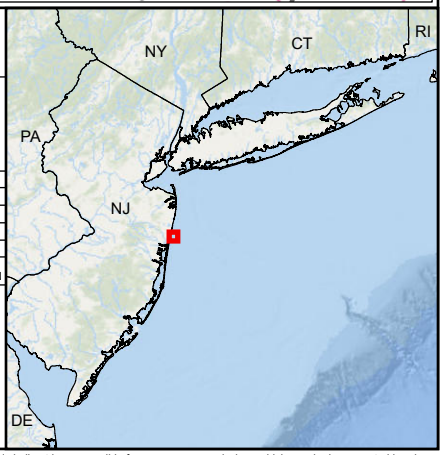
0 900 Meters

0 3,000 Feet



Clifton W. Quay, PE, PP
NJ Professional Engineer License #42670

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Environmental Commission
Borough of Sea Girt
Borough Hall
321 Baltimore Boulevard
PO Box 296
Sea Girt, NJ 08750

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the development shown on the enclosed plans. A brief description of the proposed project follows:

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The complete permit application package can be reviewed at either the municipal clerk's office in the municipality in which the site subject to the application is located, or by appointment at the Department's Trenton Office. The Department of Environmental Protection welcomes comments and any information that you may provide concerning the proposed development and site.

Please submit your written comments within 15 calendar days of receiving this letter to:

> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Sea Girt Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Construction Official
Borough of Sea Girt
423 Warren Avenue
PO Box 638
Spring Lake, NJ 07762

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the development shown on the enclosed plans. A brief description of the proposed project follows:

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> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Sea Girt Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Construction Official
Borough of Manasquan
201 East Main Street
Manasquan, New Jersey 08736

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the development shown on the enclosed plans. A brief description of the proposed project follows:

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> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Manasquan Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Planning Board
Borough of Manasquan
201 East Main Street
Manasquan, New Jersey 08736

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the development shown on the enclosed plans. A brief description of the proposed project follows:

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> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Manasquan Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Environmental Commission
Borough of Manasquan
201 East Main Street
Manasquan, New Jersey 08736

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the development shown on the enclosed plans. A brief description of the proposed project follows:

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> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Manasquan Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Construction Official
Middletown Township
1 Kings Highway
Middletown, NJ 07748

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the development shown on the enclosed plans. A brief description of the proposed project follows:

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> New Jersey Department of Environmental Protection
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> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Middletown Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Environmental Commission
Middletown Township
1 Kings Highway
Middletown, NJ 07748

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

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> Division of Land Resource Protection
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> Trenton, New Jersey 08625
> Attn: Middletown Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Planning Board
Middletown Township
1 Kings Highway
Middletown, NJ 07748

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

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> Trenton, New Jersey 08625
> Attn: Middletown Supervisor

Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Stantec Consulting Services, Inc.
10000 Midlantic Drive Suite 300W, Mount Laurel, NJ 08054-1520

Stantec

September 7, 2023

Attention: Monmouth County Planning Board
Monmouth County Hall of Records
One East Main Street
P.O. Box 1255
Freehold, NJ 07728

RE: Community Offshore Wind
Geotechnical Survey
Offshore Atlantic Ocean
Monmouth County, New Jersey

Dear Concerned Party,

This letter is to provide you with legal notification that an application for an authorization under a Coastal General Permit 23 will be submitted by Community Offshore Wind, LLC. to the New Jersey Department of Environmental Protection, Division of Land Resource Protection for the development shown on the enclosed plans. A brief description of the proposed project follows:

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> New Jersey Department of Environmental Protection
> Division of Land Resource Protection
> P.O. Box 420, Code 501-02A
> Trenton, New Jersey 08625
> Attn: Monmouth County (Sea Girt/Manasquan/Middletown) Supervisor

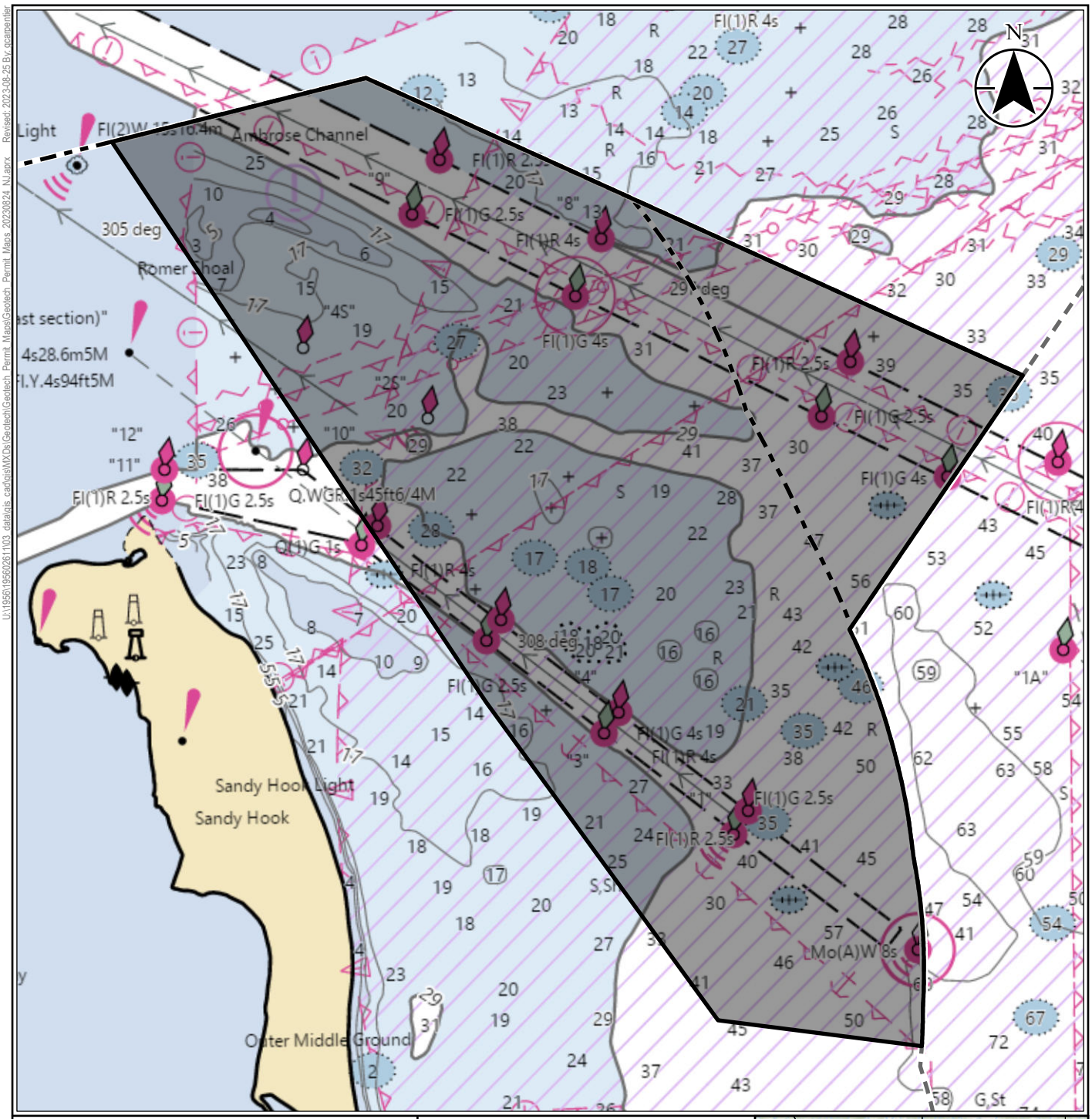
Respectfully,

Stantec

Adam Nowicki
Senior Environmental Scientist
Phone: 856.360.5776
adam.nowicki@stantec.com

Enclosure: Site plan

Appendix C SITE PLANS



Legend

- Geotechnical Survey Area
- State Boundary
- 3-nm State Waters Boundary

Notes
Sources: BOEM, NOAA
Base Map: NOAA Electronic Chart Display map service

Project
Community Offshore Wind

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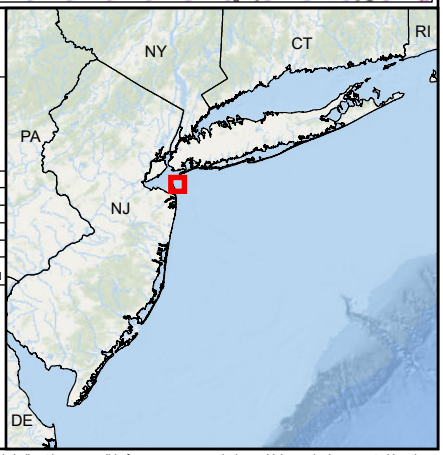
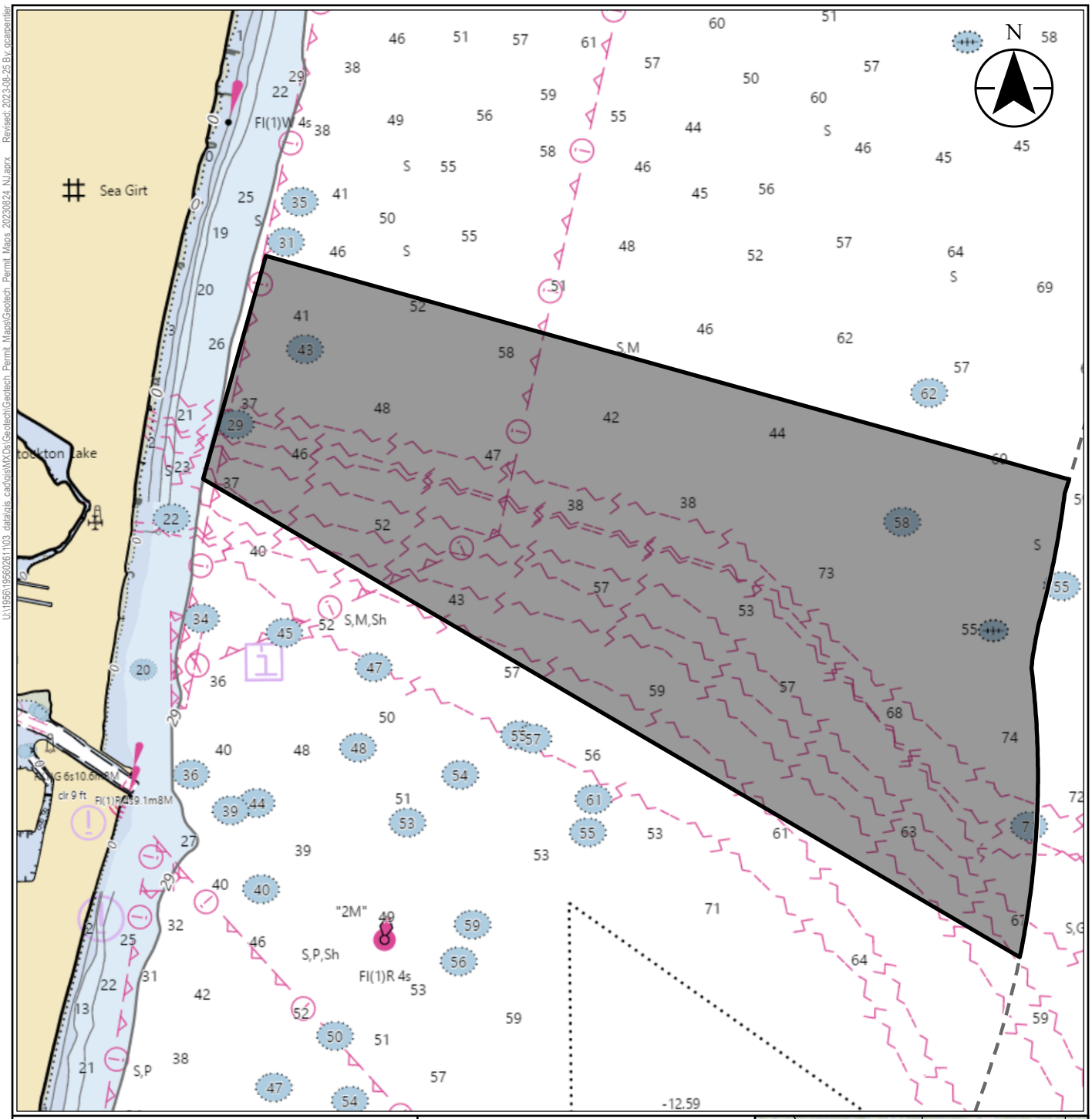
0 4,800 Feet



Clifton W. Quay, PE, PP
NJ Professional Engineer License #42670



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Community Offshore Wind

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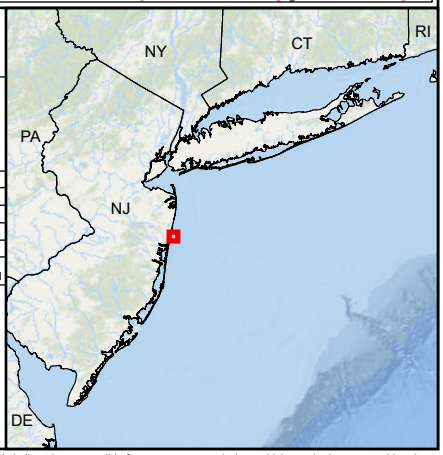
0 3,000 Feet



Clifton W. Quay, PE, PP
NJ Professional Engineer License #42670

Appendix D STATE AND FEDERAL ENDANGERED AND THREATENED SPECIES DATA

The IPaC consultation letter contains confidential commercially sensitive business information and has been provided under separate cover.

State of New Jersey
MAIL CODE 501-04
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE PARKS, FORESTS & HISTORIC SITES
OFFICE OF NATURAL LANDS MANAGEMENT
501 East State Street
P.O. Box 420, Mail Code 501-04
Trenton, NJ 08625-0420
Tel. (609) 984-1339 • Fax (609) 984-0427

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

August 1, 2023

Adam Nowicki
Stantec Consulting Services, Inc.
10000 Midlantic Drive, Suite 300W
Mount Laurel, NJ 08054

Re: Community Offshore Wind Geotechnical Investigation - Middletown
Block(s) - N/A, Lot(s) - N/A - Offshore project area defined by the map provided
Middletown Township, Monmouth County

Dear Adam Nowicki:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the map(s) submitted with the Natural Heritage Data Request Form into our GIS. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the immediate vicinity of the site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from https://nj.gov/dep/parksandforests/natural/heritage/database.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from https://nj.gov/dep/parksandforests/natural/docs/nhpcodes_2010.pdf.

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL,

NHP File No. 23-4007348-28265

https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements (species and/or ecological communities) or their locations. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 23-4007348-28265

Table 1: On Site Data Request Search Results (6 Possible Reports)

Report Name	Included	Number of Pages
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	No	0 pages included

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Black Skimmer	Rynchops niger	Foraging	4	NA	State Endangered	G5	S1B,S1N
	Common Tern	Sterna hirundo	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Least Tern	Sternula antillarum	Foraging	4	NA	State Endangered	G4	S1B,S1N
	Osprey	Pandion haliaetus	Foraging	3	NA	State Threatened	G5	S2B,S4N
	Roseate Tern	Sterna dougallii dougallii	Foraging	5	Federally Listed Endangered	State Endangered	G4T3	S1B,S1N
Mammalia								
	Fin Whale	Balaenoptera physalus	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G3G4	S1
	Humpback Whale	Megaptera novaeangliae	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G4	S1
	North Atlantic Right Whale	Eubalaena glacialis	Live Individual Sighting	5	Federally Listed Endangered	State Endangered	G1	S1

Table 2: Vicinity Data Request Search Results (6 possible reports)

Report Name	Included	Number of Pages
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3	No	0 pages included
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PHILIP D. MURPHY
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Lt. Governor

SHAWN M. LATOURETTE
Commissioner

August 2, 2023

Adam Nowicki
Stantec Consulting Services, Inc.
10000 Midlantic Drive, Suite 300W
Mount Laurel, NJ 08054

Re: Community Offshore Wing Geotechnical Investigation
Block(s) - N/A, Lot(s) - N/A - Offshore, project area defined by the shape file provided
Sea Girt and Manasquan, Monmouth County

Dear Adam Nowicki:

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Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the map(s) submitted with the Natural Heritage Data Request Form into our GIS. We do not typically verify that your project bounds are accurate, or check them against other sources.

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Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 23-4007411-28230

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Reptilia								
	Atlantic Leatherback	Dermochelys coriacea	Occupied Habitat	5	Federally Listed Endangered	State Endangered	G2	S1

Table 2: Vicinity Data Request Search Results (6 possible reports)

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Reptilia								
	Atlantic Leatherback	Dermochelys coriacea	Occupied Habitat	5	Federally Listed Endangered	State Endangered	G2	S1

Appendix E NOAA PROGRAMMATIC CONSULTATION LETTER

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

June 29, 2021

James F. Bennett
Program Manager, Office of Renewable Energy Programs
U.S. Department of the Interior
Bureau of Ocean Energy Management
45600 Woodland Road, VAM-OREP
Sterling, Virginia 20166

Dear Mr. Bennett:

We have completed consultation pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended, concerning the effects of certain site assessment and site characterization activities to be carried out to support the siting of offshore wind energy development projects off the U.S. Atlantic coast. The Bureau of Ocean Energy Management (BOEM) is the lead federal agency for this consultation. BOEM's request for consultation included a biological assessment (BA) that was finalized in February 2021 and was supplemented with modified Project Design Criteria (PDC) and supplemental information through June 11, 2021. The activities considered in this consultation may occur in the three Atlantic Renewable Energy Regions (North Atlantic Planning Area, Mid-Atlantic Planning Area, and South Atlantic Planning Area; see Figure 1 in Appendix A) and adjacent coastal waters over the next 10 years (i.e., June 2021 – June 2031). Other action agencies include the U.S. Army Corps of Engineers (USACE), the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the National Marine Fisheries Service's (NMFS) Office of Protected Resources (OPR).

ACTION AREA AND PROPOSED ACTIONS

As defined in 50 CFR 402.02, "programmatic consultation is a consultation addressing an agency's multiple actions on a program, region, or other basis. Programmatic consultations allow NMFS to consult on the effects of programmatic actions such as: (1) Multiple similar, frequently occurring, or routine actions expected to be implemented in particular geographic areas; and, (2) A proposed program, plan, policy, or regulation providing a framework for future proposed actions." This programmatic consultation considers category 1--multiple similar, frequently occurring, or routine actions expected to be implemented in particular geographic areas.

The survey activities considered in this consultation are geophysical and geotechnical surveys and the deployment, operation, and retrieval of environmental data collection buoys. These frequent, similar activities are expected to be implemented along the U.S. Atlantic coast in the three Atlantic Renewable Energy Regions (North Atlantic Planning Area, Mid-Atlantic Planning Area, and South Atlantic Planning Area). The meteorological buoys and geophysical and geotechnical surveys are expected to occur to support the potential future siting of offshore wind turbines, cables, and associated offshore facilities such as substations or service platforms.

Action Agencies
As noted above, the activities considered here may be authorized, funded, or carried out by BOEM, the DOE, the EPA, the USACE, and NMFS. The roles of these action agencies are described here.

BOEM
The Outer Continental Shelf Lands Act (OCSLA), as amended, mandates the Secretary of the Interior (Secretary), through BOEM, to manage the siting and development of the Outer Continental Shelf (OCS) for renewable energy facilities. BOEM is delegated the responsibility for overseeing offshore renewable energy development in Federal waters (30 C.F.R. Part 585). Through these regulations, BOEM oversees responsible offshore renewable energy development, including the issuance of leases for offshore wind development. This consultation considers the effects of certain data collection activities (geophysical and geotechnical surveys and deployment of meteorological buoys) that may be undertaken to support offshore wind development. BOEM regulations require that a lessee provide the results of shallow hazard, geological, geotechnical, biological, and archaeological surveys with its Site Assessment Plan and Construction and Operations Plan (see 30 C.F.R. 585.610(b) and 30 C.F.R. 585.626(a)). BOEM also funds data collection projects, such as seafloor mapping through the Environmental Studies Program (ESP). The activities considered here may or may not occur in association with a BOEM lease. This consultation does not obviate the need for an appropriate consultation to occur on lease issuance or the approval of a Site Assessment Plan or Construction and Operations Plan.

DOE
The DOE's Office of Energy Efficiency and Renewable Energy (EERE) provides federal funding (financial assistance) in support of renewable energy technologies. EERE's Wind Energy Technologies Office invests in energy science research and development activities that enable the innovations needed to advance U.S. wind systems, reduce the cost of electricity, and accelerate the deployment of wind power, including offshore wind. EERE's Water Power Technologies Office enables research, development, and testing of emerging technologies to advance marine energy. DOE's financial assistance in support of renewable energy projects could have consequences for listed species in federal or state waters. Data collection activities that may be supported by DOE and are considered in this programmatic consultation include deployment of meteorological buoys and geotechnical and geophysical surveys.

EPA
Section 328(a) of the Clean Air Act (CAA) (42 U.S.C. § 7401 *et seq.*) as amended by Public Law 101-549 enacted on November 15, 1990, required the EPA to establish air pollution control requirements for OCS sources subject to the OCSLA for all areas of the OCS, except those located in the Gulf of Mexico west of 87.5 degrees longitude (near the border of Florida and Alabama),[1] in order to attain and maintain Federal and State ambient air quality standards and comply with the provisions of part C of title I of the Act.[2] To comply with this statutory mandate, on September 4, 1992, EPA promulgated "Outer Continental Shelf Air Regulations" at 40 C.F.R. part 55. (57 Fed. Reg. 40,791). 40 C.F.R part 55 also established procedures for

[1] Public Law 112-74, enacted on December 23, 2011, amended § 328(a) to add an additional exception from EPA regulation for OCS sources "located offshore of the North Slope Borough of the State of Alaska."
[2] Part C of title I contains the Prevention of Significant Deterioration of Air Quality (PSD) requirements.

implementation and enforcement of air pollution control requirements for OCS sources. 40 C.F.R. § 55.2 states:

> OCS source means any equipment, activity, or facility, which:
> (1) Emits or has the potential to emit any air pollutant;
> (2) Is regulated or authorized under OCSLA (43 U.S.C. § 1331 *et seq.*); and,
> (3) Is located on the OCS or in or on waters above the OCS.
> This definition shall include vessels only when they are:
> (1) Permanently or temporarily attached to the seabed and erected thereon and used for the purpose of exploring, developing, or producing resources therefrom …; or
> (2) Physically attached to an OCS facility, in which case only the stationary sources aspects of the vessels will be regulated.

As described in the BA, where activities considered in this consultation emit or will have the potential to emit air pollutants and are located on the OCS or in or on waters above the OCS, the activities may be subject to the 40 C.F.R. part 55 requirements, including the 40 C.F.R. § 55.6 permitting requirements. Such activities are expected to be limited to vessel operations and some meteorological buoys.

USACE

Of the activities considered in this consultation, the deployment of meteorological buoys and carrying out geotechnical surveys may require authorization from the USACE. The USACE has regulatory responsibilities under Section 10 of the Rivers and Harbors Act of 1899 to approve/permit any structures or activities conducted below the mean high water line of navigable waters of the United States. The USACE also has responsibilities under Section 404 of the Clean Water Act (CWA) to prevent water pollution, obtain water discharge permits and water quality certifications, develop risk management plans, and maintain such records. A USACE Nationwide Permit (NWP) 5 or Regional General Permit (RGP) for Scientific Measurement Devices is required for devices and scientific equipment whose purpose is to record scientific data through such means as meteorological stations (which would include buoys); water recording and biological observation devices, water quality testing and improvement devices, and similar structures. In New England States, RGPs are required instead of the NWP. As stated in both types of permit, "*upon completion of the use of the device to measure and record scientific data, the measuring device and any other structures or fills associated with that device (e.g., foundations, anchors, buoys, lines, etc.) must be removed to the maximum extent practicable and the site restored to preconstruction elevations,"* as prescribed by Section 404 of the CWA (U. S. Army Corps of Engineers 2012).

Consideration of Potential Issuance of Incidental Harassment Authorizations for Survey Activities

The Marine Mammal Protection Act (MMPA), and its implementing regulations, allows, upon request, the incidental take of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographic region. Incidental take is an unintentional, but not unexpected, "take." Upon receipt and review of an adequate and complete application, NMFS OPR may authorize the incidental take of marine mammals incidental to the marine site characterization surveys pursuant to the MMPA, if the required findings are made. Proponents of some survey activities considered here may be required to

obtain Incidental Take Authorizations (ITAs) under the MMPA. Therefore, the Federal actions considered in this consultation include the issuance of ITAs for survey activities described herein. Those ITAs may or may not provide MMPA take authorization for marine mammal species that are also listed under the ESA. As noted above, we have determined that all activities considered (inclusive of all PDC and BMPs) in this consultation will have no effect or are not likely to adversely affect any species listed under the ESA. By definition, that means that no take, as defined in the ESA, is anticipated. However, given the differences in the definitions of "harassment" under the MMPA and ESA, it is possible the site characterization surveys could result in harassment, as defined under the MMPA, but meet the ESA definition of "not likely to adversely affect." This consultation addresses such situations.

Under the MMPA (16 U.S.C. §1361 et seq.), take is defined as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal" and further defined by regulation (50 C.F.R. §216.3). Harassment is defined under the MMPA as any act of pursuit, torment, or annoyance which: has the potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B Harassment). As defined in the MMPA, Level B harassment does not include an act that has the potential to injure a marine mammal or marine mammal stock in the wild.

Under the ESA, take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct." Harm is defined by regulation (50 C.F.R. §222.102) as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding, or sheltering." NMFS does not have a regulatory definition of "harass." However, on December 21, 2016, NMFS issued interim guidance[3] on the term "harass," under the ESA, defining it as to "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." The NMFS interim ESA definition of "harass" is not equivalent to MMPA Level B harassment. Due to the differences in the definition of "harass" under the MMPA and ESA, there may be activities that result in effects to a marine mammal that would meet the threshold for harassment under both the MMPA and the ESA, while other activities may result in effects that would meet the threshold for harassment under the MMPA but not under the ESA. This issue is addressed further in the Marine Mammals section of this letter.

For this consultation, we considered NMFS' interim guidance on the term "harass" under the ESA when evaluating whether the proposed activities are likely to harass ESA-listed species, and we considered the available scientific evidence to determine the likely nature of the behavioral responses and their potential fitness consequences. As explained below, we determined that the effects to ESA-listed marine mammals resulting from the survey activities considered here would be insignificant and not result in harassment per NMFS' interim guidance on harassment under the ESA.

[3] NMFS Policy Directive 02-110-19; available at *https://media.fisheries.noaa.gov/dam-migration/02-110-19.pdf*; last accessed March 25, 2021.

Activities Considered in this Programmatic Consultation

The survey activities that are considered here consist of high resolution geophysical (HRG) and geotechnical surveys designed to characterize benthic and subsurface conditions and deployment, operation, and retrieval of environmental data collection buoys. A complete description of representative survey equipment to be used is included in Appendix A (Tables A.1 and A.2). Additionally, this consultation considers effects of deploying, operating, and retrieving buoys equipped with scientific instrumentation to collect oceanographic, meteorological, and biological data. All activities considered here will comply with a set of PDC (see Appendix B). We also consider the effects of vessel traffic associated with these activities. All vessels carrying out these activities, including during transits, will comply with measures outlined in Appendix B regardless of the equipment used or the sound levels/frequency at which equipment is operating. This consultation does not consider the effects of any survey activities that have the potential to result in directed or incidental capture or collection of any ESA-listed species (e.g., trawl surveys in areas where ESA-listed sea turtles occur).

This consultation does not evaluate the construction of any commercial electricity generating facilities or transmission cables with the potential to export electricity. Consistent with our understanding of the relevant regulations, BOEM has indicated that any such proposals for installation of electricity generating facilities (i.e., installation of wind turbines) or transmission cables would be a separate federal action (including authorization from BOEM) requiring a separate section 7 consultation. "Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action" (50 CFR §402.02; see also 50 CFR §402.17). The construction, operation, and/or decommissioning of any offshore wind facility or appurtenant facilities (e.g., cables, substations, etc.) are not consequences of the proposed survey activities considered here as they are not reasonably certain to occur. As such, this consultation does not consider these activities.

Action Area

The action area is defined by regulation as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The Action Area for this consultation includes the areas to be surveyed and where buoys will be deployed, areas where increased levels of noise will be experienced as well as the vessel transit routes between existing Atlantic coast ports and the survey area. This area encompasses all effects of the proposed action considered here.

Surveys considered in this programmatic consultation will take place at depths 100-meters (m) or less within the three Atlantic Renewable Energy Regions (North Atlantic Planning Area, Mid-Atlantic Planning Area, and South Atlantic Planning Area) located on the Atlantic Outer Continental Shelf (OCS) and may also occur along potential cable corridor routes in nearshore waters of Atlantic coast states. The three planning areas extend from the US/Canada border in the north to Palm Bay, Florida in the south. The North, Mid-Atlantic, and South Atlantic planning

areas together extend seaward from the U.S./Canadian border in the North to Palm Bay, Florida in the South. For the purposes of this consultation, the action area includes the Atlantic Renewable Energy Regions in OCS waters out to the 100 m depth contour in the North Atlantic, extending from waters offshore Maine to New Jersey; Mid-Atlantic, extending from waters offshore Delaware to North Carolina; and the South Atlantic extending from waters offshore South Carolina to east-central Florida and the adjacent coastal waters to the Atlantic coast (see Figure 1 in Appendix A for map of the action area). The offshore extent of the action area is defined by the anticipated maximum water depth where potential offshore wind facilities could be constructed. The seaward limit for siting a wind energy facility on the OCS is approximately 25 nautical miles (nm) (46.3 kilometers [km]) from shore or 100 m (328 feet [ft.]) water depth due to economic viability limitations. The current fixed foundation technologies are limited to depths of about 60 m. Although the majority of site assessment and site characterization activities will occur in water <60 m to accommodate the depth limitations in support of fixed foundations for wind turbine generators, floating foundations may be used in water depths >60 m in the future.

IMPLEMENTATION, TRACKING, AND REPORTING FOR THIS PROGRAMMATIC CONSULTATION

As noted above, activities considered in this consultation may be authorized, funded, or carried out by one or more action agencies. When one of these action agencies identifies a proposed activity that they believe falls within the scope of this programmatic consultation, they will first identify a lead action agency for the review (we anticipate that in most cases this will be BOEM). They will then review the activity to confirm that it is consistent with the activities covered by this consultation, including a review to confirm that all relevant PDCs (as outlined in Appendix B) will be implemented. The lead action agency for the activity will send written correspondence to the NMFS Greater Atlantic Regional Fisheries Office (GARFO) (nmfs.gar.esa.section7@noaa.gov) providing a brief summary of the proposed activity, including location and duration, and the agency's determination that the proposed activity is consistent with the scope of activities considered in this consultation. The action agency will also confirm in writing that all relevant PDCs will be implemented. If NMFS GARFO has any questions about the activity or determines it is not within the scope of this consultation, a written reply will be provided to the action agency within 15 calendar days. Activities that are determined to not be within the scope of this consultation can be modified by the action agency to bring them within the scope of this consultation or the action agency can request a stand-alone ESA section 7 consultation outside of this programmatic consultation.

To provide flexibility while maintaining the intent of this programmatic consultation, if an action agency proposes use of an equipment type different than described in this consultation, but can demonstrate that the acoustic characteristics are similar to the representative equipment described in Table A.2 and that implementation of the PDCs will result in the same effects considered here, this can be described when the survey plan is transmitted to us. Similarly, it is possible to consider modifications to the PDCs for a particular survey plan when the lead action agency can demonstrate that the same conservation benefit or risk reduction can be achieved with an alternate proposal.

In order to track activities carried out under this programmatic consultation, by February 15 of each year, BOEM, as the lead agency for this programmatic consultation, will provide a written report to NMFS documenting the activities that occurred under the scope of this consultation in

the previous year (e.g., the report for 2021 activities will be due by February 15, 2022). This annual report will also transmit any monitoring reports and any reports of instances where PDCs were not implemented (e.g., where human safety prevented implementation of an otherwise required speed reduction). Following the receipt of the annual report, a meeting will be held if necessary to review and update any PDCs and to update the list of representative equipment.

ESA-LISTED SPECIES AND CRITICAL HABITAT CONSIDERED IN THIS CONSULTATION

In their BA, BOEM described the ESA-listed species and critical habitats that occur along the U.S. Atlantic coast. Of the species listed in the BA, we have determined that oceanic whitetip shark (*Carcharhinus longimanus*), Nassau grouper (*Epinephelus striatus*)[4], staghorn coral (*Acropora cervicornis*), elkhorn coral (*Acropora palmata*), pillar coral (*Dendrogyra cylindrus*), rough cactus coral (*Mycetophyllia ferox*), lobed star coral (*Orbicella annularis*), mountainous star coral (*Orbicella faveolata*), and boulder star coral (*Orbicella franksi*) do not occur in the action area.

ESA-Listed Species in the Action Area

The following listed species occur in the action area and are considered in this consultation:

Table 1. ESA-listed species that may be affected by the proposed action.

Common Name	Scientific Name	ESA Status
Marine Mammals – Cetaceans		
North Atlantic right whale	*Eubalaena glacialis*	Endangered
Fin Whale	*Balaenoptera physalus*	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered
Blue whale	*Balaenoptera musculus*	Endangered
Sea Turtles		
Loggerhead turtle - Northwest Atlantic DPS	*Caretta*	Threatened
Green turtle - North Atlantic DPS and South Atlantic DPS	*Chelonia mydas*	Threatened
Kemp's ridley turtle	*Lepidochelys kempii*	Endangered

[4] Nassau grouper may occur in nearshore and offshore waters in the Florida Straits Planning Area but are not known to occur in nearshore or offshore waters of the South Atlantic Planning Area (NMFS 2013)

Leatherback turtle	*Dermochelys coriacea*	Endangered
Hawksbill turtle	*Eretmochelys imbricata*	Endangered
Fishes		
Atlantic salmon	*Salmo salar*	Endangered
Atlantic sturgeon	*Acipenser oxyrinchus*	Endangered
New York Bight DPS		Endangered
Chesapeake Bay DPS		Endangered
Carolina DPS		Endangered
South Atlantic DPS		Endangered
Gulf of Maine DPS		Threatened
Giant Manta Ray	*Manta birostris*	Threatened
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered
Smalltooth sawfish	*Pristis pectinate*	Endangered

BOEM has determined the proposed action is not likely to adversely affect any of these species. We concur with this determination based on the rationale presented below. More information on the status of the species and critical habitat considered in this consultation, as well as relevant listing documents, status reviews, and recovery plans, can be found within the BA and on NMFS webpages accessible at: *https://www.greateratlantic.fisheries.noaa.gov/protected/section7/listing/index.html*, *https://sero.nmfs.noaa.gov/protected_resources/section_7/threatened_endangered/index.html*, and *https://www.fisheries.noaa.gov/species-directory*.

Critical Habitat in the Action Area

The action area overlaps, at least in part, with critical habitat designated for all five DPSs of Atlantic sturgeon, North Atlantic right whales, and the Northwest Atlantic Ocean DPS of loggerhead sea turtles. While critical habitat is designated for some of the other species considered in this consultation, that critical habitat does not occur in the action area. Critical habitat for the Gulf of Maine DPS of Atlantic salmon is limited to certain mainstem rivers in the State of Maine. At this time, we do not know of any geotechnical or geophysical survey activities that are likely to occur in those waters. As such, the proposed action will not overlap with critical habitat designated for the Gulf of Maine DPS of Atlantic salmon. BOEM determined that the activities considered here may affect, but are not likely to adversely affect critical habitat designated for the five DPSs of Atlantic sturgeon or the Northwest Atlantic DPS of loggerhead sea turtles. We concur with these determinations based on the rationale presented in the Effects of the Action section below.

BOEM determined that the activities considered here would have no effect on critical habitat designated for North Atlantic right whales. We agree with this determination as described briefly below.

Critical Habitat designated for the North Atlantic Right Whale

On January 27, 2016, NMFS issued a final rule designating critical habitat for North Atlantic right whales (81 FR 4837). Critical habitat includes two areas (Units) located in the Gulf of Maine and Georges Bank Region (Unit 1) and off the coast of North Carolina, South Carolina, Georgia and Florida (Unit 2). Geophysical and geotechnical surveys and met buoy deployment may occur in Unit 1 and Unit 2. Note that there are seasonal restrictions on certain acoustic survey equipment in Unit 1 and Unit 2 (PDC 4); however, these seasonal restrictions are in place to further reduce the potential for effects to right whales in these areas and are not related to effects on the features of that critical habitat.

Consideration of Potential Effects to Unit 1

As identified in the final rule (81 FR 4837), the physical and biological features essential to the conservation of the North Atlantic right whale that provide foraging area functions in Unit 1 are: The physical oceanographic conditions and structures of the Gulf of Maine and Georges Bank region that combine to distribute and aggregate *C. finmarchicus* for right whale foraging, namely prevailing currents and circulation patterns, bathymetric features (basins, banks, and channels), oceanic fronts, density gradients, and temperature regimes; low flow velocities in Jordan, Wilkinson, and Georges Basins that allow diapausing *C. finmarchicus* to aggregate passively below the convective layer so that the copepods are retained in the basins; late stage *C. finmarchicus* in dense aggregations in the Gulf of Maine and Georges Bank region; and diapausing *C. finmarchicus* in aggregations in the Gulf of Maine and Georges Bank region.

The activities considered here will not affect the physical oceanographic conditions and structures of the region that distribute and aggregate *C. finmarchicus* for foraging. This is because the activities considered here have no potential to affect currents and circulation patterns, flow velocities, bathymetric features (basins, banks, and channels), oceanic fronts, density gradients, or temperature regimes. Therefore, we have determined that the activities considered in this programmatic consultation will have no effect on Unit 1 of right whale critical habitat.

Consideration of Potential Effects to Unit 2

As identified in the final rule (81 FR 4837), the physical and biological features essential to the conservation of the North Atlantic right whale, which provide calving area functions in Unit 2, are: (i) Sea surface conditions associated with Force 4 or less on the Beaufort Scale; (ii) Sea surface temperatures of 7 °C to 17 °C; and, (iii) Water depths of 6 to 28 meters, where these features simultaneously co-occur over contiguous areas of at least 231 nmi^2 of ocean waters during the months of November through April. When these features are available, they are selected by right whale cows and calves in dynamic combinations that are suitable for calving, nursing, and rearing, and which vary, within the ranges specified, depending on factors such as weather and age of the calves.

The activities considered here will have no effect on the features of Unit 2; this is because geophysical and geotechnical surveys, met buoys, and vessel operations do not affect sea surface state, water temperature, or water depth. Therefore, we have determined that the activities considered in this programmatic consultation will have no effect on Unit 2 of right whale critical habitat

EFFECTS OF THE ACTION ON NMFS LISTED SPECIES AND CRITICAL HABITAT

Potential effects of the proposed action on listed species can be broadly categorized into the following categories: (1) effects to individual animals of exposure to noise associated with the survey activities (HRG, geotechnical), (2) effects of buoy deployment, operation, and retrieval; (3) effects to habitat from survey activities (including consideration of effects to Atlantic sturgeon and loggerhead critical habitat), and (4) effects of vessel use.

Effects of Exposure to Noise Associated With Survey Activities

Here we consider effects of noise associated with HRG and geotechnical surveys on ESA-listed species. Noise associated with meteorological buoys and vessel operations is discussed in those sections of this consultation.

Acoustic Thresholds

Due to the different hearing sensitivities of different species groups, NMFS uses different sets of acoustic thresholds to consider effects of noise on ESA-listed species. Below, we present information on thresholds considered for ESA-listed whales, sea turtles, and fish considered in this consultation.

ESA-listed Whales

NMFS *Technical Guidance for Assessing the Effects of Anthropogenic Noise on Marine Mammal Hearing* compiles, interprets, and synthesizes scientific literature to produce updated acoustic thresholds to assess how anthropogenic, or human-caused, sound affects the hearing of all marine mammals under NMFS jurisdiction (NMFS 2018[5]). Specifically, it identifies the received levels, or thresholds, at which individual marine mammals are predicted to experience temporary or permanent changes in their hearing sensitivity for acute, incidental exposure to underwater anthropogenic sound sources. As explained in the document, these thresholds represent the best available scientific information. These acoustic thresholds cover the onset of both temporary (TTS) and permanent hearing threshold shifts (PTS).

[5] See *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance* for more information.

Table 2. Impulsive acoustic thresholds identifying the onset of permanent threshold shift and temporary threshold shift for ESA-listed whales (NMFS 2018).

Hearing Group	Generalized Hearing Range[6]	Permanent Threshold Shift Onset[7]	Temporary Threshold Shift Onset
Low-Frequency Cetaceans (LF: baleen whales)	7 Hz to 35 kHz	*L*pk,flat: 219 dB *L*E,LF,24h: 183 dB	*L*pk,flat: 213 dB *L*E,LF,24h: 168 dB
Mid-Frequency Cetaceans (MF: sperm whales)	150 Hz to 160 kHz	*L*pk,flat: 230 dB *L*E,MF,24h: 185 dB	*L*pk,flat: 224 dB *L*E,MF,24h: 170 dB

These thresholds are a dual metric for impulsive sounds, with one threshold based on peak sound pressure level (0-pk SPL) that does not incorporate the duration of exposure, and another based on cumulative sound exposure level (SEL_{cum}) that does incorporate exposure duration. The two metrics also differ in regard to considering information on species hearing. The cumulative sound exposure criteria incorporate auditory weighting functions, which estimate a species group's hearing sensitivity, and thus susceptibility to TTS and PTS, over the exposed frequency range, whereas peak sound exposure level criteria do not incorporate any frequency dependent auditory weighting functions.

Additionally, NMFS considers exposure to impulsive/intermittent noise greater than 160 dB re 1uPa rms to have the potential to result in Level B harassment, as defined under the MMPA (which does not necessarily equate to ESA harassment). This value is based on observations of behavioral responses of baleen whales (Malme et al. 1983; Malme et al. 1984; Richardson et al. 1986; Richardson et al. 1990), but is used for all marine mammal species.

Sea Turtles

In order to evaluate the effects of exposure to the survey noise by sea turtles, we rely on the available scientific literature. Sea turtles are low frequency hearing specialists, typically hearing frequencies from 30 Hz to 2 kHz, with a range of maximum sensitivity between 100 to 800 Hz (Ridgway et al. 1969, Lenhardt 1994, Bartol et al. 1999, Lenhardt 2002, Bartol and Ketten 2006). Currently, the best available data regarding the potential for noise to cause behavioral disturbance come from studies by O'Hara and Wilcox (1990) and McCauley et al. (2000), who experimentally examined behavioral responses of sea turtles in response to seismic airguns. O'Hara and Wilcox

[6] Represents the generalized hearing range for the entire group as a composite (i.e., all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on approximately 65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall et al. 2007).

[7] $L_{pk,flat}$: unweighted ($_{flat}$) peak sound pressure level (L_{pk}) with a reference value of 1 µPa; $L_{E,XF,24h}$: weighted (by species group; $_{LF}$: Low Frequency, or $_{MF}$: Mid-Frequency) cumulative sound exposure level (L_E) with a reference value of 1 μPa^2-s and a recommended accumulation period of 24 hours ($_{24h}$)

(1990) found that loggerhead turtles exhibited avoidance behavior at estimated sound levels of 175 to 176 dB re: 1 µPa (rms) (or slightly less) in a shallow canal. McCauley et al. (2000) reported a noticeable increase in swimming behavior for both green and loggerhead turtles at received levels of 166 dB re: 1 µPa (rms). At 175 dB re: 1 µPa (rms), both green and loggerhead turtles displayed increased swimming speed and increasingly erratic behavior (McCauley et al. 2000). Based on these data, we assume that sea turtles would exhibit a behavioral response when exposed to received levels of 175 dB re: 1 µPa (rms) and higher.

In order to evaluate the effects of exposure to the survey noise by sea turtles that could result in physical effects, we relied on the available literature related to the noise levels that would be expected to result in sound-induced hearing loss (i.e., temporary threshold shift (TTS) or permanent threshold shift (PTS)); we relied on acoustic thresholds for PTS and TTS for impulsive sounds developed by the U.S. Navy for Phase III of their programmatic approach to evaluating the environmental effects of their military readiness activities (U.S. Navy 2017). At the time of this consultation, we consider these the best available data since they rely on all available information on sea turtle hearing and employ the same statistical methodology to derive thresholds as in NMFS recently issued technical guidance for auditory injury of marine mammals (NMFS 2018). Below we briefly detail these thresholds and their derivation. More information can be found in the U.S. Navy's Technical report on the subject (U.S. Navy 2017).

To estimate received levels from airguns and other impulsive sources expected to produce TTS in sea turtles, the U.S. Navy compiled all sea turtle audiograms available in the literature in an effort to create a composite audiogram for sea turtles as a hearing group. Since these data were insufficient to successfully model a composite audiogram via a fitted curve as was done for marine mammals, median audiogram values were used in forming the hearing group's composite audiogram. Based on this composite audiogram and data on the onset of TTS in fishes, an auditory weighting function was created to estimate the susceptibility of sea turtles to TTS. Data from fishes were used since there are currently no data on TTS for sea turtles and fishes are considered to have hearing more similar to sea turtles than do marine mammals (Popper et al. 2014). Assuming a similar relationship between TTS onset and PTS onset as has been described for humans and the available data on marine mammals, an extrapolation to PTS susceptibility of sea turtles was made based on the methods proposed by (Southall et al. 2007). From these data and analyses, dual metric thresholds were established similar to those for marine mammals: one threshold based on peak sound pressure level (0-pk SPL) that does not incorporate the auditory weighting function nor the duration of exposure, and another based on cumulative sound exposure level (SEL_{cum}) that incorporates both the auditory weighting function and the exposure duration (Table 3).

Table 3. Acoustic thresholds identifying the onset of permanent threshold shift and temporary threshold shift for sea turtles exposed to impulsive sounds (U.S. Navy 2017, McCauley et al. 2000).

Hearing Group	Generalized Hearing Range	Permanent Threshold Shift Onset	Temporary Threshold Shift Onset	Behavioral Response
Sea Turtles	30 Hz to 2 kHz	204 dB re: 1 $\mu Pa^2 \cdot s$ SEL_{cum}	189 dB re: 1 $\mu Pa^2 \cdot s$ SEL_{cum}	175 dB re: 1 µPa (rms)
		232 dB re: 1 µPa SPL (0-pk)	226 dB re: 1 µPa SPL (0-pk)	

Marine Fish

There are no criteria developed for considering effects to ESA-listed fish specific to HRG equipment. However, all of the equipment that operates within a frequency that these fish species are expected to respond to, produces intermittent or impulsive sounds; therefore, it is reasonable to use the criteria developed for impact pile driving, seismic, and explosives when considering effects of exposure to this equipment (FHWG 2008). However, unlike impact pile driving, which produces repetitive impulsive noise in a single location, the geophysical survey sound sources are moving; therefore, the potential for repeated exposure to multiple pulses is much lower when compared to pile driving. We expect fish to react to noise that is disturbing by moving away from the sound source and avoiding further exposure. Injury and mortality is only known to occur when fish are very close to the noise source and the noise is very loud and typically associated with pressure changes (i.e., impact pile driving or blasting).

The Fisheries Hydroacoustic Working Group (FHWG) was formed in 2004 and consists of biologists from NMFS, United States Fish and Wildlife Service, Federal Highway Administration, USACE, and the California, Washington, and Oregon Department of Transportations, supported by national experts on underwater sound producing activities that affect fish and wildlife species of concern. In June 2008, the agencies signed an MOA documenting criteria for assessing physiological effects of impact pile driving on fish. The criteria were developed for the acoustic levels at which physiological effects to fish could be expected. It should be noted, that these are onset of physiological effects (Stadler and Woodbury, 2009), and not levels at which fish are necessarily mortally damaged. These criteria were developed to apply to all fish species. The interim criteria are:

- Peak SPL: 206 dB re 1 µPa
- SELcum: 187 B re 1μPa^2-s for fishes 2 grams or larger (0.07 ounces).
- SELcum: 183 dB re 1μPa^2-s for fishes less than 2 grams (0.07 ounces).

At this time, these criteria represent the best available information on the thresholds at which physiological effects to ESA-listed marine fish are likely to occur. It is important to note that physiological effects may range from minor injuries from which individuals are anticipated to completely recover with no impact to fitness to significant injuries that will lead to death. The

severity of injury is related to the distance from the noise source and the duration of exposure. The closer to the source and the greater the duration of the exposure, the higher likelihood of significant injury. Use of the 183 dB re 1 μPa^2-s cSEL threshold, is not appropriate for this consultation because all sturgeon in the action area will be larger than 2 grams. Physiological effects could range from minor injuries that a fish is expected to completely recover from with no impairment to survival to major injuries that increase the potential for mortality, or result in death.

We use 150 dB re: 1 µPa RMS as a threshold for examining the potential for behavioral responses by individual listed fish to noise with frequency less than 1 kHz. This is supported by information provided in a number of studies (Andersson et al. 2007, Purser and Radford 2011, Wysocki et al. 2007). Responses to temporary exposure of noise of this level is expected to be a range of responses indicating that a fish detects the sound, these can be brief startle responses or in the worst case, we expect that listed fish would completely avoid the area ensonified above 150 dB re: 1 uPa rms. Popper et al. (2014) does not identify a behavioral threshold but notes that the potential for behavioral disturbance decreases with the distance from the source.

HRG Acoustic Sources

HRG surveys are used for a number of site characterization purposes: locating shallow hazards, cultural resources, and hard-bottom areas; evaluating installation feasibility; assisting in the selection of appropriate foundation system designs; and determining the variability of subsurface sediments. The equipment typically used for these surveys includes: Bathymetry/Depth Sounder; Magnetometer; Seafloor Imagery/Side-Scan Sonar; Shallow and Medium (Seismic) Penetration Sub-bottom Profilers (e.g., CHIRPs, boomers, bubble guns). This consultation does not consider the use of seismic airguns because this equipment is not required for site characterization activities to support offshore wind development (due to the shallow sediment depths that need to be examined, compared to the miles into the seabed that are examined for oil and gas exploration where airguns are used).

As described in the BA, BOEM completed a desktop analysis of nineteen HRG sources in Crocker and Fratantonio (2016) to evaluate the distance to thresholds of concern for listed species (see tables in Appendix A). Equipment types or frequency settings that would not be used for the survey purposes by the offshore wind industry were not included in this analysis. To provide the maximum impact scenario for these calculations, the highest power levels and most sensitive frequency setting for each hearing group were used when the equipment had the option for multiple user settings. All sources were analyzed at a tow speed of 2.315 m/s (4.5 knots), which is the expected speed vessels will travel while towing equipment. PTS cumulative exposure distances were calculated for the low-frequency hearing group (sei, fin, and North Atlantic right whales), the mid-frequency group (sperm whales), and for a worst-case exposure scenario of 60 continuous minutes for sea turtles and fish.

Tables 4 and 5 describe the greatest distances to thresholds of concern for the various equipment types analyzed by BOEM. It is important to note that as different species groups have different hearing sensitivities, not all equipment operates within the hearing threshold of all species considered here. Complete tables are included in Appendix B of BOEM's BA.

Table 1. Summary of greatest PTS Exposure Distances from mobile HRG Sources at Speeds of 4.5 knots.

HRG SOURCE	PTS DISTANCE (m)								
	Highest Source Level (dB re 1 µPa)	Sea Turtles		Fish[b]		Baleen Whales		Sperm Whales[c]	
Mobile, Impulsive, Intermittent Sources									
		Peak	*SEL*	*Peak*	*SEL*	*Peak*	*SEL*	*Peak*	*SEL*
Boomers, Bubble Guns	176 dB SEL 207 dB RMS 216 PEAK	0	0	3.2	0	0	0.3	0	0
Sparkers	188 dB SEL 214 dB RMS 225 PEAK	0	0	9	0	2	12.7	0	0.2
Chirp Sub-Bottom Profilers	193 dB SEL 209 dB RMS 214 PEAK	NA	NA	NA	NA	0	1.2	0	0.3
Mobile, Non-impulsive, Intermittent Sources									
Multi-beam echosounder (100 kHz)	185 dB SEL 224 dB RMS 228 PEAK	NA	NA	NA	NA	NA	NA	0	0.5
Multi-beam echosounder (>200 kHz) (mobile, non-impulsive, intermittent)	182 dB SEL 218 dB RMS 223 PEAK	NA	NA	NA	NA	NA	NA	NA	NA
Side-scan sonar (>200 kHz) (mobile, non-impulsive, intermittent)	184 dB SEL 220 dB RMS 226 PEAK	NA	NA	NA	NA	NA	NA	NA	NA

[a] Sea turtle PTS distances were calculated for 203 cSEL and 230 dB peak criteria from Navy (2017).
[b] Fisheries Hydroacoustic Working Group (2008).
[c] PTS injury distances for listed marine mammals were calculated with NOAA's sound exposure spreadsheet tool using sound source characteristics for HRG sources in Crocker and Fratantonio (2016)
NA = not applicable due to the sound source being out of the hearing range for the group.

Using the same sound sources for the PTS analysis, BOEM calculated the distances to 175 dB re 1 µPa rms for sea turtles, 160 dB re 1 µPa rms for marine mammals, and 150 dB re 1 µPa rms for fish were calculated using a spherical spreading model (20 LogR) (Table 5). BOEM has conservatively used the highest power levels for each sound source reported in Crocker and Fratantonio (2016). Additionally, the spreadsheet and geometric spreading models do not

consider the tow depth and directionality of the sources; therefore, these are likely overestimates of actual disturbance distances.

Table 5. Summary of greatest disturbance distances by equipment type.

HRG SOURCE	DISTURBANCE DISTANCE (m)			
	Sea Turtles (175 dB re 1uPa rms)	**Fish (150 dB re 1uPa rms)**	**Baleen Whales (160 dB re 1uPa rms)**	**Sperm Whales (160 dB re 1uPa rms)**
Boomers, Bubble Guns	40	708	224	224
Sparkers	90	1,996[a]	502	502
Chirp Sub-Bottom Profilers	2	32	10	10
Multi-beam Echosounder (100 kHz)	NA	NA	NA	<369[b]
Multi-beam Echosounder (>200 kHz)	NA	NA	NA	NA
Side-scan Sonar (>200 kHz)	NA	NA	NA	NA

a – the calculated distance to the 150 dB rms threshold for the Applied Acoustics Dura-Spark is 1,996m; however, the distances for other equipment in this category is significantly smaller
b – this distance was recalculated using the NMFS spreadsheet following receipt of the BA.
NA = not applicable due to the sound source being out of the hearing range for the group.

Marine Mammals

Considering peak noise levels, the equipment resulting in the greatest isopleth to the marine mammal PTS threshold is the sparker (2.0 m for baleen whales, 0 m for sperm whales; Table A.3). Considering the cumulative threshold (24 hour exposure), the greatest distance to the PTS threshold is 12.7 m for baleen whales and 0.5 m for sperm whales. Animals in the survey area during the HRG survey are unlikely to incur any hearing impairment due to the characteristics of the sound sources, considering the source levels (176 to 205 dB re 1 µPa-m) and generally very short pulses and duration of the sound. Individuals would have to make a very close approach and

also remain very close to vessels operating these sources (<13 m) in order to receive multiple exposures at relatively high levels, as would be necessary to have the potential to result in any hearing impairment. Kremser et al. (2005) noted that the probability of a whale swimming through the area of exposure when a sub-bottom profiler emits a pulse is small—because if the animal was in the area, it would have to pass the transducer at close range in order to be subjected to sound levels that could cause PTS and would likely exhibit avoidance behavior to the area near the transducer rather than swim through at such a close range. Further, the restricted beam shape of many of HRG survey devices planned for use makes it unlikely that an animal would be exposed more than briefly during the passage of the vessel. The potential for exposure to noise that could result in PTS is even further reduced by the clearance zone and the use of PSOs to all for a shutdown of equipment operating within the hearing range of ESA-listed whales should a right whale or unidentified large whale be detected within 500 m or 100 m for an identified sei, fin, or sperm whale, see PDC 4. Based on these considerations, it is extremely unlikely that any ESA-listed whale will be exposed to noise that could result in PTS.

Masking is the obscuring of sounds of interest to an animal by other sounds, typically at similar frequencies. Marine mammals are highly dependent on sound, and their ability to recognize sound signals amid other sounds is important in communication and detection of both predators and prey (Tyack 2000). Although masking is a phenomenon which may occur naturally, the introduction of loud anthropogenic sounds into the marine environment at frequencies important to marine mammals increases the severity and frequency of occurrence of masking. The components of background noise that are similar in frequency to the signal in question primarily determine the degree of masking of that signal. In general, little is known about the degree to which marine mammals rely upon detection of sounds from conspecifics, predators, prey, or other natural sources. In the absence of specific information about the importance of detecting these natural sounds, it is not possible to predict the impact of masking on marine mammals (Richardson et al., 1995). In general, masking effects are expected to be less severe when sounds are transient than when they are continuous. Masking is typically of greater concern for those marine mammals that utilize low-frequency communications, such as baleen whales, because of how far low-frequency sounds propagate. NMFS has previously concluded that marine mammal communications would not likely be masked appreciably by the sub-bottom profiler signals given the directionality of the signals for most HRG survey equipment types planned for use for the types of surveys considered here and the brief period when an individual mammal is likely to be within its beam (see for example, 86 FR 22160). Based on this, any effects of masking on ESA-listed whales will be insignificant.

For equipment that operates within the functional hearing range (7 Hz to 35 kHz) of baleen whales, the area ensonified by noise greater than 160 dB re: 1uPa rms will extend no further than 502 m from the source (sparkers; the distance for chirp (10 m) and boomers and bubble guns (224 m) is smaller (Table A.5)). For equipment that operates within the functional hearing range of sperm whales (150 Hz to 160 kHz), the area ensonified by noise greater than 160 dB re: 1uPa rms will extend no further than 369 m from the source (100 kHz Multi-beam echosounder; the distance for sparkers (502 m), boomers and bubble guns (224 m), and chirp (10 m) is smaller; Table A.5).

Given that the distance to the 160 dB re: 1 uPa rms threshold extends beyond the required Shutdown Zone, it is possible that ESA-listed whales will be exposed to potentially disturbing levels of noise during the surveys considered here. We have determined that, in this case, the exposure to noise above the MMPA Level B harassment threshold (160 dB re: 1uPa rms) will result in effects that are insignificant. We expect that the result of this exposure would be, at worst, temporary avoidance of the area with underwater noise louder than this threshold, which is a reaction that is considered to be of low severity and with no lasting biological consequences (e.g., Ellison et al. 2007). The noise source itself will be moving. This means that any co-occurrence between a whale, even if stationary, will be brief and temporary. Given that exposure will be short (no more than a few seconds, given that the noise signals themselves are short and intermittent and because the vessel towing the noise source is moving) and that the reaction to exposure is expected to be limited to changing course and swimming away from the noise source only far/long enough to get out of the ensonified area (502 m or less, depending on the noise source), the effect of this exposure and resulting response will be so small that it will not be able to be meaningfully detected, measured or evaluated and, therefore, is insignificant. Further, the potential for disruption to activities such as breeding, feeding (including nursing), resting, and migrating is extremely unlikely given the very brief exposure to any noise (given that the source is traveling and the area ensonified at any given moment is so small). Any brief interruptions of these behaviors are not anticipated to have any lasting effects. Because the effects of these temporary behavioral changes are so minor, it is not reasonable to expect that, under the NMFS' interim ESA definition of harassment, they are equivalent to an act that would "create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering."

Sea Turtles

None of the equipment being operated for these surveys that overlaps with the hearing range (30 Hz to 2 kHz) for sea turtles has source levels loud enough to result in PTS or TTS based on the peak or cumulative exposure criteria (Table A.4). Therefore, physical effects are extremely unlikely to occur.

As explained above, we assume that sea turtles would exhibit a behavioral response when exposed to received levels of 175 dB re: 1 µPa (rms) and are within their hearing range (below 2 kHz). For boomers and bubble guns the distance to this threshold is 40 m, and is 90 m for sparkers and 2 m for chirps (Table A.5). Thus, a sea turtle would need to be within 90 m of the source to be exposed to potentially disturbing levels of noise. We expect that sea turtles would react to this exposure by swimming away from the sound source; this would limit exposure to a short time period, just the few seconds it would take an individual to swim away to avoid the noise.

The risk of exposure to potentially disturbing levels of noise is reduced by the use of PSOs to monitor for sea turtles. As required by the PDC 4, a Clearance Zone (500 m in all directions) for ESA-listed species must be monitored around all vessels operating equipment at a frequency of less than 180 kHz. At the start of a survey, equipment cannot be turned on until the Clearance Zone is clear for at least 30 minutes. This condition is expected to reduce the potential for sea turtles to be exposed to noise that may be disturbing. However, even in the event that a sea turtle is submerged and not seen by the PSO, in the worst case, we expect that sea turtles would avoid the area ensonified by the survey equipment that they can perceive. Because the area where

increased underwater noise will be experienced is transient and increased underwater noise will only be experienced in a particular area for only seconds, we expect any effects to behavior to be minor and limited to a temporary disruption of normal behaviors, temporary avoidance of the ensonified area and minor additional energy expenditure spent while swimming away from the noisy area. If foraging or migrations are disrupted, we expect that they will quickly resume once the survey vessel has left the area. No sea turtles will be displaced from a particular area for more than a few minutes. While the movements of individual sea turtles will be affected by the sound associated with the survey, these effects will be temporary (seconds to minutes) and localized (avoiding an area no larger than 90 m) and there will be only a minor and temporary impact on foraging, migrating or resting sea turtles. For example, BOEM calculated that for a survey with equipment being towed at 3 knots, exposure of a turtle that was within 90 m of the source would last for less than two minutes. We also note that, to minimize disturbance to the Northwest Atlantic Ocean DPS of loggerhead sea turtles, a voluntary pause in sparker operation will be implemented for all vessels operating in nearshore critical habitat for loggerhead sea turtles if any loggerhead or other sea turtle is observed within a 100 m Clearance Zone during a survey. This will further reduce the potential for behavioral disturbance.

Given the intermittent and short duration of exposure to any potentially disturbing noise from HGR equipment, major shifts in habitat use or distribution or foraging success are not expected. Effects to individual sea turtles from brief exposure to potentially disturbing levels of noise are expected to be minor and limited to a brief startle, short increase in swimming speed and/or short displacement, and will be so small that they cannot be meaningfully measured, detected, or evaluated; therefore, effects are insignificant.

Marine Fish

Of the equipment that may be used for geophysical surveys, only equipment that operates at a frequency within the estimated hearing range of the ESA-listed fish that may occur in the action area (i.e., frequency less than 1 kHz; Lovell et al. 2005; Meyer et al. 2010) may affect these species. Generally, this includes sparkers, boomers, and bubble guns (see Table A.2). All other survey equipment operates at a frequency higher than the ESA-listed fish considered here are expected to hear; therefore, we do not expect any effects to ESA-listed fish exposed to increased underwater noise from the other higher frequency survey equipment. Due to their typically submerged nature, monitoring clearance or shutdown zones for marine fish is not expected to be effective. As required by PDC 4, the surveys will use a ramp up procedure; that is, noise producing equipment will not be used at full energy right away. This gives any fish in the immediate area a "warning" and an opportunity to leave the area before the full energy of the survey equipment is used.

As explained above, the available information suggests that for noise exposure to result in physiological impacts to the fish species considered here, received levels need to be at least 206 dB re: 1uPa peak sound pressure level (SPLpeak) or at least 187 dB re: u1Pa cumulative. The peak thresholds are exceeded only very close to the noise source (<3.2 m for the boomers/bubble guns and <9 m for the sparkers (see Table A.4); the cumulative threshold is not exceeded at any distance. As such, in order to be exposed to peak sound pressure levels of 206 dB re: 1uPa from any of these sources, an individual fish would need to be within 9 m of the source (Table A.4). This is extremely unlikely to occur given the dispersed nature of the distribution of ESA-listed fish

in the action area, the use of a ramp up procedure, the moving and intermittent/pulsed characteristic of the noise source, and the expectation that ESA-listed fish will swim away, rather than towards the noise source. Based on this, no physical effects to any ESA-listed fish, including injury or mortality, are expected to result from exposure to noise from the geophysical surveys.

We use 150 dB re: 1 µPa root mean square (RMS) sound pressure level (SPL) as a threshold for examining the potential for behavioral responses to underwater noise by ESA-listed fish. This is supported by information provided in a number of studies (Andersson et al. 2007, Purser and Radford 2011, Wysocki et al. 2007). In the worst case, we expect that ESA-listed fish would completely avoid an area ensonified above 150 dB re: 1uPa rms for the period of time that noise in that area was elevated. The calculated distances to the 150 dB re: 1 uPa rms threshold for the boomers/bubble guns, sparkers, and sub-bottom profilers is 708 m, 1,996 m, and 32 m, respectively (Table A.5). It is important to note that BOEM has conservatively used the highest power levels for each sound source reported in Crocker and Fratantonio (2016) to calculate these distances; thus, they likely overestimate actual sound fields.

Because the area where increased underwater noise will be experienced is transient (because the survey vessel towing the equipment is moving), increased underwater noise will only be experienced in a particular area for a short period of time. Given the transient and temporary nature of the increased noise, we expect any effects to behavior to be minor and limited to a temporary disruption of normal behaviors, potential temporary avoidance of the ensonified area and minor additional energy expenditure spent while swimming away from the noisy area. If foraging, resting, or migrations are disrupted, we expect that these behaviors will quickly resume once the survey vessel has left the area (i.e., in seconds to minutes, given its traveling speed of 3 – 4.5 knots). Therefore, no fish will be displaced from a particular area for more than a few minutes. While the movements of individual fish will be affected by the sound associated with the survey, these effects will be temporary and localized and these fish are not expected to be excluded from any particular area and there will be only a minimal impact on foraging, migrating, or resting behaviors. Sustained shifts in habitat use or distribution or foraging success are not expected. Effects to individual fish from brief exposure to potentially disturbing levels of noise are expected to be limited to a brief startle or short displacement and will be so small that they cannot be meaningfully measured, detected, or evaluated; therefore, effects of exposure to survey noise are insignificant.

Acoustic Effects - Geotechnical Surveys

Geotechnical surveys generally do not use active acoustic sources, but may have some low-level ancillary sounds associated with them. As described in the BA, the loudest noises are from drilling associated with obtaining bore samples. Small-scale drilling noise associated with bore samples taken in shallow water has been measured to produce broadband sounds centered at 10 Hz with source levels at 71-89 dB re 1 µPa rms and 75-97 dB re 1 µPa peak depending on the water depth of the work site (Willis et al. 2010). Another study reported measured drilling noise from a small jack-up rig at 147 – 151 db re 1 µPa rms in the 1 Hz to 22 kHz range at 10 m from source (Erbe and McPherson 2017).

Noise associated with geotechnical surveys is below the level that we expect may result in physiological or behavioral responses by any ESA-listed species considered here. As such, effects

to listed whales, sea turtles, or fish from exposure to this noise source are extremely unlikely to occur.

Meteorological Buoys

A meteorological buoy (met buoy) is designed to collect meteorological data for a period of four-five years. During this time, data will be collected and transmitted to onshore facilities. The operation of the meteorological data collection instrumentation (i.e., light detection and ranging remote sensing technology (LIDAR) and Acoustic Doppler Current Profilers (ADCP)) will have no effect on any listed species as it does not operate in any way that could result in effects to listed species. Bathymetric LIDAR uses water-penetrating green light to also measure seafloor and riverbed elevations. ADCP uses extremely high frequency sound (well above the hearing frequency of any species considered in this consultation) to measure water currents. No other acoustic effects from the deployment of the met buoys are anticipated.

Buoys will be deployed and retrieved by vessels; maintenance will also be carried out from vessels. Potential effects of vessel traffic for all activities considered in this consultation is addressed below. PDCs for siting the buoy will result in avoidance of anchoring buoys on any sensitive habitats (i.e., placement will occur on unconsolidated and uncolonized areas only, avoiding eelgrass, corals, etc.) (see PDC 1). Buoys will be anchored to a clump weight anchor and attached to the anchor with heavy chain. We have considered the potential for any listed species, including whales and/or sea turtles, to interact with the buoy and to become entangled in the buoy or mooring system and have determined that this is extremely unlikely to occur for the reasons outlined below.

In order for an entanglement to occur, an animal must first encounter the gear, which has an extremely low likelihood based on the number of buoys and total area where buoys may be deployed (Atlantic OCS). BOEM predicts that up to two met buoys could be deployed in any potential lease area, for a maximum of 60 buoys deployed in the entirety of the Atlantic OCS. Given the small number of buoys and their dispersed locations on the OCS, the potential for encounter between an individual whale or sea turtle and a buoy is extremely low. However even if there is co-occurrence between an individual animal and one or more buoys, entanglement is extremely unlikely to occur. This is because the buoy will be attached to the anchor with heavy gauge chain, which reduces the risk of entanglement due to the tension that the buoy will be under and the gauge of the chain, which prevents any slack in the chain that could result in an entanglement (see PDC 6). There have been no documented incidences of any listed species, including whales or sea turtles, entangled in United States Coast Guard navigational buoys, which have a similar mooring configuration to these met buoys, but also far outnumber the potential number of deployed met buoys (there are 1000s of navigational buoys within the range of ESA-listed whales and sea turtles and no recorded entanglements). Based on the analysis herein, it is extremely unlikely that any ESA-listed species will interact with the buoy and anchor system such that it becomes entangled. As such, effects are extremely unlikely to occur.

Effects to Habitat

Vibracores and grab samples may be used to document habitat types during geophysical and geotechnical survey activities. Both of these survey methods will result in temporary disturbance

of the benthos and a potential temporary loss of benthic resources. Additionally, bottom disturbance will occur in the area where a met buoy is anchored.

The vibracores and grab samples will affect an extremely small area (approximately 0.1 to 2.7 ft^2) at each sampling location, with sampling locations several hundred meters apart. While the vibracore and grab sampler will take a portion of the benthos that will be brought onto the ship, because of the small size of the sample and the nature of the removal, there is little to no sediment plume associated with the sampling. While there may be some loss of benthic species at the sample sites, including potential forage items for listed species that feed on benthic resources, the amount of benthic resources potentially lost will be extremely small and limited to immobile individuals that cannot escape capture during sampling. As such a small area will be disturbed and there will be a large distance between disturbed areas, recolonization is expected to be rapid. The amount of potential forage lost for any benthic feeding species is extremely small, localized, and temporary. While the area of the bottom impacted by the anchoring of the met buoy is larger (i.e., several meters in diameter), as stated above, there will be a small number of buoys deployed along the entire Atlantic OCS. Any loss of benthic resources will be small, temporary, and localized.

These temporary, isolated reductions in the amount of benthic resources are not likely to have a measurable effect on any foraging activity or any other behavior of listed species; this is due to the small size of the affected areas in relation to remaining available habitat in the OCS and the temporary nature of any disturbance. As effects to listed species will be so small that they cannot be meaningfully measured, detected, or evaluated, effects are insignificant.

Other Considerations – Geotechnical Surveys
The PDCs include a seasonal prohibition on any activities involving disturbance of the bottom in areas where early life stages of Atlantic or shortnose sturgeon may occur (see PDC 2). The seasonal prohibition is designed to avoid any activity that could disturb potential spawning or rearing substrate during the time of year that spawning or rearing may occur in that river. This PDC will also ensure that no bottom disturbing survey activities will occur at a time that eggs or other immobile or minimally mobile early life stages of sturgeon are present. This will ensure that sampling activities will not result in the disturbance, injury, or mortality of any sturgeon. Based on this, any effects to sturgeon spawning habitat or early life stages are extremely unlikely to occur.

Atlantic Sturgeon Critical Habitat
Critical habitat has been designated for all five DPSs of Atlantic sturgeon (82 FR 39160; effective date September 18, 2017). While there is no Atlantic sturgeon critical habitat in the three Atlantic Renewable Energy Regions located on the Atlantic OCS, survey activities along potential cable routes, including vessel transits, may occur within Atlantic sturgeon critical habitat. While BOEM anticipates that activities would be limited to overlapping with critical habitat designated in the Hudson, Delaware, and James rivers for the New York Bight and Chesapeake Bay DPSs respectively, the conclusions reached here apply to critical habitat designated for all five DPSs.

The PDCs include a seasonal prohibition on any geophysical and geotechnical survey activities involving disturbance of the bottom in freshwater (salinity less than 0.5 parts per thousand (ppt))

areas designated as critical habitat for any DPS of Atlantic sturgeon (see PDC # 2 for more detail). The PDCs also require operation of vessels in a way that ensures that vessel activities do not result in disturbance of bottom habitat.

In order to determine if the proposed action may affect critical habitat, we consider whether it would impact the habitat in a way that would affect its ability to support reproduction and recruitment. Specifically, we consider the effects of the action on the physical features of the proposed critical habitat. The Physical and Biological Features (PBFs) essential for Atlantic sturgeon conservation identified in the final rule (82 FR 39160) are:

> (1) Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0 to 0.5 ppt range) for settlement of fertilized eggs, refuge, growth, and development of early life stages;
>
> (2) Aquatic habitat with a gradual downstream salinity gradient of 0.5 up to as high as 30 ppt and soft substrate (e.g., sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development;
>
> (3) Water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: (i) Unimpeded movement of adults to and from spawning sites; (ii) Seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary; and, (iii) Staging, resting, or holding of subadults or spawning condition adults. Water depths in main river channels must also be deep enough (e.g., at least 1.2 m) to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river.
>
> (4) Water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: (i) Spawning; (ii) Annual and interannual adult, subadult, larval, and juvenile survival; and, (iii) Larval, juvenile, and subadult growth, development, and recruitment (e.g., 13 degrees Celsius [°C] to 26 °C for spawning habitat and no more than 30 °C for juvenile rearing habitat, and 6 milligrams per liter (mg/L) dissolved oxygen (DO) or greater for juvenile rearing habitat).

PBF 1: Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0–0.5 ppt range) for settlement of fertilized eggs, refuge, growth, and development of early life stages

In considering effects to PBF 1, we consider whether the proposed action will have any effect on areas of hard substrate in low salinity waters that may be used for settlement of fertilized eggs, refuge, growth, and development of early life stages; therefore, we consider effects of the action on hard bottom substrate and any change in the value of this feature in the action area.

Vessel operations during transits or surveys would not affect hard bottom habitat in the part of the river with salinity less than 0.5 ppt, because they would not impact the river bottom in any way or change the salinity of portions of the river where hard bottom is found. Similarly, geophysical

surveys use acoustics to accurately map the seafloor, which would not impact any hard bottom that is present.

Grab samples, geotechnical surveys, and any other activity that may affect hard bottom is prohibited in areas with salinity less than 0.5 ppt during the time of year that these areas may be used for spawning or rearing (PDC 2). Given the very small footprint of all survey activities that may affect the hard bottom (3-4 inch diameter area would be disturbed during sampling) and the spacing of sampling several hundred meters apart, any effects to hard bottom substrate from survey activities outside of the time of year when these areas may be used for spawning and rearing would be small, localized, and dispersed. Given the dynamic nature of river sediments and the small area that will be disturbed, we expect that substrate conditions will recover to pre-survey conditions within days to weeks of sampling occurring. As such, any effects to hard bottom substrate and the value of this feature in the action area or to any of the critical habitat units as a whole are temporary and so small that they cannot be meaningfully measured, evaluated, or detected and, therefore, are insignificant.

PBF 2: Aquatic habitat with a gradual downstream salinity gradient of 0.5 up to as high as 30 ppt and soft substrate (e.g., sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development

In considering effects to PBF 2, we consider whether the proposed action will have any effect on areas of soft substrate within transitional salinity zones between the river mouth and spawning sites for juvenile foraging and physiological development; therefore, we consider effects of the action on soft substrate and salinity and any change in the value of this feature in the action area.

Project vessels (whether transiting or surveying) do not have the potential to effect salinity. Vessels are expected to maintain a minimum of 4-feet clearance with the river bottom (see PDC 2) and, therefore, effects to the soft substrate are extremely unlikely. The vessels' operations would not preclude or significantly delay the development of soft bottom habitat in the transitional salinity zone because they would not impact salinity or the river bottom in any way. Similarly, geophysical surveys use acoustics to accurately map the bottom, which would not affect any soft substrate that is present.

Grab samples and geotechnical surveys may impact soft substrate; however, given the very small footprint of any such activities (3-4 inch diameter area would be disturbed during sampling) and the spacing of sampling locations several hundred meters apart, any effects to soft substrate would be small, localized, and dispersed. Given the dynamic nature of river sediments and the small area that will be disturbed, we expect that substrate conditions will recover to pre-survey conditions within days to weeks of sampling occurring. As such, any effects to soft substrate and the value of this feature in the action area, are extremely unlikely or so small that they cannot be meaningfully measured, evaluated, or detected.

PBF 3: Water absent physical barriers to passage between the river mouth and spawning sites

In considering effects to PBF 3, we consider whether the proposed action will have any effect on water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, thermal

plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: unimpeded movements of adults to and from spawning sites; seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary, and; staging, resting, or holding of subadults or spawning condition adults. We also consider whether the proposed action will affect water depth or water flow, as if water is too shallow it can be a barrier to sturgeon movements, and an alteration in water flow could similarly impact the movements of sturgeon in the river, particularly early life stages that are dependent on downstream drift. Therefore, we consider effects of the action on water depth and water flow and whether the action results in barriers to passage that impede the movements of Atlantic sturgeon.

Survey activities, including vessel transits, will have no effect on this feature as they will not have any effect on water depth or water flow and will not be physical barriers to passage for any life stage of Atlantic sturgeon that may occur in this portion of the action area. As explained above, noise associated with the geotechnical surveys is below the threshold that would be expected to result in any disturbance of sturgeon; therefore, noise associated with geotechnical surveys will not affect the habitat in any way that would affect the movement of Atlantic sturgeon. Similarly, while HRG surveys may affect the movement of individual sturgeon, the effects are short-term and transient; noise is not expected to result in a barrier to passage. Based on this analysis, any effects to PBF 3 will be insignificant.

PBF 4: Water with the temperature, salinity, and oxygen values that, combined, provide for DO values that support successful reproduction and recruitment and are within the temperature range that supports the habitat function

In considering effects to PBF 4, we consider whether the proposed action will have any effect on water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: spawning; annual and interannual adult, subadult, larval, and juvenile survival; and larval, juvenile, and subadult growth, development, and recruitment. Therefore, we consider effects of the action on temperature, salinity and DO needs for Atlantic sturgeon spawning and recruitment. These water quality conditions are interactive and both temperature and salinity influence the DO saturation for a particular area. We also consider whether the action will have effects to access to this feature, temporarily or permanently and consider the effect of the action on the action area's ability to develop the feature over time. Survey activities, including vessel transit, will have no effect on this feature as they will not have any effect on temperature, salinity or dissolved oxygen.

Summary of effects to Atlantic sturgeon critical habitat
We have determined that the effects of the activities considered here will be insignificant on PBFs 1, 2, and 3, and will have no effects to PBF 4. As such, the activities considered here are not likely to adversely affect Atlantic sturgeon critical habitat designated for any of the five DPSs.

Critical Habitat Designated for the Northwest Atlantic Ocean DPS of Loggerhead Sea Turtles
Critical habitat for the Northwest Atlantic Ocean DPS of loggerhead sea turtles was designated in 2014 (79 FR 39855). Specific areas for designation include 38 occupied marine areas within the range of the Northwest Atlantic Ocean DPS. These areas contain one or a combination of habitat

types: Nearshore reproductive habitat, winter area, breeding areas, constricted migratory corridors, and/or *Sargassum* habitat. There is no critical habitat designated in the North Atlantic Renewable Energy Region. Winter, breeding, and migratory habitat occur in the Mid-Atlantic and South Atlantic regions of the action areas; there is also a small amount of overlap with *Sargassum* critical habitat on the outer edges of the action area near the 100-m isobaths. Geophysical and geotechnical surveys and met buoy deployment may take place within this critical habitat. As explained below, the activities considered in this programmatic consultation are not likely to adversely affect critical habitat designated for the Northwest Atlantic Ocean DPS of loggerheads.

Nearshore Reproductive

The PBF of nearshore reproductive habitat is described as a portion of the nearshore waters adjacent to nesting beaches that are used by hatchlings to egress to the open-water environment as well as by nesting females to transit between beach and open water during the nesting season. The occurrence of designated nearshore reproductive habitat in the action area is limited to the area between the beach to 1 mile offshore along the Atlantic coast from Cape Hatteras, North Carolina to the southern extent of the South Atlantic planning area along the Florida coast.

As described in the final rule, the primary constituent elements (PCE) that support this habitat are the following: (1) Nearshore waters directly off the highest density nesting beaches and their adjacent beaches as identified in 50 CFR 17.95(c) to 1.6 km (1 mile) offshore; (2) Waters sufficiently free of obstructions or artificial lighting to allow transit through the surf zone and outward toward open water; and, (3) Waters with minimal manmade structures that could promote predators (i.e., nearshore predator concentration caused by submerged and emergent offshore structures), disrupt wave patterns necessary for orientation, and/or create excessive longshore currents.

Met buoys will only be deployed in federal waters; therefore, no met buoys will be deployed in nearshore reproductive habitat. HRG and geotechnical surveys and associated vessel transits could occur in this nearshore habitat. The intermittent noise associated with these activities will not be an obstruction to turtles moving through the surf zone; this is because the noise that can be perceived by sea turtles would dissipate to non-disturbing levels within 90 m of the moving source (see further explanation above) and the area with potentially disturbing levels of noise would be limited to one area within 90 m of the source at any given time. Therefore, given the small geographic area affected by noise and that these effects will be temporary (experienced for no more than 2 minutes in any given area), the effects to habitat are insignificant. Any lighting associated with the surveys would be limited to lights on vessels in the ocean, this lighting would not disorient turtles the way that artificial lighting along land can. Additionally, there are no mechanisms by which the HRG and geotechnical surveys and vessel activities would promote predators or disrupt wave patterns necessary for orientation or create excessive longshore currents.

Winter

The PBF of winter habitat is described as warm water habitat south of Cape Hatteras, North Carolina near the western edge of the Gulf Stream used by a high concentration of juveniles and adults during the winter months. The one area of winter critical habitat identified in the final rule extends from Cape Hatteras at the 20 m depth contour straight across 35.27° N. lat. to the 100 m (328 ft.) depth contour, south to Cape Fear at the 20 m (66 ft.) depth contour (approximately

33.47° N. lat., 77.58° W. long.) extending in a diagonal line to the 100 m (328 ft.) depth contour (approximately 33.2° N. lat., 77.32° W. long.). This southern diagonal line (in lieu of a straight latitudinal line) was chosen to encompass the loggerhead concentration area (observed in satellite telemetry data) and identified habitat features, while excluding the less appropriate habitat (e.g., nearshore waters at 33.2° N. lat.). PCEs that support this habitat are the following: (1) Water temperatures above 10°C from November through April; (2) Continental shelf waters in proximity to the western boundary of the Gulf Stream; and, (3) Water depths between 20 and 100 m.

Met buoy deployment/operation, HRG and geotechnical surveys, and vessel transits that may occur within the designated winter habitat will have no effect on this habitat because they will not: affect or change water temperatures above 10° C from November through April; affect continental shelf waters in proximity to the western boundary of the Gulf Stream; or, affect or change water depths between 20 and 100 m.

Breeding

The PBFs of concentrated breeding habitat are sites with high densities of both male and female adult individuals during the breeding season. Two units of breeding critical habitat are identified in the final rule. One occurs in the action area – a concentrated breeding site located in the nearshore waters just south of Cape Canaveral, Florida. The PCEs that support this habitat are the following: (1) High densities of reproductive male and female loggerheads; (2) Proximity to primary Florida migratory corridor; and, (3) Proximity to Florida nesting grounds.

Met buoys, HRG and geotechnical surveys, and vessel transits will not affect the habitat in the breeding units in a way that would change the density of reproductive male or female loggerheads. This is because (as explained fully above), any effects to distribution of sea turtles will be limited to intermittent, temporary disturbance limited to avoidance of an area no more than 90m from the survey vessel. The impacts to habitat from temporary increases in noise will be so small that they will be insignificant.

Constricted Migratory Corridors

The PBF of constricted migratory habitat is high use migratory corridors that are constricted (limited in width) by land on one side and the edge of the continental shelf and Gulf Stream on the other side. The final rule describes two units of constricted migratory corridor habitat. The constricted migratory corridor off North Carolina serves as a concentrated migratory pathway for loggerheads transiting to neritic foraging areas in the north, and back to winter, foraging, and/or nesting areas in the south. The constricted migratory corridor in Florida stretches from the westernmost edge of the Marquesas Keys (82.17° W. long.) to the tip of Cape Canaveral (28.46° N. lat.) and partially overlaps with the action area (i.e., the designated habitat extends further south than the action area). PCEs that support this habitat are the following: (1) Constricted continental shelf area relative to nearby continental shelf waters that concentrate migratory pathways; and, (2) Passage conditions to allow for migration to and from nesting, breeding, and/or foraging areas.

Noise associated with the survey activities considered here will have minor and temporary effects on winter habitat; however, as explained fully above, any effects to sea turtles will be limited to intermittent, temporary disturbance or avoidance of an area no more than 90m from the survey vessel. These temporary and intermittent increases in underwater noise will have insignificant

effects on the conditions of the habitat that will not result in any decreased ability or availability of habitat for passage of sea turtles. No other activities will affect passage of loggerhead sea turtles in the wintering habitat.

Sargassum
The PBF of loggerhead *Sargassum* habitat is developmental and foraging habitat for young loggerheads where surface waters form accumulations of floating material, especially *Sargassum*. Two areas are identified in the final rule – the Atlantic Ocean area and the Gulf of Mexico area. The Atlantic Ocean area extends from the Gulf of Mexico along the northern/western boundary of the Gulf Stream and east to the outer edge of the U.S. EEZ. There is a small amount of overlap between the action area and the Atlantic Ocean *Sargassum* critical habitat unit on the outer edges of the action area near the 100-m isobaths. PCEs that support this habitat are the following: (i) Convergence zones, surface-water downwelling areas, the margins of major boundary currents (Gulf Stream), and other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for the optimal growth of *Sargassum* and inhabitance of loggerheads; (ii) *Sargassum* in concentrations that support adequate prey abundance and cover; (iii) Available prey and other material associated with *Sargassum* habitat including, but not limited to, plants and cyanobacteria and animals native to the *Sargassum* community such as hydroids and copepods; and, (iv) Sufficient water depth and proximity to available currents to ensure offshore transport (out of the surf zone), and foraging and cover requirements by *Sargassum* for post-hatchling loggerheads, i.e., >10 m depth.

Given the distance from shore, met buoy deployment is not anticipated in areas designated as *Sargassum* critical habitat. The occasional project vessel transits, HRG and geotechnical surveys that may occur within the designated *Sargassum* habitat will have no effect on: conditions that result in convergence zones, surface-water downwelling areas, the margins of major boundary currents (Gulf Stream), and other locations where there are concentrated components of the *Sargassum* community in water temperatures suitable for the optimal growth of *Sargassum* and inhabitance of loggerheads; the concentration of *Sargassum*; the availability of prey within *Sargassum*; or the depth of water in any area. This is because these activities do not affect hydrological or oceanographic processes, no *Sargassum* will be removed due to survey activities, and the intermittent noise associated with surveys will not affect the availability of prey within *Sargassum*.

Summary of effects to critical habitat
Any effects to designated critical habitat will be insignificant. Therefore, the survey activities considered in this programmatic consultation are not likely to adversely affect critical habitat designated for the Northwest Atlantic DPS of loggerhead sea turtles.

Vessel Traffic
The HRG and geotechnical surveys are carried out from vessels. Additionally, vessels will be used to transport met buoys to and from deployment sites and to carry out any necessary inspections. As described in BOEM's BA, survey operations involve slow moving vessels, traveling at no more than 3-4.5 knots. HRG and geotechnical surveys typically involve one to three survey vessels operating within the area to be surveyed; up to approximately 36 areas may be surveyed over the 10-year period considered here. During transits to or from survey locations,

these vessels would travel at a maximum speed of around 12 knots. Met buoy deployment, retrieval, and inspection will also involve one or two vessels at a time; a total of 60 buoys are considered in this consultation. These vessels will typically travel at speeds of 12 knots or less; however, service vessels (limited to one trip per month per buoy) may travel at speeds of up to 25 knots (BOEM 2021).

Marine Mammals

As detailed in Appendix B, a number of Best Management Practices (BMPs) (see PDC 5), designed to reduce the risk of vessel strike, will be implemented for all activities covered by this programmatic consultation, including the following requirements:

1. All vessel operators and crews will maintain a vigilant watch for marine mammals at all times, and slow down or stop their vessel to avoid any interaction.
2. PSOs monitoring a Vessel Strike Avoidance Zone during all vessel operations.
3. Complying with speed restrictions in North Atlantic right whale management areas including Seasonal Management Areas (SMAs), active Dynamic Management Areas (DMAs)/visually triggered Slow Zones.
4. Daily monitoring of the NMFS North Atlantic right whale reporting systems.
5. Reducing vessel speeds to ≤10 knots when mother/calf pairs, pods, or large assemblages of ESA-listed marine mammals are observed.
6. Maintaining >500 m separation distance from all ESA-listed whales or an unidentified large marine mammal; if a whale is sighted within 200 m of the forward path of the vessel, then reducing speed and shifting the engines into neutral, and must not be engaged until the whale has move outside of the vessel's path and beyond 500 m.

An examination of all known ship strikes from all shipping sources (civilian and military) indicates vessel speed is a principal factor in whether a vessel strike results in death of a whale (Kelley et al. 2020; Knowlton and Kraus 2001; Laist et al., 2001; Jensen and Silber 2003; Vanderlaan and Taggart 2007). In assessing records with known vessel speeds, Laist et al. (2001) found a direct relationship between the occurrence of a whale strike and the speed of the vessel involved in the collision. The authors concluded that most deaths occurred when a vessel was traveling in excess of 24.1 km/h (14.9 mph; 13 knots (kn)). Additionally, Kelley et al (2020) found that collisions that create stresses in excess of 0.241 megapascals were likely to cause lethal injuries to large whales and through biophysical modeling that vessels of all sizes can yield stresses higher than this critical level. Survey vessels will typically travel slowly (less than 4.5 knots) as necessary for data acquisition, will have PSOs monitoring for whales, and will adjust vessel operations as necessary to avoid striking whales during survey operations and transits. The only times that survey vessels will operate at speeds above 4 knots is during transit to and from the survey site where they may travel at speeds up to 12 knots (although several circumstances described below will restrict speed to 10 knots), a number of measures (see PDC 5) will be in place to minimize the risk of strike during these transits. Slow operating speeds mean that vessel operators have more time to react and steer the vessel away from a whale. The

use of dedicated PSOs to keep a constant watch for whales and to alert vessel operators of any sightings also allows vessel operators to avoid striking any sighted whales.

As noted above, vessels used to inspect and maintain met buoys may travel at speeds up to 25 knots. This vessel traffic will be an extremely small increase in the amount of vessel traffic in the action area (i.e., if 60 buoys are deployed this would be a maximum of 60 trips per month spread out along the entire Atlantic OCS), which is transited by thousands of vessels each day. These vessels are subject to all of the vessel related BMPs (see PDC 5) noted above, including use of a dedicated lookout, vessel strike avoidance procedures, and requirements to slow down to 10 knots in areas where North Atlantic right whales have been documented (i.e., within SMAs, DMAs/visually triggered Slow Zones). Based on this analysis, it is extremely unlikely that a vessel associated with the survey activities considered here, when added to the environmental baseline, will strike an ESA-listed whale. We note that similar activities have taken place since at least 2012 in association with BOEM's renewable energy program and there have been no reports of any vessel strikes of marine mammals.

The frequency range for vessel noise (10 to 1000 Hz; MMS 2007) overlaps with the generalized hearing range for sei, fin, and right whales (7 Hz to 35 kHz) and sperm whales (150 Hz to 160 kHz) and would therefore be audible. Vessels without ducted propeller thrusters would produce levels of noise of 150 to 170 dB re 1 µPa-1 meter at frequencies below 1,000 Hz, while the expected sound-source level for vessels with ducted propeller thrusters level is 177 dB (RMS) at 1 meter (BOEM 2015, Rudd et al. 2015). For ROVs, source levels may be as high as 160 dB (BOEM 2021). Given that the noise associated with the operation of project vessels is below the thresholds that could result in injury, no injury is expected.

Marine mammals may experience masking due to vessel noises. For example, right whales were observed to shift the frequency content of their calls upward while reducing the rate of calling in areas of increased anthropogenic noise (Parks et al. 2007) as well as increasing the amplitude (intensity) of their calls (Parks et al. 2011a; Parks et al. 2009). Right whales also had their communication space reduced by up to 84 percent in the presence of vessels (Clark et al. 2009). Although humpback whales did not change the frequency or duration of their vocalizations in the presence of ship noise, their source levels were lower than expected, potentially indicating some signal masking (Dunlop 2016).

Vessel noise can potentially mask vocalizations and other biologically important sounds (e.g., sounds of prey or predators) that marine mammals may rely on. Potential masking can vary depending on the ambient noise level within the environment, the received level and frequency of the vessel noise, and the received level and frequency of the sound of biological interest. In the open ocean, ambient noise levels are between about 60 and 80 dB re 1 µPa in the band between 10 Hz and 10 kHz due to a combination of natural (e.g., wind) and anthropogenic sources (Urick 1983), while inshore noise levels, especially around busy ports, can exceed 120 dB re 1 µPa. When the noise level is above the sound of interest, and in a similar frequency band, masking could occur. This analysis assumes that any sound that is above ambient noise levels and within an animal's hearing range may potentially cause masking. However, the degree of masking increases with increasing noise levels; a noise that is just detectable over ambient levels is unlikely to cause any substantial masking.

Vessel noise has the potential to disturb marine mammals and elicit an alerting, avoidance, or other behavioral reaction. These reactions are anticipated to be short-term, likely lasting the amount of time the vessel and the whale are in close proximity (e.g., Magalhaes et al. 2002; Richardson et al. 1995; Watkins 1981), and not consequential to the animals. Additionally, short-term masking could occur. Masking by passing ships or other sound sources transiting the action area would be short term and intermittent, and therefore unlikely to result in any substantial costs or consequences to individual animals or populations. Areas with increased levels of ambient noise from anthropogenic noise sources such as areas around busy shipping lanes and near harbors and ports may cause sustained levels of masking for marine mammals, which could reduce an animal's ability to find prey, find mates, socialize, avoid predators, or navigate.

Based on the best available information, ESA-listed whales are either not likely to respond to vessel noise or are not likely to measurably respond in ways that would significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding or sheltering. Therefore, the effects of vessel noise on ESA-listed whales are insignificant (i.e., so minor that the effect cannot be meaningfully evaluated or detected).

Sea Turtles

As detailed in Appendix B, a number of BMPs (see PDC 5), designed to reduce the risk of vessel strike, will be implemented for all activities covered by this programmatic consultation, including dedicated lookouts on board all transiting vessels, reduced speeds and avoidance of areas where sea turtles are likely to occur (e.g., Sargassum patches), and required separation distances from any observed sea turtles.

Sea turtles are vulnerable to vessel collisions because they regularly surface to breathe and often rest at or near the surface. Sea turtles often congregate close to shorelines during the breeding season, where boat traffic is denser (Schofield et al. 2007; Schofield et al. 2010) which can increase vulnerability to vessel strike in such areas, particularly by smaller, fast moving vessels. Sea turtles, with the exception of hatchlings and pre-recruitment juveniles, spend a majority of their time submerged (Renaud and Carpenter 1994; Sasso and Witzell 2006). Although, Hazel et al. (2007) demonstrated sea turtles preferred to stay within the three meters of the water's surface, despite deeper water being available. Any of the sea turtle species found in the action area can occur at or near the surface in open-ocean and coastal areas, whether resting, feeding or periodically surfacing to breathe.

While research is limited on the relationship between sea turtles, vessel strikes and vessel speeds, sea turtles are at risk of vessel strike where they co-occur with vessels. Sea turtle detection is likely based primarily on the animal's ability to see the oncoming vessel, which would provide less time to react to vessels traveling at speeds at or above 10 knots (Hazel et al. 2007). Hazel et al. (2007) examined vessel strike risk to green sea turtles and suggested that sea turtles may habituate to vessel sound and are more likely to respond to the sight of a vessel rather than the sound of a vessel, although both may play a role in eliciting responses (Hazel et al. 2007). Regardless of what specific stressor associated with vessels turtles are responding, they only appear to show responses (avoidance behavior) at approximately 10 m or closer (Hazel et al. 2007). This is a concern because faster vessel speeds also have the potential to result in more

serious injuries (Work et al. 2010). Although sea turtles can move quickly, Hazel et al. (2007) concluded that at vessel speeds above 4 km/hour (2.1 knots) vessel operators cannot rely on turtles to actively avoid being struck. Thus, sea turtles are not considered reliably capable of moving out of the way of vessels moving at speeds greater than 2.1 knots.

While vessel struck sea turtles have been observed throughout their range, including in the action area, the regions of greatest concern for vessel strike are areas with high concentrations of recreational-boat traffic such as the eastern Florida coast, the Florida Keys, and the shallow coastal bays in the Gulf of Mexico (NRC 1990). In general, the risk of strike for sea turtles is considered to be greatest in areas with high densities of sea turtles and small, fast moving vessels such as recreational vessels or speed boats (NRC 1990). Similarly, Foley et al. (2019) concluded that in a study in Florida, vessel strike risk for sea turtles was highest at inlets and passes. Stetzar (2002) reports that 24 of 67 sea turtles stranded along the Atlantic Delaware coast from 1994-1999 had evidence of boat interactions (hull or propeller strike); however, it is unknown how many of these strikes occurred after the sea turtle died. There are no estimates of the total number of sea turtles struck by vessels in the Atlantic Ocean each year. Foley et al. (2019), estimated that strikes by motorized watercraft killed a mean of 1,326–4,334 sea turtles each year in Florida during 2000–2014 (considering the Atlantic and Gulf coasts of Florida). As described in NRC 1990, vessel strike risk for sea turtles in the Atlantic Ocean is highest in Florida.

The proposed survey activities will result in an increase in vessel traffic in the action area. Compared to baseline levels of vessel traffic in the action area (in its entirety and in any particular portion), the survey vessels, which will be likely two or three vessels operating in a particular survey area at a time (and spaced such that the sound fields of any noise producing equipment do not overlap), represent an extremely small fraction of total vessel traffic. For example, the U.S. Coast Guard's Atlantic Coast Port Access Route Study (ACPARS; USCG 2015), reports nearly 36,000 unique vessel transits through wind energy areas and lease areas along the Atlantic Coast. Those vessel transits represent only a fraction of the total coastal traffic as the wind energy areas and lease areas are located further offshore than most of the routes used by coastal tug traffic, for example. The U.S. Coast Guard's New Jersey PARS (USCG 2021) reports between 77,000 and 80,000 unique trips annual in the Atlantic Ocean off a portion of the coast of New Jersey in 2017-2019. This data is not wholly representative of all vessel traffic in this area as it only includes vessels carrying AIS systems, which is only required for vessels 65 feet in length or greater (although smaller vessels can utilize AIS and some do). Even if there were 3-boat surveys occurring in each of the four lease areas located in the New Jersey PARS study area, this would represent an increase of 12 vessels off New Jersey in a single year; this represents an approximately 0.01% increase in vessel traffic in that area. We expect that this increase is similar in other portions of the action area. If we assume that any increase in vessel traffic in the action area would increase the risk of vessel strike to sea turtles, then we could also assume that this would result in a corresponding increase in the number of sea turtles struck by vessels. However, it is unlikely that all vessels represent an equal increase in risk and the slow speeds (up to 4.5 knots) that the majority of vessels considered here will typically be moving, requirements to monitor for sea turtles during vessel transits, avoid or slowdown in areas where sea turtles are likely to occur, and to maintain distance from any sighted turtles, means that the risk to sea turtles from the survey vessels is considerably less than other vessels, particularly small, fast vessels operating in nearshore areas where sea turtle densities are high.

An analysis conducted by NMFS Southeast Regional Office (Barnette 2018) considered sea turtle vessel strike risk in Florida; the portion of the action area where risk is considered highest due to the concentration of sea turtles and vessels. Barnette (2018) concluded that, when using the conservative mean estimate of a sea turtle strike every 193 years (range of 135-250 years) per vessel, it would require approximately 200 new vessels introduced to an area to potentially result in a single sea turtle strike in any single year. Considering that the proposed action will introduce significantly fewer vessels in any particular area and that survey vessels will increase vessel traffic in the action area by less than 0.01%, and the measures that will be in place to reduce risk of vessel strike, as well as the slow speed of the survey vessels, we conclude that any increase in the number of sea turtles struck in the action area because of the increase in traffic resulting from survey vessels added to the environmental baseline is extremely unlikely. Therefore, effects of this increase in traffic are extremely unlikely.

The vessels used for the proposed project will produce low-frequency, broadband underwater sound below 1 kHz (for larger vessels), and higher-frequency sound between 1 kHz to 50 kHz (for smaller vessels), although the exact level of sound produced varies by vessel type.

ESA-listed turtles could be exposed to a range of vessel noises within their hearing abilities. Depending on the context of exposure, potential responses of green, Kemp's ridley, leatherback, and loggerhead sea turtles to vessel noise disturbance, would include startle responses, avoidance, or other behavioral reactions, and physiological stress responses. Very little research exists on sea turtle responses to vessel noise disturbance. Currently, there is nothing in the available literature specifically aimed at studying and quantifying sea turtle response to vessel noise. However, a study examining vessel strike risk to green sea turtles suggested that sea turtles may habituate to vessel sound and may be more likely to respond to the sight of a vessel rather than the sound of a vessel, although both may play a role in prompting reactions (Hazel et al. 2007). Regardless of the specific stressor associated with vessels to which turtles are responding, they only appear to show responses (avoidance behavior) at approximately 10 m or closer (Hazel et al. 2007).

Therefore, the noise from vessels is not likely to affect sea turtles from further distances, and disturbance may only occur if a sea turtle hears a vessel nearby or sees it as it approaches. These responses appear limited to non-injurious, minor changes in behavior based on the limited information available on sea turtle response to vessel noise.

For these reasons, vessel noise is expected to cause minimal disturbance to sea turtles. If a sea turtle detects a vessel and avoids it or has a stress response from the noise disturbance, these responses are expected to be temporary and only endure while the vessel transits through the area where the sea turtle encountered it. Therefore, sea turtle responses to vessel noise disturbance are considered insignificant (i.e., so minor that the effect cannot be meaningfully evaluated), and a sea turtle would be expected to return to normal behaviors and stress levels shortly after the vessel passes by.

Marine Fish

The only listed fish in the action area that are known to be at risk of vessel strike are shortnose and Atlantic sturgeon and giant manta ray. Vessel activities will have no effect on Atlantic salmon or

smalltooth sawfish. There is no information to indicate that Atlantic salmon are struck by vessels; therefore, we have concluded that strike is extremely unlikely to occur. A vessel strike to smalltooth sawfish is extremely unlikely; smalltooth sawfish are primarily demersal and rarely would be at risk from moving vessels. PDC 5 requires vessels to maintain sufficient clearance above the bottom and to reduce speeds to 5 knots or less in waters with less than 4 feet of clearance. These conditions, combined with the low likelihood of vessels operating in nearshore coastal waters of Florida where sawfish occur, is expected to eliminate risk of vessel strikes with smalltooth sawfish.

Giant Manta Ray

Giant manta rays can be frequently observed traveling just below the surface and will often approach or show little fear toward humans or vessels (Coles 1916), which may also make them vulnerable to vessel strikes (Deakos 2010); vessel strikes can injure or kill giant manta rays, decreasing fitness or contributing to non-natural mortality (Couturier et al. 2012; Deakos et al. 2011). However, information about interactions between vessels and giant manta rays is limited. We have at least some reports of vessel strike, including a report of five giant manta rays struck by vessels from 2016 through 2018; individuals had injuries (i.e., fresh or healed dorsal surface propeller scars) consistent with a vessel strike. These interactions were observed by researchers conducting surveys from Boynton Beach to Jupiter, Florida (J. Pate, Florida Manta Project, pers. comm. to M. Miller, NMFS OPR, 2018) and it is unknown where the manta was at the time of the vessel strike. The giant manta ray is frequently observed in nearshore coastal waters and feeding at inlets along the east coast of Florida. As recreational vessel traffic is concentrated in and around inlets and nearshore waters, this overlap exposes the giant manta ray in these locations to an increased likelihood of potential vessel strike injury especially from faster moving recreational vessels. Yet, few instances of confirmed or suspected strandings of giant manta rays are attributed to vessel strike injury. This lack of documented mortalities could also be the result of other factors that influence carcass detection (i.e., wind, currents, scavenging, decomposition etc.); however, giant manta rays appear to be able to be fast and agile enough to avoid most moving vessels, as anecdotally evidenced by videos showing rays avoiding interactions with high-speed vessels.

While there is limited available information on the giant manta ray, we expect the circumstances and factors resulting in vessel strike injury are similar between sea turtles and the giant manta ray because these species are both found in nearshore waters (including in the vicinity of inlets where vessel traffic may also be concentrated) and may spend significant time at or near the surface. Therefore, consistent with Barnette 2018, we will rely on the more robust available data on sea turtle vessel strike injury to serve as a proxy for the giant manta ray. Because the activities considered here will result in far fewer than 200 new vessels, it is extremely unlikely that any giant manta rays will be struck by new or increased vessel traffic.

Sturgeon

Here, we consider whether the increase in vessel traffic is likely to increase the risk of strike for Atlantic or shortnose sturgeon in any part of the action area. Because the increase in traffic will be limited to no more than two or three survey vessels operating in an area being surveyed at one time, the increase in vessel traffic in any portion of the action area, as well as the action area as a whole, will be extremely small.

We do not expect shortnose sturgeon to occur along the survey routes in the Atlantic Ocean because coastal migrations are extremely rare. However, Atlantic sturgeon are present in this part of the action area. Both shortnose and Atlantic sturgeon may occur in nearshore waters and rivers and bays that may be surveyed for potential cable corridors and/or may be used for survey vessel transits to or from ports.

While we know that vessels and sturgeon co-occur in many portions of their range, we have no reports of vessel strikes outside of rivers and coastal bays. The risk of strike is expected to be considerably less in the Atlantic Ocean than in rivers. This is because of the greater water depth, lack of obstructions or constrictions and the more disperse nature of vessel traffic and more disperse distribution of individual sturgeon. All of these factors are expected to decrease the likelihood of an encounter between an individual sturgeon and a vessel and also increase the likelihood that a sturgeon would be able to avoid any vessel. While we cannot quantify the risk of vessel strike in the portions of the Atlantic Ocean that overlap with the action area, we expect the risk to be considerably lower than it is within the Delaware River, which is considered one of the areas with the highest risk of vessel strike for Atlantic sturgeon.

As evidenced by reports and collections of Atlantic and shortnose sturgeon with injuries consistent with vessel strike (NMFS unpublished data[8]), both species are struck and killed by vessels in the Delaware River. Brown and Murphy (2010) reported that from 2005-2008, 28 Atlantic sturgeon carcasses were collected in the Delaware River; approximately 50% showed signs of vessel interactions. Delaware Division of Fish and Wildlife has been recording information on suspected vessel strikes since 2005. From May 2005 – March 2016, they recorded a total of 164 carcasses, 44 of which were presumed to have a cause of death attributable to vessel interaction. Estimates indicate that up to 25 Atlantic sturgeon may be struck and killed in the Delaware River annually (Fox, unpublished 2016). Information on the number of shortnose sturgeon struck and killed by vessels in the Delaware River is currently limited to reports provided to NMFS through our sturgeon salvage permit. A review of the database indicates that of the 53 records of salvaged shortnose sturgeon (2008-2016), 11 were detected in the Delaware River. Of these 11, 6 had injuries consistent with vessel strike. This is considerably less than the number of records of Atlantic sturgeon from the Delaware River with injuries consistent with vessel strike (15 out of 33 over the same time period). Based on this, we assume that more Atlantic sturgeon are struck by vessels in the Delaware River than shortnose sturgeon.

Several major ports are present along the Delaware River. In 2014, there were 42,398 one-way trips reported for commercial vessels in the Delaware River Federal navigation channel (USACE 2014). In 2020, 2,195 cargo ships visited Delaware River ports[9]. Neither of these numbers include any recreational or other non-commercial vessels, ferries, tug boats assisting other larger vessels or any Department of Defense vessels (i.e., Navy, USCG, etc.).

If we assume that any increase in vessel traffic in the Delaware River would increase the risk of vessel strike to shortnose or Atlantic sturgeon, then we could also assume that this would result in

[8] The unpublished data are reports received by NMFS and recorded as part of the sturgeon salvage program authorized under ESA permit 17273.

[9] *https://ajot.com/news/maritime-exchange-reports-2020-ship-arrivals*; last accessed March 24, 2021

a corresponding increase in the number of sturgeon struck and killed in the Delaware River. However, it is unlikely that all vessels represent an equal increase in risk, the slow speeds (4.5 knots) and shallower drafts of the survey vessels may mean that the risk to sturgeon is not as greater as faster moving deep draft cargo or tanker vessels as sturgeon may be able to more readily avoid the survey vessels and may not even overlap in the same part of the water column. The survey activities considered here will involve up to three slow-moving (up to 4.5 knots) vessels operating in a similar area. Sets of survey vessels will be dispersed along the coast and not co-occur in time or space. Even if there were four surveys in a year that transited the Delaware River (equivalent to the number of BOEM leases that are proximal to the entrance of Delaware Bay), that would be an increase of 12 vessels annually. Considering only the number of commercial one way trips in a representative year (42,398), an increase of 12 vessels operating in the Delaware River represents an approximately 0.03% increase in vessel traffic in the Delaware River navigation channel in a particular year. The actual percent increase in vessel traffic is likely even less considering that commercial traffic is only a portion of the vessel traffic in the river. Even in a worst-case scenario that assumes that all 25 Atlantic sturgeon struck and killed in the Delaware River in an average year occurred in the portion of the Delaware River that will be transited by the survey vessels, and that any increase in vessel traffic results in a proportionate increase in vessel strikes, this increase in vessel traffic would result in a hypothetical additional 0.0075 Atlantic sturgeon struck and killed in the Delaware River in a given year. Assuming a maximum case that four, 3-boat surveys transit the Delaware River every year for the 10 years considered here, that would result in a hypothetical additional 0.075 Atlantic sturgeon struck and killed in the Delaware River. Because we expect fewer strikes of shortnose sturgeon, the hypothetical increase in the number of struck shortnose sturgeon would be even less. Given this very small increase in traffic and the similar very small potential increase in risk of strike and a calculated potential increase in the number of strikes that is very close to zero, we conclude that any increase in the number of sturgeon struck because of the increase in traffic resulting from survey vessels operating in the Delaware River or Delaware Bay is extremely unlikely. BOEM has indicated that survey vessels may also transit the lower Chesapeake Bay and New York Bight/lower Hudson River. The risk of vessel strike in these areas is considered to be lower than in the Delaware River; thus, any prediction of vessel strike for the Delaware River can be considered a conservative estimate of vessel strike risk in other areas. Even applying this hypothetical increased risk for all three areas, we would estimate that a hypothetical additional 0.2 Atlantic sturgeon would be killed coast-wide over a 10-year period. As noted above, this is likely an overestimate given the slower speed of survey vessels compared to other vessels which is anticipated to reduce risk. Based on this analysis, effects of this increase in traffic are extremely unlikely. In addition, given the very small increase in risk and the calculated increase in strikes is close to zero, the effect of adding the survey vessels to the baseline cannot be meaningfully measured, detected, or evaluated; therefore, effects are also insignificant.

Vessel Noise

The vessels used for the proposed project will produce low-frequency, broadband underwater sound below 1 kHz (for larger vessels), and higher-frequency sound between 1 kHz to 50 kHz (for smaller vessels), although the exact level of sound produced varies by vessel type. In general, information regarding the effects of vessel noise on fish hearing and behaviors is limited. Some TTS has been observed in fishes exposed to elevated background noise and other white noise, a continuous sound source similar to noise produced from vessels. Caged studies on sound pressure

sensitive fishes show some TTS after several days or weeks of exposure to increased background sounds, although the hearing loss appeared to recover (e.g., Scholik and Yan 2002; Smith et al. 2006; Smith et al. 2004a). Smith et al. (2004b) and Smith et al. (2006) exposed goldfish (a fish with hearing specializations, unlike any of the ESA-listed species considered in this opinion) to noise with a sound pressure level of 170 dB re 1 μPa and found a clear relationship between the amount of TTS and duration of exposure, until maximum hearing loss occurred at about 24 hours of exposure. A short duration (e.g., 10-minute) exposure resulted in 5 dB of TTS, whereas a three-week exposure resulted in a 28 dB TTS that took over two weeks to return to pre-exposure baseline levels (Smith et al. 2004b). Recovery times were not measured by researchers for shorter exposure durations, so recovery time for lower levels of TTS was not documented.

Vessel noise may also affect fish behavior by causing them to startle, swim away from an occupied area, change swimming direction and speed, or alter schooling behavior (Engas et al. 1998; Engas et al. 1995; Mitson and Knudsen 2003). Physiological responses have also been documented for fish exposed to increased boat noise. Nichols et al. (2015) demonstrated physiological effects of increased noise (playback of boat noise) on coastal giant kelpfish. The fish exhibited acute stress responses when exposed to intermittent noise, but not to continuous noise. These results indicate variability in the acoustic environment may be more important than the period of noise exposure for inducing stress in fishes. However, other studies have also shown exposure to continuous or chronic vessel noise may elicit stress responses indicated by increased cortisol levels (Scholik and Yan 2001; Wysocki et al. 2006). These experiments demonstrate physiological and behavioral responses to various boat noises that have the potential to affect species' fitness and survival, but may also be influenced by the context and duration of exposure. It is important to note that most of these exposures were continuous, not intermittent, and the fish were unable to avoid the sound source for the duration of the experiment because this was a controlled study. In contrast, wild fish are not hindered from movement away from an irritating sound source, if detected, so are less likely to subjected to accumulation periods that lead to the onset of hearing damage as indicated in these studies. In other cases, fish may eventually become habituated to the changes in their soundscape and adjust to the ambient and background noises.

All fish species can detect vessel noise due to its low-frequency content and their hearing capabilities. Because of the characteristics of vessel noise, sound produced from vessels is unlikely to result in direct injury, hearing impairment, or other trauma to ESA-listed fish. Plus, in the near field, fish are able to detect water motion as well as visually locate an oncoming vessel. In these cases, most fishes located in close proximity that detect the vessel either visually, via sound and motion in the water would be capable of avoiding the vessel or move away from the area affected by vessel sound. Thus, fish are more likely to react to vessel noise at close range than to vessel noise emanating from a greater distance away. These reactions may include physiological stress responses, or avoidance behaviors. Auditory masking due to vessel noise can potentially mask biologically important sounds that fish may rely on. However, impacts from vessel noise would be intermittent, temporary, and localized, and such responses would not be expected to compromise the general health or condition of individual fish from continuous exposures. Instead, the only impacts expected from exposure to project vessel noise for Atlantic sturgeon may include temporary auditory masking, physiological stress, or minor changes in behavior.

Therefore, similar to marine mammals and sea turtles, exposure to vessel noise for fishes could result in short-term behavioral or physiological responses (e.g., avoidance, stress). Vessel noise would only result in brief periods of exposure for fishes and would not be expected to accumulate to the levels that would lead to any injury, hearing impairment or long-term masking of biologically relevant cues. For these reasons, any effects of vessel noise on ESA-listed fish is considered insignificant (i.e., so minor that the effect cannot be meaningfully measured, detected, or evaluated).

Consideration of Effects of the Actions on Air Quality

In order to issue an OCS Air Permit for an activity considered in this consultation, EPA must conclude that the activity will not cause or contribute to a violation of applicable national ambient air quality standards (NAAQS) or prevention of significant deterioration (PSD) increments. The NAAQS are health-based standards that the EPA sets to protect public health with an adequate margin of safety. The PSD increments are designed to ensure that air quality in an area that meets the NAAQS does not significantly deteriorate from baseline levels. At this time, there is no information on the effects of air quality on listed species that may occur in the action area. However, as the PSD increments are designed to ensure that air quality in the area regulated by any OCS Air Permit do not significantly deteriorate from baseline levels, we conclude that any effects to listed species from these emissions will be so small that they cannot be meaningfully measured, detected, or evaluated and therefore are insignificant.

CONCLUSIONS

As explained above, we have determined that the actions considered here are not likely to adversely affect any ESA-listed species or critical habitat. The requirements for reviewing survey activities as they are developed will ensure that surveys carried out under this programmatic consultation do not have effects that exceed those considered here.

Reinitiation of consultation is required and shall be requested by BOEM or by NMFS where discretionary federal involvement or control over the action has been retained or is authorized by law and "(a) If the amount or extent of taking specified in the incidental take statement is exceeded; (b) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) If a new species is listed or critical habitat designated that may be affected by the identified action." For the activities considered here, no take is anticipated or exempted; take is defined in the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." If there is any incidental take of a listed species, reinitiation would be required. As required by the PDCs outlined in Appendix B, all observations of dead or injured listed species should be reported to us immediately.

Should you have any questions regarding this consultation, please contact Julie Crocker of my staff at (978) 282-8480 or by e-mail (*Julie.Crocker@noaa.gov*).

Sincerely,

Jennifer Anderson

Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

ec: Hooker, Baker - BOEM
Burns - GARFO HSED
Bernhart - SERO
Harrison, Daly, Carduner - OPR
DOE
EPA
USACE

File Code: Sec 7 BOEM OSW site assessment programmatic (2021)
ECO ID: GARFO-2021-0999

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Appendix A – Tables and Figures

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Figure 1. Action Area for this programmatic consultation.

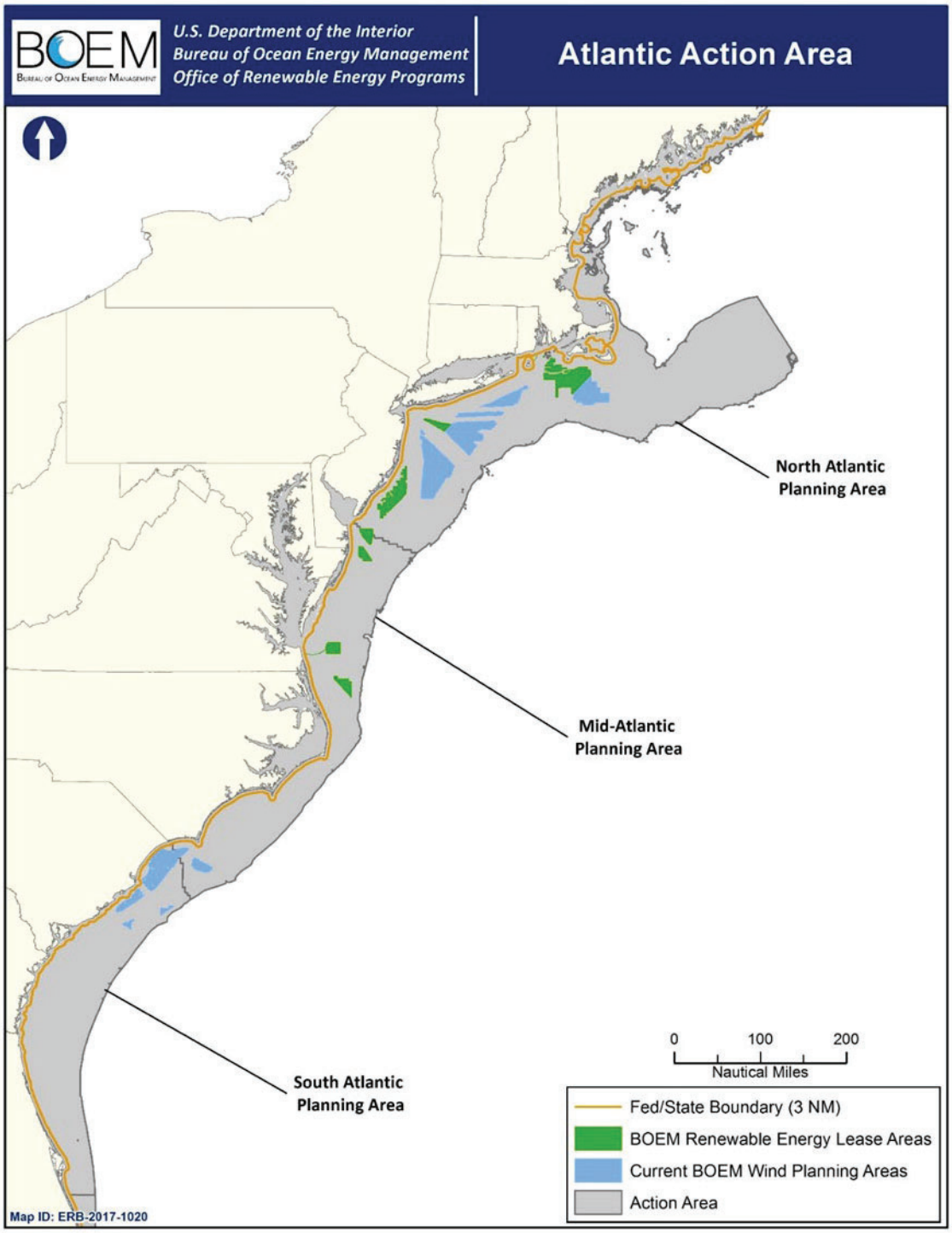

Table A.1 Description of Representative HRG Survey Equipment and Methods

Equipment Type	Data Collection and/or Survey Types	Description of the Equipment
Acoustic Corer™ (https://www.pangeosubsea.com/acoustic-corer/)	Stationary acoustic source deployed on the seafloor with low and mid frequency chirp sonars to detect shallow (15 m to 40 m) subsea hazards such as boulders, cavities, and abandoned infrastructure by generating a 3D, 12-m diameter "acoustic core" to full penetration depth (inset above).	A seabed deployed unit with dual subsurface scanning sonar heads attached to a 12-m boom. The system is set on a tripod on the seafloor. Each arm rotates 180 degrees to cover a full 360 degrees. Chirp sonars of different frequencies can be attached to each arm providing for multi-aspect depth resolution. Acoustic cores supplement geophysical surveys such as bore holes and Cone Penetration Testing.
Bathymetry/ multi-beam echosounder	Bathymetric charting	A depth sounder is a microprocessor-controlled, high-resolution survey-grade system that measures precise water depths in both digital and graphic formats. The system would be used in such a manner as to record with a sweep appropriate to the range of water depths expected in the survey area.
Magnetometer	Collection of geophysical data for shallow hazards and archaeological resources assessments	Surveys would be used to detect and aid in the identification of ferrous or other objects having a distinct magnetic signature. A sensor is typically towed as near as possible to the seafloor and anticipated to be no more than approximately 20 ft. (6 m) above the seafloor.
Shallow and Medium (Seismic) Penetration Profilers (i.e. Chirps, Sparkers, Boomers, Bubble Guns)	Collection of geophysical data for shallow hazards and archaeological resources assessments and to characterize subsurface sediments	High-resolution CHIRP System sub-bottom profiler or boomers are used to generate a profile view below the bottom of the seabed, which is interpreted to develop a geologic cross-section of subsurface sediment conditions under the track line surveyed. Another type of sub-bottom profiler that may be employed is a medium penetration system such as a boomer, bubble pulser or impulse-type system. Sub-bottom profilers are capable of penetrating sediment depth ranges of 10 ft. (3 m) to greater than 328 ft. (100 m), depending on frequency and bottom composition.
Side-Scan Sonar	Collection of geophysical data for shallow hazards and archaeological resources assessments	This survey evaluates surface and near-surface sediments, seafloor morphology, and potential surface obstructions (MMS, 2007a). A typical side-scan sonar system consists of a top-side processor, tow cable, and towfish with transducers (or "pingers") located on the sides. Typically, a lessee would use a digital dual-frequency side-scan sonar system with 300 to 500 kHz frequency ranges or greater to record continuous planimetric images of the seafloor.

Revision 1. September 2021.

Table A.2. Acoustic Characteristics of Representative HRG Survey Equipment. Note list of equipment is representative and surveys may use similar equipment and actual source levels may be below those indicated.

	Highest Measured Source Level (Highest Power Setting)						
HRG Source	**Source Setting**	**PK**	**RMS**	**SEL**	**Pulse Width (s)**	**Main Pulse Frequency (kHz)**	**Inter-Pulse Interval (s) (1/PPS)**
Mobile, Impulsive, Intermittent Sources							
AA200 Boomer Plate	250 J (low)	209	200	169	0.0008	4.3	1.0 (1 pps)
AA251 Boomer Plate	300 J (high)	216	207	176	0.0007	4.3	1.0 (1 pps)
Applied Acoustic Delta Sparker	2400 J at 1 m depth, 0.5 kHz	221	205	185	0.0095	0.5	.33333 (1-3 pps)
Applied Acoustic Dura-Spark	2400 J (high), 400 tips	225	214	188	0.0022	2.7	.33333 (1-3 pps)
Applied Acoustics S-Boom (3 AA252 boomer plates)	700 J	211	205	172	0.0006	6.2	1.0 (1 pps)
Applied Acoustics S-Boom (CSP-N Source)	1000 J	209	203	172	0.0009	3.8	.33333 (3 pps)
ELC820 Sparker	750 J (high) 1m depth	214	206	182	0.0039	1.2	1.0 (1 pps)
FSI HMS-620D Bubble Gun	Dual Channel 86 cm	204	198	173	0.0033	1.1	8.0 (1 per 8 s)
Mobile, Non-Impulsive, Intermittent Sources							
Bathyswath SWATHplus-M	100%, 234 kHz	223	218	180	0.00032	≥200 kHz	0.2000 pps (unknown)
Echotrac CV100 Single-Beam Echosounder	Power 12, 80 cycles, 200 kHz	196	193	159	0.00036	≥200 kHz	0.0500 (20 pps)
EdgeTech 424 with 3200-XS topside processor (Chirp)	100% power, 4-20 kHz	187	180	156	0.0046	7.2-11	.12500 (8 pps)

EdgeTech 512i Sub-bottom Profiler, 8.9 kHz (Chirp)	100% power, 2-12 kHz	186	180	159	0.0087	6.3-8.9	.12500 (8 pps)
EdgeTech 4200 Side-Scan	100%, 100 kHz (also a 400 kHz setting)	206	201	179	0.0072	100 kHz	.03333 (30 pps)
Klein 3000 Side-Scan	132 kHz (also capable of 445 kHz)	224	219	184	0.000343	132 kHz	.03333 (30 pps)
Klein 3900 Side-Scan	445 kHz	226	220	179	0.000084	≥200 kHz	unreported
Knudsen 3202 Sub-bottom Profiler (2 transducers), 5.7 kHz	Power 4	214	209	193	0.0217	3.3-5.7	0.25000 (4 pps)
Reson Seabat 7111 Multibeam Echosounder	100 kHz	228	224	185	0.00015	100 kHz	0.0500 (20 pps)
Reson Seabat T20P Multibeam Echosounder	200, 300, or 400 kHz	221	218	182	0.00025	≥200 kHz	0.0200 (50 pps)

Source: Highest reported source levels reported in Crocker and Fratantonio (2016).

Table 1. Predicted isopleths for peak pressure (using 20 LogR) and cSEL using NOAA's general spreadsheet tool (December 2020 Revision) to predict cumulative exposure distances using the highest power levels were used for each sound source reported in Crocker and Fratantonio (2016).

HRG SOURCE	PTS INJURY DISTANCE (m)							
	Low Frequency Cetaceans		Mid Frequency Cetaceans		High Frequency Cetaceans		Seals (Phocids)	
	PK	SEL	PK	SEL	PK	SEL	PK	SEL
AA200 Boomer Plate	0	0.1	0	0	2.2	0.9	0	0.0
AA251 Boomer Plate	0	0.3	0	0	5.0	4.7	0.0	0.2
Applied Acoustics S-Boom (3 AA252 boomer plates)	0	0.1	0	0.0	2.8	5.6	0	0.1
Applied Acoustics S-Boom (CSP-N Source)	0	0.3	0	0	2.2	3.7	0	0.2
FSI HMS-620D Bubble Gun (impulsive)	0	0	0	0	1.3	0	0	0
ELC820 Sparker (impulsive)	0	3.2	0	0	4.0	0.7	0.0	0.7

HRG SOURCE	PTS INJURY DISTANCE (m)							
	Low Frequency Cetaceans		Mid Frequency Cetaceans		High Frequency Cetaceans		Seals (Phocids)	
	PK	SEL	PK	SEL	PK	SEL	PK	SEL
Applied Acoustics Dura-Spark (impulsive)	2.0	12.7	0	0.2	14.1	47.3	2.2	6.4
Applied Acoustics Delta Sparker (impulsive)	1.3	5.7	0	0	8.9	0.1	1.4	0.3
EdgeTech 424 Sub-bottom profiler 3200-XS, 7.2 kHz	—	0	—	0	—	0.0	—	0
EdgeTech 512i Sub-bottom Profiler, 6.39 kHz	—	0	—	0	—	0.0	—	0
Knudsen 3202 Chirp Sub-bottom profiler (2 transducers), 5.7 kHz	—	1.2	—	0.3	—	35.2	—	<1
Reson Seabat 7111 Multibeam Echosounder,100 kHz	—	0	—	0.5	—	251.4	—	0.0
Reson Seabat T20P Multibeam Echosounder	—	0	—	0	—	0	—	0
Bathyswath SWATHplus-M	—	0	—	0	—	0	—	0
Echotrac CV100 Single-Beam Echosounder	—	0	—	0	—	0	—	0
Klein 3000 Side-Scan, 132 kHz	—	0	—	0.4	—	193.6	—	0.0
Klein 3000 Side-Scan, 445 kHz	—	0	—	0	—	0	—	0
Klein 3900 Side-Scan, 445 kHz	—	0	—	0	—	0	—	0

Table A.4. PTS distance for sea turtles and listed fish for impulsive HRG sound sources (60 minutes duration using the highest power levels were used for each sound source reported in Crocker and Fratantonio (2016)).

HRG SOURCE		Sea Turtles*, ESA-listed Fish			
		PTS INJURY DISTANCE (m) for Impulsive HRG Sources			
	SEL Source level	Fish cSEL[a] Distance to 187 dB (m)	Turtle cSEL[a] Distance (m)	Peak Source Level	Fish Peak Distance to 206 dB (m)
AA200 Boomer Plate	169	0	0	209	1.4
AA251 Boomer Plate	176	0	0	216	3.2
Applied Acoustics S-Boom (3 AA252 boomer plates)	172	0	0	211	2.5
Applied Acoustics S-Boom (CSP-N Source)	172	0	0	209	1.4
FSI HMS-620D Bubble Gun (impulsive)	173	0	0	204	0
ELC820 Sparker (impulsive)	182	0	0	214	4.0

HRG SOURCE		Sea Turtles*, ESA-listed Fish			
		PTS INJURY DISTANCE (m) for Impulsive HRG Sources			
	SEL Source level	Fish cSEL[a] Distance to 187 dB (m)	Turtle cSEL[a] Distance (m)	Peak Source Level	Fish Peak Distance to 206 dB (m)
Applied Acoustics Dura-Spark (impulsive)	188	1.6	0	225	9.0
Applied Acoustics Delta Sparker (impulsive)	185	1.1	0	221	5.7
EdgeTech 424 Sub-bottom profiler 3200-XS, 7.2 kHz	156	NA	NA	187	NA
EdgeTech 512i Sub-bottom Profiler, 8.9 kHz	159	NA	NA	186	NA
Knudsen 3202 Chirp Sub-bottom profiler (2 transducers), 5.7 kHz	193	NA	NA	214	NA
Reson Seabat 7111 Multibeam Echosounder,100 kHz	185	NA	NA	228	NA
Reson Seabat T20P Multibeam Echosounder	182	NA	NA	221	NA
Bathyswath SWATHplus-M	180	NA	NA	223	NA
Echotrac CV100 Single-Beam Echosounder	159	NA	NA	196	NA
Klein 3000 Side-Scan, 132 kHz	184	NA	NA	224	NA
Klein 3000 Side-Scan, 445 kHz	179	NA	NA	226	NA
EdgeTech 4200 Side-Scan, 100 kHz	169	NA	NA	206	NA
EdgeTech 4200 Side-Scan, 400 kHz	176	NA	NA	210	NA

[a] = cSEL distances were calculated by 20 log(Source Level + 10 log(1800 sec) – Threshold Level)
NA = Frequencies are out of the hearing range of the sea turtles, sturgeon, and salmon
*Sea Turtle peak pressure distances for all HRG sources are below the threshold level of 232dB.

Table A.5. Disturbances distances for marine mammals (160 dB RMS), sea turtles (175 dB RMS), and fish (150 dB RMS) using 20LogR spherical spreading loss using the highest power levels were used for each sound source reported in Crocker and Fratantonio (2016).

HRG SOURCE	DISTANCE OF POTENTIAL DISTURBANCE (m)*		
	Marine Mammals	Sea Turtles	Fish
AA200 Boomer Plate	100	18	317
AA251 Boomer Plate	224	40	708
Applied Acoustics S-Boom (3 AA252 boomer plates)	178	32	563
Applied Acoustics S-Boom (CSP-N Source)	142	26	447

FSI HMS-620D Bubble Gun	80	15	252
ELC820 Sparker	200	36	631
Applied Acoustics Dura-Spark	502	90	1,996
Applied Acoustics Delta Sparker	178	32	563
EdgeTech 424 Sub-bottom Profiler, 7.2 and 11 kHz	10	2	32
EdgeTech 512i Sub-bottom Profiler	10	2	32
Knudsen 3202 Echosounder (2 transducers)	892	NA	NA
Reson Seabat 7111 Multibeam Echosounder[1]	NA	NA	NA
Reson Seabat T20P Multibeam Echosounder[1]	NA	NA	NA
Bathyswath SWATHplus-M	NA	NA	NA
Echotrac CV100 Single-Beam Echosounder[1]	NA	NA	NA
Klein 3000 Side-Scan, 132 kHz	NA	NA	NA
Klein 3000 Side-Scan, 445 kHz	NA	NA	NA
Klein 3900 Side-scan, 445 kHz	NA	NA	NA
EdgeTech 4200 Side-Scan, 100 kHz	NA	NA	NA
EdgeTech 4200 Side-Scan, 400 kHz	NA	NA	NA

NA = Not Audible

[1] These multi-beam echosounder and side-scan sonars are only audible to mid- and high-frequency hearing groups of marine mammals.

* Disturbance distances have been round up to the next nearest whole number.

APPENDIX B

Project Design Criteria (PDC) and Best Management Practices (BMPs) for Threatened and Endangered Species for Site Characterization and Site Assessment Activities to Support Offshore Wind Projects

Any survey plan must meet the following minimum requirements specified below, except when complying with these requirements would put the safety of the vessel or crew at risk.

PDC 1: Avoid Live Bottom Features

BMPs:

1. All vessel anchoring and any seafloor-sampling activities (i.e., drilling or boring for geotechnical surveys) are restricted from seafloor areas with consolidated seabed features.[1] All vessel anchoring and seafloor sampling must also occur at least 150 m from any known locations of threatened or endangered coral species. All sensitive live bottom habitats (eelgrass, cold-water corals, etc.) should be avoided as practicable. All vessels in coastal waters will operate in a manner to minimize propeller wash and seafloor disturbance and transiting vessels should follow deep-water routes (e.g., marked channels), as practicable, to reduce disturbance to sturgeon and sawfish habitat.

PDC 2: Avoid Activities that Could Affect Early Life Stages of Atlantic Sturgeon

BMP:

1. No geotechnical or bottom disturbing activities will take place during the spawning/rearing season within freshwater reaches of rivers where Atlantic or shortnose sturgeon spawning occurs. Any survey plan that includes geotechnical or other benthic sampling activities in freshwater reaches (salinity 0-0.5 ppt) of such rivers will identify a time of year restriction that will avoid such activities during the time of year when Atlantic sturgeon spawning and rearing of early life stages occurs in that river. Appropriate time of year restrictions include the following:

River	No Work Window	Area Affected
Hudson	April – July	Upstream of the Delaware Memorial Bridge
Delaware	April – July	Upstream of Newburgh, NY - Beacon Bridge/Rt 84

This table will be supplemented with additional rivers as necessary.

PDC 3: Marine Trash and Debris Awareness and Prevention

"*Marine trash and debris*" is defined as any object or fragment of wood, metal, glass, rubber, plastic, cloth, paper or any other solid, man-made item or material that is lost or discarded in the marine environment by the Lessee or an authorized representative of the Lessee (collectively, the

[1] Consolidated seabed features for this measure are pavement, scarp walls, and deep/cold-water coral reefs and shallow/mesophotic reefs as defined in the CMECS Geologic Substrate Classifications.

"Lessee") while conducting activities on the OCS in connection with a lease, grant, or approval issued by the Department of the Interior (DOI). To understand the type and amount of marine debris generated, and to minimize the risk of entanglement in and/or ingestion of marine debris by protected species, lessees must implement the following BMPS.

BMPs:

1. Training: All vessel operators, employees, and contractors performing OCS survey activities on behalf of the Lessee (collectively, "Lessee Representatives") must 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. The training videos, slides, and related material may be downloaded directly from the website. Lessee Representatives engaged in OCS survey activities must continue to develop and use a marine trash and debris awareness training and certification process that reasonably assures that they, as well as their respective employees, contractors, and subcontractors, are in fact trained. The training process must include the following elements:
    a. Viewing of either a video or slide show by the personnel specified above;
    b. An explanation from management personnel that emphasizes their commitment to the requirements;
    c. Attendance measures (initial and annual); and
    d. Recordkeeping and availability of records for inspection by DOI.

    By January 31 of each year, the Lessee must submit to DOI an annual report signed by the Lessee that describes its marine trash and debris awareness training process and certifies that the training process has been followed for the previous calendar year. You must send the reports via email to *renewable_reporting@boem.gov* and to *marinedebris@bsee.gov*.

2. Marking: Materials, equipment, tools, containers, and other items used in OCS activities which are of such shape or configuration that they are likely to snag or damage fishing devices, and could be lost or discarded overboard, must be clearly marked with the vessel or facility identification and properly secured to prevent loss overboard. All markings must clearly identify the owner and must be durable enough to resist the effects of the environmental conditions to which they may be exposed.

3. Recovery: Lessees must recover marine trash and debris that is lost or discarded in the marine environment while performing OCS activities when such incident is likely to: (a) cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to those that could result in the entanglement of or ingestion by marine protected species; or (b) significantly interfere with OCS uses (e.g., are likely to snag or damage fishing

equipment, or present a hazard to navigation). Lessees must notify DOI when recovery activities are (i) not possible because conditions are unsafe; or (ii) not practicable because the marine trash and debris released is not likely to result in any of the conditions listed in (a) or (b) above. The lessee must recover the marine trash and debris lost or discarded if DOI does not agree with the reasons provided by the Lessee to be relieved from the obligation to recover the marine trash and debris. If the marine trash and debris is located within the boundaries of a potential archaeological resource/avoidance area, or a sensitive ecological/benthic resource area, the Lessee must contact DOI for approval prior to conducting any recovery efforts.

Recovery of the marine trash and debris should be completed immediately, but no later than 30 days from the date in which the incident occurred. If the Lessee is not able to recover the marine trash or debris within 48 hours (*See* BMP 4. Reporting), the Lessee must submit a recovery plan to DOI explaining the recovery activities to recover the marine trash or debris ("Recovery Plan"). The Recovery Plan must be submitted no later than 10 calendar days from the date in which the incident occurred. Unless otherwise objected by DOI within 48 hours of the filing of the Recovery Plan, the Lessee can proceed with the activities described in the Recovery Plan. The Lessee must request and obtain approval of a time extension if recovery activities cannot be completed within 30 days from the date in which the incident occurred. The Lessee must enact steps to prevent similar incidents and must submit a description of these actions to BOEM and BSEE within 30 days from the date in which the incident occurred.

4. Reporting: The Lessee must report all marine trash and debris lost or discarded to DOI (using the email address listed on DOI's most recent incident reporting guidance). This report applies to all marine trash and debris lost or discarded, and must be made monthly, no later than the fifth day of the following month. The report must include the following:

    a. Project identification and contact information for the lessee, operator, and/or contractor;
    b. The date and time of the incident;
    c. The lease number, OCS area and block, and coordinates of the object's location (latitude and longitude in decimal degrees);
    d. A detailed description of the dropped object to include dimensions (approximate length, width, height, and weight) and composition (e.g., plastic, aluminum, steel, wood, paper, hazardous substances, or defined pollutants);
    e. Pictures, data imagery, data streams, and/or a schematic/illustration of the object, if available;
    f. Indication of whether the lost or discarded item could be a magnetic anomaly of greater than 50 nanoTesla (nT), a seafloor target of greater than 0.5 meters (m), or a sub-bottom anomaly of greater than 0.5m when operating a magnetometer or gradiometer, side scan sonar, or sub-bottom profile in accordance with DOI's applicable guidance;
    g. An explanation of how the object was lost; and

h. A description of immediate recovery efforts and results, including photos.

In addition to the foregoing, the Lessee must submit a report within 48 hours of the incident ("48-hour Report") if the marine trash or debris could (a) cause undue harm or damage to natural resources, including their physical, atmospheric, and biological components, with particular attention to those that could result in the ingestion by or entanglement of marine protected species; or (b) significantly interfere with OCS uses (e.g., are likely to snag or damage fishing equipment, or present a hazard to navigation). The information in the 48-hour Report would be the same as that listed above, but just for the incident that triggered the 48-hour Report. The Lessee must report to DOI if the object is recovered and, as applicable, any substantial variation in the activities described in the Recovery Plan that were required during the recovery efforts. Information on unrecovered marine trash and debris must be included and addressed in the description of the site clearance activities provided in the decommissioning application required under 30 CFR § 585.906. The Lessee is not required to submit a report for those months in which no marine trash and debris was lost or discarded.

PDC 4: Minimize Interactions with Listed Species during Geophysical Survey Operations
To avoid injury of ESA-listed species and minimize any potential disturbance, the following measures will be implemented for all vessels operating impulsive survey equipment that emits sound at frequency ranges <180 kHz (within the functional hearing range of marine mammals)[2] as well as CHIRP sub bottom profilers. The Clearance Zone is defined as the area around the sound source that needs to be visually cleared of listed species for 30 minutes before the sound source is turned on. The Clearance Zone is equivalent to a minimum visibility zone for survey operations to begin (*See* BMP 6). The Shutdown Zone is defined as the area around the sound source that must be monitored for possible shutdown upon detection of protected species within or entering that zone. For both the Clearance and Shutdown Zones, these are minimum visibility distances and for situational awareness PSOs should observe beyond this area when possible.

BMPs:

1. For situational awareness a Clearance Zone extending at least (500 m in all directions) must be established around all vessels operating sources <180 kHz.
    a. The Clearance Zone must be monitored by approved third-party PSOs at all times and any observed listed species must be recorded (see reporting requirements below).
    b. For monitoring around the autonomous surface vessel (ASV) where remote PSO monitoring must occur from the mother vessel, a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction so as to provide a field of view ahead of the vessel and around the ASV. PSOs must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be installed in the bridge displaying the real-time images from the thermal/HD camera installed on

[2] Note that this requirement does not apply to Parametric Subbottom Profilers, Ultra Short Baseline, echosounders or side scan sonar; the acoustic characteristics (frequency, narrow beam width, rapid attenuation) are such that no effects to listed species are anticipated.

the front of the ASV itself, providing a further forward view of the craft. In addition, night-vision goggles with thermal clip-ons and a handheld spotlight must be provided and used such that PSOs can focus observations in any direction around the mother vessel and/or the ASV.

2. To minimize exposure to noise that could be disturbing, Shutdown Zone(s) (500 m for North Atlantic right whales and 100 m for other ESA-listed whales visible at the surface) must be established around the sources operating at <180 kHz being towed from the vessel .
    a. The Shutdown Zone(s) must be monitored by third-party PSOs at all times when noise-producing equipment (<180 kHz) is being operated and all observed listed species must be recorded (see reporting requirements below).
    b. If an ESA-listed species is detected within or entering the respective Shutdown Zone, any noise-producing equipment operating below 180 kHz must be shut off until the minimum separation distance from the source is re-established (500 m for North Atlantic right whales and 100 m for other ESA-listed species, including other ESA-listed marine mammals) and the measures in (5) are carried out.
        i. A PSO must notify the survey crew that a shutdown of all active boomer, sparker, and bubble gun acoustic sources below 180 kHz is immediately required. The vessel operator and crew must comply immediately with any call for a shutdown by the PSO. Any disagreement or discussion must occur only after shutdown.
    c. If the Shutdown Zone(s) cannot be adequately monitored for ESA-listed species presence (i.e., a PSO determines conditions, including at night or other low-visibility conditions, are such that listed species cannot be reliably sighted within the Shutdown Zone(s), no equipment operating at <180 kHz can be deployed until such time that the Shutdown Zone(s) can be reliably monitored.
3. Before any noise-producing survey equipment (operating at <180 kHz) is deployed, the Clearance Zone (500 m for all listed species) must be monitored for 30 minutes of pre-clearance observation.
    a. If any ESA-listed species is observed within the Clearance Zone during the 30-minute pre-clearance period, the 30-minute clock must be paused. If the PSO confirms the animal has exited the zone and headed away from the survey vessel, the 30-minute clock that was paused may resume. The pre-clearance clock will reset to 30 minutes if the animal dives or visual contact is otherwise lost.
4. When technically feasible, a “ramp up” of the electromechanical survey equipment must occur at the start or re-start of geophysical survey activities. A ramp up must begin with the power of the smallest acoustic equipment for the geophysical survey at its lowest power output. When technically feasible the power will then be gradually turned up and other acoustic sources added in a way such that the source level would increase gradually.
5. Following a shutdown for any reason, ramp up of the equipment may begin immediately only if: (a) the shutdown is less than 30 minutes, (b) visual monitoring of

the Shutdown Zone(s) continued throughout the shutdown, (c) the animal(s) causing the shutdown was visually followed and confirmed by PSOs to be outside of the Shutdown Zone(s) (500 m for North Atlantic right whales and 100 m for other ESA-listed species, including other ESA-listed marine mammals) and heading away from the vessel, and (d) the Shutdown Zone(s) remains clear of all listed species. If all (a, b, c, and d) the conditions are not met, the Clearance Zone (500 m for all listed species) must be monitored for 30 minutes of pre-clearance observation before noise-producing equipment can be turned back on.

6. In order for geophysical surveys to be conducted at night or during low-visibility conditions, PSOs must be able to effectively monitor the Clearance and Shutdown Zone(s). No may occur if the Clearance and Shutdown Zone(s) cannot be reliably monitored for the presence of ESA-listed species to ensure avoidance of injury to those species.
    a. An Alternative Monitoring Plan (AMP) must be submitted to BOEM (or the federal agency authorizing, funding, or permitting the survey) detailing the monitoring methodology that will be used during nighttime and low-visibility conditions and an explanation of how it will be effective at ensuring that the Shutdown Zone(s) can be maintained during nighttime and low-visibility survey operations. The plan must be submitted 60 days before survey operations are set to begin.
    b. The plan must include technologies that have the technical feasibility to detect all ESA-listed whales out to 500 m and sea turtles to 100 m.
    c. PSOs should be trained and experienced with the proposed alternative monitoring technology.
    d. The AMP must describe how calibration will be performed, for example, by including observations of known objects at set distances and under various lighting conditions. This calibration should be performed during mobilization and periodically throughout the survey operation.
    e. PSOs shall make nighttime observations from a platform with no visual barriers, due to the potential for the reflectivity from bridge windows or other structures to interfere with the use of the night vision optics.
7. To minimize risk to North Atlantic right whales, no surveys may occur in Cape Cod Bay from January 1 - May 15 of any year (in an area beginning at 42°04′56.5″ N-070°12′00.0″ W; thence north to 42°12′00.0″ N-070°12′00.0″ W; thence due west to charted mean high water line; thence along charted mean high water within Cape Cod Bay back to beginning point).
8. Sound sources used within the North Atlantic right whale Critical Habitat Southeastern U.S. Calving Area (i.e., Unit 2) during the calving and nursing season (December-March) shall operate at frequencies <7 kHz and >35 kHz (functional hearing range of right whales) at night or low visibility conditions.
9. At times when multiple survey vessels are operating within a lease area, adjacent lease areas, or exploratory cable routes, a minimum separation distance (to be determined on a survey specific basis, dependent on equipment being used) must be maintained between survey vessels to ensure that sound sources do not overlap.
10. To minimize disturbance to the Northwest Atlantic Ocean DPS of loggerhead sea turtles, a voluntary pause in sparker operation should be implemented for all vessels

operating in nearshore critical habitat for loggerhead sea turtles. These conditions apply to critical habitat boundaries for nearshore reproductive habitats LOGG N-3 through LOGG N-16 (79 FR 39855) from April 1 to September 30. Following pre-clearance procedures, if any loggerhead or other unidentified sea turtles is observed within a 100 m Clearance Zone during a survey, sparker operation should be paused by turning off the sparker until the sea turtle is beyond 100 m of the survey vessel. If the animal dives or visual contact is otherwise lost, sparker operation may resume after a minimum 2-minute pause following the last sighting of the animal.

11. Any visual observations of listed species by crew or project personnel must be communicated to PSOs on-duty.
12. During good conditions (e.g., daylight hours; Beaufort scale 3 or less) when survey equipment is not operating, to the maximum extent practicable, PSOs must conduct observations for protected species for comparison of sighting rates and behavior with and without use of active geophysical survey equipment. Any observed listed species must be recorded regardless of any mitigation actions required.

PDC 5: Minimize Vessel Interactions with Listed Species

All vessels associated with survey activities (transiting [i.e., travelling between a port and the survey site] or actively surveying) must comply with the vessel strike avoidance measures specified below. The only exception is when the safety of the vessel or crew necessitates deviation from these requirements. If any such incidents occur, they must be reported as outlined below under Reporting Requirements (PDC 8). The Vessel Strike Avoidance Zone is defined as 500 m or greater from any sighted ESA-listed species or other unidentified large marine mammal.

BMPs:

1. Vessel captain and crew must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any listed species. The presence of a single individual at the surface may indicate the presence of submerged animals in the vicinity; therefore, precautionary measures should always be exercised. If pinnipeds or small delphinids of the following genera: Delphinus, Lagenorhynchus, Stenella, and Tursiops are visually detected approaching the vessel (i.e., to bow ride) or towed equipment, vessel strike avoidance and shutdown is not required.
2. Anytime a survey vessel is underway (transiting or surveying), the vessel must maintain a 500 m minimum separation distance and a PSO must monitor a Vessel Strike Avoidance Zone (500 m or greater from any sighted ESA-listed species or other unidentified large marine mammal visible at the surface) to ensure detection of that animal in time to take necessary measures to avoid striking the animal. If the survey vessel does not require a PSO for the type of survey equipment used, a trained crew lookout may be used (see #3). For monitoring around the autonomous surface vessels, regardless of the equipment it may be operating, a dual thermal/HD camera must be installed on the mother vessel facing forward and angled in a direction so as to provide a field of view ahead of the vessel and around the ASV. A dedicated operator must be able to monitor the real-time output of the camera on hand-held computer tablets. Images from the cameras must be able to be captured and reviewed to assist in verifying species identification. A monitor must also be

installed in the bridge displaying the real-time images from the thermal/HD camera installed on the front of the ASV itself, providing a further forward view of the craft.

a. Survey plans must include identification of vessel strike avoidance measures, including procedures for equipment shut down and retrieval, communication between PSOs/crew lookouts, equipment operators, and the captain, and other measures necessary to avoid vessel strike while maintaining vessel and crew safety. If any circumstances are anticipated that may preclude the implementation of this PDC, they must be clearly identified in the survey plan and alternative procedures outlined in the plan to ensure minimum distances are maintained and vessel strikes can be avoided.
b. All vessel crew members must be briefed in the identification of protected species that may occur in the survey area and in regulations and best practices for avoiding vessel collisions. Reference materials must be available aboard all project vessels for identification of listed species. The expectation and process for reporting of protected species sighted during surveys must 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.
c. The Vessel Strike Avoidance Zone(s) are a minimum and must be maintained around all surface vessels at all times.
d. If a large whale is identified within 500 m of the forward path of any vessel, the vessel operator must steer a course away from the whale at 10 knots (18.5 km/hr) or less until the 500 m minimum separation distance has been established. Vessels may also shift to idle if feasible.
e. If a large whale is sighted within 200 m of the forward path of a vessel, the vessel operator must reduce speed and shift the engine to neutral. Engines must not be engaged until the whale has moved outside of the vessel's path and beyond 500 m. If stationary, the vessel must not engage engines until the large whale has moved beyond 500 m.
f. If a sea turtle or manta ray is sighted within the operating vessel's forward path, the vessel operator must slow down to 4 knots (unless unsafe to do so) and steer away as possible. The vessel may resume normal operations once the vessel has passed the individual.
g. During times of year when sea turtles are known to occur in the survey area, vessels must avoid transiting through areas of visible jellyfish aggregations or floating vegetation (e.g., sargassum lines or mats). In the event that operational safety prevents avoidance of such areas, vessels must slow to 4 knots while transiting through such areas.
h. Vessels operating in water depths with less than 4 ft. clearance between the vessel and the bottom should maintain speeds no greater than 4 knots to minimize vessel strike risk to sturgeon and sawfish.

3. To monitor the Vessel Strike Avoidance Zone, a PSO (or crew lookout if PSOs are not required) must be posted during all times a vessel is underway (transiting or surveying) to monitor for listed species in all directions.

   a. Visual observers monitoring the vessel strike avoidance zone can be either PSOs or crew members (if PSOs are not required). If the trained lookout is a vessel crew member, this must be their designated role and primary responsibility while the vessel is transiting. Any designated crew lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements. All observations must be recorded per reporting requirements.
   b. Regardless of monitoring duties, all crew members responsible for navigation duties must receive site-specific training on ESA-listed species sighting/reporting and vessel strike avoidance measures.
4. Regardless of vessel size, vessel operators must reduce vessel speed to 10 knots (18.5 mph) or less while operating in any Seasonal Management Area (SMA), Dynamic Management Area (DMA)/Slow Zones triggered by visual detection of North Atlantic right whales. The only exception to this requirement is for vessels operating in areas within a DMA/visually triggered Slow Zone where it is not reasonable to expect the presence of North Atlantic right whales (e.g. Long Island Sound, shallow harbors). Reducing vessel speed to 10 knots or less while operating in Slow Zones triggered by acoustic detections of North Atlantic right whales is encouraged.
5. Vessels underway must not divert their course to approach any listed species.
6. All vessel operators must check for information regarding mandatory or voluntary ship strike avoidance (SMAs, DMAs, Slow Zones) and daily information regarding North Atlantic right whale sighting locations. These media may include, but are not limited to: NOAA weather radio, U.S. Coast Guard NAVTEX and channel 16 broadcasts, Notices to Mariners, the Whale Alert app, or WhaleMap website.
   a. North Atlantic right whale Sighting Advisory System info can be accessed at: https://apps-nefsc.fisheries.noaa.gov/psb/surveys/MapperiframeWithText.html
   b. Information about active SMAs, DMAs, and Slow Zones can be accessed at: https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales

PDC 6: Minimize Risk During Buoy Deployment, Operations, and Retrieval
Any mooring systems used during survey activities prevent any potential entanglement or entrainment of listed species, and in the unlikely event that entanglement does occur, ensure proper reporting of entanglement events according to the measures specified below.

BMPs:
1. Ensure that any buoys attached to the seafloor use the best available mooring systems. Buoys, lines (chains, cables, or coated rope systems), swivels, shackles, and anchor designs must prevent any potential entanglement of listed species while ensuring the safety and integrity of the structure or device.
2. All mooring lines and ancillary attachment lines must use one or more of the following measures to reduce entanglement risk: shortest practicable line length, rubber sleeves, weak-links, chains, cables or similar equipment types that prevent lines from looping, wrapping, or entrapping protected species.
3. Any equipment must be attached by a line within a rubber sleeve for rigidity. The length of the line must be as short as necessary to meet its intended purpose.

4. During all buoy deployment and retrieval operations, buoys should be lowered and raised slowly to minimize risk to listed species and benthic habitat. Additionally, PSOs or trained project personnel (if PSOs are not required) should monitor for listed species in the area prior to and during deployment and retrieval and work should be stopped if listed species are observed within 500 m of the vessel to minimize entanglement risk.
5. If a live or dead marine protected species becomes entangled, you must immediately contact the applicable NMFS stranding coordinator using the reporting contact details (see Reporting Requirements section) and provide any on-water assistance requested.
6. All buoys must be properly labeled with owner and contact information.

PDC 7: Protected Species Observers
Qualified third-party PSOs to observe Clearance and Shutdown Zones must be used as outlined in the conditions above.

BMPs:
1. All PSOs must have completed an approved PSO training program and must receive NMFS approval to act as a PSO for geophysical surveys. Documentation of NMFS approval for geophysical survey activities in the Atlantic and copies of the most recent training certificates of individual PSOs' successful completion of a commercial PSO training course with an overall examination score of 80% or greater must be provided upon request. Instructions and application requirements to become a NMFS-approved PSO can be found at: *www.fisheries.noaa.gov/national/endangered-species-conservation/protected-species-observers*.
2. In situations where third-party party PSOs are not required, crew members serving as lookouts must receive training on protected species identification, vessel strike minimization procedures, how and when to communicate with the vessel captain, and reporting requirements.
3. PSOs deployed for geophysical survey activities must be employed by a third-party observer provider. While the vessel is underway, they must have no other tasks than to conduct observational effort, record data, and communicate with and instruct relevant vessel crew to the presence of listed species and associated mitigation requirements. PSOs on duty must be clearly listed on daily data logs for each shift.
    a. Non-third-party observers may be approved by NMFS on a case-by-case basis for limited, specific duties in support of approved, third-party PSOs.
4. A minimum of one PSO (assuming condition 5 is met) must be on duty observing for listed species at all times that noise-producing equipment <180 kHz is operating, or the survey vessel is actively transiting during daylight hours (i.e. from 30 minutes prior to sunrise and through 30 minutes following sunset). Two PSOs must be on duty during nighttime operations. A PSO schedule showing that the number of PSOs used is sufficient to effectively monitor the affected area for the project (e.g., surveys) and record the required data must be included. PSOs must not be on watch for more than 4 consecutive hours, with at least a 2-hour break after a 4-hour watch. PSOs must not be on active duty observing for more than 12 hours in any 24-hour period.
5. Visual monitoring must occur from the most appropriate vantage point on the associated operational platform that allows for 360-degree visual coverage around the vessel. If

360-degree visual coverage is not possible from a single vantage point, multiple PSOs must be on watch to ensure such coverage.

6. Suitable equipment must be available to each PSO to adequately observe the full extent of the Clearance and Shutdown Zones during all vessel operations and meet all reporting requirements.
    a. Visual observations must be conducted using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.
    b. Rangefinders (at least one per PSO, plus backups) or reticle binoculars (e.g., 7 x 50) of appropriate quality (at least one per PSO, plus backups) to estimate distances to listed species located in proximity to the vessel and Clearance and Shutdown Zone(s).
    c. Digital full frame cameras with a telephoto lens that is at least 300 mm or equivalent. The camera or lens should also have an image stabilization system. Used to record sightings and verify species identification whenever possible.
    d. A laptop or tablet to collect and record data electronically.
    e. Global Positioning Units (GPS) if data collection/reporting software does not have built-in positioning functionality.
    f. PSO data must be collected in accordance with standard data reporting, software tools, and electronic data submission standards approved by BOEM and NMFS for the particular activity.
    g. Any other tools deemed necessary to adequately perform PSO tasks.

PDCs 8: Reporting Requirements

To ensure compliance and evaluate effectiveness of mitigation measures, regular reporting of survey activities and information on listed species will be required as follows.

BMPs:

1. Data from all PSO observations must be recorded based on standard PSO collection and reporting requirements. PSOs must use standardized electronic data forms to record data. The following information must be reported electronically in a format approved by BOEM and NMFS:

    Visual Effort:
    a. Vessel name;
    b. Dates of departures and returns to port with port name;
    c. Lease number;
    d. PSO names and affiliations;
    e. PSO ID (if applicable);
    f. PSO location on vessel;
    g. Height of observation deck above water surface (in meters);
    h. Visual monitoring equipment used;
    i. Dates and times (Greenwich Mean Time) of survey on/off effort and times corresponding with PSO on/off effort;
    j. Vessel location (latitude/longitude, decimal degrees) when survey effort begins and ends; vessel location at beginning and end of visual PSO duty shifts; recorded at 30 second intervals if obtainable from data collection software, otherwise at practical regular interval;

k. Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any change;
l. Water depth (if obtainable from data collection software) (in meters);
m. Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including wind speed and direction, Beaufort scale, Beaufort wind force, swell height (in meters), swell angle, precipitation, cloud cover, sun glare, and overall visibility to the horizon;
n. Factors that may be contributing to impaired observations during each PSO shift change or as needed as environmental conditions change (e.g., vessel traffic, equipment malfunctions);
o. Survey activity information, such as type of survey equipment in operation, acoustic source power output while in operation, and any other notes of significance (i.e., pre-clearance survey, ramp-up, shutdown, end of operations, etc.);

Visual Sighting (all Visual Effort fields plus):

a. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
b. Vessel/survey activity at time of sighting;
c. PSO/PSO ID who sighted the animal;
d. Time of sighting;
e. Initial detection method;
f. Sightings cue;
g. Vessel location at time of sighting (decimal degrees);
h. Direction of vessel's travel (compass direction);
i. Direction of animal's travel relative to the vessel;
j. Identification of the animal (e.g., genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species;
k. Species reliability;
l. Radial distance;
m. Distance method;
n. Group size; Estimated number of animals (high/low/best);
o. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
p. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
q. Detailed behavior observations (e.g., number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
r. Mitigation Action; Description of any actions implemented in response to the sighting (e.g., delays, shutdown, ramp-up, speed or course alteration, etc.) and time and location of the action.
s. Behavioral observation to mitigation;
t. Equipment operating during sighting;
u. Source depth (in meters);

v. Source frequency;
w. Animal's closest point of approach and/or closest distance from the center point of the acoustic source;
x. Time entered shutdown zone;
y. Time exited shutdown zone;
z. Time in shutdown zone;
aa. Photos/Video

2. The project proponent must submit a final monitoring report to BOEM and NMFS (to *renewable_reporting@boem.gov* and *nmfs.gar.incidental-take@noaa.gov*) within 90 days after completion of survey activities. The report must fully document the methods and monitoring protocols, summarizes the survey activities and the data recorded during monitoring, estimates of the number of listed species that may have been taken during survey activities, describes, assesses and compares the effectiveness of monitoring and mitigation measures. PSO sightings and effort data and trackline data in Excel spreadsheet format must also be provided with the final monitoring report.
3. Reporting sightings of North Atlantic right whales:
    a. If a North Atlantic right whale is observed at any time by a PSO or project personnel during surveys or vessel transit, sightings must be reported within two hours of occurrence when practicable and no later than 24 hours after occurrence. In the event of a sighting of a right whale that is dead, injured, or entangled, efforts must be made to make such reports as quickly as possible to the appropriate regional NOAA stranding hotline (from Maine-Virginia report sightings to 866-755-6622, and from North Carolina-Florida to 877-942-5343). Right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16 and through the WhaleAlert App (http://www.whalealert.org/).
    b. Further information on reporting a right whale sighting can be found at: *https://apps-nefsc.fisheries.noaa.gov/psb/surveys/documents/20120919_Report_a_Right_Whale.pdf*
4. In the event of a vessel strike of a protected species by any survey vessel, the project proponent must immediately report the incident to BOEM (*renewable_reporting@boem.gov*) and NMFS (*nmfs.gar.incidental-take@noaa.gov*) and for marine mammals to the NOAA stranding hotline: from Maine-Virginia, report to 866-755-6622, and from North Carolina-Florida to 877-942-5343 and for sea turtles from Maine-Virginia, report to 866-755-6622, and from North Caroline-Florida to 844-732-8785. The report must include the following information:
    a. Name, telephone, and email or the person providing the report;
    b. The vessel name;
    c. The Lease Number;
    d. Time, date, and location (latitude/longitude) of the incident;
    e. Species identification (if known) or description of the animal(s) involved;
    f. Vessel's speed during and leading up to the incident;
    g. Vessel's course/heading and what operations were being conducted (if applicable);
    h. Status of all sound sources in use;

i. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
j. Environmental conditions (wave height, wind speed, light, cloud cover, weather, water depth);
k. Estimated size and length of animal that was struck;
l. Description of the behavior of the species immediately preceding and following the strike;
m. If available, description of the presence and behavior of any other protected species immediately preceding the strike;
n. Disposition of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, last sighted direction of travel, status unknown, disappeared); and
o. To the extent practicable, photographs or video footage of the animal(s).

5. Sightings of any injured or dead listed species must be immediately reported, regardless of whether the injury or death is related to survey operations, to BOEM (*renewable_reporting@boem.gov*), NMFS (*nmfs.gar.incidental-take@noaa.gov*), and the appropriate regional NOAA stranding hotline (from Maine-Virginia report sightings to 866-755-6622, and from North Carolina-Florida to 877-942-5343 for marine mammals and 844-732-8785 for sea turtles). If the project proponent's activity is responsible for the injury or death, they must ensure that the vessel assist in any salvage effort as requested by NMFS. When reporting sightings of injured or dead listed species, the following information must be included:
    a. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
    b. Species identification (if known) or description of the animal(s) involved;
    c. Condition of the animal(s) (including carcass condition if the animal is dead);
    d. Observed behaviors of the animal(s), if alive;
    e. If available, photographs or video footage of the animal(s); and
    f. General circumstances under which the animal was discovered.
6. Reporting and Contact Information:
    a. Dead and/or Injured Protected Species:
        1. NMFS Greater Atlantic Region's Stranding Hotline: 866-755-6622
        2. NMFS Southeast Region's Stranding Hotline: 877-942-5343 (marine mammals), 844-732-8785 (sea turtles)
    ii. Injurious Takes of Endangered and Threatened Species:
        1. NMFS Greater Atlantic Regional Office, Protected Resources Division (*nmfs.gar.incidental-take@noaa.gov*)
        2. BOEM Environment Branch for Renewable Energy, Phone: 703-787-1340, Email: *renewable_reporting@boem.gov*