# Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New York

Biological Assessment

July 2016

For the U.S. Fish and Wildlife Service

U.S. Department of the Interior
Bureau of Ocean Energy Management (BOEM)
Office of Renewable Energy Programs

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# List of Acronyms and Abbreviations

| | |
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| Area ID | Area Identification |
| BA | biological assessment |
| BOEM | Bureau of Ocean Energy Management |
| CFR | Code of Federal Regulations |
| COP | construction operations plan |
| EA | environmental assessment |
| ESA | Endangered Species Act |
| FWS | United States Fish and Wildlife Service |
| ha | hectares |
| IPaC | Information for Planning and Conservation |
| km | kilometers |
| LIPA | Long Island Power Authority |
| NEPA | National Environmental Policy Act |
| nmi | nautical miles |
| NOI | Notice of Intent |
| NY | New York |
| NYPA | New York Power Authority |
| OCS | Outer Continental Shelf |
| RFI | request for information |
| SAP | site assessment plan |
| SOCs | standard operating conditions |
| US | United States |
| USCG | United States Coast Guard |
| WEA | Wind Energy Area |

# 1. Introduction

Pursuant to Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, the Bureau of Ocean Energy Management (BOEM) requests informal consultation with the United States Fish and Wildlife Service (FWS) regarding the species and critical habitat that may be affected by issuance of a lease and approval of a site assessment plan (SAP) within the wind energy area (WEA) off the coast of New York (NY) on the Outer Continental Shelf (OCS) (Figure 1). On May 28, 2016, BOEM published an environmental assessment (EA) for commercial wind leasing and site assessment activities offshore NY (BOEM, 2016). The activities considered in this biological assessment (BA) include:

1. issuing a lease;

2. associated site characterization activities that a lessee may undertake on the lease (e.g., geophysical, geotechnical, archaeological, and biological surveys); and

3. subsequent approval of a SAP on the leasehold (e.g., installation, operation, and decommissioning of a single meteorological tower and/or up to two meteorological buoys).

The purpose of BOEM's issuance of a lease is to ensure that survey activities carried out in support of a SAP and construction and operations plan (COP) are conducted in a safe and environmentally responsible manner. BOEM's approval of a SAP is needed to adequately assess wind and environmental resources of the WEA to determine if some or all areas within the WEA are suitable for, and could support, commercial-scale wind energy production. A meteorological tower and/or meteorological buoys are used to assess the offshore wind resource, and also to collect additional oceanographic and meteorological data necessary to plan for any future commercial development of the lease area.

At this time, BOEM is not considering construction and operation of a wind energy facility on a lease that may be issued in the WEA. If, after a lease is issued, a lessee proposes to construct a commercial wind energy facility, the lessee would be required to submit a COP to BOEM for review and approval. BOEM would then conduct a project-specific National Environmental Policy Act (NEPA) review and would initiate project-specific ESA consultation with FWS, which would include the lessee's proposed transmission line(s) to shore. During the NEPA review of a COP, BOEM will also analyze a "no-action" alternative. BOEM will use the project-specific NEPA review to decide whether to approve, approve with modifications, or disapprove a lessee's COP pursuant to 30 Code of Federal Regulations (CFR) 585.638.

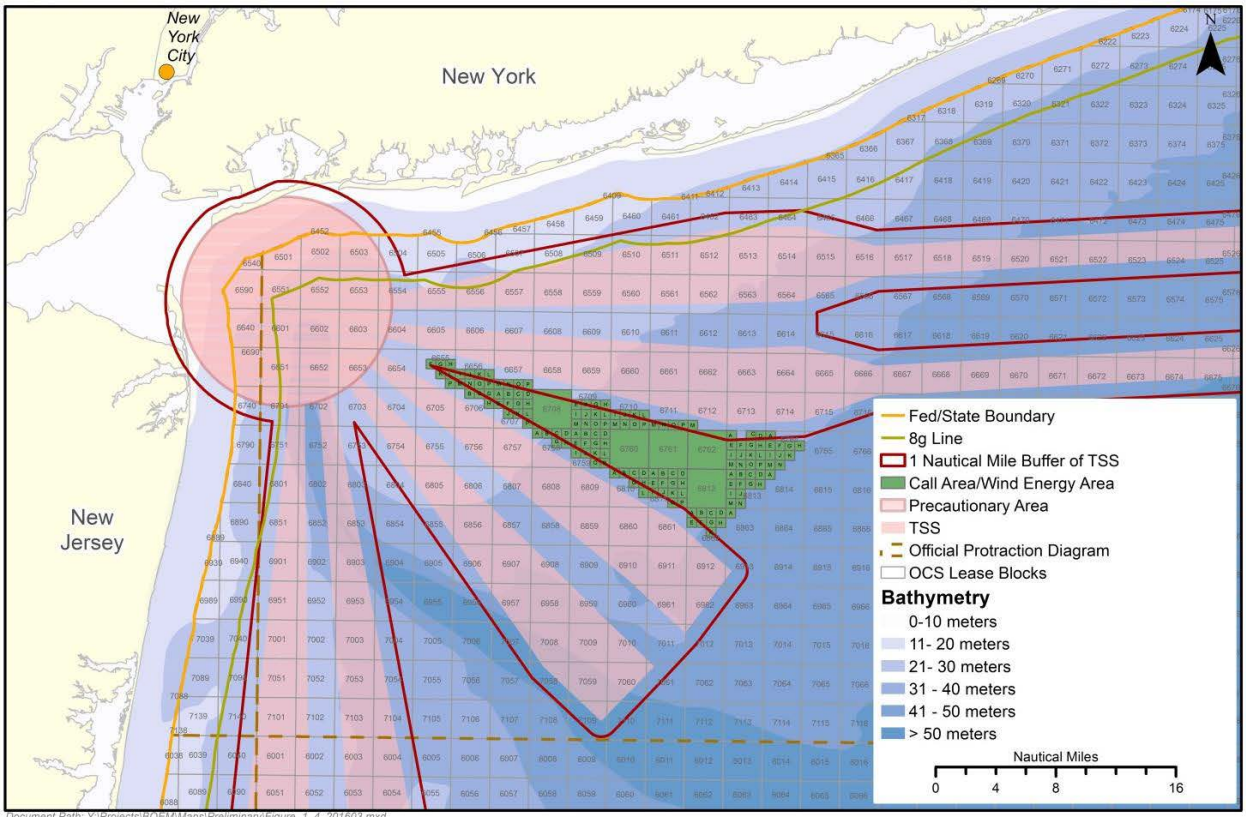


**Figure 1. New York Call Area/Wind Energy Area.**

## Background

BOEM identified the WEA through extensive collaboration and consultation with stakeholders including the New York Task Force, federal agencies, federally recognized tribes, the New York Department of State and other state agencies, the general public, and other relevant stakeholders beginning in November 2010 (see http://www.boem.gov/New-York/ for details).

In September 2011, BOEM received an unsolicited request for a commercial lease offshore New York from the New York Power Authority (NYPA). In response to the unsolicited NYPA proposal, as amended, BOEM published a request for information (RFI) in the Federal Register on January 4, 2013 (Docket ID: BOEM-2012-0083; 78 FR 760-764) to assess whether other parties were interested in developing commercial wind facilities in the same area proposed by NYPA. In addition to inquiring about competitive interest, BOEM also sought public comment on the NYPA proposal, its potential environmental consequences, and the use of the area in which the proposed project would be located. On March 28, 2013, FWS provided preliminary comments on the Federal Register notice that were considered in the preparation of the EA and in this BA.

BOEM reviewed the responses to the RFI and determined that there was competitive interest in the area proposed by NYPA. Therefore, BOEM stopped processing NYPA's unsolicited lease application and initiated the competitive leasing process pursuant to 30 CFR 585.211.

Subsequently, on May 28, 2014, BOEM published in the Federal Register (Docket ID: BOEM-2013-0087; 79 FR 30645-30651) a Call for Information and Nominations (Call) offshore New York to seek additional

nominations from companies interested in obtaining commercial wind energy leases within the Call Area (Figure 1). BOEM also sought public input on the potential for wind development in the Call Area, including comments on site conditions, resources, and existing uses of the area relevant to BOEM's wind energy development authorization process. Concurrently, BOEM published in the Federal Register (Docket ID: BOEM-2014-0003; 79 FR 30643-30645) the Notice of Intent (NOI) to prepare an EA for commercial wind leasing and site assessment activities offshore NY. Comments that BOEM received from stakeholders in response to the RFI, Call, NOI, Task Force meetings, and workshops, along with BOEM studies, assisted in the identification of space use conflicts and environmental issues within the Call area.

On March 16, 2016, BOEM released the Announcement of Area Identification (Area ID). The WEA is identical to the Call area (Figure 1). The WEA begins about 11 nautical miles (nmi) (20 kilometers (km)) south of Long Beach, NY, and extends approximately 26 nmi (48 km) southeast along its longest portion. The WEA contains 5 whole OCS blocks and 148 sub-blocks (32,832 hectares (ha)).

On June 6, 2016, BOEM published an EA titled *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore New York* (BOEM, 2016) with a 30-day public comment period (see http://www.boem.gov/81-FR-36344/) that was extended an additional seven days. The EA considers potential impacts associated with issuing a lease, associated surveys, and approving the installation of wind resource assessment facilities (i.e., a meteorological tower and/or two buoys) in the WEA (see http://www.boem.gov/NY-Public-EA-June-2016/). Additional background information can be found at: http://www.boem.gov/New-York/. The EA provides a comprehensive description of potential tower designs (see Section 3.2.2.1) and buoy types (see Section 3.2.2.2) that could be deployed. On July 20, 2016, FWS provided comments on the EA that were considered in the preparation in this BA and revisions to the EA.

In its July 20, 2016 letter, FWS also provided comments on avian survey requirements. Given that the Lessee must provide the results of avian surveys with its plans for wind energy facilities (see 30 CFR Part 585 Subpart F), BOEM provides lessees with guidance for conducting such surveys (see http://www.boem.gov/Survey-Guidelines/). BOEM will continue to work with FWS in all revisions and updates to avian survey guidelines.

## Consultation History

This BA is based upon BOEM's experience with similar actions on the Atlantic OCS.

On March 24, 2011, BOEM requested informal ESA Section 7 consultation with FWS for lease issuance and site assessment activities off New Jersey, Delaware, Maryland, and Virginia. On June 20, 2011, FWS concurred with BOEM's determinations that the risk to the roseate tern, piping plover, Bermuda petrel (cahow), and red knot regarding lease issuance, associated site characterization (survey work), and site assessment activities (construction, operation, and decommission of buoys and meteorological towers) was "small and insignificant" and, therefore, not likely to adversely affect the three ESA listed species and one candidate species.

On October 19, 2012, BOEM requested informal ESA Section 7 consultation with FWS for lease issuance and site assessment activities off Rhode Island and Massachusetts. On November 1, 2012, FWS concurred with BOEM's determination that the proposed action is not likely to adversely affect the endangered roseate terns, threatened piping plovers, and the candidate red knots. To evaluate future

collision risk assessment, FWS recommended the placement of visibility sensors on the meteorological towers to collect data on the occurrence, frequency, and duration of poor visibility conditions.

On February 12, 2014, BOEM requested informal ESA Section 7 consultation with FWS for lease issuance and site assessment activities offshore North Carolina, South Carolina, and Georgia. On March 17, 2014, FWS concurred with BOEM's determination that commercial wind lease issuance and site assessment activities will not likely adversely affect the Bermuda petrel, black-capped petrel, Kirkland's warbler, roseate tem, piping plover, and red knot.

On April 21, 2016, in preparation of the EA and this BA, BOEM used FWS's Information for Planning and Consultation (IPaC) system to determine if any ESA-listed, proposed, or candidate species may be present in the WEA (see https://ecos.fws.gov/ipac/project/YKD7HMJG65GCFECAAWHHWU5YEA). While the report states that, "There are no endangered species in this location," and that, "There are no critical habitats in this location," the EA considered the possibility that ESA species may pass over the WEA during migration. On July 8, 2016, the IPaC report identified the roseate tern as potentially being in the WEA. The most recent IPaC report is included as Appendix A in this BA. On July 11, 2016, the Long Island Field Office recommended including the Northern long-eared bat to the BA (Steve Papa, personal communication).

# 2. Threatened and Endangered Species

The Atlantic coast is a major flyway for birds, including terrestrial species, shorebirds, waterbirds, and marine birds. Four federally listed birds may be found within the WEA: piping plover (*Charadrius melodus*); red knot (*Calidris canutus rufa*); roseate tern (*Sterna dougallii dougallii*); and Bermuda petrel (*Pterodroma cahow*). The Northern long-eared bat (*Myotis septentrionalis*) is also included in this BA. The EA also provides a comprehensive description and an impact analysis (see Section 4.4.2.1) for each threatened and endangered avian species that may occur within the WEA.

## Piping Plover

The piping plover is a small, migratory shorebird that breeds in sandy dune-beach-riparian habitat along the Atlantic Coast, the Great Lakes, and the Great Plains regions of the United States (US), and winters in coastal habitats of the southeastern US, coastal Gulf of Mexico, and the Caribbean (Elliot-Smith & Haig, 2004; FWS 2009). The Great Lakes breeding population is listed as endangered, while the Atlantic Coast and Great Plains breeding populations are listed as threatened (FWS, 2009). Critical wintering habitat has been established for the species along the coasts of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas (66 FR 36038). Only the Atlantic Coast population is likely to occur within the project area.

Coastal development is the most likely cause of population declines and the primary anthropogenic threat to piping plovers. Other threats include disturbance by humans, dogs, and vehicles on sandy beaches and dune habitats (Elliott-Smith & Haig, 2004; FWS, 2009). Despite these population pressures, there is little risk of near-term extinction of the Atlantic Coast population of piping plovers (Plissner & Haig, 2000). Since the listing of this species in 1986, the Atlantic Coast piping plover population has increased 225 percent, from approximately 790 breeding pairs to a preliminary estimate of 1,779 pairs in 2014 (FWS, 2015). Although increased abundance has reduced near-term vulnerability to extinction, piping plovers remain sparsely distributed across their Atlantic Coast breeding range, and populations

are highly vulnerable to even small declines in survival rates of adults and fledged juveniles (FWS, 2009). As of 2014, 286 pairs were nesting on the NY coast (FWS, 2015) up from 106 in 1986 (FWS, 2015).

The piping plover breeding season extends from April through August. Piping plovers arrive at breeding locations in mid-March and into April. Post-breeding staging in preparation for migration extends from late July through September. The breeding season, and spring and fall migration overlap; therefore, at either end of the breeding season, there may be plover movement through the WEA as it migrates along the coast. The Atlantic coast population of piping plovers winters along the southern Atlantic Coast from North Carolina to Florida, and in the Bahamas and West Indies (Elliott-Smith & Haig, 2004). The migratory pathways along the coast and to the Bahamas are not well known (FWS 2009; Normandeau et al., 2011). Due to the difficulty in detecting piping plovers in the offshore environment during migration because of nocturnal or high-elevation migratory flights (Normandeau et al., 2011), there are no definitive observations of this species in offshore environments greater than three miles from the Atlantic Coast (Normandeau et al., 2011). Although there are sightings of piping plover along the shores of Long Island, NY (eBird, 2016), no piping plovers were detected in the WEA during previous offshore survey efforts (O'Connell et al., 2009).

## Red Knot

The red knot is a shorebird that breeds in the central Canadian arctic and winters as far south as Tierra del Fuego in South America. The red knot has declined dramatically over the past 20 years from a population estimated at 100,000 to 150,000, down to 18,000 to 33,000 (Niles et al., 2008). The primary threat to the red knot population is the reduced availability of horseshoe crabs eggs (*Limulus polyphemus*) in Delaware Bay arising from elevated harvest of adult crabs (Niles et al., 2008). Despite restrictions to the crab harvest, the 2007 horseshoe crab harvest was still greater than the 1990 harvest, and no recovery of knots was detectable (Niles et al., 2009). On December 2014, the red knot was listed as threatened. No critical habitat has been designated for red knot.

Each May, red knots congregate in Delaware Bay during their northward migration to feed on horseshoe crab eggs and refuel for breeding in the Arctic. Red knots are known to fly very high during migration (78 FR 60024). Although the precise migration route has not been firmly established, recent studies using birds tracked with light-sensitive geo-locators, as well as analysis of large geospatial datasets of coastal observations, have revealed some migratory patterns of red knots in the US Atlantic OCS (Niles et al., 2010; Normandeau Associates, 2011; Burger et al., 2012a, 2012b). Some individuals traverse the northern sections of the US Atlantic OCS as they travel directly between northeastern US migratory stopover sites, and wintering areas or stopover sites in South America and the Caribbean, while others follow the US Atlantic coast or traverse the US Atlantic OCS further to the south as they move between US Atlantic coastal stopover sites and wintering areas (Niles et al., 2010; Normandeau Associates, 2011; Burger et al., 2012a). Although there are sightings of red knots along the shores of Long Island, NY (eBird, 2016), no red knots were detected in the WEA during previous offshore efforts (O'Connell et al., 2009).

## Roseate Tern

The roseate tern is a small tern that breeds in colonies. Birds from the Atlantic and Caribbean populations winter along the northeastern coast of South America (FWS, 2010). Roseate terns in the northwestern Atlantic population are listed under the ESA as endangered, while terns in the Caribbean population are listed as threatened (FWS, 2010). No critical habitat has been designated for this species (52 FR 42064). FWS published a five-year status review of the roseate tern that provides detailed

information about the species (FWS, 2010). The migration routes of roseate terns are poorly known, but are believed to be largely or exclusively pelagic in both spring and fall (Nisbet, 1984; Gochfeld et al., 1998; FWS, 2010).

Most roseate terns (1,524 pairs in 2009) nest on Great Gull Island located in the eastern most part of Long Island Sound, approximately 60 nmi (111 km) from the WEA (see Figure 1 and Table 2b in FWS, 2010). During the breeding season, terns from Great Gull Island travel long distance to foraging sites at Napatree Point, RI (25 km away); Montauk Point, NY (25 km away); Block Island, RI (50 km away) and Trustom Pond NWR, RI (50 km away) (Loring, 2016). Although there are sightings of roseate terns along the shores of Long Island, NY (eBird, 2016), no roseate terns were detected in the WEA during previous offshore survey efforts (O'Connell et al., 2009). In addition, very little roseate tern activity is expected to occur within marine waters in and around the WEA (see Figure 2). This prediction is based on a statistical model that used 328 roseate tern sightings throughout the Atlantic during the spring, summer, and fall months to predict roseate tern presence. The modeled results are based on the relationship between roseate terns and surface chlorophyll a, distance from shore, turbidity, and other factors (see Appendix H in Kinlan et al., 2016). As shown in blue on Figure 2, the model predicts that roseate terns are virtually absent from the marine portion of the project area. However, given that roseate terns migrate mainly offshore during spring and fall (Nisbet et al., 2014), it is possible some birds may pass through the WEA during migration.

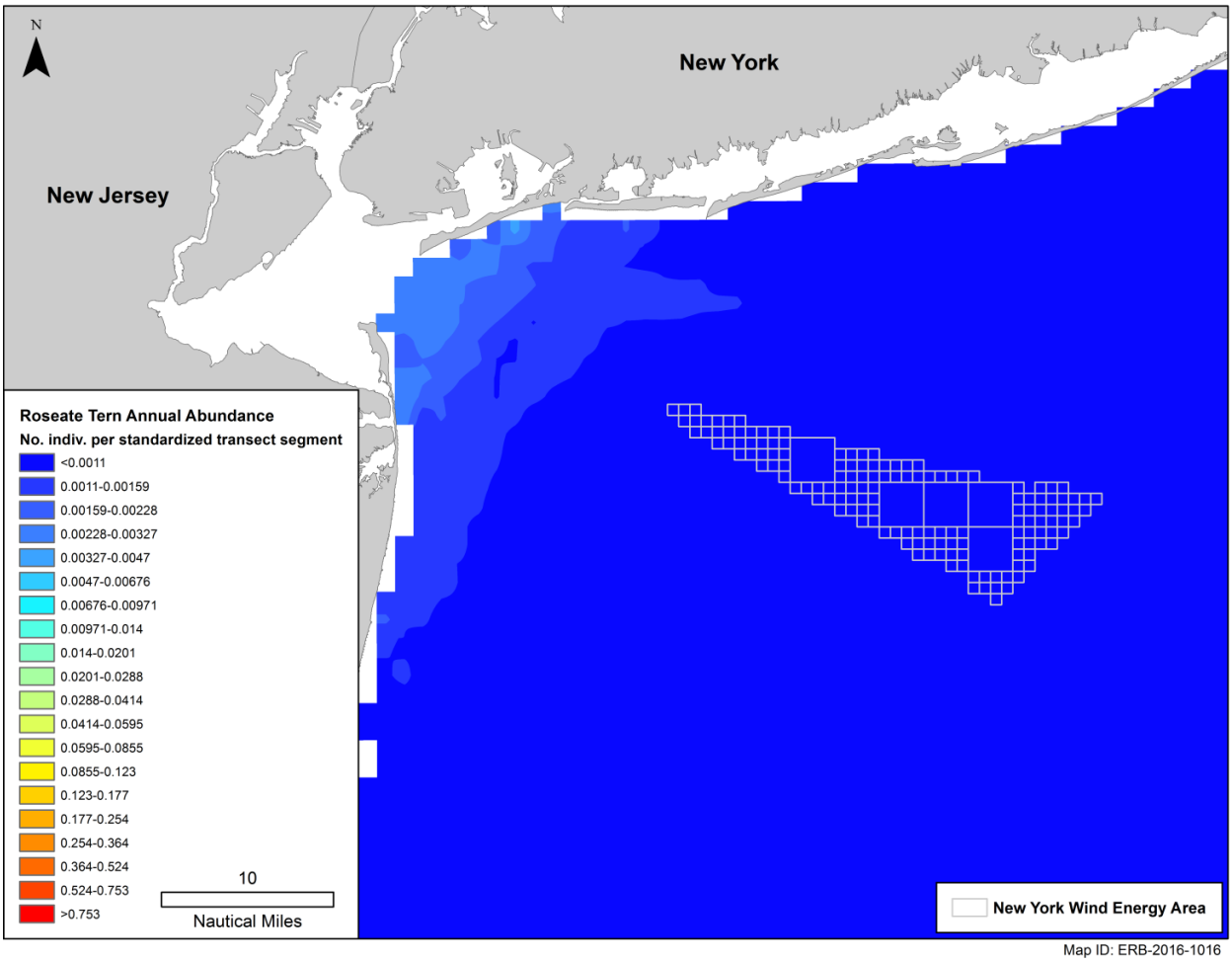


**Figure 2.** Modeled Roseate Tern Distribution off NY during Spring, Summer, and Fall (from Kinlan et al., 2016).

## Bermuda Petrel

The Bermuda petrel, or cahow, is pelagic bird that is endemic to Bermuda, and is federally listed as endangered (35 FR 6069). From October to June, the cahow nests in burrows among the uninhabited islets of Bermuda. The cahow was believed to be extinct in the 1620s; however, 18 breeding pairs were found on rocky islets in Castle Harbour in 1951, and an extensive conservation program has since developed, resulting in a record 105 breeding pairs in 2013 (Madeiros, 2013). Cahows are extremely aerial birds and rarely land on the sea, feeding by snatching food or "dipping" near the sea surface. They are known to feed at night, primarily on squid, but also on fish and invertebrates to a lesser degree. They are also known to scavenge dead or dying prey floating on or near the sea surface (Warham, 1990). Threats to the cahow include the flooding of nesting areas by storms, destruction of nesting areas due to collapsing cliffs and erosion, and rats (Dobson & Madeiros, 2008).

Outside of the breeding season, the cahow is probably widespread in the North Atlantic, following the warm waters on the western edges of the Gulf Stream, feeding on squid near the surface at night. Although it is possible for the Bermuda petrel to be less than 100 mi (161 km) offshore of NY, it is unlikely to use the WEA because the core of its range is farther east (see Figures 16 & 17 in Madeiros et al., 2014).

## Northern long-eared bat

The Northern long-eared bat is a cave dwelling bat that used to be common and is now rare in the eastern part of the US. Over the past ten years, the species has been decimated by white noise syndrome. On April 2, 2015, the northern long-eared bat was listed as threatened. On Long Island, the range of Northern log-eared bat includes Queens, Nassau, and Suffolk counties (FWS, 2016). Unlike tree bats that migrate long distances to warmer climates in the winter, Northern long-eared bats do not migrate long distances, especially over open water. Instead, colonies of Northern long-eared bats hibernate in caves for the winter and individuals roost in trees during the summer so that they can forage primarily in wooded habitat within a km of their roost (80 FR 17974). Although migrating tree bats have been detected on OCS, there are no records of Northern long-eared bats on the OCS (Pelletier et al., 2013; Peterson and Pelletier, 2016). Therefore, given the rarity of the bat in the region, its ecology and habitat requirements, it is extremely unlikely that any Northern long-eared bats would venture so far from land and on to the OCS and into the WEA.

# 3. Effects of Proposed Action

The proposed action could affect the following ESA-listed species under the jurisdiction of the FWS: piping plover, red knot, roseate tern, and Bermuda petrel. Seafloor disturbance is not an impact producing factor for these birds, because they do not use offshore benthic habitats, and is not considered in this BA. In addition, onshore activities are not considered further, as no expansion of ports is expected in support of the proposed action (BOEM, 2016). Given the relatively small size of meteorological buoys and their low profile, the activities associated with the installation, operation, and decommissioning of meteorological buoys and their impacts to avian resources were analyzed in the EA (see Section 4.4.2.1 Birds) and were found to be negligible; therefore, not considered further in this BA. The potential impacts to federally listed bird species from proposed actions are described below.

## Direct Effects

Direct effects include pile driving and construction, collision with a tower, lighting, micro turbines, decommissioning, and discharge of waste and accidental fuel leaks.

### *Pile Driving and Construction*

The construction of a meteorological tower would result in increased airborne noise, primarily from pile driving activities. As with any sound in the atmospheric environment, the type and intensity of the sound, and the distance it travels are greatly dependent on multiple factors and can vary greatly. These factors include atmospheric conditions, the type and size of the pile, the type of substrate, the depth of the water, and the type and size of the impact hammer. It is possible that the piping plover, red knot, and roseate tern may be exposed to pile driving noise during migration. The Bermuda petrel and roseate tern could potentially be found foraging or migrating through offshore areas and could be exposed to pile driving noise. The reaction of these species (if present in the area) during pile driving activities could range from mild annoyance to escape behavior. However, the potential noise impacts would be short-term, lasting only for the duration of the pile driving activity (four to eight hours per day over three days for a tower). In addition, these species are highly mobile and would be able to avoid the construction area; the noise from pile driving is not anticipated to impact the migratory movement or migratory behavior of these species through the area. Therefore, pile driving-related construction noise may affect these bird species, but the effect would be negligible.

## *Collision Effects*

This section discusses the potential for impacts to protected species resulting from collisions with vessels and structures associated with the proposed action. BOEM anticipates that birds will avoid fixed structures, such as towers, reducing the risk of collisions with these structures. Collisions with vessels and/or structures associated with the proposed action could result in injury to the animal and/or damage to the vessel or structure. A bird that collides into a meteorological tower may be injured or killed. However, given the vast foraging range of Bermuda petrels (Madeiros et al., 2014), it is unlikely that these petrels will routinely encounter the tower. If either species does encounter the tower they will likely avoid the tower or pass well below the rotor swept zone. The distance from shore will exclude nesting or foraging roseate terns, piping plovers, and red knots. Only migrating roseate terns, piping plovers, and red knots are anticipated to cross the Project Area for a short period of time during migration, and the number of passages would be extremely low (i.e., one bird = one pass per migration). Therefore, the likelihood of a roseate tern, piping plover, or red knot encountering a single tower located with the 32,832 ha WEA under climatological conditions that would force a migrating bird low enough to actually collide with a tower is so small that the impact of such collisions on federally-listed or ESA candidate bird species is discountable.

## *Lighting Effects*

Under poor visibility conditions (fog and rain), some migrating birds may become disoriented and circle lighted communication towers instead of continuing on their migratory path, greatly increasing their risk of collision (Huppop et al., 2006). Meteorological tower lighting would have the greatest impact on bird species during evening hours when nocturnal migration occurs. However, red flashing aviation obstruction lights are commonly used at land-based wind facilities without any observed increase in avian mortality compared with unlit turbine towers (Kerlinger et al., 2010). Thus, to decrease the likelihood of attracting red knots, piping plovers, roseate terns, and Bermuda petrels, plus any other migratory bird species to the meteorological tower, red flashing lights would be used on the tower to reduce the risk of bird collisions. Finally, it is anticipated that any additional lights (e.g., work lights) on the tower and support vessels will be used only when necessary and be hooded downward and directed when, possible to, reduce upward illumination and illumination of adjacent waters. Therefore, the potential impacts from the artificial lighting of the tower on federally-listed or ESA candidate bird species would be negligible.

## *Micro Wind Turbines*

Small turbines might be mounted near the platform of the meteorological tower to charge batteries to power electrical equipment. These micro turbines are commonly used to charge batteries in the marine environment, and are anticipated to have a rotor swept diameter of two meters or less. It is possible that a bird flying near the deck of a tower or buoy could collide with a rotor and get injured or killed. However, the likelihood that a bird would collide with a meteorological tower is already discountable; the addition of micro turbines does not expand the footprint of the meteorological tower, and the rotor swept zone of micro turbines is quite small. Therefore, the likelihood of a collision with a micro turbine is also minuscule, and the potential impacts from micro turbines on federally listed or ESA candidate bird species would be negligible.

## *Tower Decommissioning*

Meteorological tower decommissioning activities that could affect birds would consist of any atmospheric noise related to tower removal. This noise is not anticipated to be any louder than the impacts already assessed under the Pile Driving and Construction section above. The potential noise impacts from decommissioning would be short-term, lasting only for the duration of the tower removal (one week or less per tower). The bird species are highly mobile and would be able to avoid the tower area during removal, and the noise generated is not anticipated to impact the migratory movement or migratory behavior of these species through the area. Therefore, noise related to tower removal may affect these bird species, but the effect would be negligible.

## *Discharge of Waste Materials and Accidental Fuel Leaks*

Operational waste generated from all vessels associated with the proposed action includes bilge and ballast waters, trash and debris, and sanitary and domestic wastes. A vessel collision with a tower or other vessel has the potential to result in the spillage of diesel fuel into the marine environment. Vessels associated with the proposed action are expected to comply with the United States Coast Guard (USCG) requirements for the prevention and control of oil and fuel spills.

Marine and coastal birds could be exposed to operational discharges or accidental fuel releases from construction sites and construction vessels, and to accidentally released solid debris. Many species of marine birds (such as gulls) often follow ships to forage on fish and other prey injured or disoriented by the passing vessel. In doing so, these birds may be affected by discharges of waste fluids (such as bilge water) generated by the vessels. Operational discharges from construction vessels would be released into the open ocean, where they would be rapidly diluted and dispersed, or collected and taken to shore for treatment and disposal. Sanitary and domestic wastes would be processed through on-site waste treatment facilities before being discharged overboard. Deck drainage would also be processed prior to discharge. Thus, impacts to marine and coastal birds from waste discharges from construction vessels are expected to be negligible.

Coastal and pelagic birds may become entangled in or ingest floating, submerged, and beached debris. Entanglement may result in strangulation, injury to or loss of limbs, entrapment, or the prevention or hindrance of the ability to fly or swim, and all of these effects may be considered lethal (Ryan, 1990). However, the discharge or disposal of solid debris into offshore waters from OCS structures and vessels is prohibited by the BOEM (30 CFR 250.300) and the USCG (MARPOL, Annex V, Public Law 100-220 [101 Statute 1458]). Thus, entanglement in or ingestion of OCS-related trash and debris by marine and coastal birds is not expected, and impacts to marine and coastal birds would be negligible.

Because of the extremely limited amount of vessel traffic and construction activity that might occur with construction and operation of a meteorological tower, the release of wastes, debris, hazardous materials, or fuels would occur infrequently and would cease following completion of the geological and geophysical surveys, tower construction, and tower decommissioning. The likelihood of an accidental fuel release would also be limited to the active construction and decommissioning periods of the site characterization. Piping plovers and red knots are strictly terrestrial foragers, and roseate terns typically feed only in shallow waters, and these species are not expected to follow vessels to forage. In addition, the areas where these impacts could occur do not strictly overlap with the foraging range of breeding piping plovers and roseate terns, and only encompass a tiny proportion of the migratory range of the piping plover, roseate tern, red knot, and Bermuda petrel. As such, impacts to ESA-listed and candidate

bird species from the discharge of waste materials or the accidental release of fuels are expected to be negligible.

### Indirect Effects

Indirect effects to bird species would include effects that could occur as a result of a tower, but at a later time. The scale of the project is too small to result in a significant alteration of flight paths due to tower presence that could disrupt feeding and other behaviors, or cause the expenditure of additional energy in individual birds that would have otherwise not occurred. Given the small scale of the project and vastness of the ocean environment for foraging and movement, the physical presence of two buoys or a tower is expected to have no effect to ESA-listed species.

## 4. Determination of Effect

Federally listed birds could occur in the WEA, and given the geographic scope of the proposed action, some birds could reasonably be expected to come into contact with a meteorological tower and/or buoys, or associated activities. Given that the activities will occur on the OCS, there would be **No Effect** to piping plover critical habitat and **No Effect** to Northern long-eared bats.

Based on the analysis in Section 3, the proposed action **May Affect** migrating Bermuda petrels, roseate terns, piping plovers, and red knots due to pile driving noise, tower collisions, tower lighting, and tower decommissioning. Impacts could include escape responses, alteration of flight paths, and injury or death from tower collisions. However, the pile driving noise impacts would be short-term (four to eight hours per day over three days for each tower). Given the presence of a single tower in a large area (32,832 ha), the use of flashing red aviation obstruction lights on the tower, and the restricted time period of exposure during migration, BOEM concludes that the effects of the proposed action are insignificant and discountable. Therefore, the proposed action would **Not Likely Adversely Affect** piping plovers, red knots, roseate terns, and Bermuda petrels.

## 5. Avoidance, Minimization, and Mitigation Measures

This section outlines the standard operating conditions (SOCs) to minimize or eliminate potential impacts to ESA-listed and candidate bird species. These SOCs appear in Appendix B, Section B.7 of the EA, and are considered part of the proposed action and will be incorporated as stipulations to any future lease:

> 1. The lessee will use only red flashing strobe-like lights for aviation obstruction lights. These aviation obstruction lights shall also emit infrared energy within 675 - 900 nanometers wavelength to be compatible with Department of Defense night vision goggle equipment.
>
> 2. Any lights used to aid marine navigation by the lessee during construction, operations, and decommissioning of a meteorological tower or buoys must meet USGS requirements for private aids to navigation [https://www.uscg.mil/forms/cg/CG_2554.pdf].
>
> 3. For any additional lighting not described in (1) or (2) above, the lessee must use such lighting only when necessary, and the lighting must be hooded downward and directed when possible, to reduce upward illumination and illumination of adjacent waters.

4. A meteorological tower would be designed so as to preclude the necessity for guy wires, which present the birds with something difficult to see that they could potentially collide with.

5. An annual report shall be provided to BOEM and FWS documenting any dead (or injured) birds or bats found on vessels and structures during construction, operations, and decommissioning. The report must contain the following information: the name of species, date found, location, a picture to confirm species identity (if possible), and any other relevant information. Carcasses with Federal or research bands must be reported to the United States Geological Survey Bird Band Laboratory, available at https://www.pwrc.usgs.gov/bbl/.

6. To minimize the attraction of birds, the Lessee must install bird deterrent devices (e.g., anti-perching), where appropriate.

7. The lessee must provide the results of avian surveys with its plans.

Based on the information regarding the proposed activities (see Section 1) within the WEA, no additional mitigations for ESA-listed and ESA candidate species are necessary.

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