United States Department of the Interior

FISH AND WILDLIFE SERVICE

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October 16, 2020

David Bigger, Ph.D.
Office of Renewable Energy Programs
Bureau of Ocean Energy Management
45600 Woodland Road, VAM-OREP
Sterling, Virginia 20166

Re: Vineyard Wind Offshore Wind Energy Project, Massachusetts
TAILS: 2019-I-0479

Dear Dr. Bigger:

This responds to your request for our concurrence with the Bureau of Ocean Energy Management's (BOEM) determination that approving a Construction and Operations Plan (COP) for the Vineyard Wind Offshore Energy Project (Project) may affect, but is not likely to adversely affect, the federally endangered roseate tern (*Sterna dougallii dougallii*) and the federally threatened piping plover (*Charadrius melodus*) and Rufa red knot (*Calidris canutus rufa*) (red knot). Your request was dated September 3, 2020, and received in our office via email on the same day. Your request and our response are made pursuant to section 7 of the Endangered Species Act of 1973, as amended (87 Stat. 884, as amended; 16 U.S.C 1531, et seq.) (ESA).

We reviewed the September 2020 Vineyard Wind 1 Offshore Energy Project Biological Assessment: Final (BA) (BOEM 2020a) provided in your email request; the June 2020 Vineyard Wind Offshore Wind Energy Project Supplement to the Draft Environmental Impact Statement (SEIS) (BOEM 2020b); Volumes I, II, and III of the COP (Epsilon Associates, Inc. 2019); the Draft Construction and Operations Plan Addendum to Volumes I, II, and III (Epsilon Associates, Inc. 2019); an October 8, 2020, email from Michelle Morin of BOEM to New England Field Office staff clarifying the project description; and the draft Vineyard Wind 1 Offshore Wind Farm: Framework for Avian and Bat Monitoring (Biodiversity Research Institute 2020) for information regarding potential impacts from the Project on listed species.

The proposed Federal action consists of BOEM's approval of the COP for the construction, operations, maintenance, and eventual decommissioning of the 800 megawatt (MW) Vineyard Wind offshore wind energy facility and associated submarine and onshore export cables connecting the wind facility to the proposed onshore substation, located in Barnstable, Massachusetts. The turbines would be located within the Massachusetts Wind Energy Area on the Outer Continental Shelf. A description of the Project is found on pages 7 through 13 of the BA. The wind energy facility would have an operations term of 25 years; however, BOEM analyzed a 30-year operations term to ensure National Environmental Policy Act coverage if Vineyard Wind, LLC (Vineyard Wind) requests, and BOEM grants, an extension of operations (BOEM 2020a).

Proposed Action

The proposed Project consists of the construction, operation, maintenance, and decommissioning of a commercial-scale offshore wind energy facility within Lease Area OCS-A 0501. The project action area covers the wind development area (WDA) in which the offshore facility will be located, the offshore and onshore cable routes, offshore cable landfall at Covell's Beach, and the onshore substation. For the purposes of our biological analysis, the WDA includes the air space above the water to any elevation used by roseate terns, piping plovers, or red knots.

Offshore Facilities

The offshore facility will consist of an array of 57 to 100 wind turbine generators (WTG)[1] with a maximum turbine capacity of 8 to 14 MW within the 306-square kilometer (km) (118-square mile [mi]) WDA, the northernmost extent of which is located approximately 14 mi) southeast of Martha's Vineyard, Massachusetts. The WTGs will be laid out in a grid-like pattern with spacing of 0.86 to 1.1 mi between turbines. Up to two Electrical Service Platforms (ESPs) may be installed to connect the WTGs and the export cable. Inter-array cables will connect the ESPs to 6 to 10 WTGs and be buried below the seabed.

Onshore Substation and Cable Routes

The onshore substation will occur in a developed area in Barnstable, Massachusetts, with an approximate 7.7 acres (3.1 hectares) of ground disturbance including tree clearing. The export cable route to connect to the onshore substation will pass through developed areas, primarily paved roads and existing utility rights of way. The export cable transition from offshore to onshore will be embedded by horizontal directional drilling (HDD) beneath the nearshore, tidal zone, beach, and adjoining coastal areas to the landfall site at Covell's Beach. The construction schedule anticipates HDD activities will be initiated prior to April 1, to avoid the piping plover breeding season. The Project includes a piping plover protection plan (BA Appendix C) to avoid adverse effects to piping plovers if plovers are documented near the landfall location at Covell's Beach and construction unavoidably extends beyond April 1, the beginning of the plover nesting season. Protective measures to be implemented include plover surveys prior to April 1 and, if plovers are present, an on-sight qualified shorebird monitor to observe plovers during construction. Construction activities would cease if the shorebird monitor determines that plovers may be disturbed by the activities.

Lighting

Vineyard Wind would minimize lighting within the project area through the incorporation of an Aircraft Detection Lighting System (ADLS) that is expected to limit Federal Aviation Administration (FAA) and BOEM-required lighting to less than 4 hours a year. During construction or post-construction activities (e.g., maintenance) down-shielded lighting will be used

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[1] Wind turbine specifications found in a table on pages 7 and 8 of the BA.

to reduce the likelihood of attracting birds to the WTGs, to the extent allowed by health and safety protocols.

Listed Species That May Be Affected

<u>Roseate tern</u>
Roseate tern occurrence within the action area is summarized on pages 13 through 23 of the BA. No breeding colonies occur within the action area. The closest breeding colony, Muskeget Island off Nantucket, Massachusetts, is located between 13 and 15 mi from the nearest proposed WTGs. Muskeget Island was recently recolonized by common and roseate terns (nesting observed in 2020); however, the colony was abandoned due to an unknown predation event (Parsons, K., Massachusetts Audubon Society, pers. comm. 2020). Although Muskeget Island is not consistently used as a breeding colony, it was once considered to be one of the largest tern colonies in Massachusetts (Nisbet 1973). Records indicate that roseate and common terns have been documented breeding on the Island since 1904, ranging from a few to thousands of breeding pairs. Irrespective of its status as a breeding colony, Muskeget Island and adjacent shoals provide consistently used staging habitat for roseate terns throughout the breeding and pre-migration season.

BOEM concluded that roseate terns were unlikely to occur in the action area based on assumptions that the WDA did not provide suitable foraging habitat, boat and aerial survey data did not document the presence of roseate terns, and that a study examining the offshore movements and flight altitudes of terns and plovers fitted with digital VHF transmitters (nano-tags) (Loring et al. 2019) did not document roseate terns flying through the WDA.

As explained below, we disagree that roseate terns are unlikely to occur in the action area and anticipate that small numbers of breeding and non-breeding terns, including 2-year-old birds and adults, may occur in the action area in spring, late summer, and early fall resting on the water, foraging or traveling across the WDA to adjacent foraging habitat in Nantucket Shoals. Roseate terns may also pass through the WDA during their spring and/or fall migration.

Roseate terns forage primarily on sand lance (*Ammodytes spp.*) in both nearshore and offshore environments (Goyert 2014; Goyert et al. 2014; USFWS 2020), although they will also feed on herring (*Clupea spp.* and *Alosa spp.*) and hake (*Urophycis spp.* and *Enchelyopus cimbrius*) (Staudinger 2019; Yakola 2019; USFWS 2020). There is no evidence that roseate terns feed exclusively on inshore sand lance. Mean lengths of fish taken as prey were estimated to range between 55 to 80 millimeters (mm) (2.17 – 3.15 inches) (Nisbet et al. 2014). Herring, hake, and offshore sand lance in this range size are likely young of the year or juvenile fish. For avian predators such as roseate terns that swallow prey fish whole, prey body depth (as opposed to total body length) is the limiting factor that restricts what can be consumed. Sand lance remain viable prey and are easy for seabirds to swallow even at large body sizes, because they have narrow body depths and lack defensive structures such as spines (M. Staudinger 2019). Offshore sand lance occur at Nantucket Shoals and the shallows of Georges Bank, east of the WDA (BA page 14); therefore, it is reasonable to expect that roseate terns may travel from breeding and/or staging areas through the WDA to forage on Nantucket Shoals or Georges Bank.

Loring et al. (2019) detected roseate terns in Federal waters during the breeding period through post-breeding dispersal. Data from the Loring et al. (2019) study were not sufficient for determining presence of roseate terns within the WDA. Loring et al. (2019) tracked roseate terns with a network of land-based radio telemetry stations with a limited range (generally less than a 20 km radius from each station) to detect signals from tagged terns in flight (see Loring et al. 2019, Appendix G - 'Detection probability of BOEM automated radio telemetry stations'). Coverage maps for land-based automatic receiving towers showing the probability of detecting a bird flying at altitudes of 20 meters (m) (65 feet [ft]) did not include the WDA within the area of detectability, because the WDA is located more than 20 km (12 mi) offshore. Flights at altitudes of 200 m (656 ft) had partial coverage of the WDA. Specifically, "…the land-based tower array had limited range to detect flights far from shore, particularly for species flying at low altitudes, further reducing the probability of detection in offshore areas…" (Loring et al. 2019, page 21). The lack of observations in the Vineyard Wind WDA was attributed to the inability to detect roseate terns flying below the receivers' detection capabilities. Roseate terns typically fly below 12 m (39 ft) when feeding and less than 30 m (98 ft) when traveling (Loring et al. 2019). Therefore, because high flying birds were able to be detected at greater distances by land-based receivers than low-flying birds (piping plovers for instance were detected during migration), we conclude that roseate terns may pass through the WDA during feeding forays, traveling between staging and foraging areas, and during migration despite the lack of detections in the Loring et al. (2019) study. Thus, based on the low detectability for roseate terns in the Vineyard Wind WDA, we cannot confirm their presence or absence based on this study alone.

The highest probability for exposure to wind energy facilities may occur during post-breeding dispersal and migration (mid-July through late September) (Loring et al. 2019). Roseate terns may pass through the WDA during migration or when ascending to initiate their migration from staging areas on Cape Cod, Martha's Vineyard, or Nantucket. However, the available information is inconclusive regarding the elevation at which roseate terns are likely to fly through the WDA. Using documented common and arctic tern behavior as a surrogate for the rate at which roseate terns ascend during migration departure (I. Nisbet, pers. comm. 2019) suggests roseate terns leaving Massachusetts staging areas would fly above the rotor-swept zone (RSZ) within the action area. On the other hand, Loring et al. (2019) found no evidence of high-altitude migratory departure flights of roseate or common terns tracked with automated radio telemetry, indicating terns leaving Massachusetts staging areas may be flying within or below the RSZ.

In summary, 2-year-old and adult roseate terns may be present in low numbers flying through or foraging in the WDA, primarily in the spring, late summer, and fall. An unknown portion of adults and young-of-the-year likely will fly through the WDA during fall migration. More information is needed to assess specific flight routes and altitudes relative to the WDA and RSZ from spring through late fall in order to predict with greater certainty the likelihood of roseate terns passing through the WDA and RSZ during post-breeding dispersal flights and migration.

Due to the lack of site-specific observational data, there is great uncertainty associated with estimating the roseate tern population at risk of collision with the WTGs. The adult population migrating through the area in spring likely is limited to the northern breeding population of New Hampshire, Maine, and Canada. The fall population would be a portion of the entire adult population (breeding and non-breeding) with the addition of young-of-the-year birds during migration if post-breeding staging occurs in Massachusetts. We do not expect the entire population would fly through the WDA while traveling to foraging habitat or during migration. Moreover, based on coarse estimates of roseate tern flight heights reported by Loring et al. (2019) and flight ascending rates for migration based on information from other tern species, the potential population of roseate terns passing through the RSZ may be small, although more accurate data within the WDA is needed to better assess exposure of terns to the WDA and RSZ. Therefore, it is reasonable to assume that a small but unknown number may traverse the WDA at flight heights ranging from less than 12 m (39 ft) to well above the RSZ.

Piping plover

The BA (pages 23 and 24) summarizes piping plover occurrence within the action area and anticipates plovers would occur within the WDA. Piping plovers breeding along the coasts of Massachusetts, New Hampshire, Maine, and Canada may pass through the WDA during their spring and fall migrations between wintering and breeding grounds. Some portion of the entire breeding piping plover population for Eastern Canada, Maine, New Hampshire, and Massachusetts, estimated to be 2,066 adults in 2019, could migrate north through the WDA. Fall migration would include young-of-the-year, based on the average productivity for each state.

Loring et al. (2019) observed that piping plovers migrating south from their breeding grounds in Massachusetts and Rhode Island (where the birds were captured and fitted with nano-tags) primarily used offshore routes during initial migration prior to stopping at areas in the mid-Atlantic. Coarse altitude estimates indicated plovers were flying generally at the upper range and above the RSZ (this study assumed the RSZ was less than 250 m [820.2 ft]), and found that 15.2 percent of plover flights occurred within the RSZ of the Massachusetts Wind Energy Area (including the WDA). However, confidence intervals were extremely large indicating significant uncertainty in the flight height estimates. All plovers tracked during their migratory departure had a south-southwest trajectory. The relatively high-altitude flights allowed greater detection of tagged birds offshore than was found for roseate terns, although the detection probability decreased the farther offshore plovers migrated or if they flew at lower altitudes (Loring et al. 2019, Figure 64).

The BA stated there was no evidence to suggest piping plovers fly near or through the WDA in the spring during their northward migration, based on data from a radio telemetry pilot study of plovers (n=10) tagged prior to spring departure in the Bahamas (Loring et al. 2019, Appendix I). A limited number of birds were detected by stations in the U.S. Atlantic Coast; only 20 percent (n=2) were tracked over a significant portion of their route. Lack of detections could be attributed to tag loss and the absence of active receiving towers maintained by Motus network partners during the winter. No plovers were documented flying beyond Long Island Sound. However, piping plovers were documented flying across Federal waters of the mid-Atlantic and New York Bight, indicating offshore flights to reach breeding habitat were more direct than following the coastline. Therefore, it is reasonable to expect a portion of the piping plovers migrating to breeding habitat in Massachusetts, New Hampshire, Maine and eastern Canada could fly across the WDA.

BOEM estimated that 7 percent of the Massachusetts population would fly through the WDA during their southbound migration, based on the proportion of nano-tagged piping plovers documented flying through the WDA. Loring et al. (2019) calculated a high probability density of piping plover tracks with exposure to the offshore lease areas (Fig. 64) and acknowledged that low-flying plovers would not be detected by land-based receiving towers. Likely flight paths of piping plovers between receiving towers were coarse estimates based on interpolation and flight speed and had spatial error in the range of +/- 30 km (48 mi). Despite these limitations, some of the interpolated tracks intersected with the WDA, indicating piping plovers may occur in the WDA, but additional, finer-scale information is needed to more completely assess risk. Therefore, while we do not have enough information at this time for a more accurate estimate, we suspect low-flying piping plovers are not captured in BOEM's estimate, and 7 percent should be considered a minimum estimate.

Piping plovers nest on Craigville Beach, adjacent to the preferred offshore cable landfall location at Covell's Beach. It is possible that nesting and/or foraging plovers could occur at or near the landfall site.

Due to the lack of site-specific observational data, there is great uncertainty associated with estimating the piping plover population at risk of collision with the WTGs. We anticipate that a small percent of the fall migrating piping plover may pass through the WDA. We anticipate very few piping plovers would pass through the WDA during spring migration, because the available information suggests they travel along the coastline (BA page 28).

Rufa Red Knot

The BA (pages 25 and 26) summarizes red knot occurrence within the action area and anticipates only migrating red knots would occur within the action area. The migrating red knot population on Cape Cod consists of long and short distance migrants (Burger et al. 2012; Loring et al. 2018). The BA estimated that 1,500 red knots may occur in Massachusetts during fall migration (BA page 26). This fall population estimate was generated as part of a study assessing the collision risk of a wind farm in Nantucket Sound. The estimated 1,500 red knots was used specifically as a fixed baseline for the collision risk model (Gordon and Nations 2016) and was based on expert opinion of 1,000 to 2,000 red knots staging at Monomoy National Wildlife Refuge. However, the population of red knots that could migrate through the WDA is likely larger than 1,500, as recent studies of marked and recaptured red knots stopping at staging areas on Cape Cod estimate an average annual staging population of 4,500 red knots (Lyons and Harrington unpublished data).

A radio telemetry study of red knots captured in Massachusetts and tagged with nano-tags documented a temporal difference in fall migration between adults (early fall, some late fall) and hatch year birds (late fall) (Loring et al. 2018). Short distance migrants are more likely to migrate in late fall than long distance migrants. A recent study on migration speeds suggests that red knots migrate quicker to breeding grounds from their wintering areas, but fly at faster speeds during their fall migration (Duijns et al. 2019). This variation in seasonal migration behavior may affect the potential population that would cross the WDA and supports the contention that far fewer birds may pass through the WDA in spring, because more individuals choose direct, overland flights from the mid-Atlantic to their breeding grounds, rather than following the coastline. With more red knots staging in coastal Massachusetts during fall, we anticipate a larger number passing through the WDA in the fall than the spring.

Red knots have been documented to fly over Federal waters during migration, including a small number crossing the WDA (Burger et al. 2012; Loring et al. 2018). Likely flight paths of red knots between receiving towers were coarse estimates based on interpolation and flight speed, and had spatial errors in the range of +/- 30 km (48 mi). Despite these limitations, some of the interpolated tracks intersected with the WDA, and red knots may occur in the WDA. Additional recent geolocator research documented red knot migration flight trajectories in the vicinity of the WDA, although confirmation of direct passage through the WDA is not possible given the coarse scale at which locational data is collected by the geolocators (USFWS 2019).

The BA analyzed red knot flight heights and noted that the Loring et al. (2018) study estimated 83 percent of 25 modeled flight paths occurring within 20 to 200 m (65 to 650 ft) above water. However, confidence intervals were extremely large, indicating significant uncertainty in the flight height estimates. BOEM concluded (1) very few, if any, fall migrating red knots will occur within the WDA based on the low number (2 percent) of radio-tagged individuals documented flying through the WDA; and (2) an even smaller number of individuals will fly through the RSZ.

Due to the lack of site-specific observational data, there is great uncertainty associated with estimating the Rufa red knot population at risk of collision with the WTGs. We anticipate that a small percentage of the spring and fall migrating red knots may pass through the WDA.

Effects Analysis

The BA addresses direct and indirect effects to the listed species on pages 29 through 33. BOEM determined that the proposed Vineyard Wind 1 project, including onshore and offshore export cable installation, pile driving and construction, lighting, and collision with WTGs and ESPs, may affect, but is not likely to adversely affect, roseate terns, piping plovers, and/or red knots.

<u>Onshore Export Cable Installation</u>
We concur with your determination that this activity may affect, but is not likely to adversely affect, roseate terns, piping plovers, and/or red knots. Our concurrence is based on the following:

- the proposed landfall locations do not provide roosting, foraging, or nesting habitat for any of the listed species;
- horizontal direction drilling to make the offshore to onshore transition for the export cable will not disturb coastal habitat (including intertidal habitat);
- piping plovers have been documented to nest near the Covell's Beach landfall site; however, installation of export cable conduits would not occur between April 1 and August 31 to avoid the plover breeding season (Appendix D FEIS). Therefore, the likelihood of piping plovers being present during this activity is discountable; and
- should HDD activities unavoidably extend beyond April 1, implementation of the piping plover protection plan will avoid adverse effects if plovers occur on Covell's Beach.

<u>Offshore Export Cable Installation, Construction and Pile Driving, and Decommissioning</u>
We concur with your determination that this activity may affect, but is not likely to adversely affect roseate terns, piping plovers, and/or red knots. Our concurrence is based on the following:

- we anticipate migrating piping plovers and red knots would occur within the WDA during these activities. Also, roseate terns may migrate through the WDA or travel to foraging habitat adjacent to the WDA. However, at any given time, these activities would occur in a very small portion of the WDA, and they would take a relatively short time to complete. Therefore, disturbance from construction associated with these activities to migrating plovers, red knots, or roseate terns would be insignificant; and

- cable installation construction may impact benthic habitat supporting sand lance, the roseate tern's preferred prey. However, impacts to the sea floor and other effects to the prey base from increased turbidity will be localized and short-term and have an insignificant impact on these species.

<u>Lighting</u>
We concur with your determination that this activity may affect, but is not likely to adversely affect, roseate terns, piping plovers, and/or red knots. Specifically, we expect either the effects on these species would be insignificant or the likelihood of effects occurring is discountable, because:

- migrating or traveling roseate terns are not likely to be attracted to refracted light based on observations of nesting colonies near lighthouses (BA page 33);
- the available information does not indicate attraction or disorientation of migrating piping plovers or red knots due to refracted light;
- the Project's proposed lighting incorporates red flashing aviation obstruction lighting, which has been shown to reduce avian collisions at land-based facilities;
- during construction, operation, maintenance, and decommissioning activities the Project will use low intensity lighting, use lights only when necessary for work crews, avoid white lights, and reduce the number of lights when practicable (FEIS Appendix D).
- the proposed use of the ADLS will limit the time lighting will be required.

<u>Risk of Collision with the WTGs</u>
BOEM based the "not likely to adversely affect" determination for the piping plover and red knot, in part, on the analysis provided by the Band (2012) Collision Risk model. We do not rely on the model for our determination, because (1) the model inputs do not incorporate species-specific data; (2) the anticipated numbers of roseate terns, piping plovers, and red knots flying through the WDA are extremely uncertain; and (3) of the model's limitations for predicting collision risk into the future.

Collision risk models rely on information on bird and wind turbine characteristics, including bird morphometrics, flight speed and flight height, and rotor speed and turbine size (Masden et al. 2012). Additionally, species-specific avoidance rates are critical to obtaining realistic and confident estimates of collision events (Masden and Cook 2016). The Band model used in BOEM's estimates of collision risk requires inputs for bird flight height, speed and populations anticipated to occur within the WTG area. The species-specific data for these parameters used to populate the model are associated with large margins of error (Loring et al. 2018; Loring et al. 2019) and are based on surrogate species information developed for European species. Data for piping plovers are based on an avoidance rate calculation for breeding piping plovers moving between foraging and nesting habitat and not migrating piping plovers (Stantial and Cohen 2015).

According to Kleyheeg-Hartman et al. (2018), the lack of species-specific information on species avoidance rates limits the predictive power of the Band model. Also, the Band model does not incorporate variability in population growth or changes in bird behaviors. These factors result in model outputs that lack the sensitivity necessary to develop confident collision risk expectations, even for a single year. Using the model output to extrapolate the collision risk for the 30-year life of the Project introduces unacceptable error that increases with time. Lastly, the Band model is deterministic, and excludes variability and/or uncertainty from calculations (Masden and Cook 2016).

Therefore, until more precise data on the species' flight heights, avoidance rates, and estimates of the populations that may be passing through the WDA are available, and a model has been developed that incorporates the (1) variabilities associated with calculating risk over a long time span and/or (2) change in population status or bird behavior, our consideration of BOEM's determination and the Project's effects on the subject species relies on other best available information with respect to the species' behaviors and presence within the WDA, irrespective of the outcome of the Band collision risk model analysis.

Nevertheless, we concur with BOEM's determination that the Vineyard Wind 1 project may affect, but is not likely to adversely affect, roseate terns, piping plovers, and/or red knots. The following reasons, based on the best available information, collectively indicate the effects of the Project would be insignificant and/or the likelihood of effects on the subject species is discountable.

- All species would only be seasonally present, limiting the annual exposure to effects from the Project.
- A small portion of the roseate tern population may fly within the WDA during spring migration (mid-April to May) and post-breeding and fall migration (mid-July through September), particularly when staging or breeding roseate terns occur on Muskeget Island.
- A very small subset of the entire population of roseate terns may cross the WDA during travel between staging areas and potential foraging habitat.
- We expect few post-breeding terns will be foraging in the WDA area based on minimal tuna and dolphin activity documented during marine mammal and fish surveys[2] and low numbers of common terns observed in the WDA. We use these survey results as surrogate indicators that the WDA currently provides an inconsistent forage fish base for roseate terns.
- The available information suggests the majority of traveling roseate terns will be flying below the RSZ and the majority of migrating roseate terns will be flying above the RSZ.
- The available information suggests the majority of migrating piping plovers will be flying above the RSZ during migration.
- The available information (Burger et al. 2012; Loring et al. 2018) suggests only a very small number of red knots may pass through the WDA during spring and fall migration.
- The available information suggests the majority of red knots will be flying above the RSZ during migration.
- The likelihood of collisions caused by attraction to lights is discountable, because the Project will use red lighting and the ADLS during periods of low visibility.

[2] Terns may key in on subsurface predators, such as tuna and relatively high densities of dolphins to find suitable prey (Goyert et al 2014).

- The turbines would occupy a very small percentage of the airspace in the WDA, making the risk of collision low, even in the absence of lighting minimization measures and avoidance behavior by the subject species.
- We anticipate effects to plovers, red knots, and roseate terns that avoid the WDA (e.g., minor change in flight trajectory slightly increasing energetic demands) would be insignificant.

In conclusion, the estimated small number of individuals of each species occurring in the WDA, most individuals flying at heights outside the RSZ, and the small amount of airspace occupied by the turbines collectively indicate the collision risk to all three species will be discountable.

Post-Construction Monitoring Conservation Measures

The draft Framework for Avian and Bat Monitoring provided by Vineyard Wind proposes measures to document bird and bat presence within the project area. BOEM will require that a bird and bat monitoring plan (based on the Framework) be finalized prior to the commencement of operations.

The draft Framework proposes up to 3 years of post-construction monitoring. Post-construction monitoring activities include:

1. boat-based surveys conducted for 1 year pre-construction and up to 3 years post-construction within the buffered WDA. Pre- and post-construction surveys will monitor for shifts in bird distribution occurring due to the presence of turbines;
2. installing Motus receivers at individual WTGs and potentially the ESP and supporting the maintenance or upgrade of at least two onshore receiver stations;
3. the acquisition of up to 150 Motus nano-tags for third-party researchers, including nano-tags for roseate terns. This measure will track roseate terns and other bird species that may pass through or over the project area. Vineyard Wind would determine the number of offshore Motus receivers to optimize coverage of the WDA through consultation with BOEM and USFWS;
4. Vineyard Wind will use qualified biologists to conduct observations of birds around the turbines using traditional behavioral study methods, such as time-activity budgets to collect data on bird behavior. Point counts would be conducted in the same years and around the same time as, or in conjunction with, boat-based surveys; and
5. anti-perching devices and design measures will be implemented to reduce avian perching opportunities.

Further consultation with us under section 7 of the ESA is not required at this time. However, the implementing regulations for section 7 of the ESA require reinitiation of consultation if any of the criteria at 50 CFR 402.16 are met. As they relate to this consultation, those criteria are:

1. 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. This could include new information and/or models on species presence, flight heights, avoidance rates, or flight behavior that increase the likelihood of the risk of collision;
2. if the identified action is subsequently modified in a manner that causes an effect to the listed species…that was not considered in the…written concurrence; and

3. if a new species is listed or critical habitat designated that may be affected by the identified action.

If any of these criteria are met, BOEM should contact us immediately to determine the appropriate level of consultation with our office and to identify measures to avoid adverse effects. Thank you for your cooperation, and please contact Susi von Oettingen of this office at (603) 227-6418 if you have questions or need further assistance.

Sincerely yours,

MOLLY SPERDUTO

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Date: 2020.10.16 08:57:13 -04'00'

[Acting for]
Thomas R. Chapman
Supervisor
New England Field Office

cc: Reading file
Michelle Morin/BOEM via email
ES: SvonOettingen:jd:10-16-20:603-227-6418

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