AMERICAN BIRD CONSERVANCY

Bringing back the birds

22 Feb 2019

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RE: http://www.regulations.gov Docket No. BOEM–2018–0069

Dear Ms. Morin,

Thank you for granting an extension to the comment period for public review of the Draft Environmental Impact Statement (EIS) and Construction and Operation Plan (COP) for the Vineyard Wind project offshore Massachusetts (Lease OCS-A 0501).

We provide this comment as a supplement to our letter submitted during the original comment period on 22 Jan 2019. We also support the comments submitted by the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) as well as those submitted by the National Wildlife Federation, Natural Resources Defense Council, Conservation Law Foundation, Defenders of Wildlife, Mass Audubon, Audubon Society of Rhode Island, Environmental League of Massachusetts, Whale and Dolphin Conservation North America, Humane Society of the United States, and NY4WHALES.

American Bird Conservancy has some concerns with the Appendix III-O Vineyard Wind Spring Tern Survey. We appreciate that these boat surveys attempted to record flight heights of birds, but boat surveys are inadequate in estimating such factors. First, the boat surveys only sample during **fair weather** (sea state 2-4 on the Beaufort Scale, which qualifies as up to about 15 knot winds, or 17 mph), and birds tend to fly at higher heights during **higher winds** (Ainley 2015) [1]. Second, **boat surveys are notorious for underestimating flight heights** (Johnston and Cook 2016[2] and Harwood et al. 2018[3]).

[1] Ainley, D., Porzig, E., Zajanc, D. and Spear, L. (2015). Seabird flight behavior and height in response to altered wind strength and direction. Marine Ornithology 43: 25–36.
[2] Johnston, A., & Cook, S. C. P. (2016). How High Do Birds Fly?: Development of Methods and Analysis of Digital Aerial Data of Seabird Flight Heights. British Trust for Ornithology, Report No. 676, 53pp.
[3] Harwood, A. J., Perrow, M. R. and Berridge, R. J. (2018). Use of an optical rangefinder to assess the reliability of seabird flight heights from boat-based surveyors: implications for collision risk at offshore wind farms. J. Field Orn. 89(4): 372-383.

Advancements in digital aerial survey technology in the last couple of years have shown that many collision and displacement vulnerability scores are likely to be higher than estimated in previous studies based on boat surveys, particularly for gannets and terns. Johnston and Cook (2016) showed that boat surveys underestimate flight heights, where over 50% of terns and gannets were estimated within the rotor swept zone (RSZ) in digital aerial surveys, compared to less than 15% of both species observed in the RSZ during boat surveys (see Table 2 of report). This underestimation of flight heights in boat surveys was additionally validated with the use of drones (Harwood et al. 2018). Given the paucity of information on flight heights that is specific to the proposed site, a **scientifically rigorous monitoring plan** will be necessary to adequately minimize and mitigate birds at risk of collision and displacement.

Recommendation: Monitoring Program

If Vineyard Wind wishes to proceed with collecting flight height information on boat surveys, then, at the very least, they should use **range finders** designated specifically to measure heights at different distance bins from the observer (see Harwood et al. 2018). However, this is not enough, as other methods are much better at estimating flight height (e.g., digital aerial imaging surveys, radar, or tracking studies). Without the use of range finders, they may as well continue without collecting information on flight heights during boat surveys.

In fact, we encourage Vineyard Wind to continue to conduct **boat surveys**, so that they may be able to analyze their pre- and post-construction surveys using "**Before, After – Control, Impact**" (BACI) or "**Before-After Gradient**" (BAG) protocols. In other words, they have set an important **baseline** against which the results of future pre- and post-construction surveys should be compared, using the same methods. Controlling the method over which distribution and abundance data on birds are collected will allow the surveyors to evaluate displacement over the long term. For example, Mendel et al. (2019)[4] used a BACI approach with 14 years of pre-construction data and 3 years of post-construction data from boat-based and aerial surveys. They showed that wind facilities in the North Sea caused a loss (i.e., reduction and redistribution) of loon habitat, which could lead to indirect long-term effects on their populations.

To adequately quantify **flight heights**, Vineyard Wind and other developers will need to conduct additional surveys designed for this purpose, for example **high resolution digital aerial imaging**. Previous studies have found that boat- and aerial surveys each provide important complementary information when it comes to estimating the exposure of birds to offshore wind energy development (Camphuysen et al., 2004[5]; Camphuysen and Garthe, 2004[6]). For example, boat surveys are better at identifying the foraging behaviors of small seabirds and providing in situ data on fish biomass via

[4] Mendel, B. Schwemmer, P., Peschko, V., Müller, S., Schwemmer, H., Mercker, M., Garthe, S. 2019. Operational offshore wind farms and associated ship traffic cause profound changes in distribution patterns of Loons (*Gavia* spp.). Journal of Environmental Management Volume 231: 429-438

[5] Camphuysen, C. J., Fox, A. D., Leopold, M. F., and Petersen, I. K. (2004). Towards standardised seabirds at sea census techniques in connection with environmental impact assessments for offshore wind farms in the U.K. Pages 1–38 in A comparison of ship and aerial sampling methods for marine birds, and their applicability to offshore wind farm assessments. Royal Netherlands Institute for Sea Research, Texel, Netherlands.

[6] Camphuysen, C. J., and Garthe, S. 2004. Recording foraging seabirds at sea: standardised recording and coding of foraging behavior and multi-species foraging associations. Atlantic Seabirds, 6: 1–32.

echosounder (i.e., "fish finder"), whereas digital aerial surveys are better at identifying large submerged animals, such as marine mammals and sea turtles (Goyert et al. 2018)[7].

If Vineyard Wind proceeds with **high resolution digital aerial surveys**, then we recommend that they include **control plots** adjacent to the wind turbines, for both pre- and post-construction surveys. However, such "reference" or control plots (without turbines) will require careful selection based on oceanographic characteristics (e.g., depth, distance to shore, and productivity) to ensure that they are representative of the treatment plots (with turbines). This will help to remedy the lack of an adequate baseline due to limited pre-construction survey time. We urge Vineyard Wind and other developers in the region to implement a **suite of complementary survey methods** to adequately assess the **collision** and **displacement vulnerability** of birds during the 30-year lease period.

Side note: We would like to point out that the original link we used for COP Appendix III https://www.boem.gov/webteam/Vineyard%20Wind/Vineyard-Wind-COP-Volume-III-Appendices.pdf did not contain any of the appendices after Appendix L (i.e., it is missing Appendices M-R). Therefore, this link should be removed from the internet so that readers are directed only to the correct link, https://www.boem.gov/Vineyard-Wind-COP-Volume-III/, which contains all of the appendices.

Recommendation: Minimization and Mitigation Plan

Proposed alternatives

We are considering a combination of the proposed Alternatives in the EIS (e.g., Alternatives A, B, C, E), but require more detailed information in the subsequent draft of the EIS. As explained in our prior letter, we ask for further discussion of **Alternatives A and B**, with respect to how they will help minimize impacts to impacted bird species (Piping Plovers and Least, Common and Roseate Terns), particularly given the proposed mitigation stated in Appendix D (i.e., time restrictions on activities near the alternative cable landfall sites).

An avian tracking study by Loring et al. (in review) should be able to provide more information to inform **Alternative E**. The final report has been delayed for release due to the government shutdown, but we urge BOEM to consider its results to inform Alternative E. Alternative E increases the rotor height from 27-191m (8 MW turbines) to 31-212m (10 MW turbines). Roseate Terns tend to fly below and within the lower limits of the rotor swept zone, while other migratory species (e.g., Piping Plovers, Red Knots) tend to fly above and within the upper limits of the rotor zone (Loring et al. 2018[8]). There is a **chance** that increasing the lower limit of the rotor height to 31m would **reduce the collision risk** of Roseate Terns, by avoiding their dominant flight heights. However, there exists a **tradeoff** in identifying which other protected birds (e.g., Piping Plovers, Red Knots) may be at greater **risk of increased rotor height**. We strongly urge BOEM to take this into consideration when identifying the optimal level of mitigation, and whether Alternative E provides the least impact to birds.

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[7] Goyert, H.F., Gardner, B., Veit, R.R., Gilbert, A.T., Connelly, E., Duron, M., Johnson, S., Williams, K., (2018). Evaluating habitat, prey, and mesopredator associations in a community of marine birds. ICES Journal of Marine Science, 1-11.

[8] Loring PH, McLaren JD, Smith PA, Niles LJ, Koch SL, Goyert HF, Bai H. 2018. Tracking movements of threatened migratory rufa Red Knots in U.S. Atlantic Outer Continental Shelf Waters. Sterling (VA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2018-046. 145 p.

Additionally, as explained in our prior letter, we recommend a revision of the collision risk assessment of Roseate Terns, Piping Plovers and Red Knots, using conservative avoidance rates that are supported by the literature (see biological assessment (BA) conducted by the US Fish and Wildlife Service). This is necessary to justify whether an incidental take permit should be required for the Threatened and Endangered species exposed to the Vineyard Wind project.

General Recommendations

To reiterate the summary from our prior letter: in their current form, the COP and EIS are incomplete without a ***transparent, scientifically rigorous monitoring, minimization, and mitigation plan***. The monitoring, minimization, and mitigation plan should be approved by a ***non-affiliated avian stakeholder advisory group, with state and federal agency oversight***.

Long term (>5 years) pre- and post-construction studies need to follow ***"Before, After – Control, Impact"*** (BACI) or ***"Before-After Gradient"*** (BAG) protocols (e.g., with appropriately-selected ***control plots*** adjacent to the Vineyard Wind lease area for comparison). Such studies should be conducted ***independently*** from the developer (i.e., supported through a ***bird mitigation fund***) and be systematically designed to accurately and precisely quantify the ***collision and displacement vulnerability*** of protected birds to offshore wind energy development. Mortality estimates need to be submitted to the overseeing agencies (e.g., USFWS, MassWildlife) and ***detection-and-curtailment*** systems tested and installed (for larger bird species, such as kittiwakes and gannets), along with deterrent technology.

We also recommend that Vineyard Wind follow an ***adaptive management*** plan based on the results of the monitoring, minimization, and mitigation plan (see ABC's comments on BOEM's EA). This needs to include the reassessment of a Section 7 ESA consultation (i.e., determining the likelihood for adverse effect).

Sincerely,

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https://abcbirds.org/program/wind-energy-and-birds/