



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 01930-2276

APR 27 2018

Ms. Michelle Morin
Program Manager
Office of Renewable Energy
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, VA 20166

RE: Docket Number BOEM-2018-0015

Scoping Comments for the Notice of Intent to Prepare an Environmental Impact Statement for Vineyard Wind LLC's Proposed Wind Energy Facility Offshore Massachusetts

Dear Ms. Morin,

We have reviewed the March 30, 2018, *Federal Register* (FR) Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for Vineyard Wind LLC's proposed wind energy facility offshore Massachusetts. The EIS will be prepared by the Bureau of Ocean Energy Management (BOEM) for the approval of a Construction and Operation Plan (COP) submitted by Vineyard Wind LLC. Approval of the COP would allow for the construction and operation of an 800 megawatt (MW) wind energy facility offshore Massachusetts, approximately 14 miles from the southeast corner of Martha's Vineyard, in water depths ranging from 37 to 49 meters (approximately 121 to 161 feet). The proposed 800 MW facility would include construction of up to 106 wind turbine generators with a capacity of 8 to 10 MW each and would potentially be constructed in two 400 MW phases up to five years apart. The proposed turbine layout would include a grid-like pattern with spacing between turbines ranging from 0.76 nautical miles (nm) to 1 nm. The project would include two to four offshore substations or electrical service platforms. According to information provided in the draft COP, the proposed project area referred to as the Wind Development Area (WDA) is located within the northern portion of the 166,886 acre lease area. The WDA covers 75,614 acres within the lease area. The potential export cable landfalls include sites near the towns of Yarmouth, Barnstable, and Nantucket in Massachusetts. The New Bedford Marine Commerce Terminal is proposed as the location for onshore construction staging.

The NOI invites Federal and state agencies, tribes, and local governments to become a cooperating agency in the preparation of its EIS analyzing the proposed Vineyard Wind COP. We accept BOEM's invitation to become a cooperating agency for the Vineyard Wind National Environmental Policy Act (NEPA) process contingent to agreed upon parameters to be defined through a Memorandum of Understanding (MOU) with your agency.



The NOI commences the public scoping process for identifying issues and potential alternatives for consideration in the Vineyard Wind COP EIS. Through the NOI, BOEM is requesting information on significant resources and issues, impact-producing factors, reasonable alternatives (e.g. size, geographic, seasonal, or other restrictions on construction and siting of facilities and activities), and potential mitigation measures to be analyzed in the EIS. The draft COP was also made available with the NOI. While we have conducted a preliminary review of the COP to help inform our scoping comments, specific comments related to sections of the Draft COP or associated reports will be provided to you as part of our cooperating agency role. We offer the following comments related to information needs for the EIS, resources in the project area, and consultation requirements within our agency's jurisdiction.

Project Purpose and Need

The EIS for the proposed project should clearly describe the project purpose and need. A clearly defined project purpose is essential to the formulation and evaluation of project alternatives, as required by NEPA.

Alternatives Analysis

The "Alternatives Analysis" section of the EIS should include a discussion of the full range of practicable alternatives to the proposed project, particularly those that are less damaging to the environment. The development of project alternatives should consider the balance between energy generation and environmental impacts. The analysis should follow the sequence of avoidance, minimization, and mitigation of impacts.

The potential for renewable energy sources in the upland environment should be considered as an alternative to development of the outer continental shelf. If this alternative is not considered for further analysis, the EIS should briefly discuss the reasons for it having been eliminated from further consideration.

A number of alternatives should also be considered specific to the proposed project. First, the size of the project and the proposed phasing of project construction should be considered as alternatives. Specifically, plans to construct an 800 MW project at once or phase construction under two 400 MW projects, or four 200 MW projects should be considered under the alternatives analysis. While we understand a number of factors contribute to the ultimate size of the project, phasing the size and schedule of the project would influence the scale of impacts. In addition to direct impacts associated with additional turbines and cable installation, multiple consecutive construction seasons may exacerbate impacts to marine resources and fishing operations in the area. The time of year construction activities occur would also be an important factor in evaluating potential biological, economic, and social impacts of the project. The opportunity to study project impacts to inform future phases of development should also be considered under this analysis.

Commercial and recreational fishing are essential components of the existing landscape that must be preserved in the development of the project. Alternatives for turbine layout, location,

and spacing, particularly related to impacts on fishing operations and transit, are important considerations for the alternatives analysis in the EIS. Operation of ongoing scientific surveys should also be considered, including our science center surveys, the Northeast Area Monitoring Assessment Program (NEAMAP), and state surveys. We understand your design envelope concept allows for a range of turbine spacing in the project proposals; however, specific alternative spacing and layouts should be considered in the EIS. While the proposed layout in the draft COP considers vessels transiting through the project, it may conflict with existing commercial fishing activities that occur in the northern end of the proposed WDA, particularly mobile gear operations. If spacing and orientation cannot be modified in such a way that allow for transit and fishing activity, alternatives that remove sections from the WDA with the highest fishing activity or reduce the number of turbines in that area should be considered. Under this alternatives analysis, you should also consider the most appropriate location for project siting within the Wind Energy Area (WEA) to meet the purpose and need of the project. It is also important to consider the proposed layout and spacing of adjacent wind farm proposals as you develop project layout alternatives. Given the proximity of adjacent projects proposed by multiple developers, the layout of turbine foundations is a critical factor that requires coordination through the Federal process to minimize cumulative impacts to commercial and recreational fishing operations. We recommend you work closely with the commercial and recreational fishing communities and the U.S. Coast Guard to determine the most appropriate spacing and orientation of the turbines.

The proposed cable routes should also be evaluated in the alternatives analysis. While the draft COP proposes several potential cable routes, it is our understanding that the required cables would all be located within the same cable corridor. This corridor may be up to 1,000 meters wide and include sensitive habitat areas. The cable corridor alternatives should be evaluated for minimization of impacts to sensitive habitats, impacts related to the methods of construction, and the extent of the route that allows for full cable burial to minimize permanent habitat impacts and potential interactions with fishing gear. Similar to the comments about coordinating turbine spacing and layout between multiple wind projects, the EIS should consider alternatives that would allow for coordination and consolidation of cable routes with adjacent projects.

Affected Environment

The “Affected Environment” section of the EIS should cover a sufficient geographic area to fully examine the impacts of the proposed project and support an analysis of the cumulative effects. Within this section, the EIS should include results of on-site surveys, and site specific habitat information including the physical oceanography (temperature, salinity, depth, and dissolved oxygen), plankton and larval distribution, chlorophyll a, and characterization of benthic communities. Additional details should be provided related to sensitive habitats in the project area. This section should also include information on the seasonal abundance and distribution of marine mammals, sea turtles, fish and invertebrates throughout the area that may be directly or indirectly impacted by the project. It is important that the EIS discuss seasonal changes in the environment of the project area and how that influences the distribution and abundance of marine resources. The “Affected Environment” section should also include information on any necessary landside facilities and the staging locations of materials to be used in construction.

Due to the significance of commercial and recreational fisheries issues associated with this project, we recommend that “Fisheries Resources” be addressed as a separate section within the “Affected Environment” section. This section should include all of the biological, cultural, and socioeconomic issues related to fisheries resources. Specifically, this section should include an assessment of managed species, their status, and habitat requirements; landings and value of landings and recreational effort; fishery participants including vessels, gear types, and ports; and potential impacts beyond the vessel owner level (processors, distributors etc.). This evaluation should cover the immediate project area and adjacent locations.

Environmental Consequences


The “Environmental Consequences” section of the EIS should consider impacts resulting from the construction, operation and maintenance, and decommissioning of the proposed facility. This section should consider all of the individual, direct and indirect effects of the project, including those impacts that may occur offsite as a result of proposed project, such as construction of landside facilities necessary to construct and support operations of the Vineyard Wind project.

Temporary and permanent impacts to water quality, protected species, habitats, and fisheries (ecological and economic) throughout construction, operation, and decommissioning should be addressed in the EIS. All activities included in construction of the project should be considered, including the deposition of fill material, dredging, water withdrawals, pile driving, increased vessel traffic, anchoring, and transmission cable installation. The ecological impacts resulting from the loss of seabed and the associated benthic communities and forage base should be evaluated. This should include a discussion of the ecological and economic impacts associated with habitat conversion (e.g., soft sediments to hard bottom/artificial reef habitat) from turbine installation. This analysis should also include site-specific benthic data collection and an evaluation of impacts to higher trophic levels due to the loss of prey species. Potential impacts to marine resources associated with construction and operation of the project, such as elevated noise levels, increased vessel traffic, electromagnetic fields (EMF), and localized changes in currents should be evaluated. Impacts associated with decommissioning of the project should also be included, with details on how decommissioning would occur and the environmental consequences associated with project removal.

In addition to focused evaluations on protected species, fish, invertebrates, and habitats, the “Environmental Consequences” section of the EIS should include a subsection evaluating impacts to commercial and recreational fisheries. The EIS should discuss the economic impacts caused by the permanent loss of bottom habitat, impacts of any temporary exclusion zones during construction, and potential impacts to commercial and recreational fishing activities from project operation. This evaluation should also include any potential displacement of fishing activities and resulting increased fishing pressure in other locations.

Mitigation

The EIS should include a discussion of mitigation for impacts resulting from the construction and operation of the wind energy facility and associated cable installation. Measures to

minimize impacts such as soft start procedures, construction timing, anchoring plans, or micro-siting should be discussed in detail. The EIS should analyze temporary effects and anticipated recovery times for marine resources within the impacts analysis. While the project should be planned to avoid and minimize adverse effects to the marine environment to the greatest extent practicable, compensatory mitigation should be proposed to offset permanent and temporary impacts. Social and economic losses as well as ecological losses should be considered, particularly any loss of fisheries revenue resulting from the construction and operation of the project. Measures to compensate for potential economic losses should be discussed in the EIS. 

Cumulative Effects

The EIS should include a complete analysis of the cumulative impacts of the project. This analysis should describe the effects of the proposed project, which in combination with any past, present, and reasonable foreseeable future actions, may result in cumulative impacts on the ecosystem. This analysis should include a broad view of reasonably foreseeable projects, including development projects that are only in the proposed leasing or site assessment phase. Specifically, the cumulative effects analysis should consider other existing, proposed or planned energy infrastructure projects in the vicinity of the project including, but not limited to, Bay State Wind Project, South Fork Project, Revolution Wind, and the potential for development of the two Massachusetts Wind Energy Areas that have not yet been leased. Proposed wind development projects in the mid-Atlantic region should also be included in the analysis of cumulative effects on marine resources. This is particularly important for migrating species, such as marine mammals, sea turtles, fish and invertebrates that may use or transit multiple proposed project areas. The potential cumulative impacts on these species resulting from changes to benthic and pelagic habitats and potential food sources due to the presence of multiple projects should be evaluated in the cumulative effects analysis.

The EIS should evaluate in detail, the cumulative impacts on protected species and fisheries resources associated with overlapping construction activity of adjacent projects, including elevated noise levels and increased vessel traffic. Specific information related to the timing of the activity and the expected number of proposed construction seasons is important, particularly for evaluating cumulative impacts to marine mammals, sea turtles, and spawning activity of fish and invertebrates.

An assessment of cumulative impacts of existing and proposed transmission cables should also be considered. Based on the proposed wind development projects in this region, there is the potential for substantial additive impacts associated with the number of required cables. As part of the cumulative effects analysis, measures to minimize the additive impacts should be considered, including the evaluation of designated cable routes and coordination and consolidation with adjacent projects to minimize cumulative impacts.

Cumulative impacts to fishing operations, such as changes to time and area fished, gear type used, and fisheries targeted, should be evaluated in the EIS. It is important to evaluate cumulatively how the projects could affect other fisheries operating outside the project area due to effort displacement, shifts from one fishery to another, and increased fishing effort due to fishing in less productive areas. Shifts in fishing behavior, including location and timing, may

result in cumulative impacts to habitat as well as target and bycatch species that have not been previously analyzed in fishery management actions. It is important to address this in the EIS, as the analysis should also consider cumulative impacts of this project with existing fisheries management measures. The number and spacing of turbines in relation to adjacent projects should also be considered in detail and modifications should be made to minimize cumulative impacts of adjacent projects on fishing operations and vessel transit.

Given the extent of potential offshore wind development on the outer continental shelf and in this region in particular, the cumulative effects analysis will be a critical component of the EIS. The establishment of a regional monitoring program will be important to help understand potential impacts of wind energy projects and identify potential mitigation measures for any future projects. We support the establishment of a regional scientific research and monitoring framework to better identify and understand cumulative impacts and interactions between fisheries and offshore wind energy. We are encouraged to see ongoing efforts to establish a regional monitoring program with Rhode Island and Massachusetts for the Southern New England wind development areas. We also encourage you to consider monitoring at all scales and taking an ecosystem-based approach and assessing monitoring needs of fisheries, habitat, and protected species. This will be important to not only assess the cumulative impacts of project development, but also to help inform any future development. Given our agency expertise in this area, we encourage you work closely with us in the development of any monitoring program.

Endangered Species Act

The following listed species may be found in the Vineyard Wind project area: **Endangered North Atlantic right (*Eubalaena glacialis*)**, fin (*Balaenoptera physalus*), sei (*Balaenoptera borealis*), and sperm (*Physeter macrocephalus*) whales; endangered Kemp's ridley (*Lepidochelys kempii*) and leatherback (*Dermochelys coriacea*) sea turtles; threatened North Atlantic distinct population segment (DPS) of green (*Chelonia mydas*) sea turtles and Northwest Atlantic DPS of loggerhead (*Caretta caretta*) sea turtles; and five DPSs of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*). Sea turtles are only present in the project area seasonally, with occurrence largely limited to May - November. More information on these species is available on our Greater Atlantic Regional Fisheries Office (GARFO) website:

<https://www.greateratlantic.fisheries.noaa.gov/protected/section7/listing/index.html>. Right

whale sightings are available at our Northeast Fisheries Science Center webpage:

<https://www.nefsc.noaa.gov/psb/surveys/>. There is no designated critical habitat that overlaps with the project area.

ESA Section 7 Consultation

Under Section 7(a)(2) of the Endangered Species Act (ESA), each Federal agency is required to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any endangered or threatened species. Because the construction, operation, and decommissioning of the Vineyard Wind project may affected ESA-listed species, section 7 consultation is required. It is our understanding that BOEM will be the lead Federal agency for this consultation and that you will coordinate as necessary with any other Federal agencies that may be issuing permits or authorizations for this project so that we can carry out one consultation

that considers the effects of all relevant Federal actions (e.g., issuance of permits by the U.S. Army Corps of Engineers and/or the U.S. Environmental Protection Agency) regarding any wind energy facility proposed in the project area.

Considerations for the Environmental Impact Statement

We expect that any environmental documentation regarding a proposed wind facility in the project area will fully examine all potential impacts to our listed species. The construction and operation of a wind energy facility or installation of electrical cables have the potential to impact listed species and the ecosystems on which they depend. Potential effects of offshore wind energy development on listed species that should be considered by you when making any determinations about construction and operation in the Vineyard Wind project area include: Potential for an increased risk of vessel strike due to increases in vessel traffic and/or shifts in vessel traffic patterns due to the placement of structures; impacts of elevated underwater noise during any geophysical and geotechnical surveys, pile driving, and other activities; any activities which may displace individuals from preferred habitats, alter movements or feeding behaviors, increase stress and/or result in temporary or permanent injury or mortality; disruption of benthic habitats during construction-related barge anchorage, infrastructure placement, pile driving, or cable route development that may increase the risk of entanglement or change of migratory behavior, alter prey assemblages or result in the displacement of individuals; and any impacts to water quality.

We encourage you to work with Vineyard Wind to develop a project schedule that minimizes potential impacts to North Atlantic right whales. Marine mammal responses to sound can be highly variable, depending on the individual hearing sensitivity of the animal, the behavioral or motivational state at the time of exposure, past exposure to the noise which may have caused habituation or sensitization, demographic factors, habitat characteristics, environmental factors that affect sound transmission, and non-acoustic characteristics of the sound source, such as whether it is stationary or moving (NRC 2003). While BOEM and Vineyard Wind will need to consider effects to all listed species, given the imperiled status of right whales, minimizing exposure of individual right whales to activities that could result in harm, harassment, injury, or mortality is very critical. In regards to all ESA-listed and protected species under our jurisdiction, we encourage you to work with our headquarters and regional office staff to acquire all necessary Marine Mammal Protection Act authorizations and ESA permits. In addition, the EIS should consider requiring the development of minimization and monitoring measures that minimize the risk of vessel strike and exposure to potentially harassing or injurious levels of noise to marine mammals and fish.

Magnuson Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires federal agencies to consult with the Secretary of Commerce, through NOAA Fisheries Service, with respect to “any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat (EFH) identified under this Act.” 16 U.S.C. § 1855(b)(2). Pursuant to the MSA, each fishery management plan (FMP) must identify and describe EFH for the managed fishery, and the statute defines EFH as “those waters and substrates necessary to fish for spawning, breeding,

feeding or growth to maturity.” 16 U.S.C. § 1853(a)(7) and § 1802(10). NOAA’s regulations further define EFH adding, among other things, that “‘necessary’ means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem.” 50 C.F.R. § 600.10.

As currently described in the NOI, this facility will be constructed and operated in an area described and identified as EFH for fish managed under the New England Fishery Management Council (NEFMC), the Mid-Atlantic Fishery Management Council (MAFMC), the South Atlantic Fishery Management Council (SAFMC), and NMFS. Fish managed under the fishery management plans include the Northeast multispecies, sea scallop, Atlantic salmon, monkfish, Atlantic herring, spiny dogfish, northeast skates, small-mesh multispecies, red crab, bluefish, Atlantic mackerel, squid, butterfish, Atlantic surfclam and ocean quahog, summer flounder, scup, black sea bass, Atlantic highly migratory species, and coastal pelagic fish.

The NEFMC Omnibus EFH Amendment 2 was approved on January 3, 2018, and implemented April 9, 2018. EFH and Habitat Areas of Particular Concern (HAPC) for 28 species managed by the NEFMC have been modified under the Omnibus Amendment. The EIS should use the updated EFH and HAPC designations for the EFH assessment. While spatial data for these species are not yet available for viewing or location queries under the EFH Mapper, the New England EFH designation maps can be downloaded from our habitat website at <https://www.habitat.noaa.gov/protection/efh/newInv/index.html> and text descriptions and HAPC designations can also be accessed on our habitat website at https://www.habitat.noaa.gov/protection/efh/efhmapper/oa2_efh_hapc.pdf. The EFH mapper can be used to query and view and spatial data for the species managed under the Mid-Atlantic Councils and for Highly Migratory Species/Secretarial species. The EFH mapper can be accessed from our habitat website at <https://www.habitat.noaa.gov/protection/efh/efhmapper/>.

EFH Assessment

Due to the potential for substantial adverse effects to EFH from the proposed project, an expanded EFH consultation as described in 50 C.F.R. § 600.920(f) should be included within the EIS. The EFH final rule published in the Federal Register on January 17, 2002, defines an adverse effect as: “any impact which reduces the quality and/or quantity of EFH.” The rule further states that:

An adverse effect may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The EFH assessment must contain “a description of the action; an analysis of the potential adverse effects of the action on EFH and the managed species; the federal agency’s conclusions regarding the effects of the action on EFH; and proposed mitigation, if applicable.” 50 C.F.R. § 600.920(e)(3). As part of the expanded EFH assessment, additional information including

[REDACTED]

[REDACTED]



conversion of one habitat to another, such as the creation of hard bottom habitat in predominantly sandy areas. Impacts to EFH associated with noise from project operation and EMF from cable transmission should be evaluated. This should include an evaluation of these impacts to pelagic and benthic habitat, including benthic infauna. Modeling changes in localized flow and currents from project operation should be conducted to assess impacts to larval distribution and settlement in the region. Juvenile settlement and habitat use on the OCS remains a data gap that should be addressed, particularly for evaluation of cumulative impacts of the offshore wind projects. As part of your evaluation, it is also important to discuss any potential effects from the project on food sources of species with designated EFH in the project area. Decommissioning procedures and the potential impacts to EFH should also be included in the EIS.

As part of the expanded EFH assessment, an alternatives analysis and any proposed mitigation measures should be discussed in detail. For all potential impacts evaluated in the EIS, alternatives for avoiding and minimizing adverse effects to EFH should be clearly identified and analyzed. Mitigation measures such as soft start, sequencing construction timing, and micro-siting and anchoring plans to avoid sensitive habitats, should be included in the EFH assessment. Proposed mitigation and monitoring plans, particularly for unavoidable impacts, should also be included in the EIS. The EIS should include a discussion of both site-specific mitigation and monitoring as well as regional scale monitoring efforts to assess cumulative impacts of adjacent projects. We encourage you to coordinate with us during the development of the expanded EFH assessment to ensure the information we will need is addressed in the assessment.



Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act (FWCA) provides authority for our involvement in evaluating impacts to fish and wildlife from proposed federal actions that may affect waters of the United States. The FWCA requires that wildlife conservation be given equal consideration to other features of water resource development programs through planning, development, maintenance and coordination of wildlife conservation and rehabilitation. The Act does this by requiring federal action agencies to consult with us "...with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof in connection with such water-resource development." 16 USC 662. One of the reasons that Congress amended and strengthened the FWCA in 1958 was that it recognized that "[c]ommercial fish are of major importance to our nation[.]" and that federal permitting agencies needed general authority to require "...in project construction and operation plans the needed measures for fish and wildlife conservation." S.Rep. 85-1981 (1958). Our FWCA recommendations must be given full consideration by federal action agencies.

Your consultation with us under the FWCA may occur concurrently with your EFH consultation under the MSA. Overlap exists for the many MSA species currently managed through the New England, Mid Atlantic, and South Atlantic Fishery Management Councils. The list of Council managed species can be found on the Council websites: <https://www.nefmc.org>, <http://www.mafmc.org>, and <http://www.safmc.net>. NOAA does not, however, manage all project area species under the MSA. For example, we manage important project area species,

[REDACTED]

[REDACTED]

provided also appears to be limited only to spring and fall seasons. The duration and timing of construction and decommissioning activities should also be discussed with respect to their potential biological, economic, and social impacts to the affected environment.

As noted above, federally managed species with unique life histories, such as longfin squid, are present within the project area. These short-lived, semelparous species have distinct spawning behavior that may be disrupted due to construction activities and turbine operations. Should disruption of spawning behavior occur over a prolonged period, reproductive and subsequent recruitment success may be compromised over the short-or long-term. Soft start may help mitigate the impact of construction activities to mobile species. However, if mobile species move away from construction noise during spawning season, substantial disruption, delay, or elimination of spawning activity, and therefore spawning success, may occur within the area of impact. Further, longfin squid egg mops are attached to the bottom and susceptible to high mortality when buried by sediment. This is not discussed the COP, but is an indirect impact of such activities. Such potential biological, economic, and social impacts must be considered in the EIS.

The draft COP focuses on the benefits of offshore wind development activities on communities within Connecticut, Massachusetts, and Rhode Island. However, the draft COP does not include information on the costs of such activities on these and other states affected by development within the project area. At a minimum, information on fishing communities within New Jersey and New York must be included in the affected environment section, as vessels hailing from these states participate in fisheries within affected areas. Quantitative analysis of the potential costs associated with reduced fishing revenues as a result of short-or long-term effort displacement, reduced catch rates, changes to species composition, negative effects on spawning/recruitment, and permanent or short-term changes to EFH during construction, operational, and decommissioning phases of this project must be included in the COP and subsequent EIS. Opportunity costs such as revenue lost by fishing effort that is displaced into less productive areas, including vessels displaced out of the project area and those already fishing in an area into which displaced vessels move, and the potential for poor recruitment resulting from construction activities should be assessed. Similarly, analysis of the affiliated non-market social impacts of such activities needs to be included in the EIS.

The EIS should evaluate any potential economic impacts to the commercial and recreational fishing industry as a result of the project and incorporate proposed mitigation measures. This should include an evaluation of potential changes in fishing effort within the WDA, the potential for gear loss or damages, and the potential changes in revenue as a result of the proposed project. An evaluation of the potential for gear damage, from operation within the WDA, from project survey vessels, or from towing over concrete mats along the cable routes should be included in the EIS along with proposed mitigation measures to compensate loss or damages. An analysis of potential loss in revenue from construction activity should also be considered in the EIS. The analysis in the draft COP uses revenue data through 2012, but more recent data are available and should be integrated into the EIS. Although more recent fishing effort data are included in the draft COP, fishing revenue data from the 2016 fishing year in particular, are missing. Including those data will also more accurately describe the value of the longfin squid resource adjacent to the WDA and within the proposed cable corridor. This information will be necessary to evaluate



the impacts and potential costs resulting from the proposed action.

The EIS should provide a detailed analysis of how the presence of the project and turbine spacing would affect fishing gear operation, including the ability for vessels to maintain maneuverability and minimize risk of fouling gear with other gear or with the turbines. The draft COP assumes that vessels can continue to operate within the WDA, even stating that two vessels can operate between turbines; however, information to support this assumption was not provided. Specifications of all gear types operating in the project area should be compiled and incorporated into this analysis. This analysis should consider both fishing vessels and survey vessels, including state and Federal fisheries surveys.

Effects and Impacts on Federal Fisheries Surveys & Stock Assessments

Preliminary analysis by Northeast Fisheries Science Center (NEFSC) indicated that this project would result in the exclusion of 142 square nautical miles of potential sampling area for a variety of critical fisheries independent surveys carried out by NOAA. This project would have direct impacts on the Federal multi-species bottom trawl survey (BTS) conducted on *FSV Henry Bigelow* and the Surfclam/Ocean Quahog survey conducted on commercial fishing platforms. The BTS is conducted 4 times per year and has been running for over 50 years, and is the single longest running survey of its kind. Data collected from the BTS supports a significant scientific enterprise, including approximately 63 fish stocks assessed by the NEFSC. The Federal Surfclam/Ocean Quahog survey is conducted on an annual basis and the data from this survey is necessary to perform quantitative stock assessments used to establish catch limits for the clam dredge fishery. Based on preliminary analysis, the area covered by turbine footings would result in a substantive portion of the bottom trawl survey stratum 9 unavailable to sampling. The Surfclam/Ocean Quahog survey strata are smaller than the BTS strata and would thus have a larger percentage of survey stratum permanently impacted. Any untowable areas (and their vicinities) along the submarine cable routes would create additional exclusions to current sampling protocols. Other NEFSC Federal surveys which may be impacted by this project include the NEFSC integrated benthic/sea scallop survey that provides data necessary to perform a quantitative stock assessment used to establish catch limits for the commercial scallop fishery. Although NEFSC does not normally survey this area, there are scallop survey areas of interest south of Nomans Island. NEFSC has not conducted the required analyses to determine the impacts of these sampling area exclusions on the myriad of stocks dependent on these data streams. We encourage you to work closely with our agency in your evaluation of potential impacts to our survey methods.

Conclusion

Thank you for the opportunity to provide comments during this important scoping process. We will continue to support the Administration's efforts to advance offshore renewable energy through our participation in the offshore wind development regulatory and planning processes. As we engage in this processes, we are committed to implementing our national strategic goals to maximize fishing opportunities while ensuring the sustainability of fisheries and fishing communities, and to recover and conserve protected species while supporting responsible fishing and resource development. We are committed to working with you to provide the necessary expertise and advice to avoid areas of important fishing activity, sensitive habitats, and to

minimize impacts to fisheries and protected species.

Should you have any questions regarding these comments, please contact Sue Tuxbury in our Habitat Conservation Division (978-281-9176 or susan.tuxbury@noaa.gov). For questions regarding ESA and section 7 comments, please contact Julie Crocker in our Protected Resources Division (978-282-8480 or Julie.Crocker@noaa.gov).

Sincerely,



for Michael Pentony
Regional Administrator

cc: Brian Hooker, BOEM
Tim Timmerman, USEPA
David Pierce, MADMF
Kathryn Ford, MADMF
Bruce Carlisle, MACZM
Bill White, MACEC
Grover Fugate, RICRMC
Julia Livermore, RIDEM
Tom Nies, NEFMC
Chris Moore, MAFMC
Lisa Havel, ASMFC
Candace Nachman

Reference

National Research Council (NRC). 2003. Ocean noise and marine mammals. National Academy Press; Washington, D.C.