#7

Updated

CORRESPONDENCE

From: Hooker, Brian [mailto:Brian.Hooker@boem.gov]
Sent: Wednesday, November 24, 2021 1:02 PM
To: Tom Nies <tnies@nefmc.org>; Chris Moore <cmoore@mafmc.org>
Cc: Michelle Bachman <mbachman@nefmc.org>; Julia Beaty <jbeaty@mafmc.org>; Boatman, Mary C <Mary.Boatman@boem.gov>; Krevor, Brian <Brian.Krevor@boem.gov>
Subject: South Fork Wind Farm Record of Decision

Tom and Chris, I wanted to reach out to let you know that today BOEM and NMFS signed the Record of Decision for the South Fork Wind Farm project. I'm happy to answer any questions from you or the Council over email or during our time during the upcoming Council meetings.

Have a good holiday,
Brian

BOEM is announcing today a record of decision (ROD) for the South Fork Wind Farm https://www.boem.gov/renewable-energy/state-activities/record-decision-south-fork. The ROD approves the South Fork Wind LLC plan to construct, operate, maintain, and eventually decommission a wind farm with 12 or fewer turbines off Rhode Island. The ROD adopts a range of measures to help avoid, minimize, and mitigate potential impacts that could result from the construction and operation of the proposed project.

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

November 22, 2021

Alicia Logalbo
Chief, Environmental Analysis Section
Planning and Policy Branch
U.S. Army Corps of Engineers
Norfolk District
Fort Norfolk
803 Front Street
Norfolk VA 23510-1011

Re: Norfolk Harbor Navigation Improvements, Meeting Area Validation Study/Supplemental Environmental Assessment, Re-Initiation Request for Essential Fish Habitat Consultation.

Dear Ms. Logalbo:

Thank you contacting us regarding the need to re-initiate essential fish habitat (EFH) consultation with us due to the change in scope of the Norfolk Harbor Navigation Improvements Project located in Hampton Roads, Virginia. The project study now includes the further evaluation of a second meeting area for ships transiting the Thimble Shoals Federal Navigation Channel which has expanded the areal extent of the proposed dredging. Because the scope of the project has been revised in such a manner that may affect the basis for our previous EFH conservation recommendations, EFH consultation must be reinitiated pursuant to 50 CFR 600.9200).

Project Description

We have reviewed the supplemental environmental assessment project description you provided for the newly proposed construction of Meeting Area 1 for ships transiting the Thimble Shoals Federal Navigation Channel. Although Meeting Area 1 was partially evaluated in the approved Norfolk Harbor Navigation Improvements General Reevaluation Report/ Environmental Assessment (GRR/EA) it was not included in the Recommended Plan (Preferred Alternative). Therefore, Meeting Area 1 is now being reevaluated due to existing and projected increasing inefficiencies for larger class commercial vessels to transit to and from Hampton Roads.

The preferred alternative for this project includes widening the existing 1,000 ft. wide Thimble Shoal Channel (TSC) for a distance of approximately 5.1 statute miles along a segment located west of the Chesapeake Bay Bridge Tunnel. The construction of Meeting Area 1 will extend the width on each side of the channel by an additional 200 ft. to create a total channel width of approximately 1,400 feet. The project includes the additional dredging approximately 6.17

million cubic yards of material from 272 acres of bay bottom to the required depth of -56 ft. MLLW, though this total volume includes advance maintenance, paid and unpaid over-depth dredging resulting in a maximum channel depth of -61 ft. MLLW.

Material may be dredged using either a hopper dredge, hydraulic cutterhead, or mechanical dredge equipment. The material to be dredged has been previously characterized as predominantly silt and clay, for which a beneficial use project has not been identified. The 6.17 million cubic yards of material will be disposed of at either the Norfolk Ocean Disposal Site (NODS), Dam Neck Ocean Disposal Site (DNODS) or Craney Island Dredge Material Management Area (CIDMMA). According to the supplemental environmental assessment project description provided, construction is anticipated to begin in approximately 2023 but is contingent on available funding. Initial construction will require approximately 18 months to two years to complete with maintenance dredging required every three to four years after deepening to remove an additional 2.6 million cubic yards of sediment over the 50-year project life. After the deepening, this may accelerate to every two to three years.

Magnuson Stevens Fishery Conservation and Management Act (MSA)

In the materials provide to us, you have referenced the 2018 Norfolk Harbor Improvements Essential Fish Habitat Assessment to address impacts associated with the construction of Meeting Area 1, stating that impacts to EFH "are as those described in the 2018 EFH Assessment due to the similarity in sediment type as well as the immediately adjacent location of Meeting Area 1 to the Thimble Shoals Channel impact analysis already covered in the 2018 EFH Assessment." No new analysis has been provided to evaluate the potential adverse effects to EFH resulting from the additional 272 acres and 6.17 million cubic yards of new dredging and potential overboard placement, including the cumulative effects of increased maintenance dredging and placement. In our attached letter dated June 18, 2018, we issued a number of EFH conservation recommendations in response to the 2018 EFH assessment. Without additional analysis to demonstrate otherwise, we continue to conclude that the proposed Norfolk Harbor improvements, including the addition of Meeting Area 1, will adversely affect EFH and the following EFH conservation recommendations are necessary to avoid, minimize or otherwise offset these adverse effects pursuant to Section 305(b) (4) (A) of the MSA:

EFH Conservation Recommendations:

- Avoid dredging and disposal of dredged material within the blue crab sanctuary area from October 15 to March 31 of any year;
- Avoid dredging or overboard placement of dredged materials within areas of sandbar shark HAPC used for pupping and nursery activities from May 1 to October 30 of any year;
- During the Preconstruction, Engineering and Design Phase of the project sample benthic organisms to determine density, especially shellfish and blue crabs, which are prey species for federally managed fish, and coordinate with us on options to avoid, minimize and offset adverse effects;

- Use appropriate BMPs (environmental bucket, reduced lift rates, sealed scows, lowering hydraulic cutterhead into sediment before suction, etc.) as appropriate to minimize impacts to water quality and the release of contaminated sediments during construction;
- Beneficially reuse dredged material when environmentally preferable and practicable;
- Continue to coordinate with us during the Preconstruction, Engineering and Design Phase of the project.

We note that in your July 10, 2018, response to our EFH conservation recommendations, you indicated that our EFH conservation recommendations were unnecessary or unwarranted. We disagree with your determination. As discussed in both our June 18, 2018, letter and our March 15, 2018, technical assistance letter, the dredging and overboard placement of dredged materials will have adverse effects on EFH and other NOAA trust resources that can be avoided or minimize by incorporating the EFH conservation recommendations listed above into the project design and implementation. Seasonal in-water work restrictions, the use of BMPs, and additional data collection to refine the where and when these practices are needed is not an unusual practice for projects of this scale. As always, we are available to work with you to identify the information needed to refine the EFH conservation recommendations, including the seasonal in-water work restriction and BMPs and to identify beneficial use locations as the project moves forward.

As stated in our previous letter, Section 305(b)(4)(B) of the MSA requires you provide us with a detailed written response to our EFH conservation recommendations, including a description of measures you have adopted for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, you must explain your reasons for not following the recommendations. This includes providing the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects pursuant to 50 CFR 600.920(k). In addition, if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH conservation recommendations the EFH consultation must be reinitiated pursuant to 50 CFR 600.9200). The changes to EFH designations, the identification of new EFH or HAPCs also trigger the need to reinitiate consultation.

Protected Species

According to our Protected Resources Division, based on their review of the available information, the Incidental Take Statement and volume calculations presented in the 2018 Biological Opinion sufficiently cover the scope of constructing both Meeting Area 1 and Meeting Area 2. In addition, the scope, means and methods, dredging volumes, and dredging locations that were addressed and identified in the 2018 Biological Opinion have not changed. Therefore, they have determined that re-initiation of Section 7 consultation under the ESA with NMFS is not needed at this time. If you have any questions, please contact Mr. Brian Hopper, of our Protected Resources Division (brian.d.hopper@noaa.gov, 410- 267-5649).

We look forward to continued coordination on this project so that we can work with you to refine our EFH conservations to allow the project to move forward expeditiously and in a cost-effective manner while still protecting and conserving EFH and other NOAA trust resources. If you have any questions please do not hesitate to contact Mr. David L. O'Brien in our Gloucester Point,

VA field office at 804-684-7828 (david.l.o'brien@noaa.gov).

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
for Habitat and Ecosystem Services

cc: S. Conner, NAO Corps
M. Murray-Brown, B. Hopper – GARFO PRD
R. Owen – VMRC
E. Hein – VIMS
S. Ellis – GARFO SED
J. Cudney – NMFS HMS
C. Moore – MAFMC
T. Nies – NEFMC
L. Havel - ASMFC

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
Eric Reid, *Chair* | Thomas A. Nies, *Executive Director*

November 18, 2021

Ms. Swati Thomas
Senior Analyst
U.S. Government Accountability Office
441 G St., NW
Washington, DC 20548

Dear Ms. Thomas:

In November 2021, the GAO asked the New England Fishery Management Council (Council) some additional questions regarding the impacts of climate change on fishery management and scientific support of NEFMC management plans. The Council's replies to the additional questions are given below. If you have further questions, please let us know.

Clarification questions from interview

1. *During our interviews with your Council and NMFS we discussed the following fisheries climate tools and information being used in your region:*

    a. *Is this correct? Are there any other fisheries climate tools or information used by the Council that we should be aware of? If yes, please describe.*

    Response: The list you provided based on the initial interview is fairly complete, but one should be added that is under development and might be used in the future:

    A Groundfish Management Strategy Evaluation to examine potential management procedures that would (https://gmri.org/projects/groundfish-management-strategy-evaluation/):

    - Evaluate how principal groundfish stocks will respond to regional climate change.
    - Investigate plausible approaches to tailoring fisheries management procedures to climate-informed stock assessments, biological reference points, and harvest control rules.
    - Quantify the expected ecological and economic performance of alternative fisheries management procedures in a changing climate.

2. *During our interviews with Councils and NMFS we discussed the following fishery management actions that have considered climate change impacts on fisheries in your region:*

- *Revisions to the black sea bass commercial state allocations based on current biomass distribution (including New England states)*
- *Adjustments to state fishing allocation for summer flounder that consider fish distribution changes (including New England states)*

a. *Are there any other fishery management actions made in response to climate change impacts on fisheries in your region that we should be aware of? If yes, please describe and provide a copy or link to any documentation.*

Response: There have been no specific fishery management actions developed in response to climate change impacts under the Council's fishery management plans (FMPs). Council FMP's have not allocated fishing privileges to states or ports of landing. However, to the extent that climate changes might have affected fish stock abundance and distribution information in assessments, adjustments have been made to management reference points such as overfishing limits (OFLs), acceptable biological catches (ABCs), annual catch limits (ACLs), etc. As an example, the biomass reference point B_{MSY} proxy for Southern New England yellowtail flounder has been greatly reduced. Although climate change was not explicitly cited as a factor for this change, the effect of climate change on reducing the stock's productivity was indirectly incorporated into the revised biomass target. Also, the recommended catch levels were reduced consistent with the new targets resulting from climate change or other factors.

Additional questions

NMFS' Development of Climate Change Information and Guidance

1. *How, if at all, does NMFS collaborate with your Council to prioritize the climate-related data collection and research that NMFS conducts?*

   Response: The Council annually updates a list of desirable fishery management research needs, some that are related to climate change effects. NMFS refers to this list when evaluating research and experimental fishery proposals.

2. *In 2018, NMFS issued a technical memorandum, entitled "Accounting for Shifting Distributions and Changing Productivity in the Fishery Management Process: From Detection to Management Action" (See this link).Has your Council or Commission used this memorandum to help identify or consider actions it might to take to improve management of fisheries impacted by climate change? If yes, please briefly describe.*

   a. *In your opinion, would additional written guidance from NMFS for Councils be useful? If yes, what would such guidance include?*

   Response: No, the Council has not formally adopted this discussion document as guidance and has not explicitly used it for recent management actions although it expects recommendations 1-5 to be incorporated in the stock assessment advice it receives from NOAA\ NMFS. The Council also follows recommendations under #6 *Manage fish under changing conditions*, to a great extent based on information that is made available to the Council. The Council has developed a Risk Policy that calls for the use of management strategy evaluation (MSE) when feasible. Since employing MSE is often beyond the capacity of the Council, the Council so far has used this approach only twice: for developing a harvest control rule for Atlantic herring and for evaluating Groundfish control rules (in progress). Finally, the Council's Scientific and Statistical Committee (SSC) is provided the most recent version of the State of the Ecosystem Report and the Council's Risk Policy whenever it develops catch advice recommendations.

Council Use of Climate Change Information

3. *Is climate change information provided by NMFS or others used by your Council to inform habitat protection and conservation efforts, such as for identification of essential fish habitat or habitat areas of particular concern? If yes, please provide an example.*

   Response: Other types of information have been used to inform habitat protection measures to date. In terms of conservation efforts, much of the information provided by NMFS on climate change effects comes through reports to the Council and the Council's SSC. Examples include the annual State of the Ecosystem Report (https://www.nefmc.org/library/state-of-the-ecosystem-reports), a climate vulnerability assessment (https://www.fisheries.noaa.gov/new-england-mid-atlantic/climate/northeast-vulnerability-assessment), and presentations at Council and committee meetings, e.g. https://s3.amazonaws.com/nefmc.org/6a_NEFMC_April_2021_Meeting_Saba_Climate_Fisheries_Research.pdf. These sources help inform Council members and the SSC of environmental trends that may affect their decisions, although there is no formal procedure for incorporating these effects into the Council's decisions. The Northeast Fisheries Science Center also considers the potential effects of climate change which may influence forecasts of population trends due to changes in growth and natural mortality.

4. *Is your Council involved in any efforts to help prepare the fishing industry or fishing dependent communities to the impacts of climate change? If yes, please briefly describe.*

   Response: Yes, the NEFMC is a partner in the East Coast Climate Change Scenario Planning Initiative (https://www.mafmc.org/climate-change-scenario-planning), led by the Mid-Atlantic Fishery Management Council (MAFMC).

   The Council, in a partnership with the Greater Atlantic Regional Office of NMFS and the Mid-Atlantic Fishery Management Council, initiated a project conducting a "Habitat Climate Vulnerability Assessment Matrix and Species Narratives Development" and has hired a contractor (https://www.nefmc.org/news/council-seeks-contractor-for-habitat-climate-vulnerability-assessment-matrix-and-species-narratives-development) to lead this project.

5. *How often do you revisit fish allocation decisions in your region?*

   a. *Are climate change impacts on fisheries (e.g., changes in landing amounts or locations) considered in revisiting allocation decisions? If so, please provide examples.*

   Response: The Council's FMPs generally do not allocate catch spatially, although individual stocks, for example, Gulf of Maine and Georges Bank cod, have different management reference points such as biomass targets and estimates of maximum sustainable yield. The Council also shares fishery resources with Canada for Georges cod haddock and yellowtail flounder stocks that overlap the US – Canada boundary on Eastern Georges Bank. These cross-boundary allocations are determined by a formula which mostly relies on stock biomass trends in the surveys conducted by two countries. The result is that the allocation is responsive to climate change effects on biomass distribution which is reflected in the surveys, but that allocation formula does not explicitly account for climate effects.

6. *What technical assistance, if any, would be helpful to you on how to use climate change information and tools provided by NMFS to inform fisheries management decisions?*

Response: The NEFSC could work more closely with the Council to evaluate how climate change effects are considered within the Council's risk management policy. The NEFSC could also improve its evaluation in the State of the Ecosystem reports on the implications of climate change on New England stocks and fisheries. Incorporating climate change effects into biological reference point estimates has been discussed for possible inclusion in a 2026 research track assessment (Consideration of ecosystem and climate information in the stock assessment process"). The use of dynamic management reference points as a response to environmental change also had been identified during Council discussions. Dynamic management reference points are biomass thresholds and fishing mortality limits that changes with stock productivity responses to climate change and other ecological factors.

Analytic assessments that estimate sustainable biological reference points require accurate data inputs on the growth and natural mortality of fish. Climate change and other environmental factors can affect growth and mortality, sometimes over relatively short period. This can only be accurately monitored if adequate catch sampling and resource survey programs are designed and funded to track these changes. Recent reductions in sampling and survey program budgets in the Greater Atlantic Region threaten the ability of scientists to detect such changes.

Surveys are critical for determining fish stock distribution and abundance and for developing management responses to changing conditions. Unfortunately, resources for these surveys in the northeast region have been diminishing over the last decade.

7. *In general, to what extent would you say that climate change information has been used in your region to inform fisheries management decisions?*
    a. *Not at all*
    b. *To a limited extent*
    c. *Sometimes*
    d. *Often*

Response: Sometimes, or to a limited extent (b and c). The Council members and the SSC are advised about potential climate effects on stocks. Sometimes this information is considered and used qualitatively or indirectly in stock assessment information and catch advice. Other than inclusion in stock assessments, there is no formal process for incorporating the potential effects of climate change to evaluate the effectiveness of management measures and catch advice and modify them accordingly.

Challenges

8. *In our previous discussions, we learned about changing species distributions and productivity related to climate change and the challenge this presents to the existing fisheries management structure. In your opinion, how could the Councils and/or NMFS facilitate the development of flexible governance mechanisms within and across Councils to help address this challenge?*

Response: The NEFMC jointly manages two fisheries (spiny dogfish and monkfish) with the MAFMC. The two Councils also have voting members on many of each other's committees for FMPs including for committees for Ecosystem-Based Fishery Management, Northeast Multispecies, Atlantic Sea Scallops, Small-Mesh Multispecies, Atlantic herring, Skates, and Habitat.

Some southern fish stocks are becoming more prevalent in New England fisheries, but they are governed by limited access that was developed based on historical fishery participation, making permits difficult or costly to obtain. NMFS and the Councils could explore ways to

allow for permit issuance or transferability for when stock structure changes and distribution shifts due to climate effects and other factors.

Other

9. We are interested in speaking to some academic institutions and stakeholder groups (e.g., non-governmental organizations, commercial and recreational fisheries groups) about our study. Please provide 1- to 2-points of contact information for academic institutions and stakeholder groups that your Council works with to enhance the climate resilience of fisheries that you would recommend we speak with.

   Response: Below are several few institutions and stakeholder groups that have focused on addressing climate effects on New England fisheries:

   a. The NEFMC is a partner in the East Coast Climate Change Scenario Planning Initiative (https://www.mafmc.org/climate-change-scenario-planning), led by the MAFMC. During this process, we are hearing the views of hundreds of stakeholders regarding the effects on their fishery and interests. A summary report will be available in 2022

   b. Gulf of Maine Research Institute has been active in climate- and fishery-related research and analysis (see https://www.gmri.org/stories/advancing-maines-climate-action-plan/), including a management strategy evaluation of harvest strategies that could be more robust to climate change effects.

   c. Commercial Fisheries Research Foundation in Rhode Island. Here's one project: http://www.cfrfoundation.org/salinity-max.

   d. Island Institute: https://www.islandinstitute.org/priorities/climate-solutions/

   e. Maine Center for Coastal Studies: https://coastalfisheries.org/collaborative-research/climate-change/

   f. Cape Cod Commercial Fishermen's Alliance, a small related project: https://capecodfishermen.org/scientific-research

Sincerely,

Thomas A. Nies

Thomas A. Nies
Executive Director

Offshore Wind Energy Development: *Public Industry Listening Session Regarding Mitigation of Munitions and Explosives of Concern Within Offshore Wind Lease Areas*

Tuesday, November 16, 2021, 11:00 am – 12:30 pm EST

The U.S. Committee on the Marine Transportation System (CMTS) Offshore Energy Facilitation Task Team (Offshore Energy TT) is hosting a virtual *Industry Listening Session* to directly hear from segments of the offshore wind industry regarding issues and impacts in mitigating munitions and explosives of concern (MEC) within outer continental shelf wind lease areas and near project areas including easements. Industry stakeholders are invited to articulate their current concerns and any recommendations related to MEC at the virtual listening session or in writing to OffshoreEnergy@cmts.gov.

Offshore wind energy stakeholders who intend to speak at this session are requested to email OffshoreEnergy@cmts.gov by Friday, November 12, 2021 to be included with a list of presenters. The order of presenters is first-come, first-served. We appreciate if remarks could be kept to a ten-minute summary and one person per company. Additional comments may be submitted to OffshoreEnergy@cmts.gov. This *Listening Session* is intended to hear stakeholder input without engaging in a dialog. Once all oral comments or those received via the chat function in the TEAMS application during the webinar have been received, the session may disband early. Written comments will be accepted until **December 16, 2021**.

Who Should Attend: Lessees; Contractors; Support Services; Response Organizations, Safety Committees, Training Organizations, etc.

We welcome comments related to the following questions:

1. What are your current ongoing MEC / UXO related challenges, issues, unresolved concerns, and how often do you encounter them?
2. What are the lessons learned by your previous experiences handling MECs / UXOs?
3. What steps can the Task Team take to facilitate industry's development efforts to fill any identified gaps in existing best practices and protocols?

~ To Access the Listening Session via TEAMS ~

Click here to join the meeting

Or call in (audio only), (US) 509-931-1572, Passcode 305506280#

Please direct questions to OffshoreEnergy@cmts.gov

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

November 10, 2021

Peter R. Blum P.E.
Chief, Planning Division
U.S. Army Corps of Engineers, Philadelphia District
Attn: Environmental Resources Branch CENAP-PL-E
Wanamaker Bldg., 100 Penn Square East
Philadelphia, PA 19107-3390

RE: New Jersey Back Bay Coastal Storm Risk Management Study:
Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement

Dear Mr. Blum:

We have reviewed the New Jersey Back Bays (NJBB) Coastal Storm Risk Management (CSRM) Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement (DIFR- EIS) and accompanying Essential Fish Habitat (EFH) Assessment and Biological Assessment (BA) developed by the U.S. Army Corps of Engineers (USACE), Philadelphia District (District), in partnership with the New Jersey Department of Environmental Protection (NJDEP). The report presents preliminary findings of a study to identify CSRM strategies to increase resilience and to reduce risk from future storms and compounding impacts of sea level change for the network of interconnected tidal water bodies located inland of the New Jersey ocean coastline in Monmouth, Ocean, Atlantic, Burlington, and Cape May counties, identified as the back bay area (Study Area). According to the document, the objective of the NJBB CSRM Study (Study) is to investigate CSRM problems and identify solutions to reduce damage from coastal flooding that affect populations, critical infrastructure, property, and ecosystems. We are a cooperating agency in the National Environmental Policy Act (NEPA) process.

We recognize that the Council on Environmental Quality (CEQ) (40 CFR 1508.28) and USACE (33 CFR 230.13) regulations allow NEPA studies for large, complex projects such as this one to be carried out in a multi-stage or "tiered" process and that NEPA documents prepared using this approach to describe the project and its impacts at a broader level while taking into account the full range of potential effects to both the human and natural environment. However, significant deficiencies exist in the document and in the coordination process used in its development. As a result, we cannot support carrying forward the Tentatively Selected Plan (TSP) as it is currently described, which includes storm surge barriers across three coastal inlets (Manasquan, Barnegat, and Great Egg) and two cross bay barriers, into a Final Integrated Feasibility Report-Environmental Impacts Statement and subsequent Chief's Report to Congress. We recommend that the District re-evaluate the actions proposed in the TSP and develop a revised plan that evaluates, avoids, and minimizes effects to NOAA trust resources and coastal ecosystems, prioritizes the use of non-structural and other land use management options and natural and nature-based solutions, and is consistent with the NOAA/USACE Infrastructure Systems

Rebuilding Principles developed in 2013 which include improving coastal resilience by pursuing a systems approach that incorporates natural, social, and built systems as a whole.

As stated in our letter dated September 30, 2021, the DIFR-EIS and associated Biological and EFH Assessments do not contain sufficient information on the proposed action or its effects to allow for the initiation of consultations under Section 7 of the Endangered Species Act (ESA) or under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for EFH. As a result, our comments on the document included in the enclosed attachment represent technical assistance to inform your decisions and project planning as the Study moves forward. We caution, however, that the actions currently included in the TSP (i.e., two cross-bay barriers and storm surge barriers across three coastal inlets) will have significant negative consequences to NOAA trust resources including federally managed species for which EFH has been designated, Habitat Areas of Particular Concern (HAPC) for summer flounder and sandbar shark, and other commercially, recreationally, and ecologically important species. While we recognize that the USACE's SMART (Specific, Measurable, Attainable, Risk Informed, Timely) Planning process and the tiered NEPA approach are intended to allow for an iterative process based upon risk informed decision points, the low level of information available in the DIFR-EIS on the existing conditions and resources within the Study Area, the lack of details on the proposed structural components of the TSP including the materials and methods of construction, and the high degree of uncertainty regarding the adverse ecological effects of the TSP actions prevent a robust evaluation of the direct, indirect, individual, and cumulative impacts on aquatic resources including EFH and ESA-listed species.

We are also concerned that meaningful early interagency coordination to inform the development of the TSP and DIFR-EIS did not occur as described in the *U.S. Army Corps of Engineering SMART Planning Feasibility Studies: A Guide to Coordination and Engagement with the Services* (USACE 2015) developed jointly by USACE, NOAA's National Marine Fisheries Service (NMFS), and the US Fish and Wildlife Service (FWS). In this guidance document, the USACE recognizes the importance of substantive, early engagement and the need to ensure NMFS and FWS (collectively called the "Services") are fully informed, engaged, and able to review and shape project proposals. While we have participated in a number of interagency webinars and public meetings and have provided extensive comments during project scoping and throughout the Study, these efforts did not result in any meaningful discussions of project modifications to avoid or minimize adverse effects to our trust resources or the inclusion of studies or the collection of data to adequately evaluate the effects of the TSP on aquatic resources. In addition, the Services were not included as members of the Project Delivery Team (PDT) as allowed for in the 2015 guidance and have not been fully engaged during the scoping and alternatives evaluation and analysis phase of the Study. For a study of such a large scope and degree of potential effects to fish and wildlife, participation of the Services on the PDT would have greatly benefited the feasibility study process.

Further, pursuant to Section 2(b) of the Fish and Wildlife Coordination Act (FWCA), the USACE is required to consult with the Services on activities that affect, control, or modify waters of any stream or bodies of water. It also requires the USACE to consider the effects that these activities would have on fish and wildlife and must also provide for the improvement of these resources. During the scoping phase of the Study, coordination with the Services should

have occurred to develop a scope of work and timelines for completion for either a FWCA 2(b) Report or Planning Aid letter. The purpose of these documents is to identify problems and opportunities related to the conservation and enhancement of all potentially impacted fish and wildlife resources and, according to the SMART Planning Guidance, is critical for the USACE alternatives development. The DIFR-EIS, with the TSP, or initially preferred alternative, was prepared and released for public comment prior to the development of the required FWCA 2(b) Report and the associated coordination with the Services. This is inconsistent with FWCA and the USACE's own policies.

As stated in our July 23, 2021, comments on the preliminary draft of the DIFR-EIS, the document is extremely lengthy and difficult to read. There are numerous inconsistencies and issues including typographical, grammatical, and content errors. As currently written, the effects of the TSP implementation are difficult to find in the document and significant gaps in the information used by the District to develop the TSP appear to exist. Consequently, the technical assistance comments provided in the attached document are grouped into broad general categories and do not generally include specific comments on individual sections of the document.

Although we cannot support the TSP as currently proposed, we are willing to work collaboratively with the USACE, NJDEP, and other federal, state, and local agencies and stakeholders on the development of a plan that identifies practicable solutions to reduce damages from coastal flooding that affect population, critical infrastructure, property, and ecosystems while minimizing adverse impacts to NOAA trust resources and coastal ecosystems. We are also available to discuss data gaps, information needs, and the required consultations with you or your staff if you have any questions about our comments. If you would like to discuss this matter further, please contact Jessie Murray at (978) 675-2175 or jessie.murray@noaa.gov with our Habitat and Ecosystem Services Division and/or Peter Johnsen at (978) 281-9416 or peter.b.johnsen@noaa.gov with our Protected Resources Division.

Sincerely,

Michael Pentony
Regional Administrator

cc:
USACE NAP- S. Allen, M. Brandreth
USACE – NAD – R.Weichenberg
GAR HCD - L. Chiarella, K. Greene, J. Murray, K. Hanson, M. Johnson
GAR PRD - J. Anderson, M. Murray-Brown, P. Johnsen
GAR APSD - G. Power, J. Pelligrino, J. O'Connor

OPR - D. Youngkin
NOAA - H. Chabot, K. Renshaw, NEPA
NOAA NEPA
NOS OCM– D.Finch
NOS NCCOSS- K. Quigley, L. Knapp
FWS - E. Schrading
DOI – A. Raddant
NPS- M. Eberle
EPA - S. Nyre, M. Finocchiaro, B. Spinweber
MAFMC - C. Moore
NEFMC - T. Nies
ASFMC - L. Havel

Attachment
NOAA Fisheries Technical Assistance Comments
US Army Corps of Engineers
New Jersey Back Bays (NJBB) Coastal Storm Risk Management (CSRM) Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement (DIFR-EIS)

Introduction

The New Jersey Back Bays (NJBB) Coastal Storm Risk Management (CSRM) Draft Integrated Feasibility Report and Tier 1 Environmental Impact Statement (DIFR-EIS) presents preliminary findings of a Study to identify CSRM strategies to increase resilience and to reduce risk from future storms and compounding impacts of sea level change (SLC) for the New Jersey Back Bays region. The Study was undertaken by the U.S. Army Corps of Engineers (USACE), Philadelphia District (District), in partnership with the New Jersey Department of Environmental Protection (NJDEP). According to the DIFR-EIS, the objective of the NJBB CSRM Study is to investigate CSRM problems and identify solutions to reduce damages from coastal flooding that affect population, critical infrastructure, property, and ecosystems. The report discusses a Tentatively Selected Plan (TSP) for the network of interconnected tidal water bodies located inland of the New Jersey ocean coastline in Monmouth, Ocean, Atlantic, Burlington, and Cape May counties, identified as the back bay area (Study Area). Specifically, the TSP includes:

- Storm surge barriers at Manasquan Inlet, Barnegat Inlet, and Great Egg Harbor Inlet.
- Cross-bay barriers along Absecon Boulevard/Route 30 in Atlantic County and along an extension of 52nd Street (spans across the bay along the old railroad abutment) in Ocean City, Cape May County.
- Perimeter measures including floodwalls, levees and seawalls which tie the storm surge barriers and cross-bay barriers into adjacent higher ground.
- Elevating 18,800 structures (including homes and businesses) in Monmouth, Ocean, Atlantic, and Cape May counties. (Note: there are approximately 182,000 structures in the Study Area.

The TSP also includes additional options for non-structural measures and perimeter plans as well as some conceptual ideas for natural and nature-based features (NNBF).

The District is using a tiered approach to the NEPA process in evaluating the current risks of coastal flooding and SLC within the Study Area. The Tier 1 level of review is general in nature and scope, and uses available information in assessing the effects of its TSP on the human environment rather than collecting new information. NEPA documents prepared using this approach describe the project and its impacts at a broader level while taking into account the full range of potential effects to both the human and natural environment. Unfortunately, the document does not account for the full range of these potential effects and fails to fully consider a number of significant issues including many of the direct, indirect and cumulative effects of the TSP on NOAA trust resources and other natural and ecosystem functions, as well as the synergistic effects of storm surge, precipitation and other coastal storm induced weather conditions.

The DIFR-EIS states "except for current structural alignments where direct footprint impacts can be assessed on the various habitats affected, indirect impacts such as on water quality and aquatic life can only be assessed at this level with existing physical modeling. Therefore, only general impacts and/or a range of impacts utilizing existing information have been identified at this stage of the NJBB CSRM feasibility study and associated NEPA analysis, which will continue into a Tier 2 level during the Preconstruction, Engineering and Design (PED) phase." The document further states that in the Tier 2 EIS, "subsequent refinements in structural design features, detailed physical and biological modeling, and the practice of avoiding and minimizing impacts with design refinements and appropriate compensatory mitigation will further inform the environmental risk level with a goal of reducing the environmental risks to a lower level than is currently identified." Unfortunately, even with the level of detail presented in the DIFR-EIS, it is evident that the significant environmental impacts including substantial adverse effects to aquatic resources of national importance including essential fish habitat (EFH), federally managed species, Special Aquatic Sites and other NOAA trust resources will result from the implementation of the structural elements of the TSP and these adverse effects cannot be rectified with design refinements and compensatory mitigation that would be developed in the PED phase.

The DIFR-EIS identifies numerous impacts to the aquatic environment resulting from the implementation of the TSP, including the filling of over 154 acres of wetlands, mud flats, submerged aquatic vegetation (SAV), and open waters of the Study Area, as well the potential for the TSP to impact water quality, tidal flow and regime, sediment transport, and the early life stages of a variety of aquatic organisms, but these are discussed in general terms. Further, this is an assumed estimated area based on outdated mapping and according to the DIFR-EIS, may be much more significant. Because of the limited analysis in the Tier 1 NEPA document, the report does not quantify the potential numerous indirect, cumulative, and synergist impacts that could occur. Also, while compensatory mitigation is mentioned, the document does not clearly explain how adverse impacts have been avoided or minimized or the amount and type of compensatory mitigation that will be necessary to offset all of the direct and indirect impacts of the implementation of the TSP.

Putting off the full analysis of effects and the avoidance and minimization of adverse effects to the planned Tier 2 NEPA document to be developed during the PED phase of the Study will allow a plan with high risk for significant ecological harm and little understanding of the consequences of this harm to coastal ecosystems, fisheries, and the communities and economies upon which they depend to be submitted to Congress for approval. Studies, data collection, and modelling needed to fully evaluate all of the direct, indirect, individual, and cumulative effects of the TSP elements and a robust analysis of alternatives that avoid and minimize adverse effects to aquatic resources should be undertaken to inform the Final Integrated Feasibility Report and Tier 1 Environmental Impact Statement (FIFR-EIS), not after Congressional approval of the plan.

Project Coordination

The proposed project was first presented to us in 2016, following the outcomes and framework developed in the North Atlantic Coastal Comprehensive Study, which provided Tier 1 (i.e.,

regional scale) analysis of CSRM studies. In our September 26, 2016, letter, we provided comments on the scoping for this Study outlining important aquatic resources within the Study Area, consultation requirements, and effects that should be considered. We also provided extensive comments on the Study via email on August 5, 2017, outlining a number of significant concerns and issues including:

- The construction of structural measures such as storm surge barriers across inlets would result in a substantial and unacceptable impact to aquatic resources of national importance, including essential fish habitat;
- A great deal of time, effort, and funding would be needed to assess fully all of the ecological consequences of installing structures on inlets and across the back bays;
- The potential controversy over the environmental impacts and costs; and
- Public health and safety issues associated with restricting access for commercial fishermen, recreational boaters and U.S. Coast Guard vessels through the affected inlets.

In our letter dated February 6, 2018, we accepted your invitation to become a cooperating agency in the NEPA process per the requirements of Section 1005 of the Water Resources Reform and Development Act of 2014. We provided additional substantive comments on the *Interim Feasibility Study and Environmental Scoping Documen*t (Interim Report) via email on May 1, 2019, and on the preliminary draft DIFS-EIS on July 23, 2021. Unfortunately, the majority of the concerns and issues expressed in our previous comments remain unaddressed and do not appear to have influenced the outcome of the Study or affected selection of the TSP, nor have you done any of the recommended studies to inform the development of the TSP or to evaluate the environmental consequences the proposed structural measures.

We also participated in a June 6, 2019, workshop to develop a New York/New Jersey Bight Conceptual Ecological Model. The goals of the workshop were to:

- Refine the overarching model development approach;
- Develop conceptual models of the seven ecosystem types and connectivity analyses.
- Develop a preliminary set of hypotheses qualitatively describing the response of each ecosystem to potential flood risk management actions; and
- Collate sources of available data, existing models, and expertise useful for development.

According to the workshop information provided to us, the USACE's modeling objective was "to articulate the mechanisms and magnitude of environmental effects of proposed coastal storm risk management actions in the New York Bight Ecosystem as needed for project decision-making." It was our understanding that this model would be used in the development and analysis of alternatives, project plans, effects evaluation, and TSP selection in several ongoing CSRM within the New York Bight include the NJBB Study, the Nassau County Back Bay Study, and the New York/New Jersey Harbor and Tributaries Study. While this conceptual model is mentioned in the report, it is clear that the model has not been completed and the results and outputs necessary for decision-making have not been incorporated into the Study.

The *U.S. Army Corps of Engineering SMART Planning Feasibility Studies: A Guide to Coordination and Engagement with the Services* (SMART Planning Guidance; USACE 2015), developed jointly by the USACE, NOAA Fisheries and the US Fish and Wildlife Service (FWS)

(collectively, the "Services") stresses the inclusion of the resource agencies "to identify the significant resources at risk, to better understand the important questions to ask regarding those resources and risks, and to determine the information needed to answer those questions and reduce risk." While we have responded to numerous requests for comment, and attended many interagency meetings and workshops, based upon the contents of the report, this coordination appears to have had only a superficial effect on the DIFR-EIS and no discernible effect on the development of the TSP. The SMART Planning Guidance emphasizes that, "Substantive, early engagement is needed to successfully deliver projects that could potentially be delayed by lingering conflicts" and that ensuring the Services are "fully informed, engaged, and able to review and shape project proposals is critical given reduced timeframes and budgets." We were not included as members of the Project Delivery Team as allowed for in the guidance and we were not engaged in any meaningful way during the scoping phase of the Study development. As stated in the SMART Planning Guidance, "early involvement provides opportunities to avoid impacts to valued resources and areas with high-conflict potential prior to the commitment of significant planning investments." Despite the emphasis the planning guidance places on early coordination and engagement with the Services, and the extensive comments we have previously provided, the report does not appear to address the many issues raised in these comments.

The SMART Planning Guidance also notes that the scoping phase of a feasibility study also triggers the statutory requirements of the Fish and Wildlife Coordination Act (FWCA). Under the FWCA, the USACE is required to consult with the Services on activities that affect, control or modify waters of any stream or bodies of water. It also requires the USACE to consider the effects that these activities would have on fish and wildlife and must also provide for the improvement of these resources. During the scoping phase, coordination with the Services should have occurred to develop a scope of work for either a FWCA 2(b) Report or Planning Aid Letter and to establish timelines for the completion of the report or letter. The purpose of these reports is to identify problems and opportunities related to the conservation and enhancement of all potentially impacted fish and wildlife resources and, according to the SMART Planning Guidance, is critical for the USACE alternatives development.

The timeline included in the SMART Planning Guidance indicates that the Planning Aid Letter should be prepared and submitted to USACE at the beginning of the Alternatives Evaluation and Analysis Phase of the project with the draft FWCA 2(b) Report completed and submitted before the end of this phase and prior to the USACE TSP decision milestone and release of the DIFR-EIS for public and agency review. Unfortunately, these reports have not yet been completed as required by the FWCA and USACE's own policies and interagency agreements. As a result, the NEPA document provided to the public and the agencies for comment lacks the benefit of the Services' expertise and recommendations relative to fish and wildlife resources, surveys and investigations to determine the possible impacts of the proposed actions to fish and wildlife resources, recommendations for preventing their loss or damage, and measures for developing and improving these resources.

As indicated in our July 23, 2021, email providing you with some high level comments on the preliminary DIFR-EIS, we have significant concerns about the way the tiered NEPA approach has unfolded since it has not allowed any meaningful public or agency input into the development of the TSP. While the DIFR-EIS cites that tiering a NEPA analysis allows for

discussions of issues ready for decision, with future additional public participation and consideration of avoidance, minimization, and mitigation planning using more up to date information, we do not agree that an appropriate level of coordination of analysis has occurred which is apparent by the extensive data gaps and uncertainties cited throughout the document. Given the scale and scope of what is proposed, the lack of any detailed ecological effects evaluation, the potential significant ecological consequence to fish and wildlife resources, resource agency input into the alternatives identification and evaluation process should have occurred as discussed above, and as embedded in the joint agency SMART Planning Guidance.

General Comments

The document is quite long and contains a number of inconsistencies and errors. This has complicated our review of the DIFR-EIS. For example, Section 7 - Plan Formulation and Section 8 - Tentatively Selected Plan are both very long and difficult to follow, as a result, the logic behind the decisions made to reach the proposed TSP is unclear. As currently written, the effects of the TSP implementation are difficult to find in the document and significant gaps in the information used by the District to develop the TSP appear to exist.

Another significant concern with this Study is that it does not appear to consider similar studies for other coastal barrier projects. Similar USACE Studies are also ongoing in other areas including Nassau County, New York; Galveston, Texas; Miami-Dade County, Florida, and elsewhere. There is no mention of other similar studies and no inclusion of any lessons learned from these other studies. The results of these studies should be considered to help inform the next steps for the NJBB Study For example, in 2018 the City of Boston conducted an assessment of installing similar barriers across the harbor (see: https://www.umb.edu/editor_uploads/images/centers_institutes/sustainable_solutions_lab/umb_rpt_BosHarbor_5.18_15-optimized.pdf). The overriding recommendation from that study stated "Shore-based solutions would provide flood management more quickly at a lower cost, offer several key advantages over a harbor-wide barrier, and provide more flexibility in adapting and responding to changing conditions, technological innovations, and new information about global sea level rise." We also note that USACE has agreed to re-consider the Miami-Dade County Back Bay Coastal Storm Risk Management Feasibility Study in response to stakeholders input urging the inclusion of more nature-based solutions and less structural solutions into its plan. The TSP for the Nassau County Back Bay Study currently favors non-structural solutions to coastal storm flooding rather than storm surge barriers (SSB) and cross bay barriers (CBB). We recommend that the USACE pursue a more consistent national approach in limiting the use of structural solutions to climate and storm resilience and prioritize NNBF, nonstructural solutions and land use management options such as managed retreat.

Project Description

As indicated in the DIFR-EIS, the objective of the Study is to investigate problems and solutions to reduce damages from coastal storm-related flooding that affects population, critical infrastructure, property, and ecosystems within the NJBB. However, because the document is a Tier 1 NEPA document, the project description provides only a high-level summary that limits appropriate discussions of all the different aspects of the TSP and does not incorporate specific

details of the different alternatives considered or that are still under consideration. Considering the size and scope of the TSP and the conceptual ideas presented, it is difficult to determine what the actual plans are, how proposed structures will overlap with existing habitats, how the structural project elements will be constructed and of what materials, what the total temporary and permanent disturbances will be, and how each of the five study regions will be properly evaluated given the site-specific variations of structures. All of this information is paramount to provide enough information to initiate consultations through the MSA and ESA.

SSBs and CBBs are each proposed to include a series of components which may include sector gates, auxiliary flow gates, impermeable barriers, and perimeter barriers which could consist of a combination of levees, seawalls, floodwalls, road closure gates, mitre gates, or sluice gates. Preliminary conceptual plans and cross sections are provided along with the approximate lengths and heights of the different components. However, construction methods are generalized (i.e., installation and removal of temporary cofferdams, temporary excavations, fill and rock placement, concrete work, and pile driving) and do not include specifics on equipment and materials, there is no estimate of the amount of fill that may be required, there is no schedule provided for the different construction components, total temporary and permanent impacts are not quantified, there is no discussion on how the barriers will operate (e.g., storm thresholds and duration to deploy) or how the permanent features will block inlets and affect flow, and the Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) summarizes general tasks without details on materials, methods, schedules or disturbances.

The preliminary plans in the report do not show how the structural components of the TSP overlap with the existing habitats due to a lack of site specific surveys of wetlands, SAV, and geotechnical and hazardous, toxic, and radioactive wastes (HTRW), which makes it impossible to understand and evaluate the temporary and permanent impacts to these habitats by the construction of these features. Most concerning, as indicated in the EFH assessment, the effects of SSBs are relatively unknown but are expected to be a high risk for significant effects on fisheries. The report mentions that SSBs and CBBs have potentially significant indirect impacts on hydrodynamics and also states “SSBs cause an increase in velocities in the vicinity of the structures.” The consequences of this increase in velocities are of particular concern specifically regarding effects to habitats and habitat shifts. The construction work in the inlets (SSBs) and barriers (CBBs) will also modify the grain size of sediments to an extent with the possibility that composition of invertebrate species will change and likely affect fish species. It is unlikely that these impacts can be rectified with design refinements and compensatory mitigation that would be considered in the PED phase after the TSP has been approved by Congress. These issues should be addressed prior to the development of the FIFR-EIS and the TSP should be modified to reduce impacts to fisheries and coastal ecosystems.

Non-structural features of the TSP include elevating and floodproofing approximately 18,800 structures in the Shark River region, Ocean, Atlantic, and Cape May counties with additional considerations to elevate and floodproof 23,152 structures in the North Region and 10,895 structures in the Central Region of the Study Area. Although non-structural features do not have an in-water component, the document does not contain a discussion about how these alternatives were developed or why managed retreat or other land management options were not explored more fully as potential solution or as a component of the TSP. Furthermore, no consideration

was offered for the effects this would have on induced housing demand, community perceptions/expectations, and subsequent increases in future risk to existing/planned infrastructure and long-term community resilience to SLR.

The project description also presents the consideration of alternatives with perimeter plans in the Central and South regions. While only floodwalls and levees are discussed briefly in the text, Table 2 presents other perimeter features such as seawalls, road closure gates, mitre gates and sluice gates. Similar to the SSB and CBB discussion, construction methods are generalized due to the nature of the Tier 1 NEPA document; there is no schedule provided, total temporary and permanent impacts are not quantified, and there is no detail on OMRR&R. Additionally, it is unclear where the different structures will be located and how they overlap with existing habitats. It is also unclear if complete and partial operational failure of any of these features was modeled and if varying sizes of the structure footprints were addressed.

Additional complementary measures to the TSP include further consideration of NNBFs. As indicated in the EFH assessment, the NNBFs are highly conceptual and may include marsh augmentations, marsh island creation, island expansion, filling mosquito ditches, thin layer placement, mudflat expansion, SAV bed expansion through "shallowing" and filling-in dredge holes, and horizontal/ecotone levees. As a result, there is insufficient information for an analysis of the effects of these features on fisheries and the existing habitats. It is also not possible to determine where these features would be most effective in providing coastal resilience, erosion control and flood protection services, as well as habitat benefits. Similar to the omission of a number of non-structural measure considerations, it is unclear as to why NNBF appear to be an afterthought instead of a first line of defense prior to structural measures.

In addition, NNBF may also have their own impacts to our resources, particularly where fill may be involved, and will require further analysis. As indicated in the report, NNBF are assumed to require significant amounts of fill material. Besides the nature and location of these features, the sources of fill material and justification for the potential conversion of one aquatic habitat type to another or the loss of aquatic habitat will need to be included in the analysis of impacts. This includes potential borrow areas that may be used, sources of beneficial use of fill material from dredging, or existing dredged material confined disposal facilities. Changes to sediment structure can greatly affect the critical and sensitive structure of the ecosystem. If NNBF features are to be considered for the final plan, these concepts, selection/prioritization criteria, and adaptive management strategies should be discussed through rigorous coordination with the Services and be included in the FIFR-EIS, and should be included in any Chief's Report submitted to Congress for approval.

Alternatives

As mentioned above, the DIFR-EIS describes an array of alternatives, most focusing around various combinations of structural elements including SSBs, CBBs, perimeter flood walls, and levees. We have consistently cautioned against the use of such measures due to the significant impacts their construction and operation would have on the NOAA trust resources within the Study Area. We recognize that the SMART planning and tiered NEPA processes allows for decisions to be made based upon available data rather than undertaking extensive reconnaissance

studies in the early stages of a feasibility study. However, in this instance, due the complex nature of the study and its vast scope, covering five counties, approximately 950 square miles and nearly 3,400 miles of shoreline, a fundamental flaw in the report is the failure to emphasize the high degree of uncertainty associated with the impacts of the structural components of the TSP. This uncertainty does not appear to have factored into the USACE Plan Formulation Process.

Furthermore, even though the report states that equal consideration must be given to structural and non-structural alternatives during the planning processes, this does not appear to be evident in the analysis of alternatives. The document appears to be fundamentally biased towards structural elements. The primary consideration appears to be the effect that the various alternatives would have on water levels from storm surges entering the back bays and coastal lakes from the Atlantic Ocean, rather than a more comprehensive consideration of factors that influence flooding during coastal storms such as increased and often intense or prolonged periods of precipitation, poor drainage, impervious cover, and development within floodplains. The failure to consider these other factors can result in flawed and biased conclusions. For example, it does not appear that high intensity precipitation events were considered in the analysis of alternatives. The U.S. East Coast has seen a 55% increase in the amount of precipitation falling as very heavy events between 1958 and 2016 (Easterling et al. 2017) and under the Representative Concentration Pathway (RCP) 8.5, extreme precipitation in the northeast region is projected to increase by 22% by 2100 (Johnson et al. 2019). When barriers are in a closed position, flood waters from extreme precipitation can be retained within the back bays, and possibly exacerbate the flooding impacts.

Even in the open position, the retention of flood waters from extreme precipitation may result in increased flooding and other unanticipated consequences that would not have otherwise occurred if gates and barriers were not present. In addition to not considering high intensity precipitation events, upstream measures to retain and slow down runoff waters in watersheds emptying into the bay were also not considered as part of the Study. Even "sunny day," nuisance flooding has increased within the Study Area as a result of sea level rise (SLR). It does not appear that the Study considered how the SSB and CCBs will affect the frequency of this type of flooding and if this will result in more frequent gate and barrier closures over time. The failure to consider these compounding factors appears to have resulted in flawed conclusions and a TSP based upon inappropriately constrained assumptions.

Climate

Within the report, the terms "sea level change" (SLC) and "sea level rise" (SLR) are used inconsistently. For example, SLR is first encountered in the heading for Table 31 and the figure content list for Figure 36; it is first used in the document on page 133 and first defined in the text on page 143. SLC is first used in the text in the Abstract. We recommended that this inconsistency be corrected in our July 23, 2021, comments on the preliminary draft document. As stated in those comments, the term sea level rise (SLR) should be used. We understand from District staff that the USACE's guidance is to use sea level change (SLC), not SLR. However, the use of the term SLC is misleading to the public as it implies that sea levels could rise or fall; there is no scenario for the eastern U.S. coast where the trajectory is anything but higher sea

levels for the next millennium. In addition, SLR is the term used by the vast majority of other reports and documents including the National Climate Assessment and Intergovernmental Panel on Climate Change, so for clarity to the public, we recommend that any further documents developed for this Study use the term sea level rise or SLR and that it be used consistently.

The USACE's "intermediate" SLR scenario may also be a substantial underestimation for end-of-century projections in New Jersey. The USACE's "intermediate" scenario of 2.54 feet (0.8 meters [m]) would assume substantial reduction in greenhouse gas emissions over the next few decades, and this projection is not likely for 2100. This potential significant underestimation of SLR could have a major bearing on the project lifespan and efficacy. In our *Guidance for Integrating Climate Change Information in Greater Atlantic Region Habitat Conservation Division Consultation Processes*, we recommend that Sweet et al. (2017) global SLR scenarios be used. The intermediate-high (1.5 m), high (2.0 m) are recommended. At the very least, a 1.0 m global mean scenario (intermediate) should be used, which would result in a SLR projection of 1.39 m for Atlantic City, NJ in 2100.

Habitat and Aquatic Resource Issues

As stated in our previous comments, many of the coastal bays, inlets and nearshore areas are characterized by high fish production, high benthic faunal density, and species diversity; dense aggregations of fish are supported by local primary production. Infaunal species provide important trophic linkages coupling benthic-pelagic ecosystems. Many of the organisms using these habitats also provide trophic linkages between inshore and offshore systems. Additionally, many of these areas are important for a number of species that migrate across these areas. Understanding how the coastal bays, inlets and nearshore areas function to provide habitat is the product of a complex mix of connections between biological processes and physical factors. There is potential for significant short-term and long-term physical, biological, and chemical impacts from landscape-scale modifications to the habitat, resulting in a cascade of adverse impacts. Proposed TSP actions may result in cumulative, synergistic, and unanticipated changes in habitat quantity and quality as well as local and regional fisheries production. Furthermore, it is entirely unknown how barrier islands, back bay marshes, and the fish and shellfish that rely on these areas will respond to many of these large-scale structural measures currently proposed.

Our previous technical assistance comments provided extensive information on the importance of special aquatic habitats (i.e., SAV, wetlands), aquatic resources (i.e., shellfish, diadromous fishes), and federally listed species and protected resources within the Study Area that could potentially be affected by the proposed TSP. Some of that same information was repeated in the DIFR-EIS, however no further details or site specific studies have been conducted to help define the baseline condition of the Study Area, which is necessary to understand and evaluate the impacts of the TSP. A thorough baseline of existing habitat conditions, aquatic resources, and listed species present is paramount to understanding the direct, indirect, individual, and cumulative effects of the construction and implementation of the TSP. As stated above, it is essential that this information and analysis be completed to inform the development of the FIFR-EIS, and not during the PED phase as there is a high risk that potential and expected impacts of the TSP are greater than what can be rectified by design modification of the current TSP and viability of being able to offset adverse effects through compensatory mitigation is highly

uncertain.

Special Aquatic Site Identification and Mapping

The CWA Section 404(b)(1) Guidelines (Guidelines) defines special aquatic sites as sanctuaries and refugees, mudflats, vegetated shallows, and wetlands which possess special ecological characteristics of productivity, habitat, wildlife protection, or other ecological values that significantly influence or positively contribute to the general overall environmental health or vitality of the entire ecosystem of a region. The DIFR-EIS provides a general overview and maps of the special aquatic sites found within the study area. However, these features have been estimated based on previous studies conducted by multiple different agencies. The mapping itself is outdated, with shellfish maps ranging between 1963 and the 1980s, SAV between 1979 and 2009, and wetlands from 2012. No recent site specific surveys have been conducted that accurately depict the various special aquatic areas within the immediate vicinity of the proposed TSP structural elements, or elsewhere in the study area. The EFH assessment consistently reiterates that additional habitat surveys are needed to not only refine the TSP but to finalize the EFH assessment. Site specific details should include up to date mapping of all special aquatic sites within the inclusion of bathymetry and highlighted mean high water (MHW) and mean low water (MLW) lines. This baseline data should be collected annually, and over multiple years and seasons to gain a full understanding of the aquatic resources and their interannual dynamics within the Study Area and how any of the USACE's proposed actions will affect their long-term productivity and persistence. Additionally, site plans should overlap with the different aquatic habitats to more accurately quantify the direct impacts from the TSP.

Mapping of wetland and water habitats within the DIFR-EIS includes NJDEP land use coverage maps, which omit delineations of mudflats as well as MHW and MLW lines that help to define intertidal and subtidal areas. As discussed in the EFH assessment, no jurisdictional wetland delineations have been conducted within the vicinity of the proposed TSP alignments or elsewhere within the study area. Estimates of wetland habitat impacts were analyzed by grouping wetlands data from different agencies and various classifications into a broader "wetland habitats" category, which grouped estuarine (saline) marshes, scrub shrub marshes, and supratidal marshes. Additionally, the wetland classifications do not match between figures and tables presented. With the older and generalized data, it is also not possible to clearly identify what wetland habitats are being impacted. Additionally, grouping wetland habitats that have different resource use (e.g. grouping low marsh and high marsh areas together) does not accurately portray what aquatic resources and ecosystem services may be impacted by the proposed TSP actions. For example, high marshes and areas above MHW, are used only in a limited way by most NOAA trust resources. While we recognize the important ecosystem services these areas provide, there are distinct differences in resource use. The revised EFH assessment and any future reports should not only include up-to-date mapping of delineated wetlands and water areas, MHW, and MLW, but the classifications should be grouped appropriately and be consistent between tables and figures. We recommend that the aquatic habitat areas be classified using Cowardin (1979) and fully break out the habitats by system, subsystem and class.

SAV mapping within the DIFR-EIS includes data sets from the USFWS National Wetlands

Inventory, the 2009 Rutgers Center for Remote Sensing and Spatial Analysis (CRSSA) Barnegat Bay to Little Egg Harbor, and historic 1979 SAV/macroalgae mapping. Different types of SAV (e.g. eelgrass, macroalgae) are not discernable from the mapping features. Additionally, the EFH assessment appears to assume that without more recent mapping, areas mapped by the 1979 surveys are no longer present. This is based on the omission of direct SAV impacts discussed for the Absecon CBB. Figures depict levees and mitre gates crossing 1979 mapped SAV, but both the direct impacts Table 8 and accompanying text report no direct impacts. The EFH assessment incorrectly assumes that the unavailability of more recent SAV mapping equates to SAV not being present or directly impacted. The DIFR-EIS also states that "it is uncertain that long-term habitat changes to SAV beds would have any indirect effects on species like green sea turtles that venture into the shallow areas to feed on marine algae and eelgrass." However, there is no justification provided for this statement.

Baseline SAV surveys are important both to understanding the current distribution of the threatened North Atlantic Distinct Population Segment (DPS) of green sea turtles as well as to analyze how the construction of the project may affect their distribution and use of the study area in the future. This type of pre-construction SAV survey would be essential as part of the baseline in order to understand the consequences of any project related loss of SAV, especially for green sea turtles and summer flounder. Without this information, we are not able to determine the level of effects to this species. SAV has the tendency to move year to year, so while it is important to provide recent surveys of SAV, it is also important to compare to areas that were previously mapped to determine if an area actually no longer supports SAV and why. The revised EFH assessment and BA should therefore not only provide up-to-date mapping of SAV, but should also compare surveys to historic mapping, water depths, water quality, and bottom sediments to determine if an area is appropriate for growing SAV. Areas that are mapped as SAV or that were previously mapped and still hold the appropriate characteristics to grow SAV are considered SAV habitats. Annual SAV mapping within the entire Study Area should be undertaken, beginning as soon as possible so that current baseline data and trends in SAV presence can be identified. This information is paramount to the evaluation of direct, indirect, individual, and cumulative effects of the TSP and any planned NNBFs.

Habitat Areas of Particular Concern

Several habitat areas of particular concern (HAPCs) have been designated in the Study Area. HAPCs are subsets of EFH that are identified based on one or more of the following considerations: 1) the importance of the ecological function, 2) extent to which the habitat is sensitive to human-induced degradation, 3) whether and to what extent, development activities are stressing the habitat type, or 4) rarity of habitat type (50 CFR 600.815(a)(8)). HAPCs are designated through action by the regional fishery management councils (Councils) or by NOAA Fisheries for highly migratory species. A HAPC designation does not convey additional restrictions or protections on an area; they simply focus increased scrutiny, study, or mitigation planning compared to surrounding areas because they represent high priority areas for conservation, management, or research and are necessary for healthy ecosystems and sustainable fisheries. As the Study moves forward, particular attention should be given to the effects of any proposed actions on HAPCs and efforts to avoid and minimize adverse impacts. The EFH assessment included in the DIFR-EIS, does not adequately evaluate the direct, indirect,

individual and cumulative effects of the TSP on HAPCs and the associated species due to the lack of specifics on the proposed SSBs and CBBs, as well as the lack of habitat and species use data. This information and analysis is needed to initiate consultation with us under the MSA and should be collected to inform the FIFR-EIS.

Submerged Aquatic Vegetation

As discussed in our previous comments, NJBBs, especially Barnegat and Manahawkin Bays, support areas of SAV including eelgrass (*Zostera marina*) and widgeon grass (*Ruppia maritima*). SAV habitats are among the most productive ecosystems in the world and perform a number of irreplaceable ecological functions which range from chemical cycling and physical modification of the water column and sediments to providing food and shelter for commercial, recreational, as well as, economically important organisms (Stephan and Bigford 1997). Larvae and juveniles of many important commercial and sport fish such as bluefish summer flounder, spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), herrings (Clupeidae) and many others appear in eelgrass beds in the spring and early summer (Fonseca et al 1992). Heckman and Thoman (1984) concluded that SAV beds are also important nursery habitats for blue crabs. According to Peterson (1982), in Kenworthy (1988) shallow dwelling hard clams may be protected from predation by the rhizome layer of seagrass beds. Rogers and Van Den Avyle (1983) suggest that SAV beds are important to summer flounder, and that any loss of these areas along the Atlantic Seaboard may affect summer flounder stocks.

We are particularly concerned about the potential effects of the SSB proposed at Barnegat Inlet since it appears that the SBB would be in or near some of the most extensive and healthy SAV beds within the Study Area as well as an area of SAV planted as compensatory mitigation for impacts resulting from the New Jersey Department of Transportation's Route 72 Bridge Project.

Sandbar Shark

The back bays from Great Bay south to Lakes Bay, Little Egg Inlet, Absecon Inlet and the adjacent ocean waters have been designated as a HAPC for sandbar shark (*Carcharhinus plumbeus*) due to their importance as nursery and pupping areas. Sandbar shark nursery areas are typically in shallow coastal waters from Cape Canaveral, Florida to Martha's Vineyard, Massachusetts. Studies indicate that juvenile sandbar sharks are generally found in water temperatures ranging from 15 to 30 degrees Celsius, salinities at least from 15 to 35 parts per thousand, and water depth ranging from 0.8 to 23 meters in sand, mud, shell and rocky habitats from Massachusetts to North Carolina (Grubbs and Musick 2007, Grubbs et al. 2007; McCandless et al. 2002, 2007; Merson and Pratt 2007). Pregnant sandbar shark females occur in the area between late spring and early summer, give birth and depart shortly after while neonates (young of the year) and juveniles (ages one and over) occupy the nursery grounds until migration to warmer waters in the fall (Rechisky and Wetherbee 2003; Springer 1960). Neonates return to their natal grounds as juveniles and remain there for the summer.

Winter Flounder

Although not mentioned in our previous technical assistance, EFH for winter flounder has been

designated in portions of the Study Area, south to Absecon Inlet (39° 22' N). Winter flounder ingress into spawning areas within mid-Atlantic estuaries when water temperatures begin to decline in late fall. Tagging studies show that most return repeatedly to the same spawning grounds (Lobell 1939, Saila 1961, Grove 1982 in Collette and Klein-MacPhee 2002). Winter flounder typically spawn in the winter and early spring, although the exact timing is temperature dependent and thus varies with latitude; however, movement into these spawning areas may occur earlier, generally from mid- to late November through December. Winter flounder have demersal eggs that sink and remain on the bottom until they hatch. After hatching, the larvae are initially planktonic, but following metamorphosis they assume an epibenthic existence. Winter flounder larvae are negatively buoyant and are typically more abundant near the bottom. Young-of-the-year flounder tend to burrow in the sand rather than swim away from threats.

Changes in water velocities, increased turbidity, and the subsequent deposition of suspended sediments near the SSBs and CBBs could smother the winter flounder eggs and would adversely affect their EFH. Specific data on the current velocities within any of the inlets was not included in the EFH assessment of the DIFR-EIS. As a result, it is not possible to determine the suitability of any inlet as a spawning location. However, winter flounder do migrate through the inlet in the fall and winter to spawn in the back bays.

Prey Resources

The indirect effects of this project are concerning as they are not well defined in the Tier 1 NEPA document. In particular, we have concerns with changes in benthic habitat and the potential effects on prey species. These effects could lead to a more limited use of the area by federally managed species, listed sea turtles, and Atlantic sturgeon, and should be analyzed.

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 rule further states that:

> Loss of prey may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat, and the definition of EFH includes waters and substrate necessary to fish for feeding. Therefore, actions that reduce the availability of a major prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat that are known to cause a reduction in the population of the prey species, may be considered adverse effects on EFH if such actions reduce the quality of EFH. As a result, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to the prey species'

habitat may also be considered adverse effects on EFH.

The DIFR-EIS and EFH assessment briefly mention some potential prey items, including killifish, mummichogs, and silversides. However, other prey such as benthic invertebrates, macroinvertebrates, and anadromous fish species such as alewife, blueback herring (collectively river herring) and striped bass, are omitted from this list. Additionally, while some of the prey items are introduced, there is no further discussion on how prey would be impacted directly, indirectly or cumulatively by the TSP.

Steimle et al. (2000) has documented that juvenile blue crabs are a food source for several state and federally managed fish species including winter flounder, little skate (*Leucoraja erinacea*), winter skate (*Leucoraja ocellata*), scup, and summer flounder. Adult female blue crabs overwinter at the mouths of New Jersey inlets, generally November through April so they are in position to release their eggs in spring in a location that will allow their eggs to be carried into the ocean. The crabs burrow into surficial sediments as water temperature declines and overwinter in a dormant, immobile state until water temperatures rise above approximately 10 degrees Celsius in the spring. Site specific sampling to determine if blue crabs overwinter within any of the inlets for the proposed SSBs is needed prior to the PED phase.

Buckel and Conover (1997) and Juanes et al. (1993) in Fahay et al. (1999) report that diet items of juvenile bluefish include juvenile anadromous fish including alewife, blueback herring and striped bass. Anadromous fish such as striped bass, alewife and blueback herring enter the back bays in the late winter and spring as they migrate to their freshwater spawning areas. The bay, lakes and rivers in the Study Area provide spawning and nursery habitat for these species. Activities that adversely affect the spawning success and the quality for the nursery habitat of these anadromous fishes, such as the construction and operation of the SSBs and CCBs and their associated direct and indirect effects on hydrodynamics and water quality, can adversely affect the EFH for juvenile bluefish by reducing the availability of prey items.

Impacts to the various prey items may adversely impact EFH and our managed species. A revised EFH assessment should thoroughly include a discussion of the different prey items available within the study area and include the impacts to prey in the impacts analyses. For an appropriate analysis, additional studies including multi-year, multi-season benthic and fisheries surveys are needed to better define the prey resources within the study area.

ESA-Listed Species

The Protected Resources Division has specific requirements and standards that allow us to adequately assess the impacts to ESA-listed species under Section 7 of the ESA including regulatory requirements to determine the adequacy of Biological Assessments at 50 CFR 402.14(c)(1). Basic biology and distribution of listed species is readily available through our website; however, your DIFR-EIS and BA does not provide a proper and thorough analysis of ESA-listed species distribution and presence within the entire action area, study region, and associated project sites. This information is necessary and required for a complete assessment of impacts.

While there is limited information on the presence of ESA-listed species within the Study Area, there is still information about their presence in the larger back bays and inlet areas (e.g., sea turtle entrainment on trash racks at Oyster Creek Generating Station; many published studies on Atlantic sturgeon coastal, spatial, and temporal distribution, etc.) that have not been incorporated into your analysis. At a minimum, you should use our Section 7 Mapper on our website[1] to evaluate distribution and presence of ESA-listed species and their various life stages. Based on our review, it is not evident that the mapper has been used to obtain this information. Instead the DIFR-EIS provides a short, generalized description of species distribution and biology within their overall range.

Understanding the presence and distribution of listed species and their habitat is the first and most essential step in order to understand the potential for exposure of ESA listed species to effects of your project. In our July 23, 2021, comments to you, we suggested that you perform an expanded search for information about species presence to inform your analysis in your specific study area. Although we recognize that the SMART planning and tiered NEPA processes allows for decisions to be made based upon available data in the early stages of a feasibility study, we suggest that you gather further details and site specific information to help define the species baseline conditions within the study area. As such, we suggest that you use habitat information to identify areas where habitat would support listed species including data from interviews or surveys or other means to collect observations of listed species.

In our July 23, 2021, letter we also commented that Atlantic sturgeon aggregate in near shore areas in the vicinity of inlets, and that these aggregations may be a response to the flow of nutrient-rich water from the back bays. We suggested that you consider analyzing the effects of SSBs on the ocean side of the inlets, but the DIFR-EIS does not consider SSB off-shore effects on nutrient-loading or forage for listed species.

In summary, knowing the potential routes of exposure to stressors caused by the action is necessary to understand the effects of proposed activities and of any operation of associated facilities. Given the lack of analysis of species presence and distribution within the back bays as well as in near shore coastal areas, the effects and impact analyses provided does not sufficiently provide a basis for reviewing impacts to listed species.

Hydrodynamic Analyses and Associated Issues

Appropriate environmental analyses related to hydrodynamics are necessary in determining the direct, temporary, indirect, and cumulative impacts the implementation of the TSP may have. These analyses should be completed prior to the FIFR-EIS to allow for decisions on the TSP to be based upon a clear understanding of the consequences of the construction and operation of SSBs, CCBs and other structural elements on coastal ecosystems and fisheries. While the DIFR-EIS included some discussion on hydrodynamic analyses and water surface elevations as they relate to existing storm risk, historical flooding, storm surge modeling, water level and crest elevations, and high-frequency flooding events, topics related to water quality, sediment transport, larval transport, and fish migration were either lacking or omitted from these analyses

[1] https://www.fisheries.noaa.gov/resource/map/greater-atlantic-region-esa-section-7-mapper

and therefore not appropriately vetted for impacts. The report notes that hydrodynamic changes could affect resident time within the affected estuaries and indirectly affect water quality and egg and larval transport for fisheries and EFH, but the impacts are not quantified or clearly described and potential mitigative measures are not discussed. Similarly, the report states that "the effects of the implementation and operation of SSBs and CBBs could result in changes to hydrodynamics and water quality, thereby potentially affecting benthic community composition due to changes in substrate and salinity" without a full analysis of the ecological implications of such changes. Furthermore, recent hydrodynamic modelling by the US Geological Survey (Defne and Ganju, 2014) has documented that most of the tidal flow into Barnegat Bay enters through Little Egg Inlet. It is not clear if water flow through Little Egg Inlet was taken into account during the current analysis. This is a particularly important consideration since the TSP currently includes the installation of SSBs on the inlets to the north and south of the Little Egg Inlet.

Water Quality

Under the TSP in a gate open scenario, there is a projected net reduction (i.e., 22% to 46%) in channel cross-sectional areas that would constrict flood and ebb tidal currents through the inlets. Water velocities through these reduced channels are expected to increase near the SSBs and CBBs and decrease in other parts of the bays, thus altering flow patterns, water circulation, and residence times. Poorly flushed regions within the study area are likely to increase with the construction of the TSP. As discussed in the EFH assessment, "restrictions in tidal flows and increases in residence times could affect salinity levels, nutrients, chlorophyll a and dissolved oxygen concentrations." These effects could be exacerbated at times when the gates are closed during a significant storm event when increased freshwater inputs, nutrients, bacteria and other pollutants discharged from tributaries and point and nonpoint sources are held in the bays for a longer period." While the EFH assessment recognizes the myriad of potential impacts, there are currently no water quality analyses that discuss such impacts and their effects on the system.

The DIFR-EIS also includes information about the high nutrient loads New Jersey coastal waters have been experiencing, which negatively impact water quality causing harmful algal blooms (HABs) and nuisance nettles, elevated dissolved oxygen, and increased turbidity. The negative impacts on water quality have directly influenced the loss of SAV and other aquatic resources. Changes in hydrodynamics stemming from structures indicated in the TSP that would further reduce tidal flushing and stress the system could inherently trigger additional losses to habitats and resources. In addition to high nutrient loads, flooding due to extreme precipitation events could exacerbate tidal flooding, particularly when the barriers are fully or partially closed. The DIFR-EIS does not appear to contain an assessment of the effects of the proposed SSBs and CBBs from flooding due to increased extreme precipitation. As we indicated in our July 23, 2021 comments, this is a serious deficiency of the Study. While additional hydrodynamic and water quality modeling that considers different design configurations and sea level rise projections is said to be ongoing, additional modeling for closed gate conditions which incorporates both precipitation and sea level rise is of the utmost concern and necessary in capturing the magnitude of effects prior to finalizing a recommended plan.

In the report under the Gate-closure scenario, it states "Closures during the growing season may

have greater adverse effects on promoting algal blooms and associated dissolved oxygen depressions, while closures during the winter months may have a lesser effect. Additionally, gate closures would affect the distribution of salinity particularly at a time of a storm event where huge amounts of freshwater from precipitation may be entering the bay systems from the rivers and tributaries that discharge into these bays." We agree with this statement, but additional study and analysis is needed to evaluate the scope and ecological consequences of these effects, particularly since research shows many aquatic species to be sensitive to changes in temperature and salinity, especially during embryonic development. Again, this analysis is necessary in capturing the magnitude of effects prior to finalizing a recommended plan.

Sediment Transport

Due to the general nature of the Tier 1 NEPA document, the DIFR-EIS does not adequately evaluate the changes in sediment transport and sediment dynamics within the Study Area that may occur with construction of the SSBs and CBBs. Anthropogenic-induced elevated levels of turbidity and sedimentation above background (e.g., natural) levels can lead to various adverse impacts on fish and their habitats. These increased levels can be caused by construction activities such as dredging, pile driving, structure installation, and fill of open water and wetlands proposed by the TSP. The operation of the SSBs and CBBs can also change system hydrodynamics and shoreline alignment due to location of the final structures in the inlets and bays. For example, increased residence time and reduced circulation, combined with potentially increased run-off and erosion from streams and creeks in the future as a result of climate change, could increase sedimentation in the Intercoastal Waterway, other navigation channels, and marinas and private mooring maintained by dredging.

Increases in turbidity due to the suspension or resuspension of sediments into the water column during activities such as dredging can degrade water quality, lower dissolved oxygen levels, and potentially release chemical contaminants bound to the fine- grained sediments (Johnson et al. 2008). Suspended sediment can also mask pheromones used by migratory fishes to reach their spawning grounds and impede their migration and can smother immobile benthic organisms and demersal newly-settled juvenile fish (Auld and Schubel 1978; Breitburg 1988; Newcombe and MacDonald 1991; Burton 1993; Nelson and Wheeler 1997). Additionally, other effects from suspended sediments may include (a) lethal and non-lethal damage to body tissues, (b) physiological effects including changes in stress hormones or respiration, or (c) changes in behavior, reduced predator avoidance, and others (Wilber and Clarke 2001; Kjelland et al. 2015). Increases in turbidity will also adversely affect the ability of some species, such as larval striped bass, to locate and capture prey and evade predation, leading to decreased survivorship (Fay et al. 1983 in Able and Fahay 1998). Species with low foraging plasticity have been shown to experience high mortality compared with other species during acute elevated turbidity conditions (Sullivan and Watzin 2010). Turbidity can also decrease photosynthesis and primary production, resulting in reduced oxygen levels.

Elevated rates of sedimentation due to increased runoff can lead to numerous negative effects to aquatic systems. Changes in sediment deposition could also affect the distribution of SAV within the Bays. Additional effects can include loss of habitat heterogeneity and reduction in organic matter retention and stable substrate (Allan 2004). Furthermore, the sedimentation

(burying/covering) of individual organisms and habitats and changes in benthic environments via alteration to sediment quality, quantity, and grain size can reduce species diversity and decrease overall ecosystem function (Thrush and Dayton 2002). The smothering of benthic prey organisms and chronic elevated sedimentation can prevent recolonization, which reduces the quality of the habitat by making it unsuitable for foraging (Wilber and Clarke 2001). Additionally, particle size is one of the main drivers of benthic faunal biodiversity and community composition; therefore, changes to sediment composition from sedimentation will affect the benthic prey resources of various species, including NOAA-trust resources (Wood and Armitage 1997; Wilber and Clarke 2001). Increased sedimentation could also increase dredging frequency and/or volumes dredged and negative interactions with fish. Increasing the frequency of dredging prevents the re-establishment of a mature, diverse benthic community post-dredging, leaving a recurring population of mostly small, opportunistic colonizer species that are often a poor quality forage base

The report also indicates that the operation of SSB or CBBs could potentially affect intertidal habitats by altering sediment scour and deposition which could lead to changes in the dimensions of the existing habitats. These changes may also affect wetlands throughout the Study Area. Higher sediment flows during storm events may benefit marshes by adding sediment and in turn elevation helping to counter some of the effects of SLR. Of particular concern is that reductions in tidal magnitude due to constrictions caused by the SSBs and CCBs may result in less sediment delivery to the marsh platform and less resilience to SLR. In addition, changes in the sediment dynamics within the Study area may also adversely affect the health of SAV and shellfish beds as these changes may affect water clarity.

Because of the potential significant adverse effects of turbidity, sedimentation, and changes to sediment transport and sediment dynamics within the Study Area, it is important to understand direct and secondary impacts during closure events and how the change in flow velocities may affect these important resources before seeking Congressional approval of the TSP.

Larval Transport

Hydrodynamic changes caused by SSBs and CBBs will likely affect residence times within the affected estuaries and affect egg and larval transport. Summer flounder larvae and post larvae migrate inshore, entering coastal and estuarine nursery areas to complete their life cycle transformation. The movement of these individuals through inlets in New Jersey occurs primarily between October through December, but larvae have been collected as late as March in the Manasquan River Inlet and March and April in Absecon Inlet (Able et al. 1990.) Movement into the estuary may involve intermittent settling to take advantage of tidal stream transport before permanent settlement once metamorphosis is complete (Able and Fahay 1998). Residual bottom inflow, a result of denser oceanic water intruding beneath more buoyant outflow, provides some fishes with a mechanism of ingress (Weinstein et al., 1980 in Rhodes 2008) into estuaries. Species such as summer flounder remain near the bottom as they enter inlets (Miller et al. 1984).

As indicated in the EFH assessment, higher velocities near the proposed SSBs and CBBs and closures from the gate structures are anticipated to affect fish larval transport by inhibiting larvae

from entering or exiting the system. Additionally, residence time could increase or decrease, which could have an effect on fish egg and larval transport. The potential impacts on recruitment due to inhibited larval transport would be detrimental to federally managed species such as summer flounder and EFH. Because these effects of SSBs and CBBs are relatively unknown, there is a potential risk for significant effects on fisheries. Additional hydrodynamic modeling and fish census studies are necessary to better understand these effects before proceeding with implementation.

Diadromous Fish Migration

Alewife and blueback herring, collectively known as river herring, spend most of their adult life at sea, but return to freshwater areas to spawn in the spring. Both species demonstrate some degree of repeat spawning behavior, generally returning to their natal rivers (Collette and Klein-MacPhee 2002). Following spawning, some proportion of adults out-migrate to the ocean while their offspring rear in freshwater areas. During the out-migration of young-of-the-year alosines, which is typically protracted over the summer and early fall (Yako et al. 2000), juveniles can spend considerable time in large tidal inlets, moving in and out of the estuarine system repeatedly throughout their first fall and winter (Pacheco and Grant 1973; Stevens et al. 2021). Furthermore, connectivity between estuarine areas and nearshore juvenile wintering grounds off southern New Jersey provides the required range of suitable habitat for early life stages (Milstein, 1981).

River herring formerly supported the largest and most important commercial and recreational fisheries throughout their range and commercial landings for these species have declined dramatically over the last several decades from historic levels (ASMFC 2018). The 2012 river herring benchmark stock assessment found that of the 52 stocks of alewife and blueback herring assessed, 23 were depleted relative to historic levels, one was increasing, and the status of 28 stocks could not be determined because the time-series of available data was too short (ASMFC 2012a). The 2017 stock assessment update indicates that river herring remains depleted at near historic lows on a coast wide basis. Because landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in alewife and blueback herring populations throughout much of their range since the mid-1960s, river herring have been designated as Species of Concern by NOAA. Species of Concern are those species about which we have some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA. We wish to draw proactive attention and conservation action to these species.

Catadromous American eel (*Anguilla rostrata*) spawn in the Sargasso Sea. Their offspring return to coastal inlets as juvenile elvers and swim upstream to the freshwater habitats in tributaries to the bay. They inhabit these freshwater areas until they return to the sea through the inlets within the Study Area. According to the 2012 benchmark stock assessment, the American eel population is depleted in U.S. waters. The stock is at or near historically low levels due to a combination of historical overfishing, habitat loss, food web alterations, predation, turbine mortality, environmental changes, toxins and contaminants, and disease (ASMFC 2012b).

Uninhibited aquatic connectivity is essential for the completion of the complex life histories

exhibited by diadromous Atlantic coast species. Because most of these populations are currently at historical lows, reductions in connectivity between freshwater and marine habitats could lead to the further irreversible diminishment of their population size and genetic diversity. Because hydrodynamic modeling of the proposed SSBs has not been completed, it is not possible to determine the extent to which flow barriers would impede the migration of these species or increase their energetic demand to reach suitable spawning habitat. However, some studies have been completed which provide an indication of the potential effects. In their evaluation of river herring movements at a large tide gate on the Herring River, Massachusetts, Alcott et al. (2021) documented migratory delay and reduced fish passage rates, especially later in the spawning season. While information has not been provided to determine the effects of proposed structures and associated velocity changes considered in this case, available studies elsewhere indicate that impacts to migratory fish movements and subsequent spawning success would likely be substantial. Due to the depressed populations of these species, it is particularly important to understand how changing velocities and reduced cross sections of the inlets caused by the SSBs will change migratory pathways in and out of their natal streams and estuaries, the energetic demand to complete these migrations, juvenile overwintering ground connectivity, and ultimately the persistence of these species.

Cost Benefit Analysis and the Value of Ecological Services

Another significant concern with the level of detail and analysis in the tier 1 NEPA document is the apparent failure to identify and recognize the costs and benefits of the ecosystem services provided by the natural resources in the Study Area. For example, Kaufman and Cruz-Ortiz (2012), estimate that the Barnegat Bay watershed contributes more than $2.3 billion in goods and ecosystem services to the regional economy. Many of these ecosystem services will be diminished by the implementation of the TSP. The DIFR-EIS also does not appear to consider the potential environmental and economic savings (e.g., flood and storm-surge protection, primary production of the aquatic environment, habitats for trust resources) that non-structural elements and NNBFs could provide.

Economists from NOAA's National Ocean Service's National Centers for Coastal Ocean Science have reviewed the DIFR-EIS and have offered a number of comments and questions regarding the Study and the District's analyses of ecosystem services and the cost-benefit analysis (CBA). Some deficiencies noted include:

- Changes to cultural values were not described.
- Benefits for alternatives that allow for maintenance of recreational activities were not quantified.
- Benefits that avoid alternatives harming managed areas were not quantified. Will the change in benefits to these areas be quantified? Will harm to non-managed ecosystems be quantified? If not, why not?
- Net benefits to various categories of individuals (by age, race, income, etc.) were not described.
- Table 3 Critical Assumptions (pages 22-23) - Although it is hard to tell, it seems that benefits may be limited to damages avoided. Will ecosystem service benefits such as protected habitat for various species, increase in fish populations, increased recreational

opportunities, wetlands protection and damages avoided associated with water filtration, among others, be explored? If so, what methods will be used to do this? Will they be included in the CBA?

- For 4.8.18.5 - Other Social Effects, it is unclear how these social effects will be included in the final BCA.
- The document mentions that the CBA "does not account for additional benefit categories such as Infrastructure damages, vehicles damages, emergency costs, or transportation delays." Why not, or rather, is this typical to include and lump into a residual risk category?
- "Risk to life safety" is mentioned several times. How is this quantified/monetized?

Mitigation

As mentioned earlier, the report indicates over 154 acres of wetlands, mud flats, submerged aquatic vegetation, and open waters of the Study Area may be filled as a result of the implementation of the, as well the potential for the TSP to impact water quality, tidal flow and regime, sediment transport, and the early life stages of a variety of aquatic organisms. This is an assumed estimated area based on outdated mapping and according to the DIFR-EIS, may be much more significant. Additionally, the report does not quantify the potential numerous indirect impacts that could occur.

Before mitigation can be fully developed, all potential impacts (i.e., direct, indirect, cumulative, temporary) must be fully disclosed. The DIFR-EIS/EFH assessment consistently references requiring more information to fully understand project impacts and specifically states that indirect and cumulative impacts "are still being evaluated and will be available at a future time." Direct impacts presented are based on missing baseline information, generalized construction details, and incomplete models, while temporary impacts remain unclear. It is also concerning that two separate models (with one that is still under development and not yet peer reviewed), are being used to determine direct effects on saltmarsh, intertidal, and subtidal habitats without complete baseline information and full disclosures on how the models work (e.g. inputs, assumptions). All adverse impacts and losses are necessary to understand the need for compensatory mitigation and to be properly designed. Additionally, all functions of baseline habitats need to be fully evaluated in order to determine appropriate type, level and location of compensatory mitigation to ensure the continued ecological function of these estuaries.

The fundamental objective of compensatory mitigation is to offset environmental losses resulting from unavoidable adverse impacts to waters of the United States after all appropriate and practicable avoidance and minimization has been achieved. NOAA has developed a draft Mitigation Policy for Trust Resources that outlines the principles that we use when considering mitigation for the adverse effects of an action on our resources. This includes avoidance and minimization of adverse effects prior to the consideration of any compensation or offset for the unavoidable adverse effects. The DIFR-EIS does not include a clear discussion of the alternatives and reasoning behind how the TSP was selected. Given the potential magnitude of impacts, a FIFR-EIS should include all alternatives considered and why a plan that is less environmentally damaging than the TSP is not practical. While economic considerations are sure to be considered in the analysis, weight must also be given to the ecosystem analysis, related to

both the back bay ecosystem and fishing industry, which was notably absent from the DIFR-EIS.

The Final Rule on Compensatory Mitigation for the Losses of Aquatic Resources (33 CFR 325 and 332 and 40 CFR 230) published in the Federal Register on April 10, 2008, does not limit compensatory mitigation only to impacts to wetlands and special aquatic sites. The rule refers to "waters of the United States." As stated in Part 332.1 (a)(1) of the rule, "the purpose of this part is to establish standards and criteria for the use of all types of compensatory mitigation, including on-site and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts to waters of the United States authorized through the issuance of permits pursuant to section 404 of the Clean Water Act (33 U.S.C. 1344) and/or sections 9 or 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 401, 403)." These standards do not only apply to wetlands and special aquatic sites. They apply to all regulated waters of the U.S., which includes the back bays. We recognize that this study represents a USACE planning and civil works action and not a regulatory one, but the principles of the final rule should be incorporated into any compensatory mitigation plan that is ultimately developed.

The compensatory mitigation ratios presented in Tables 99 and 100 do not reflect the generally accepted mitigation ratios used in NJ and there is no supporting information provided to demonstrate their suitability for offsetting the functional and ecological losses, which have also not yet been clearly defined. Appropriate mitigation ratios must reflect accepted practices in New Jersey, which do not include ratios less than 1:1. Moreover, compensatory mitigation ratios can vary based upon the functions being lost or degraded at the impact site, the functional uplift that may occur at the mitigation site, the temporal loss of functions, the difficulty in replacing the lost functions, uncertainty of success and a number of other factors. In addition, it should also be noted that we have not generally accepted filling one aquatic habitat, such as intertidal or subtidal shallows to create another such as wetlands, as compensatory mitigation for aquatic habitat loss somewhere else. Further, compensatory mitigation may be required for NNBFs that involve the conversion of aquatic habitat to uplands, and may be necessary if the conversion of one type or aquatic habitat to another results in a loss of ecological functions for NOAA trust resources.

Data Gaps, Further Analyses and Information Needs

As mentioned in the report, a number of studies and analyses are needed to fully identify and understand the impacts of the TSP. While some studies are specifically mentioned as being in progress or needed, there are a number of additional analyses necessary before the FIFR-EIS is completed. This section captures general topics, data gaps, survey and modelling needs to provide a robust effects analysis of TSP implementation and to develop a complete EFH assessment and BA.

The following presents the additional baseline ecological surveys and analyses needed that cover the entire study area:

- Wetland delineations.
- SAV, benthic invertebrate (including shellfish beds and oyster reefs), and fish census surveys. Surveys should be multi-year and multi-seasonal, highlighting spatial and

temporal frequency/occurrence. Environmental DNA (eDNA) studies could be helpful in assessing the seasonal presence of species within the Study Area and should be considered as a component of the baseline surveys and future monitoring.
- Sediment sampling, which includes grain size and chemical analyses.

In addition to baseline ecological information, impacts of the alternatives on habitats and our resources should be clearly defined, including:

- Direct impact during construction (temporary and permanent impacts)
- Direct impacts of structure footprints (permanent impacts)
- Direct, indirect, and cumulative impacts during operations
- Direct and indirect impacts during maintenance, commensurate with frequency and duration.

Additional modeling of the different alternatives should also be conducted, which includes gate open and gate closed scenarios, to determine direct, indirect, and cumulative impacts. Modeling should include:

- The anticipated effects of climate change.
- Turbidity effects and other water quality impacts on fish respiration, filter feeders, sight feeders, and photosynthesis of SAV beds expected during construction.
- High frequency/magnitude precipitation events and their interaction with tidal abnormalities.
- Scour and sedimentation effects to baseline habitats (i.e., wetlands, SAV, shellfish, mudflats, intertidal and subtidal areas), resources (i.e., prey, larval transport, fish migration, resident species), and navigation (i.e., potential to increase maintenance dredging, infilling rates of existing inlet ebb shoal sand borrow areas).

Comprehensive hydrologic and hydraulic modeling is also needed to fully understand how the project alternatives may affect:

- Salinity (i.e., freshwater inputs vs. marine inputs and impacts on flora, fauna distributions);
- Connectivity (i.e., how often and long is the gate anticipated to be closed in a given year and/or a range of given events);
- Current patterns on both sides of barriers;
- Tidal prism throughout lower and upper wetland tidal regimes;
- Water velocity, flowpath and volume through inlets and bays;
- Water levels on both side of the barriers;
- Dissolved oxygen levels during closure;
- Nutrient distributions;
- Bottom substrate around the barriers; and
- Scour and sedimentation expected in the direct vicinity of barriers and throughout the back bays.
- Sedimentation rates on marshes, marsh edge erosion, and marsh elevation.

In addition to the models discussed in the DIFR-EIS, other models that may be helpful include:

- Finite Volume Community Ocean Model (FVCOM), a multi-scale resolving global-regional-coastal-estuarine integrated model from the University of Massachusetts Dartmouth and Woods Hole Oceanographic Institution:
- Simulating Wave Nearshore Model (SWAN), a numerical wave model used to obtain realistic estimates of wave parameters in coastal areas, lakes, and estuaries from given wind, bottom, and current conditions.
- Durability models on features such as NNBF

Endangered Species Act

Consultation Guidance

At this time, the NJBB CSRM study is conceptual and will require substantial additional information such as rigorous site identification and planning (including timelines and construction schedules), detailed information on construction methods, description of listed species that occur in the project area and their uses of the area, impact assessments to listed species, and any required compensatory mitigation plans for loss of habitat before we can initiate ESA consultation on the project. As the materials provided for our review do not include the information necessary to initiate consultation as described in the implementing regulations of the Endangered Species Act (50 CFR 402.14(c)), we are providing technical assistance and consultation guidance for your consideration as you further develop the FIFR-EIS as it relates to considering impacts to ESA- listed species.

Given that sea turtles and Atlantic sturgeon may be exposed to stressors associated with construction, maintenance, operation and habitat impacts, we expect the proposed project to adversely affect these species. However, we believe construction activities will result in few injuries or deaths of listed species if the proposed avoidance and minimization measures are refined and implemented. Your preliminary analysis of impacts to water quality, hydrology, SAV, and forage resources indicates that the TSP and perimeter plan, if implemented, would affect the distribution and numbers of listed species within the study area. However, based on the information available about the species' distribution within the study area, their use of the back bays and near-shore coastal waters, and existing information on forage resources within the study area, we do not expect the study area to provide novel or essential habitat, support large numbers of any of the listed species, or be an area of special significance for species viability or recovery. We will provide further technical assistance to identify measures to avoid and, minimize, and restrict effects to listed species as well as the project's effects on ESA-listed species once additional project details and environmental impacts are available.

A key part of the analysis at the tier 1 stage is to consider how the conservation measures built into the TSP will function to offset otherwise adverse effects. By considering individual actions

at the tier 1 level, you can propose project design criteria[2], best management practices (BMP)[3], and/or standard operating procedures[4] that avoid or minimize impacts to ESA listed resources. In the FIFR-EIS and BA, you propose several BMPs for construction activities to avoid or minimize effects to listed species. These include measures to minimize noise from pile driving such as use of a cushion block on piles, measures to reduce the risk of vessel strike such as reduced speed and having a dedicated person looking for whales, and implementation of BMPs for sediment and soil erosion control to minimize earth disturbance impacts.

However, minimization measures may have limited utility in setting thresholds on the extent and/or intensity of stressors because their effectiveness commonly depends on the equipment used as part of the defined action, the time of year the equipment is used and the environmental conditions at the project site and the action itself may need to incorporate particular thresholds. Consequently, there is no limit on the maximum level of the intensity and extent of stressors that can be used to analyze the consequences of construction activities or operation of facilities. Therefore, the development of standards and guidelines that limit and set sideboards for the intensity and/or extent of stressors are better suited at the tier 1 level as they define the effects that would be expected by a conceptual plan. An example of a sideboard that can be used to determine the consequences of the proposed project is your BMP that "pile driving should be carried out in a way that avoids exceeding noise thresholds identified for the protected marine species that occur in the action area." In addition, limits on the intensity and/or extent of stressors should be firm and enforceable.

It would benefit the analysis if the TSP included criteria that limit stressors from exceeding intensities and extents that will cause adverse effects. Choice of materials and measures to meet these criteria would then be determined at the Tier 2 level or during the PED phase. Thus, as a cooperating agency and under our ESA authority, we propose the development of an approach that facilitates further interagency cooperation and collaboration to refine those criteria to avoid/minimize impacts to and conserve ESA-listed resources in a manner that supports recovery. We support a tiered approach to your planning if we are able to work together to create a framework for analysis at the early stages that could include identification of thresholds and possible management measures to minimize and avoid effects if construction analysis show otherwise thresholds might be exceeded. Then, at later stages of the process, when project details are further defined and effects understood, we would be able to efficiently conduct an ESA consultation.

Technical Assistance

In our review of the material provided to us, we have considered how the proposed TSP will

[2] Project design criteria - the specific methods, including the technical and engineering specifications or construction limitations, indicating how a project implemented under the programmatic consultation must be cited, constructed, or otherwise carried out to ensure project consistency and to minimize or avoid adverse effects to ESA listed resources.

[3] Best management practice(s)- a practice, or combination of practices determined to be an effective and practicable (including technological, economic, and agency considerations) means to minimize or avoid adverse effects to ESA-listed resources.

[4] Standard operating procedure(s) - a procedure, or combination of procedures, that describe the expected practices and activities necessary to complete a program or project in accordance with relevant agency regulations, policies, and guidance.

influence the activities it governs and their potential effects, analyzing to the extent we can, given the plan-level context - the nature and scale of the overall impacts to listed species. Because the tier 1 study lacks details about project activities and the overall impacts needed to estimate the level of effects associated with a more clearly defined project, coupled with the fact that the information needed to estimate any potential incidental take will not be available until the PED Phase, we will address the level of effects and any associated take in a subsequent project-specific consultation(s). While project details are lacking and further analysis of how the overall project plan will impact habitat within the NJBB and nearshore coastal areas are needed, we did provide you with comments on July 23, 2021, where we considered at a high level what consequences the NJBB CSRM study, if implemented, would have on ESA-listed species based on available information. Here we provide a preliminary broad-scale examination of the potential effects of implementing the TSP but we cannot analyze the site-specific effects of future individual projects as those project details are not available.

The following ESA-listed species may occur within the NJBB or in New Jersey coastal waters:

Whales
The endangered fin whale (*Balaenoptera physalus*) and the endangered North Atlantic right whale (*Eubalaena glacialis*) occur along the New Jersey coast.

Sea Turtles
Four sea turtles may be found within or near the study area. These are the threatened Northwest Atlantic Ocean Distinct Population Segment (DPS) of loggerhead turtles *(Caretta caretta)*, the threatened North Atlantic DPS of green sea turtles *(Chelonia mydas),* the endangered Kemp's ridley *(Lepidochelys kempii).* The endangered leatherback turtle *(Dermochelys coriacea)* may be found in the waters off the New Jersey coast.

Fish
Five Atlantic sturgeon *(Acipenser oxyrinchus oxyrinchus)* DPSs may be found within the study area. These are the ESA listed endangered New York Bight, Chesapeake Bay, South Atlantic, and Carolina DPSs, and the ESA listed threatened Gulf of Maine DPS. Sub-adult and adult individuals from any of these DPSs could occur within the study area.

Critical Habitat
The study area does not include critical habitat designated for any federally listed species.

Construction of proposed structures could result in several stressors that may affect listed species. These include noise during pile driving, turbidity, entrainment in dredge, vessel strike, and re-suspension of contaminants. Further, there is a possibility that turtles could be impinged when the barriers are closed as they can rest along the bottom.

In addition to effects from construction activities and operation of the flood gates, the TSP and perimeter plan will indirectly impact the aquatic environment and habitats within the NJBBs. These impacts and changes to habitat may affect the distribution of and use by listed species within the action area. However, at this time the DIFR-EIS only provides general information on

environmental conditions such as water quality and presence of SAV within the NJBB and does not have enough detail to estimate impacts to habitat and forage organisms at a scale necessary to determine effects on species. Also, increased retention of water within the back bays may affect nutrient loading on the ocean side of the inlets, which may be important for Atlantic sturgeon foraging. Last, sea level rise and changes to climate may exacerbate effects from operation of the gates and the presence of the perimeter structures over time. Future modeling and analysis may provide more information on potential effects to habitat and forage resources. Without the specific information, we assume that the TSP will significantly reduce forage for sea turtles within all or some of the study regions.

Little is known about the presence and use of the New Jersey Back Bays by protected resources. It is reasonable to assume that listed whales do not enter the inlets to the back bays because of their size and preference for open off-shore waters. Therefore, they are not expected to be exposed to stressors caused by construction activities or be affected by the presence of the proposed structures. However, important forage resources for whales are produced in the NJBB, such as, for instance, sand lance and copepods, and a reduction in the production of these organisms within the NJBB may affect whales. Both sea turtles and Atlantic sturgeon can move through the inlets and use the back bays for foraging and, therefore, may be exposed to stressors during construction and operation of the gates or affected by changes to habitat.

Atlantic sturgeon are known to aggregate along the New Jersey coast in areas less than 50 meters deep with the majority of observations in areas less than 20 meters deep. Atlantic sturgeon aggregations occur often on the coastal side of inlets in waters with lower salinity. We have no specific information about Atlantic sturgeon presence and use of the back bays but assume that their presence is limited to sporadic movement through the inlets to opportunistically forage in the back bays. None of the rivers emptying into the back bays provide for Atlantic sturgeon spawning. All four sea turtle species can be present along the New Jersey coast from May through November during seasonal migration and foraging. None of the four turtle species have established nesting on New Jersey beaches and under current climate conditions the proposed project will not affect nesting or hatchlings. Impingement of turtles on the trash racks on the intakes of the Oyster Creek Power Plant located in the Barnegat Bay do confirm the presence of Kemp's ridley, green, and loggerhead sea turtles in the bays, at least in the North Region. Leatherbacks have been documented in waters off of the New Jersey coast and have also been found stranded on New Jersey coastal and estuarine beaches. However, the only direct access to the bays from the Atlantic Ocean is through narrow inlets. While leatherbacks could enter the bays, it is improbable given that this species is rarely found in inshore waters.

Magnuson Stevens Fishery Conservation and Management Act

Consultation Guidance

As stated above and in our letter dated September 30, 2021, the tier 1 level information contained with the DIFR-EIS and accompanying EFH assessment does not include sufficient information necessary to initiate consultation under the MSA. We recognize that the SMART planning and tiered NEPA processes allow for a level of review that is general in nature and scope, and that documents prepared using this approach describe the project and its impacts at a broader level.

However, the full range of potential effects to both the human and natural environment should still be considered in the document. Regardless of the level of detail with the DIFR-EIS, in order for consultation under the MSA to be initiated, the EFH assessment must evaluate all of the direct, indirect, individual, and cumulative impacts of the action on EFH. As discussed above, we understand that additional information and analysis is planned to be undertaken during the PED phase of the Study, but a significant amount of data, analysis, and information on project impacts, alternatives, construction methods, implementation schedules/plans, NNBFs and compensatory mitigation is necessary before we can consult on the project and provide meaningful EFH conservation recommendations beyond merely recommending that the structural elements of the TSP not be constructed.

Technical Assistance

The required components of an EFH assessment include:

- 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.
- Proposed mitigation, if applicable.

Additional information. If appropriate, the assessment should also include:

- The results of an on-site inspection to evaluate the habitat and the site-specific effects of the project.
- The views of recognized experts on the habitat or species that may be affected.
- A review of pertinent literature and related information.
- An analysis of alternatives to the action. Such analysis should include alternatives that could avoid or minimize adverse effects on EFH.
- Other relevant information.

The level of detail in an EFH assessment should be commensurate with the complexity and magnitude of the potential adverse effects of the action. Actions such as those described in the DIFR-EIS, that may pose a more serious threat to EFH warrant a correspondingly detailed EFH Assessment. The level of detail currently available on the NJBB and the effects of the actions proposed in the TSP are not sufficient to evaluate the adverse effects TSP implementation would have on EFH. A revised EFH assessment should be developed and submitted to us once the information discussed above and data gaps identified are filled.

The analysis of effects should focus on impacts that reduce the quality and/or quantity of the habitat or result in conversion to a different habitat type for all life stages of species with designated EFH within the action area. Simply stating that fish will move away or that the project will only affect a small percentage of the overall population is not a sufficient analysis of the effects of an action on EFH. Also, since the intent of the EFH consultation is to evaluate the direct, indirect, individual and cumulative effects of a particular federal action on EFH and to identify options to avoid, minimize or offset the adverse effects of that action, it is not

appropriate to conclude that an impact is minimal just because the area affected is a small percentage of the total area of EFH designated. The focus of the consultation is to reduce impacts resulting from the activities evaluated in the assessment. Similarly, a large area of distribution or range of the fish species is also not an appropriate rationale for concluding the impacts of a particular project are minimal.

Use the information on our EFH consultation website and NOAA's EFH Mapper to complete the EFH assessment. The mapper is a useful tool for viewing the spatial distribution of designated EFH and HAPCs. Because summer flounder HAPC (defined as: "all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH") does not have region-wide mapping, local sources and on-site surveys will be needed to identify submerged aquatic vegetation beds within the project area. The full designations for each species may be viewed as PDF links provided for each species within the Mapper, or via our website links to the New England Fishery Management Councils Omnibus Habitat Amendment 2 (Omnibus EFH Amendment), the Mid-Atlantic Fishery Management Councils FMPs (MAMFC -Fish Habitat)https://www.mafmc.org/habitat, or the Highly Migratory Species website. Additional information on species specific life histories can be found in the EFH source documents accessible through the Habitat and Ecosystem Services Division website. This information can be useful in evaluating the effects of a proposed action. Habitat and Ecosystem Services Division (HESD) staff have also developed a technical memorandum Impacts to Marine Fisheries Habitat from Non-fishing Activities in the Northeastern United States, NOAA Technical Memorandum NMFS-NE-209 to assist in evaluating the effects of non-fishing activities on EFH.

For your planning purposes, you should be aware that many in-water construction activities require seasonal work restrictions to avoid and minimize adverse impacts to EFH, federally managed species and other commercially, recreationally or ecologically valuable species under our jurisdiction either through the MSA or the FWCA. This includes seasonal protections for winter flounder early life stages and their EFH, SAV/summer flounder HAPC, anadromous fish migration, overwintering blue crabs, and sandbar shark pupping. If the structural elements of the TSP remain in the FIFR-EIS and are submitted to Congress for approval in a Chief's Report, the impact these restrictions may have on the construction and operation schedule of the structural elements should be factored into project costs and construction schedules.

Marine Mammal Protection Act (MMPA)

The MMPA prohibits the take of marine mammals, with certain exceptions. Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce (as delegated to NOAA Fisheries) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if the taking will be of small numbers, have a negligible impact on the affected species or stock, and will not have an unmitigable adverse impacts on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Some of the activities proposed by the USACE (e.g., floodgate construction) may harass marine mammals. The USACE should engage early with our Headquarters' Office of Protected Resource to identify measures that could avoid and minimize

potential take. Information related to the potential need for an MMPA incidental take authorization can be found at: https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act.

Conclusion

As discussed above, the DIFR-EIS, which includes the EFH assessment and BA included a multitude of data gaps needed to fully analyze the direct, indirect, individual and cumulative effects of the construction of the TSP actions on aquatic resources and their habitats. Specifically, the document does not contain sufficient detail on the specific actions and analyses described in the TSP, does not provide an adequate impact assessment due to the lacking baseline information, excludes appropriate modeling scenarios, does not adequately incorporate the effects of climate change or high frequency precipitation events into the analyses, and does not provide appropriate mitigation measures. As a result, consultations under the MSA and Section 7 of the ESA cannot be initiated at this time.

The document itself is lengthy and contains numerous errors and inconsistencies. Coordination prior to the issuance of the DIFR-EIS did not follow the jointly developed SMART planning guidance and the information we provided since the inception of the Study in 2016 does not appear to have any meaningful influence on the development of the TSP. However, based upon the information in the report, it is clear that the significant impacts to NOAA trust resources will occur if the TSP is implemented as proposed. As outlined above, significant data collection and analysis is necessary should the Study move forward. However, we strongly recommend that the District re-evaluate the TSP and work collaboratively with the cooperating agencies and other stakeholders to develop a revised plan that uses a systems approach that incorporates natural, social, and built systems as a whole to identify practicable solutions to reduce damages from coastal flooding that affect population, critical infrastructure, property, and ecosystems while minimizing adverse impacts to NOAA trust resources and coastal ecosystems. The revised plan should prioritize the use of non-structural and other land use management options and natural and nature-based solutions.

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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

November 4, 2021

Peter Weppler
Chief, Environmental Analyses Branch
Department of the Army
U.S. Army Corps of Engineers, New York District
Jacob K. Javits Federal Building
26 Federal Plaza
New York, New York, 10278-0090

RE: EFH Consultation for the New York New Jersey Harbor Deepening Channel Improvement Study for Port Jersey Port Authority Marine Terminal, Elizabeth Port Authority Marine Terminal, and Port Newark, New Jersey.

Dear Mr. Weppler:

We have reviewed the revised essential fish habitat (EFH) assessment and additional supplemental information provided to us by the U.S. Army Corp of Engineers, New York District (District) in response to our December 11, 2020, technical assistance letter for the New York New Jersey Harbor Deepening Channel Improvement Study (HDCI). The HDCI involves deepening the existing 50-foot deep (mean lower low water [MLLW]) federal navigation channel to allow for the navigation of a Triple E Class vessel to transit from sea to Port Elizabeth and Port Jersey, New Jersey. The Tentatively Selected Plan (TSP) identified in the Draft Integrated Feasibility Report and Environmental Assessment (Draft FR/EA) includes the dredging of 33,238,000 cubic yards (cy) of sediments to deepen a number of navigation channels in the study area, which includes the Ambrose Channel, Anchorage Channel and Port Jersey Channel, the Kill Van Kull, Newark Bay Channel, South Elizabeth Channel and Elizabeth Channel by up to 5 feet. Dredging also includes the widening of some channels, including side slopes in some areas, which is needed for structural stability.

Based on the revised EFH assessment, potential impacts from the proposed project may include temporary disturbances due to entrainment of early life stages (i.e., eggs and larvae); temporary disturbances due to turbidity, burial, or release of contaminants from suspended sediments; and the permanent loss of habitat. A compensatory mitigation plan for permanent disturbances is proposed to be developed at a later time once sufficient project details have been evaluated during the Pre-construction Engineering and Design (PED) phase.

Magnuson Stevens Fishery Conservation and Management Act (MSA)

As discussed in our previous letter, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and Fish and Wildlife Coordination Act (FWCA) require federal agencies to consult with one another on projects such as this that may adversely affect EFH and other aquatic resources. In turn, we must provide recommendations to conserve EFH. These recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or undertaken by that agency. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure.

The project area has been designated as EFH under the MSA for a number of federally managed species including winter flounder (*Pseudopleuronectes americanus*), windowpane (*Scophthalmus aquosus*), Atlantic sea herring (*Clupea harengus*), bluefish (*Pomatomus saltatrix*), Atlantic butterfish (*Peprilus triacanthus*), summer flounder (*Paralichthys dentatus*), Atlantic mackerel (*Scomber scombrus*), scup (*Stenotomus chrysops*), black sea bass (*Centropristis striata*), clearnose skate (*Raja eglanteria*), little skate (*Leucoraja erinacea*), winter skate (*Leucoraja ocellata*), red hake (*Urophycis chuss*), and others. The study area is also a migratory corridor for anadromous fish such as American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*), and blueback herring (*Alosa aestivalis*).

According to the revised EFH assessment, the proposed project anticipates permanent impacts to 46 acres of subtidal shallows within depths between -6-feet and -20-feet MLLW, which includes EFH for early life stage winter flounder habitat. Due to inconsistencies between the text, an unnumbered summary table of impacts, and Figure 3 within the EFH assessment, it is unclear if this is the total disturbance and the location of those disturbances. Specifically, the text indicates permanent impacts to 8.70 acres to "Upper Bay/KVK East" and 37.25 acres to "Newark Bay/KVK West," the summary table indicates permanent impacts to 8.70 acres to the Anchorage Channel and 37.25 acres to the Newark Bay Channel, and Figure 3 displays impacts in the Port Jersey Channel, Kill Van Kull, and Newark Bay Channels. Figure 18 within the Draft FR/EA Report, also presents different impacts and locations of those impacts. Additionally, the quantification of temporary impacts remains unclear.

While noise from construction is briefly indicated as a direct impact, blasting, which is briefly mentioned in the Draft FR/EA, is not included in the summary of impacts. The seasonal restrictions protective of anadromous fish (i.e. no dredging or blasting from March 1 to June 30) mentioned in the Draft FR/EA during blasting activities, should also apply within the migrating and spawning waters throughout the Kill Van Kull and Newark Bay channels.

Compensatory mitigation should be provided for the loss of shallow water habitat and EFH for winter flounder early life stages (i.e., areas less than 6 meters below mean low water [MLW]). The EFH assessment states that a functional assessment of the habitat will be evaluated with additional project details gathered during the PED and in conjunction with updated implementing policies, such as NOAA's Draft Mitigation Policy for Trust Resources, to develop a compensatory mitigation plan. The District anticipates that the HDCI will implement projects in

the NY/NJ Harbor similar to the original Harbor Deepening Project, which focused on water quality improvements and enhancement of intertidal and subtidal habitat functions through the beneficial use of dredged material. Because the areal extent of impact has not been clearly defined, it is premature for us to make a determination regarding the suitability of this approach. We recommend that the District continue to coordinate with us as these plans evolve, so that we may help to identify suitable locations, and develop appropriate mitigation ratios, goals, success criteria, performance measures, monitoring and maintenance plans, as well as adaptive management plans to help ensure long-term success of the proposed mitigation. Additionally, if the District intends to provide habitat enhancement and beneficial use of material as part of the HDCI, the specific locations of the sources of the dredged material, nature of the material (grain size, contaminants, etc.), and the details related to the dredging should be included in an updated or supplemental EFH assessment developed once the impact numbers have been refined and a conceptual compensatory mitigation plan is developed.

We appreciate that you intend to implement best management practices (BMPs) for this project, such as the use of closed clamshell buckets, restricted hoist speeds, and no barge overflow. We also agree that seasonal timing restrictions may be used to minimize impacts during construction to avoid sensitive life stages. However, as discussed in our letter dated February 7, 2017, the seasonal windows you propose in the EFH assessment were developed for and are applicable only to the maintenance dredging activities within the existing channels of the Harbor Deepening Project (HDP). In that letter, we also stated that seasonal windows are not applicable in private facilities within the project area or in federal navigation channels outside of the HDP, such as the channels within Raritan and Lower Bays. We also stated that additional EFH CRs may be provided for any new work associated with future improvements to the HDP, including the widening channels or changes to the side slopes, or if blasting was proposed, both of which are proposed as part of the HCDI Study.

Because the proposed improvements to the HDP, described in the HDCI Study include deepening and also widening of several channels within the study area, the seasonal restrictions described in our March 15, 2015, letter which include protections to the shallow areas adjacent to the channel that are EFH for winter flounder early life stages are applicable to the HDCI. These recommended seasonal restrictions do incorporate information from the biological sampling programs undertaken by the District as part of the original HDP and include shortened winter flounder and anadromous fish seasonal restrictions as compared to those we recommended prior to the biological sampling.

Essential Fish Habitat Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the MSA we are providing the following EFH conservation recommendations (CRs) to minimize adverse effects on EFH for winter flounder, summer flounder, windowpane, bluefish and skates:

<u>Anchorage Channel</u>:

- Seasonal protections are not necessary except in the following areas:
    - Port Jersey Channel, adjacent to shallow flats less than 6 meters deep at MLW. In these areas, dredging should be avoided from January 15 to May 31 to protect

winter flounder early life stages and their EFH. The seasonal restriction applies from edge of the existing channel adjacent to the shallow flats out for a distance equal to of one-half the width of the channel. For example, if the channel is 500 feet wide, then the dredging should be avoided within 250 feet of the channel edge adjacent to the shallow flats less than 6 meters deep at mlw.

Kill Van Kill:

- Avoid dredging and blasting from March 1 to May 31 of each year to minimize impacts to migrating and spawning anadromous fishes which are prey species for federally managed bluefish, summer flounder, windowpane and skates.

Newark Bay:

- Avoid dredging from January 15 to May 31 in following reaches: North of Shooters Island Reach, the portion of the Newark Bay South Reach south of the South Elizabeth Channel, the Newark May Middle Reach north of the Elizabeth Channel, the Port Newark Pierhead Channel, the Newark Bay North Reach and Port Jersey Channel to protect winter flounder early life stages and their EFH. The seasonal restriction applies from edge of the existing channel adjacent to the shallow areas out for a distance equal to of one-half the width of the channel. For example, if the channel is 500 feet wide, then the dredging should be avoided within 250 feet of the channel edge adjacent to the shallow flats less than 6 meters deep at mlw.

- Avoid dredging from March 1 to May 31 of each year to minimize impacts to migrating and spawning anadromous fishes which are prey species for federally managed bluefish, summer flounder, windowpane and skates.

These recommended seasonal restrictions are consistent with the discussions between our agencies regarding the difference between what is needed for the maintenance dredging of the existing channels, which does not generally impact the sides slopes and adjacent shallow areas, and what is necessary for deepening of the channels which results in widening, changes to the side slopes, and the loss of adjacent winter flounder early life stage EFH.

In addition:

- All blasting work should be designed to include 25 microsecond delays in the charge triggering when blast material volumes exceed 64 pounds per shot, regardless of the number of holes to be used in the blast unless otherwise negotiated.

- Coordinate with us to develop a sequential dredging plan in areas where seasonal constraints vary within a reach.

- Continue to coordinate with us in the development of a plan to compensate for all direct impacts to shallow waters and any indirect loss of habitat value within wetlands, shallow waters, and mudflats that may occur as a result of project implementation. Plans should include clear goals, success criteria, performance measures, a monitoring and

maintenance plan, as well as an adaptive management plan to help ensure long-term success of the proposed mitigation.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures adopted by you for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects pursuant to 50 CFR 600.920(k). This response must be provided within 30 days after receiving our EFH conservation recommendations and at least 10 days prior to final approval of this action.

Please also note that further EFH consultation must be reinitiated pursuant to 50 CFR 600.920(j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above determination.

Endangered Species Act

Federally listed species may be present in the project area and consultation, pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, may be necessary. We understand that you have submitted a request for ESA consultation and are currently working with our Protected Resources Division. Should you have any questions about the Section 7 consultation process in general, please contact Edith Carson-Supino (Edith.Carson-Supino@noaa.gov, 978-282-8490).

Conclusion

As always, we are available to work with you to discuss options for sequential dredging and other BMPs for dredging and blasting so that the channel improvements proposed in the Study can move forward expeditiously while still protecting valuable fishery resources and habitats, as well as compensatory mitigation opportunities to offset unavoidable impacts to EFH and other NOAA trust resources. We look forward to your response to our EFH recommendations on this project. As always, please do not hesitate to contact Jessie Murray (Jessie.Murray@noaa.gov, 978-675-2175) in our Sandy Hook field office if you have any questions or need assistance.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
for Habitat and Ecosystem Services

cc: GARFO PRD – E. Carson-Supino
GARFO HESD – K. Greene, J. Murray
New York District ACOE – J, Gallo, J. Miller, K. Baumert, C. Alcoba
NJDEP – S. Biggins, K. Davis
FWS – R. Popowski, S. Sinkevich
EPA Region II – M. Finocchiaro
NEFMC – T. Nies
MAFMC – C. Moore
ASMFC – L. Havel

New England Fishery Management Council

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

November 1, 2021

Michelle Morin
Bureau of Ocean Energy Management
Office of Renewable Energy Programs
45600 Woodland Road (VAM-OREP)
Sterling, Virginia 20166

Re: Notice of Intent to Prepare an EIS for the Atlantic Shores Wind project

Dear Ms. Morin,

Please accept these comments from the Mid-Atlantic Fishery Management Council (Mid-Atlantic Council) and the New England Fishery Management Council (New England Council) regarding the Notice of Intent to prepare an Environmental Impact Statement (EIS) for the Construction and Operations Plan (COP) for Atlantic Shores Projects 1 and 2 off New Jersey. Combined across the two projects, the COP proposes to install up to 200 turbines, up to 10 offshore substations, and up to one permanent meteorological tower. Alternating current cables would connect the turbines and offshore service platforms, and either alternating or direct current export cables would connect the projects with onshore connection point(s) in Atlantic City and/or Sea Girt, New Jersey. Project 1 (southwestern area of the lease) and Project 2 (southeastern area of the lease) are electrically independent projects that may interconnect with the grid at two separate locations, each with its own offshore substations and export cable.

The New England Council has primary management jurisdiction over 28 marine fishery species in federal waters and is composed of members from Maine to Connecticut. The Mid-Atlantic Council manages more than 65 marine species[1] in federal waters and is composed of members from the coastal states of New York to North Carolina (including Pennsylvania). In addition to managing these fisheries, both Councils have enacted measures to identify and conserve essential fish habitats (EFH), protect deep sea corals, and sustainably manage forage fisheries. The Councils support policies for U.S. wind energy development and operations that will sustain the health of marine ecosystems and fisheries resources. While the Councils recognize the importance of domestic energy development to U.S. economic security, we note that the marine fisheries throughout New England and the Mid-Atlantic, including within the Atlantic Shores project area and in surrounding areas, are profoundly important to the social and economic well-being of communities in the Northeast U.S. and provide numerous benefits to the nation, including domestic food security.

General comments

The pace and number of offshore wind projects in development in our region pose challenges for thorough analysis of potential impacts, informed public input, and adopting lessons learned from

[1] Fifteen species are managed with specific Fishery Management Plans, and over 50 forage species are managed as "ecosystem components" within the Mid-Atlantic Council's FMPs.

each project. Fifteen leased areas are in the COP development and review phase, 3 lease areas are in the site assessment phase, and multiple additional areas in the New York Bight are planned to be leased soon. Eight projects, including this one, entered the EIS development phase through issuance of NOIs since March 2021, and the NOI for Mayflower Wind publishes today. In October, BOEM announced plans to hold up to seven additional new offshore lease sales by 2025, including in the Central Atlantic (2023) and Gulf of Maine (2024). Consulting and coordinating on these projects are already taxing available resources in the fishing, fishery management, and fishery science communities, and we expect at BOEM as well. Consistency in approaches, while adopting lessons learned from one project to the next will benefit stakeholders who engage in the review process for these complex projects.

In addition to the challenges posed by multiple projects, Atlantic Shores raises unique questions because it is two separate projects. The EIS should describe how BOEM's process for this project may differ from the standard process given two electrically distinct projects are proposed through one COP. The COP indicates a desire for Project 2 to be constructed immediately after Project 1. Permit issuance, terms and conditions, and mitigation measures identified via the federal consistency process should be adaptive such that lessons learned during Project 1 can be adopted and applied to Project 2, especially in terms of minimizing negative impacts to marine habitats and existing uses such as commercial and recreational fisheries.

The PDF "posters" in the online virtual page[2] are very valuable for providing a summary of the project at a glance in a more easily accessible format than searching for the relevant sections of the over 900-page COP (not including appendices). We appreciate that posters on commercial fishing were included. Posters on recreational fishing should have also been provided as these project areas overlap with important recreational fishing areas, as described in the COP. We recommend consistency in the information provided in these posters across projects and we recommend that posters on both commercial and recreational fishing be provided moving forward.

As the impacts analysis is developed, clear terminology will be important for readers to understand the complexity of the alternatives considered and the large number of impact-producing factors and environmental resources evaluated. In addition, both magnitude and direction of impacts should be specified when characterizing impacts and the EIS should define short and long term in the context of impacts.

We understand that BOEM regulations allow offshore wind project developers to revise their COPs throughout the environmental review process. Volume 2 of the Atlantic Shores COP states that a revised Volume 2 and all associated appendices, including the Affected Environment, providing additional details on the differentiation between Projects 1 and 2, will be provided to BOEM in December 2021. It is unclear when this revised document will be available to the public. This poses significant challenges for stakeholders and partner agencies to understand and provide input on the likely impacts of the project.

We understand that the final project design must fall within the analyzed project design envelope. The project design envelope approach is logical given the time needed to complete environmental review and continuous advances in technology. However, as described in more

[2] https://www.boem.gov/renewable-energy/state-activities/atlantic-shores-scoping-virtual-meetings

detail in later sections of this letter, we are concerned that allowing flexibility in final project design has resulted in too wide of a design envelope for this COP and uncertainty in the actual impacts of the project. To address these concerns, we request that BOEM publicly announce whenever a COP has been revised and include a list of the specific changes. We also recommend that the EIS consider a narrower design envelope than that described in the COP based on developments that will likely occur between the drafting of the COP and the EIS (e.g., phasing out of smaller turbine sizes and decisions regarding cable corridor locations, foundation types, and the number and size of offshore substations).

Cumulative impacts

The EIS must include a meaningful cumulative impacts assessment. We supported the criteria used in the Vineyard Wind 1 EIS for defining the scope of reasonably foreseeable future wind development; however, that scope should be expanded to include the anticipated New York Bight lease areas. The cumulative effects of the adjacent wind projects should be thoroughly evaluated. In addition, it will be important to consider that many lease areas, including this one, are not proposed to be developed through a single project, but rather will be developed in stages through multiple projects. The EIS should also acknowledge the recent Department of Interior announcement of plans to hold up to seven new lease sales by 2025, even if these leases are not included in the analyzed scope of reasonably foreseeable future wind development.

The cumulative effects analysis should also consider the impacts of cables from many planned projects. As we have commented in the past, there are multiple benefits to coordinated transmission planning across multiple projects. For example, shared cable corridors could decrease the amount of disturbed habitat. Impacts to sensitive species could also be slightly reduced if multiple cable installations are coordinated to avoid especially sensitive times of year. To help stakeholders better understand the potential cumulative impacts of the offshore export cables planned for all projects, we recommend the creation of information products to show the planned locations of all export cables (e.g., through the Northeast and Mid-Atlantic Ocean Data Portals). We recognize that the final precise cable routes have not been determined for most projects and this should be noted in the information products. Earlier dissemination of draft proposals via these platforms would promote better understanding of these projects in relation to each other and to other activities.

Cumulative impacts and risks must be evaluated for species that are widely distributed on the coast. Species such as bluefish, flounders, and others that migrate along the coast could be affected by multiple offshore wind projects, as well as other types of coastal development, at both the individual and population level. Climate change will also be an essential consideration in the cumulative effects analysis as the distributions and abundance of many species are changing (some increasing, some decreasing) due to climate change and other factors. The EIS should acknowledge that impacts from the construction of wind farms will occur in this context.

We continue to have significant concerns about the cumulative impacts of offshore wind development on fishery independent surveys. Major negative impacts to these surveys would translate into greater uncertainty in stock assessments, the potential for more conservative fisheries management measures, and resulting impacts on fishery participants and communities. We are encouraged by BOEM's commitment to working with NOAA on long term solutions to

this challenge through the regional, programmatic, Federal Survey Mitigation Program, described in the Record of Decision for the Vineyard Wind 1 project.

Alternatives to consider in the EIS

Atlantic Shores Project 1 has a maximum capacity of 1,510 MW, which has been procured by New Jersey. The maximum capacity of Project 2 is not specified as this project will seek contracts in Q3 2022. A maximum of 200 turbines will be installed for the two projects combined (105 - 136 turbines for Project 1 and 64 - 95 turbines for Project 2). Each project will have either 5 small, 3 medium, or 2 large offshore substations. Piled (monopile or jacket), suction bucket (mono or jacket), and gravity-based foundations are all under consideration for the turbines and offshore substations. Two offshore export cable corridors are under consideration: the Monmouth Export Cable Corridor, which is 341.8 miles in length and the Atlantic Export Cable Corridor, which is 99.4 miles in length. Up to eight export cables will be installed in these corridors to connect the projects to shore.

A uniform East-Northeast/West-Southwest 1 nm x 0.6 nm grid layout (with 0.54 and 0.49 nm spacing on the diagonals) is proposed in the COP based on predominant traffic flow in the area, including special consideration given to the surfclam/ocean quahog fisheries. Based on the rationale that this uniform layout allows for transit in multiple directions, an additional designated transit lane is not included in the COP.

We are concerned that some details are lacking from the project design envelope described in the COP. Specifically, the maximum design scenario is very clearly described; however, the realistic minimum design scenario is not given any consideration. For example, the COP does not specify a potential range of megawatt capacities for the turbines, though the physical sizes of the turbines are described. Without specifying the minimum and maximum likely turbine capacities, it is challenging to predict how many of the maximum 200 turbines may be required to meet the purpose and need of the project while minimizing negative impacts to the environment and existing uses such as commercial and recreational fishing. Similarly, the potential minimum number of substations cannot be predicted without a more thorough description of considerations related to the size of the offshore substations (small, medium, or large).

The EIS should analyze multiple distinct alternatives associated with smallest, largest, and one or more intermediary potential scales of each project in terms of the number of turbines which might be installed, the number of offshore substations, the total disturbed area of the seafloor, and the length of the offshore export cable corridors. These alternatives should acknowledge that different combinations of turbine sizes, foundation types, number and size of offshore substations, and offshore export cable lengths may be used, and thus result in different levels of impacts. When describing alternatives that represent small or intermediate scales of the project, details should be provided on how determinations will be made regarding which locations to avoid. The impacts of the different foundation types should also be clearly articulated. For example, a greater area of seafloor habitat will be altered with gravity base structures, but more substantial acoustic impacts will be associated with the installation of monopiles.

All the choices described above have implications for habitat, fisheries, and other environmental impacts. It will be important to clearly outline a wide range of possible scenarios, especially if the project size is unknown at the time of EIS completion.

A mix of bottom types exist at the project site including along the potential cable corridors. The EIS should include a habitat minimization alternative which would include micro-siting of inter-array and export cables and exclude potential turbine or substation locations with the goal of minimizing impacts to sensitive habitats including submerged aquatic vegetation,[3] hard bottom, and complex topography including sand waves and troughs. Details should be provided on how determinations will be made and what flexibilities exist to site turbines, substations, and cables (including inter-array and export cables) to minimize impacts to marine habitats.

Greater details should be provided on why two export cable corridors are considered, especially given that the Monmouth Export Cable Corridor (ECC) is nearly two and a half times the length of the Atlantic Export Cable Corridor and has the potential for much greater environmental impacts and impacts to existing uses such as commercial and recreational fisheries. In multiple places, the COP includes statements such as "Projects 1 and 2 have the potential to use either ECC and offshore export cables for each Project may also be co-located within an ECC" (e.g., page 1-6 of Volume 1). If both corridors may be needed to integrate the two projects with the onshore grid, this should be made clear. It is also not clear if a single project may require use of both corridors, nor is it clear if the decision to split this part of the lease area into Project 1 and Project 2, as opposed to a single project, impacts decisions regarding use of a single export cable corridor or two cable corridors. As we have commented to BOEM in the past, export cables can damage marine habitats, raise concerns about electromagnetic fields, and pose a risk to fisheries using mobile bottom-tending gear. The amount of export cabling placed in the ocean must be minimized and it is essential that BOEM take a stronger role in facilitating coordinated transmission across projects and across developers to ensure that impacts are minimized. The Atlantic Shores COP states that offshore cable easements have not yet been requested for this project (page 3-16 of Volume 1); therefore, it appears to us that there is still an opportunity to work towards coordinated transmission planning for this and other nearby projects (e.g., Ocean Wind and future projects which may occur in the remaining sections of the Atlantic Shores and Ocean Wind lease areas).

The COP also notes that alternating current (AC) or direct current cables (DC) may be used for the export cables. No mention is given to an AC to DC conversion station or cooling system. If a conversion station with a cooling system may be needed, then the lack of this information is a serious flaw in the COP. We have significant concerns about the environmental impacts of cooling systems at conversion stations, as outlined in our recent letter to BOEM on the Notice of Intent to prepare an EIS for the Sunrise Wind project.[4]

Provision of high-resolution benthic habitat maps early in the process is important. These data are needed for NMFS to conduct essential fish habitat consultations. This consultation process is designed to avoid impacts wherever possible and determine mitigation measures where impacts

[3] It should be noted that all areas with submerged aquatic vegetation were designated habitat areas of particular concern for summer flounder through Amendment 12 to the Mid-Atlantic Council's Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (https://www.mafmc.org/sf-s-bsb). This is not acknowledged in the Atlantic Shores COP, though other habitat areas of particular concern are acknowledged.

[4] https://www.mafmc.org/s/211004_NEFMC-MAFMC-to-BOEM-re-NOI-to-Prepare-EIS-for-Sunrise-Wind.pdf

cannot be avoided. It is very concerning to us that these data have not been included in this COP. Without these data, we are unable to provide specific suggestions for locations to avoid.

It is important to consider that while features less than 0.5 meters in size may not constitute complex hazards from a cable or turbine installation standpoint, pebbles and cobbles on centimeter scales can offer refuge from flow and predation and provide feeding opportunities for juvenile fish. Reworking and removing epifauna from these sediments during cable and turbine installation will affect the fish that use these habitats. The New England Council has worked to protect complex habitats at these spatial scales from the impacts of fishing, for example, on Nantucket Shoals. The analyses prepared for the New England Council's Clam Dredge Exemption Framework articulate what we consider complex seabed in a fisheries context, and the types of areas we would seek avoidance of wind development.[5]

The EIS should also consider an alternative which would minimize impacts to commercial and recreational fisheries. This could include reducing the number of turbines installed; using the shortest offshore cable corridor possible; maximizing cable burial depth; seasonal restrictions on construction activities; and excluding turbine, substation, and cable locations that have greater overlaps with fishing activity. We recommend working with affected fishermen to understand the locations of greatest concern. In addition, the turbine, substation, and cable locations should avoid all shipwrecks as they provide fish habitat and are important recreational fishing locations. For example, the COP lists the Garden State North Reef and the Atlantic City Reef Site as fishing hotspots "in proximity to" the wind turbine area and export cable corridor. These locations were designated as special management zones by the Mid-Atlantic Council due to their importance as recreational fishing sites.[6] This is not to say that they are more important than all other recreational fishing hotspots in the area. Nonetheless, construction in these areas must be avoided.

The COP notes that the project will seek to minimize summertime construction activities which may interfere with recreational fishing. Minimizing construction during the summer could also have benefits for important fishery species such as longfin squid, which spawn during the summer and, as described below, may be negatively impacted by construction sounds and sedimentation. However, the EIS should acknowledge the tradeoffs associated with reducing the amount of construction activity and associated impacts during one time of year as this will require an increase in construction during other times of year when different species and different fisheries may be more vulnerable to impacts.

For all alternatives, the EIS should be clear on which measures to avoid, minimize, or mitigate negative impacts will be required as opposed to discretionary. Only required measures should influence the impacts conclusions in the EIS. Monitoring studies should not be considered environmental protection measures as monitoring is not equivalent to avoidance, minimization, or mitigation. Avoidance, minimization, mitigation, and compensation for negative impacts should all be considered, with compensation thoroughly planned for, but used only as a last resort if avoidance or mitigation are not possible or are not achieved. Avoidance should be the first priority.

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[5] See Appendix A at https://www.nefmc.org/library/clam-dredge-framework .

[6] https://www.fisheries.noaa.gov/resource/map/new-jersey-special-management-zone-areas
https://www.mafmc.org/actions/2016/nj-special-management-zones

Fisheries and habitat considerations

BOEM should coordinate early and often with NOAA Fisheries on the most appropriate data for analysis of potential impacts to fisheries, including fishing and transiting locations, as well as socioeconomic impacts. Summary information on Council-managed fisheries is also available on the Council websites, www.mafmc.org, and www.nefmc.org, at fishery management plan-specific links, typically via annual fishery information reports (MAFMC) or recent plan amendment or framework documents (both councils).

The EIS should clearly and repeatedly acknowledge the limitations of each data set, should include recent data, and analyze multiple years of data (e.g., 10 years) to capture variations in fisheries and environmental conditions. Important data limitations, including but not limited to the location of private recreational fishing effort, should be supplemented with stakeholder input.

Important caveats regarding fisheries data for 2020 should be taken into consideration given most commercial and recreational fisheries were severely impacted by the COVID-19 pandemic (e.g., severely reduced market demand, lower prices, social distancing restrictions, and reduced fishing effort for many species). Important data collection programs were also negatively impacted (commercial fishery discard surveys, shore-side recreational catch sampling, and for-hire sampling).

Commercial, for-hire recreational, and private recreational fishing will all be impacted by this project in different ways. Therefore, they should be considered separately, but in the same or adjacent sections of the document. As we have stated in comment letters on other wind projects, the grouping of private recreational fishing with recreation and tourism (as is done in this COP), rather than with commercial and for-hire fisheries, is not intuitive and makes it challenging for readers to understand the full picture of potential impacts on all fishery sectors. These projects will affect both for-hire and private recreational fishing. Describing both types of recreational fishing in the same section of the document would make linkages between biological and fishery conditions easier to explain and understand.

The EIS should describe how all impacts may vary by target species, gear type, fishing location (e.g., from shore, mid-water, on different bottom types, near structures such as shipwrecks, other artificial reefs, or boulders) and commercial or recreational fishing (including recreational fishing from shore, private vessels, party/charter vessels, and tournaments).

Turbine and substation foundations, as well as materials used for scour protection and external cable armoring will create substrates for fouling organisms and create artificial reefs. These artificial reefs are expected to attract certain fishery species (e.g., black sea bass). However, the addition of new structured habitat in this area will replace existing habitat types and could displace other species which prefer soft sediments (e.g., flatfish, bivalves). The EIS should acknowledge that although the artificial reef effect will be beneficial for some species, it will not be universally beneficial for all species. The impacts of such changes should be analyzed. In addition, the EIS should evaluate the extent to which impacts may vary based on the characteristics of the materials used. These materials should mimic natural, nearby habitats where possible.

In addition, secondary cascading effects should be evaluated as community composition could change within and beyond the project area. For example, this project area includes habitat for surfclams and scallops. The addition of structured habitat may attract bivalve predators such as sea stars and moon snails, which could have negative impacts on species such as surfclams and could result in cascading ecological impacts.

The EIS should describe the amount of scour protection that may be needed for the turbine and offshore substation foundations, as well as the amount of external cable armoring that may be required if sufficient cable burial depth cannot be achieved. Consideration should also be given to materials that reduce the potential for interference with existing fisheries in the area. It should be noted that there are different considerations for different fisheries. For example, the commercial fishing industry is concerned about the use of concrete mattresses due to the potential for hanging/snagging mobile gears. Some recreational fishery stakeholders have noted improved fishing opportunities around the scour protection materials used for the CVOW pilot project off Virginia. In addition, the turbine and substation foundations may create a wake effect. This could increase the amount of suspended sediment in the immediate area which could negatively impact filter feeding organisms, including commercially important species such as surfclams and scallops. It could also have impacts on the dispersal of pelagic larvae in the area. These impacts must be thoroughly considered in the EIS.

Commercial and recreational fishermen may not be able to take full advantage of any increased availability of target species due to concerns about safely maneuvering, drifting, or anchoring near turbines and offshore substations. The proposed 1 by 0.6 nautical mile grid layout of the projects will not eliminate all safety concerns. Safety considerations will vary based on weather, gear type, vessel size, and specific fishing practices which can vary by target species. Although some fishermen may have experience fishing near the five turbines off Block Island or the two CVOW pilot project turbines off Virginia, this may not prepare them for fishing safely within the Atlantic Shores Wind Projects 1 and 2, which could include up to 200 turbines. The EIS should evaluate these safety considerations and their potential variations across different fisheries. In addition, if fishermen shift their effort outside the project area during construction or long-term operations, this will potentially put them in areas of higher vessel traffic and gear conflict.

Fishermen choose where to fish based on many factors including the location of target species and species they wish to avoid, where regulations allow, where they can fish the most efficiently, and where they plan to land their catch based on market and regulatory factors. For these reasons, fishermen cannot easily relocate to different areas to avoid a windfarm without socioeconomic impacts. Fishermen who choose to fish outside of this project area for safety, economic, or other reasons may not be able to recoup the loss of landings and revenue by shifting effort elsewhere.

Relocation of boulders and removal of sand bedforms, as described in the COP, will cause disruptions in fishing activity, including private and for-hire recreational fishing, as well as some types of commercial fishing (e.g., pot/trap fishing for black sea bass). Some boulders and sand bedforms are targeted by fishermen and it could take several trips to find their new locations. In addition, a loss of attached fauna is expected when boulders are moved. Recovery may take multiple years and the initial re-colonizing organisms may differ from those displaced during

movement from the original location.[7] While the relocated boulders may eventually continue to attract fishery species, relocation is not a negligible impact on the fleet. If boulders are aggregated in new locations, this could result in potential hangs for commercial mobile bottom-tending gears. Detailed reporting on where boulders are moved to should be required as a mitigation strategy.

The likely extent of impacts to all types of fishing will be important to understand in the context of developing mitigation agreements for affected fishing industry members. Fishing effort can change based on management actions such as a change in access areas, or updated state-by-state quota allocations for a target species (e.g., black sea bass, summer flounder, bluefish). It is important to account for the dynamic nature of fishing effort over time when evaluating impacts to fisheries and fishing communities. This is an area of the EIS where cumulative considerations are especially critical and this project cannot be considered in a vacuum; many other wind farms are proposed throughout this region, and fishing will be affected over a large area if all these projects are installed.

BOEM should work with NOAA Fisheries to ensure that the most appropriate data (e.g., vessel trip reports for commercial and for-hire recreational fisheries) are used to identify catch that occurred in the vicinity of the project area and to describe the most impacted ports and communities based on where that catch was landed. Landings and revenues are both important metrics to consider.

Data on the precise locations of private recreational fishing effort are generally lacking; however, given the location of this specific project, it may be sufficient to rely on Marine Recreational Information Program (MRIP) data for private and for-hire recreational harvest in New Jersey. It is unlikely that a notable amount of fishing effort from private recreational fishing vessels based out of states other than New Jersey occurred in this project area. This may not be the case for for-hire fishing effort; however, vessel trip report data can be analyzed for for-hire vessels. MRIP data cannot provide information on recreational fishing effort within these project areas specifically; however, it can provide information on private and for-hire recreational fishing trips that occurred primarily in federal waters and returned to New Jersey docks.

Models exist to estimate the amount of fisheries revenue generated from within the project area; however, it is important to acknowledge that changes in transit patterns will also have economic impacts which will be challenging to accurately quantify.

We found no reference in the COP or the Fisheries Communication Plan (Appendix II-R) to availability of mitigation funds if impacts such as fishing gear loss occur. Mitigation funds must be available to all affected vessels and ocean users who rely on this project area for revenue. The availability of such funds and their influence on impacts determinations should be explained in detail in the EIS.

Commercial and recreational fisheries provide a wide range of benefits to coastal communities; not all are captured by looking only at financial metrics. The EIS should not overly rely on ex-

[7] For example, see Guarinello, M. L., & Carey, D. A. 2020. Multi-modal Approach for Benthic Impact Assessments in Moraine Habitats: a Case Study at the Block Island Wind Farm. Estuaries and Coasts. doi:10.1007/s12237-020-00818-w.

vessel value when assessing and weighting impacts across various fisheries. Focusing on ex-vessel value can mask other important considerations such as the number of impacted fishery participants, the use of a lower value species as bait for a higher value species, or a seasonally important fishery. In addition, the EIS must acknowledge that ex-vessel value does not account for impacts to fish processors and other fishery support businesses, nor does it address other sectors of the economy, consumer benefits, or the economic impacts of recreational fisheries.

As much of the cables as possible should be buried to avoid the concerns listed above regarding external cable armoring materials where they are unburied. The COP suggests a target burial depth of 5 to 6.6 feet for all cables (e.g., pages 4-38 and 4-41). We are concerned about potential for the cables to become unburied given the dynamic seafloor and the amount of dredge activity in the area. Burying the cables as deep as possible will help to minimize these risks. It should also be considered that natural snags are already well known to fishermen, and in many cases are charted, but that it will take time for fishermen to learn the locations of the cable protection materials. The EIS should provide maps of benthic features so that readers can use these maps to evaluate conclusions reached regarding both habitat and fisheries effects of development.

Installation of cables and foundations for turbines and offshore substations will generate both noise and sediment plumes, which may affect biological processes for marine species. For example, longfin squid may be negatively impacted by the construction sounds and their demersal egg mops could be materially impacted by sediment deposition. The EIS should acknowledge that both demersal and pelagic species may also be impacted by the noise and vibrations generated from construction activities and may change their behavior and/or feeding patterns to avoid the impacted area, which is not a negligible impact. It will be important for the impacts analysis, including the EFH assessment, to consider how installation during different seasons will affect particular species and life stages during spawning, juvenile settlement, etc. The nature of these repeated effects over time should be accounted for in the analysis of impacts to habitats and fishes. As described above, we also have concerns about sedimentation which could occur at the turbine and substation foundations due to the wake effect.

In the context of both cable and turbine installation, any place where the bottom sediments will be disturbed must be evaluated for sediment contamination to understand the potential for environmental effects associated with contaminant release. Two obvious sources of contamination are dredged spoils from inshore, nearshore, or harbor maintenance and disposal of onshore materials (including waste). For many years, such disposal was not evaluated carefully and not regulated as it is today. As a result, sediments and other material with unacceptable levels of heavy metals and persistent organic pollutants (POPS) were disposed in ocean waters and may remain in locations where they could be disturbed. These sources of contamination need to be assessed and managed as part of the offshore wind development process.

Impacts of electromagnetic fields (EMF) on fishery species are a concern to the fishing community. For example, studies have suggested that EMF can result in changes in behavior, movement, and migration for some demersal and pelagic fish and shellfish species[8]. The extent to which EMF may or may not impact marine species should be thoroughly described in the EIS. The EIS should acknowledge the limitations of the current scientific knowledge in this area and

[8] https://greenfinstudio.com/wp-content/uploads/2017/10/GreenFinStudio_EMF_MarineFishes.pdf

should provide justification, including supporting scientific studies, for all conclusions regarding EMF.

Through modeling work, the physical presence of turbines has been estimated to alter the near-surface and near-bottom temperatures, and thus, habitat conditions for marine species, as well as juvenile transport of commercially important species like sea scallop.[9] The EIS should acknowledge both the individual's project potential to materially affect oceanographic and hydrodynamic conditions based on ongoing research efforts and the project's contribution to cumulative effects from development of several wind farms on a regional scale. The EIS should also utilize the findings from ongoing research funded by BOEM in its impact assessment to understand how wind energy facilities will likely affect local and regional physical oceanographic processes.

Potential impacts to the Mid-Atlantic Cold Pool and resulting impacts on fishery species are of concern to the Councils and other fishery stakeholders. This is also an area of ongoing research.[10] The EIS should clearly document what is known about potential impacts to the Cold Pool and resulting potential impacts to marine species and fisheries. The EIS should acknowledge data gaps and ongoing research and should consider potential impacts resulting from this project, as well as cumulative impacts from all planned wind energy projects in the Mid-Atlantic. We appreciate that the COP acknowledged this as an issue of concern and an area of ongoing research.

Section 6.2 of the COP describes decommissioning and states that some components of the project will be fully removed, while other components may remain in place after decommissioning (e.g., piled foundations may be cut below the mudline, with only the portions above the mudline removed and some sections of offshore cables may be "retired in place"). These decisions will be made based on future environmental assessments and future consultations with various agencies. All project components should be removed from the offshore environment to the extent possible. It is essential that cables be removed during decommissioning. Abandoned, unmonitored cables could pose a significant safety risk for fisheries that use bottom-tending gear and the long-term risks to marine habitats are unknown.

Conclusion

We appreciate the opportunity to provide comments to ensure that issues of social and ecological importance are considered in the forthcoming EIS for the Atlantic Shores COP. We look forward to working with BOEM to ensure that any wind development in our region minimizes impacts on the marine environment and can be developed in a manner that ensures coexistence with our fisheries.

Please contact us if you have any questions.

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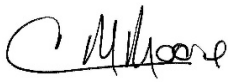
[9] https://s3.amazonaws.com/nefmc.org/Doc.14.a-UMASSD_WHOI_short_report_05_6_12_2021_revison.pdf

[10] For example, two recent reports on potential impacts of offshore wind energy development on the Cold Pool which do not appear to be referenced in the draft EA are available at the following links: https://scemfis.org/wp-content/uploads/2021/01/ColdPoolReview.pdf; https://rucool.marine.rutgers.edu/wp-content/uploads/2020/10/PartnersWorkshop_WhitePaper_Final.pdf

Sincerely,



Dr. Christopher M. Moore
Executive Director, Mid-Atlantic Fishery Management Council

Thomas A. Nies
Executive Director, New England Fishery Management Council

cc: J. Beaty, M. Luisi, W. Townsend, J. Bennett, A. Lefton

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

October 29, 2021

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

RE: Docket Number BOEM-2021-0057
Scoping Comments for the Notice of Intent to Prepare an Environmental Impact Statement for the Atlantic Shores Offshore Wind Projects Offshore New Jersey

Dear Ms. Morin:

We have reviewed the September 30, 2021, *Federal Register* Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for Atlantic Shores, LLC 's (Atlantic Shores), proposed wind energy facilities off the coast of New Jersey within the Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0499. This letter responds to your request for information from us, as both a cooperating agency on this project with legal jurisdiction and special expertise over marine trust resources, and as a consulting agency under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Fish and Wildlife Coordination Act (FWCA), and the Endangered Species Act (ESA). We are also an action agency for this project to the extent NOAA may provide Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act (MMPA). If deemed sufficient to do so, we will rely on and adopt your Final EIS to satisfy our independent legal obligations to prepare an adequate and sufficient analysis under the National Environmental Policy Act (NEPA) and the regulations published by the Council on Environmental Quality (CEQ regulations (2020)) in support of our proposal to issue the MMPA ITA for the proposed project. We understand that Atlantic Shores intends to apply for an Incidental Take Regulation/Letters of Authorization (ITR/LOAs) pursuant to section 101(a)(5)(A) of the MMPA. Our needs for sufficiency to support adoption are discussed in more detail in Attachment A to this letter.

As we understand the NOI, BOEM intends to prepare an EIS to consider whether to approve, approve with modifications, or disapprove a Construction and Operations Plan (COP) submitted by Atlantic Shores; the EIS will analyze the proposed construction and operation of two wind energy projects (Project 1 and Project 2) collectively known as the "Projects". The two distinct offshore wind energy Projects are located in the Wind Turbine Area (WTA) on the outer continental shelf (OCS) approximately 8.7 miles off of New Jersey. The proposed Projects would include the construction, operation, and eventual decommissioning of up to 200 wind turbine generators (WTGs), with between 105-136 WTGs for Project 1 and 64-95 WTGs for Project 2. The Projects would include up to ten offshore substations (OSS) with up to five in

each project. Each project would be connected to land by two separate export cables. The Atlantic Export Cable Corridor (ECC) would extend from the western tip of the WTA, making landfall in Atlantic City, New Jersey, and the Monmouth ECC would extend from the eastern corner of the WTA, making landfall in Sea Girt, New Jersey. The proposed facilities would be connected to shore by up to eight submarine export cables of a total of 441.2 miles in length (99.4 miles to the Atlantic Landfall Site and 341.8 miles to the Monmouth Landfall Site). The onshore electrical portions would connect to the electrical grid at the Cardiff Substation in Egg Harbor Township, New Jersey and/or the Larrabee Substation in Howell, New Jersey. They are connected by a network of 547 miles of inter-array cables and up to ten small OSSs, five medium OSSs, or four large offshore OSSs. The Projects may use several existing port facilities including, but not limited to, locations in New Jersey, New York, or elsewhere in the Mid-Atlantic and New England. Some components, materials, and vessels may come from the U.S. Gulf Coast or international ports, but no final determination has been made on those port locations. The Projects would be located in water depths ranging from approximately 19 to 37 meters. The Projects would also include up to one permanent meteorological (met) tower and up to four temporary met oceanographic buoys (three for Project 1 and one for Project 2). According to information provided in the COP, the proposed Projects would involve WTGs spaced approximately 0.7 miles (0.6 nautical miles) in east-northeast to west-southwest rows, with rows 1.15 miles (1.0 nautical mile) apart.

The NOI commences the public scoping process for identifying issues and potential alternatives for consideration in the Atlantic Shores COP EIS. Through the NOI, you are 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. We offer comments and technical assistance related to significant issues, information, and analysis needs for the EIS related to resources in the project area over which we have special expertise or legal jurisdiction, including associated consultation and authorization requirements. Data related to the occurrence and status of these resources, evaluation of effects to them, and development of responsive mitigation are critical elements of the NEPA process, which require early identification of such issues in the scoping process and full evaluation throughout the NEPA process.

The high number of projects moving through the NEPA process between now and 2024 makes it very difficult for us to provide the detailed level of review and interagency cooperation we have provided in the past. The extensive interagency cooperation we have invested with you to improve the NEPA documents for previous wind energy projects is no longer feasible, and we will be required to take a more limited cooperating agency role in the process going forward. Nonetheless, with respect to the Atlantic Shores NOI, we offer the following comments, as well as attached technical comments, on specific issues of concern (see Attachment A).

General Comments

Construction and Operations Plan (COP) Updates
We rely on the information in the Atlantic Shores COP to help inform the comments and technical assistance provided during the scoping process. The mostly recently updated COP was

only made available to us through the BOEM website with the publication of the NOI, so our comments related to the updated COP are limited. Furthermore, it is our understanding that Volume II of the COP has not yet been updated to reflect the most recent project changes and you do not anticipate those updates to occur until December. As a result, we may need to provide additional comments and technical assistance upon review of any updated information, including potentially developing additional alternatives to minimize and mitigate impacts of the Projects on marine and estuarine resources. This is a recurring issue, as BOEM continues to publish NOIs without all of the relevant information for the regulatory process, which puts a substantial strain on our ability to review these projects as efficiently as possible. We look forward to continuing to work with you on this issue so we can most effectively inform you of issues and concerns related to NOAA trust resources.

We understand that during the NEPA process, applicants are permitted to make modifications and updates to their COPs, as is the case in this instance. We request, however, that if and when the COP is updated or changed at any time during the regulatory process, you notify the agencies immediately and make the most updated COP available to the agencies and the public. In addition, it is critical that you specify which sections and information in the COP have been updated so we may focus our efforts and provide an efficient review. This updated summary should describe in detail any changes to the proposed action and other information that may affect consultation with our agency. Please note that updates to the COP that occur after initiation of consultation with our agency may affect our consultation timelines. To reduce the potential need for multiple reviews, supplemental consultation and comment, and project delays, it is essential that you ensure that project information is complete before initiating a project or continuing to advance the process for existing projects. Should unexpected revisions to the Projects occur, it is critical that you coordinate with us as soon as possible to prevent inefficiencies and confusion that can result from multiple reviews, as well as delays that may affect the Projects' timelines and consultation initiation and conclusion.

Projects and Schedule

BOEM is planning to expedite the review of the COP through a two-year timeline to complete the NEPA process and consultations. While the FAST-41 dashboard has been populated with targeted milestone dates related to our consultations and authorization, we expect these targeted dates to change. The schedule also includes milestones for issuance of a requested MMPA Incidental Take Authorization (ITA) to the developer. Currently these milestone dates assume an Incidental Harassment Authorization (IHA) application, but we anticipate the developer will submit an Incidental Take Regulation/Letters of Authorization (ITR/LOAs) application. Therefore, milestones and timelines will need to be updated. We will work with you and the developer to accurately modify these targeted dates for the permitting dashboard.

Our ability to initiate consultation and meet our milestone dates is contingent upon us making the determination that we have received complete and adequate consultation documents (Biological Assessment (BA) and EFH assessment) that contain all necessary information to consult on the project. Our Biological Opinion under the ESA will be comprehensive and must consider all proposed actions associated with the Projects, including the proposed issuance of an LOA, as well as any planned survey or monitoring activities. The MMPA timeline is contingent upon NMFS' receipt of an adequate and complete MMPA ITR/LOA application by the agreed upon

date, currently targeted for August 2022. To meet this deadline and avoid schedule delays, NMFS strongly recommends the applicant submit a draft application to our Office of Protected Resources approximately six months in advance of the August 2022 adequate and complete milestone date (i.e., no later than early February 2022). If we do not receive the necessary information to initiate our consultations and start processing the ITR/LOA application by the dates outlined in an updated permitting timeline, it will result in delays in the overall project schedule. Note that delays to the MMPA permitting timeline will have consequences for the ESA consultation timeline. We encourage Atlantic Shores to reach out to our Office of Protected Resources early in the process with any questions or concerns related to the ITA.

Projects' Design Envelope

As described in BOEM's project design envelope (PDE) guidance, a "PDE approach is a permitting approach that allows a project proponent the option to submit a reasonable range of design parameters within its permit application." While we understand and support the PDE approach, we note that it is critical to ensure that the range of design parameters are reasonable. A PDE that is too broad would impact your ability to provide a meaningful effects analysis in both the NEPA document and your consultation documents (BA and EFH Assessment). A maximum impact scenario based on an overly broad PDE may grossly overestimate the effects of the action on protected species and habitat, which would likely result in very conservative mitigation measures. The proposed action (e.g., number, type, and size of turbine foundations; schedule) in the environmental review documents (e.g., EIS, EFH assessment, BA, ITA application) should be consistent, comprehensive, and reflect a realistic build out scenario.

The *Federal Register* notice refers to a "preliminary proposed action" described as including up to 200 total turbines (between 105-136 for Project 1, and between 64-95 for Project 2). Atlantic Shores expects to use monopile, suction bucket, or gravity based foundations, or a combination of styles, for the WTGs and OSSs. The WTGs are described as having a rotor diameter of 280 meters. Jacket pile foundations are planned for the ten substations. This description notes that the Projects will include up to ten offshore substations, up to five in each Project, and up to eight transmission cables making landfall at up to two locations in New Jersey. Additionally, more than five types of scour protection, potentially impacting 5,000 acres or more of seafloor, are being considered for the projects. Based on the description in the COP and NOI, the proposed Projects appear to have an overly broad PDE, which will lead to inefficiencies and potential delays in the regulatory process. It is unclear if the proposed action is expected to be further modified during the NEPA process and at what point in the process any modifications may occur. As we noted above, we must have all necessary information, including an adequate and complete BA and EFH assessment, to initiate these consultations. Modifications to the proposed action after consultation has been initiated is likely to lead to delays in the Projects' timelines, as these changes may affect our analysis in any consultations that are underway, including potential changes to EFH conservation recommendations and/or terms and conditions for reasonable and prudent measures being considered in the ESA consultation. The NEPA document should evaluate a reasonable PDE, with a proposed action that is consistent between the NEPA document, the ITA application, and the consultation documents.

NOAA Trust Resources

To be successful in meeting the Administration's goal for responsible offshore development, we must identify, understand, and fully consider the effects of large-scale development of the OCS on our ocean resources, and work to avoid and minimize adverse effects. In Attachment A, we provide detailed scoping comments related to NOAA trust resources in the project area and alternatives and mitigation measures to consider for evaluation as you develop the EIS for this project. Of particular concern are effects to North Atlantic right whales. Critically endangered North Atlantic right whales occur in the Atlantic Shores lease area, along the proposed cable corridor, and along many of the anticipated vessel transit routes. The status of this species is extremely poor and distribution in this region is not particularly well known. The proposed construction, operation, and decommissioning of the Atlantic Shores project may have adverse effects on North Atlantic right whales. This issue warrants special consideration throughout the environmental review process, especially in regard to the potential adverse effects of the proposed project to migratory right whales and their migrating, newly-born calves. As you develop the EIS, it will be critical to fully consider both project and cumulative effects of offshore development on all species listed under the ESA, including North Atlantic right whales, and evaluate ways to avoid and minimize adverse impacts to these species and their habitats. We strongly encourage you and the developer to consider all available options to minimize risk to these species and their habitats as a result of project development.

Conclusion

Thank you for considering our comments during this important scoping process. We provide our technical scoping comments for the Atlantic Shores Projects in Attachment A. 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. We are committed to implementing our national strategic goals to maximize fishing opportunities while ensuring the sustainability of fisheries and fishing communities. In addition, we strive to recover and conserve protected species while supporting responsible resource development. To the extent possible, we will continue working with you to provide the necessary expertise, advice, and scientific information to avoid areas of important fishing activity and sensitive habitats; minimize impacts to fisheries and protected species; and support the conservation and sustainable management of our marine trust resources. To ensure we can continue to meet our collective objectives and ambitious timelines, it is imperative that we capitalize and build upon our collaboration on recent projects and integrate lessons learned into future project development and review. This will improve the quality of the NEPA document for this and future projects, expedite our reviews, avoid delays, and result in more efficiencies in the process. We appreciate your willingness to work with us to address these challenges and recognize the collaborative work among our agencies to help gain efficiencies in the regulatory process. We look forward to continuing to work with you in this regard.

Should you have any questions regarding these comments, please contact Sue Tuxbury in our Habitat and Ecosystem Services Division at (978) 281-9176 or susan.tuxbury@noaa.gov. For questions regarding the EFH consultation, please contact Keith Hanson in our Habitat and Ecosystem Services Division at keith.hanson@noaa.gov. For questions regarding ESA and section 7 comments, please contact Julie Crocker in our Protected Resources Division at (978) 282-8480 or julie.crocker@noaa.gov. For questions regarding MMPA Incidental Take

Authorizations, please contact Jaclyn Daly in the Office of Protected Resources at (301) 427-8438 or jaclyn.daly@noaa.gov.

Sincerely,

Michael Pentony
Regional Administrator

cc: Brian Hooker, BOEM
Brandi Sangunett, BOEM
Brian Krevor, BOEM
Kimberly Sullivan, BOEM
Tom Nies, NEFMC
Chris Moore, MAFMC
Lisa Havel, ASMFC
Lingard Knutson, EPA
Tim Timmerman, EPA
Naomi Handell, USACE NAD
Steve Ryba, USACE NAN
Todd Schaible, USACE NAP
Andrew Raddant, USFWS
Eric Schrading, USFWS
Greg Lampman, NYSERDA
James Gilmore, NYSDEC
Megan Brunatti, NJDEP
Colleen Brust, NJDEP
Jon Hare, NEFSC
Greg Power, NMFS APSD
Candace Nachman, NMFS Policy
Cristi Reid, NMFS NEPA

ATTACHMENT A
NMFS SCOPING COMMENTS
FOR ATLANTIC SHORES

Alternatives Analysis

The "Alternatives" section of the EIS should consider and evaluate the full range of reasonable alternatives to the proposed action, including those that would minimize damage to the environment. The analysis must include development of one or more reasonable alternatives to avoid or minimize adverse effects to environmental resources, including NOAA trust resources. The regulations published by the Council on Environmental Quality (CEQ) provide: "[t]he primary purpose of an environmental impact statement prepared pursuant to section 102(2)(C) of NEPA is to ensure agencies consider the environmental impacts of their actions in decision making. It shall provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public o*f reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment* (emphasis added)." When signing the Record of Decision (ROD), BOEM and NMFS will have a duty to identify an environmentally preferable alternative, recognizing that agencies can develop alternatives that meet the purpose and need while avoiding and minimizing adverse environmental impacts. Indeed, the fundamental purpose of NEPA, as implemented by the CEQ regulations, is to fully and fairly discuss and disclose, to both the public and decision makers, means and measures, including alternatives, to avoid and minimize adverse impacts. Compensating for unavoidable adverse impacts through development of compensatory mitigation measures should be viewed as mitigation of last resort. Avoidance and minimization must be considered, and fully and fairly evaluated through the alternatives development process, before reaching that point. BOEM's purpose and need statement and screening criteria cannot be so narrowly focused as to eliminate from full consideration reasonable alternatives that also minimize and avoid adverse effects.

We recommend that you fully evaluate and consider alternatives that avoid and minimize impacts to more vulnerable and difficult-to-replace resources such as submerged aquatic vegetation (SAV), natural hard bottom substrates (particularly those with macroalgae and/or epifauna), dense faunal beds (*e.g*., cerianthid beds), biogenic reefs (including shellfish), shellfish habitat, tidal wetlands/marshes, subtidal and intertidal flats (*e.g*., mudflats), and prominent benthic features (*e.g*., offshore sand ridges; ridge and swale complexes). Compensatory mitigation should be provided for unavoidable adverse effects. Inherent to this is the necessity to conduct high-resolution benthic habitat mapping that characterizes and delineates all habitats in the lease area and within all potential cable corridor areas, which we understand is ongoing. Similar to the structure of the draft COP, and to facilitate efficient review of the alternatives, we recommend the EIS discussion of the alternatives, and the comprehensive analyses associated with each, be grouped into the three corresponding elements of the proposed Projects, 1) wind farm areas, 2) offshore export cable routes and associated corridors, and 3) inshore/landside export cable routes and associated corridors and landfall points. The proposed Projects should have multiple alternatives for each element that could be "mixed and matched" in the final selection of each single and complete project.

Fisheries Habitat Impact Minimization Alternative

The proposed Atlantic Shores Projects are located in the Mid-Atlantic Bight, in an area

characterized by shore-parallel, northeast-southwest oriented sand ridges and troughs (i.e., shoreface sand ridges), and various crests, slopes, depressions, and flats. Prominent sand ridge complexes are present in the south-southwestern and western portions of the lease area, and appear to overlap and cross into the adjacent lease area. Previously collected data indicate the lease area is primarily composed of sands and gravels (e.g., pebbles/granules atop sand), with muds/silts likely found in the lease area as well. Additionally, cobbles and boulders are likely present in the lease area, but we are unable to specify their extents and locations without access to high-resolution habitat mapping data. Complex habitats[1], such as gravels and gravel mixes, cobbles, boulders, and sand waves and ridges, are particularly sensitive and vulnerable to impacts, as disturbances or alterations to these habitats can impact their physical and biological components. Impacts to physical (*e.g.*, three-dimensional structure, surface area, crevices) and biological (*e.g.*, infauna and epifauna) components may be permanent or long-term, typically taking years to decades for recovery. Furthermore, large expanses of natural soft bottom and their associated communities are also vulnerable to the permanent impacts of removal/elimination through conversion to artificial anthropogenic structure (*e.g.*, piles/foundations concrete mattresses, grout bags) and hard masonry/quarry stone (*e.g.*, for scour protection).

While the minimization of impacts should be considered in the development of all alternatives, it will be essential for you to consider a discrete alternative that reduces impacts to fish habitats that are more sensitive and vulnerable to impacts. Based on our understanding the proposed Projects and lease area, we would recommend BOEM consider one or more Fisheries Habitat Impact Minimization Alternatives that focus on 1) reducing impacts to prominent benthic features and complex habitats in the lease area, 2) reducing impacts to habitat from scour protection given the wide range of materials proposed and extent of anticipated impacts, and 3) alternative measures to reduce impacts to sensitive habitats along the export cable.

This alternative should focus on project modifications that reduce adverse impacts to vulnerable fisheries habitat within the lease area, such as prominent benthic features (*e.g.*, sand ridges and banks; ridge and swale complexes) and complex habitats, while also avoiding and minimizing the elimination of natural soft bottom habitats. For example, the crests (highest points) and depressions (lowest points) of the ridge and swale complexes, where unique faunal assemblages are associated with distinct sediment types and sizes, should be avoided and impacts minimized to the maximum extent practicable. This should include avoiding these areas for turbine placement, and reducing the extent of scour protection to minimize the permanent conversion of soft sediment to hard stone or other artificial substrates. This alternative should consider the elimination or relocation of WTGs and inter-array cables in portions of the lease area dominated by complex habitats and prominent benthic features that provide important functions for associated living marine resources. A Fisheries Habitat Impact Minimization Alternative should consider impacts to all existing, fully functional fish habitats that are more vulnerable to project impacts. As discussed elsewhere in this letter, minimizing impacts through project design and identification of a Fisheries Habitat Minimization Alternative must begin with high-resolution habitat mapping and analysis, which will determine which project components are in the most sensitive areas and should be considered for removal or relocation.

[1] See page 3 of 20 of the *Recommendations for Mapping Fish Habitat*, March 2021

Further, the Fisheries Habitat Impact Minimization Alternative should consider the material and composition of any proposed scour protection, for cables, substations, and WTG foundations, as well as the necessary extent (square footage) of such scour protection. The analysis should consider how different types of materials will adversely impact species, such as epifaunal and infaunal invertebrates, including Atlantic surfclam (*Spisula solidissima*), ocean quahog (*Arctica islandica*), and sea scallop (*Placopecten magellanicus*). Additionally, this analysis should consider how different types of materials employed (*e.g.*, size, shape) may or may not maximize the habitat value for early life stages (*e.g.*, juveniles) of species, such as Atlantic cod (*Gadus morhua*), winter flounder (*Pseudopleuronectes americanus*), clearnose skate (*Raja eglanteria*) and summer flounder (*Paralichthys dentatus*). All of these measures should be considered as components of a Fisheries Habitat Impact Minimization Alternative or divided into two sub-alternatives (*e.g.*, WTG location alternative and scour protection alternative). More specifically, the evaluation of materials used for scour protection for pile foundations, substation foundations, inter array cables, and export cables should consider the adverse effects of using thick layers of hard masonry/quarry stone, concrete mattresses, grout or sand bags, rock bags, ballast-filled mattresses, and frond mattresses. Additionally, BOEM should consider eliminating man-made scour protection options (concrete mattresses, grout or sand bags, rock bags, ballast-filled mattresses, and frond mattresses) that do not mimic natural habitats. Some alternatives to consider may include modification of masonry/quarry stone via tumbling to eliminate rough edges and angles. Furthermore, your analysis should also consider layering the tumbled stone so that smaller stones, such as pebble and cobble-sized stones, are present on the surface for use by larvae and juveniles.

The COP suggests the Atlantic Shores Projects may use various types of artificial scour protection over an extensive area. While the COP combines scour protection estimates with other types of impacts, it appears that between 9.3 and 25.96 acres of scour protection protection will be used for offshore substations (depending on type and number), while between 133.4 and 514 acres will be used for WTGs (depending on type and number). The COP estimates approximately 2,328 acres of seafloor impact related to inter-array and inter-link cables and 2,606 acres related to export cables, inclusive of scour protection. Taken together, it appears that approximately 5,000 acres (7.8 square miles) of natural seafloor could be converted to scour protection. However, the COP does not address the potential for additional scour protection that may be required to address depressions left by spuds/jack-up vessels used for pile installation - potentially further increasing the area of scour protection - a situation that has occurred in other areas (e.g., Virginia Research Lease). This issue and associated impacts should be fully addressed and integrated into the analysis.

The EIS should address the potential effects of the various types of artificial materials proposed and the Fisheries Habitat Minimization Alternative (or scour protection sub-alternative) should identify alternative options to reduce project impacts. BOEM's recent (2020) study of the Block Island Wind Farm found no colonization of organisms on concrete mattresses and determined that extensive use of mattresses may result in significant detrimental effects. Therefore, we recommend that the habitat minimization alternative investigate the use of natural smooth stone for scour protection that provides interstitial space for species, especially early life stages of species. The habitat value associated with scour protection does not provide the same value as

natural hard habitats and may provide substrates for invasive species and/or alter predator-prey interactions in the area. The distinction between the natural and man-made structures should be incorporated into the analysis and should not be evaluated as equal in terms of habitat functions and values. The limitations of habitat value from scour protection and other man-made structures should be clearly disclosed and analyzed. The decommissioning and removal of structures (*e.g.*, monopiles) should be integrated into this analysis.

A full range of reasonable alternatives to the proposed offshore and inshore export cable corridors should also be considered and evaluated, including an alternative (or alternatives) to avoid and minimize impacts to important, sensitive, and complex habitats located in the Projects' area. Such habitats could include natural hard bottom complex substrates (particularly those with macroalgae and/or epifauna); SAV; dense faunal beds (*e.g.*, cerianthid beds) and shellfish habitat and reefs; other biogenic reefs; prominent benthic features; coastal marshes; subtidal and intertidal flats (*e.g.*, mudflats); shipwrecks, fish havens, and other areas identified as N.J. Prime Fishing Areas (N.J. Administrative Code Section 7:7-9.4); and designated Habitat Areas of Particular Concern (HAPC). HAPCs are designated as high priorities for conservation due to the important ecological functions they provide, their vulnerability to anthropogenic degradation and development stressors, and/or their rarity. Habitat impacts in any area with SAV should be avoided, minimized, or mitigated since SAV is designated as HAPC for summer flounder. Additionally, sandbar shark (*Carcharhinus plumbeus*) nursery HAPC is designated in the project area and overlaps with the Atlantic Export Cable Corridor and Cardiff Interconnection Cable Route. BOEM should consider an alternative that evaluates how cable installation and operation may impact these different habitat types and identify ways to avoid and minimize impacts to sensitive and complex habitats. This is an accepted practice for cables and other utilities projects and should be a component of the evaluation of impacts from offshore wind development. This may include evaluating modifications or expansions of the cable corridors to ensure cables can be routed around complex and sensitive habitats or using existing utility corridors/easements. This alternative should also consider methods used to lay the cable within, or adjacent to, complex habitats for both the offshore and inshore landing locations as well as avoiding, reducing, or modifying scour protection. Options for avoiding and minimizing impacts related to the methods of construction and routes, that allow for full cable burial to minimize permanent habitat impacts and potential interactions with fishing gear, should be also considered.

The proposed project area is designated essential fish habitat (EFH) for numerous managed fish species and trust resources for which NMFS has conservation and management responsibilities, including but not limited to: Atlantic surfclam; ocean quahog; sea scallop; scup (*Stenotomus chrysops*); clearnose skate; longfin squid (*Doryteuthis pealeii*); winter flounder; sandbar shark; and summer flounder. It will be especially important for the habitat minimization alternative(s) to consider ways to minimize both impacts to important benthic habitats as well as the sensitive life stages of species that rely on them. Therefore, construction methods, timing, and associated cable layouts should also be considered in this evaluation as additional measures to minimize impacts to fish habitats. An alternative that minimizes impacts to sensitive benthic habitats, and life stages of species that rely on them, to be a reasonable alternative that should be considered in the NEPA document.

We are aware that some benthic habitat data have been collected and are being processed and

interpreted by the developer, and additional information may be provided in the coming months. Some benthic habitat data have been included in the COP in narrative form or in example figures; however, we have yet to review any complete benthic habitat mapping documents and habitat data. This limits our ability to provide site-specific feedback on the proposed projects and potential alternatives. More specifically, at this time it is not possible for us to specify detailed habitat minimization alternatives for both the wind farm area and cable corridors, until we have comprehensively reviewed the benthic habitat mapping data. It would be helpful to have this information in the COP at the scoping stage to help formulate a more detailed alternative.

Coordinated Cable Routing
Offshore export cable routing alternatives that use common corridors with adjacent projects should be evaluated and discussed. For lease areas that are adjacent to one another, BOEM should develop common cable corridors to both increase efficiency and predictability and reduce resource impacts. Specifically, common cable corridors would lead to efficiencies in planning, project development, and benthic habitat mapping, and would result in more predictability and time savings for applicants and resource agencies. In addition, establishing common cable corridors would facilitate comprehensive avoidance and minimization of impacts to marine resources by reducing the number of corridors and allowing for programmatic-level review and comment.

Affected Environment
The "Affected Environment" section of the EIS should cover a sufficient geographic area to fully examine the impacts of the proposed projects and support an analysis of the cumulative effects. It is important that the geographic area encompass all project-related activities, including the lease area, cable corridors, landing sites, and the use of ports outside of the immediate Projects' area. This analysis should also include any necessary landside facilities and the staging locations of materials to be used in construction. You should ensure that findings for each effect/species are supported by references where possible, and in context of the proposed projects, to allow for a well-reasoned and defensible document.

The description of the "Affected Environment" should recognize the ocean environment as dynamic, not static, and acknowledge that the environment, and species within the environment, vary over time and seasons. This section should include information on the physical (temperature, salinity, depth, and dissolved oxygen) and biological (*e.g.* plankton) oceanography. It is important that the EIS discuss seasonal changes and long-term trends in the environment as well as hydrodynamic regimes and how they influence the distribution and abundance of marine resources. Within this section, the EIS should include results of on-site surveys, site-specific habitat information, and characterization of benthic and pelagic communities. Additional details should be provided related to all habitat types located in the area that may be directly or indirectly impacted by the Projects' construction and operation activities, including complex habitats and prominent benthic features, as described above.

The "Affected Environment" section should also include all of the biological, cultural, and socioeconomic issues related to fisheries and marine resources that may be affected by these Projects, including species that live within, or seasonally use, the immediate area and adjacent

locations. For benthic resources, fish, and invertebrate species, this section should include an assessment of species status and habitat requirements, including benthic, demersal, bentho-pelagic, and pelagic species and infaunal, emergent fauna, and epifaunal species living on and within surrounding substrates. Although some information contained in the COP provides a good overall discussion of commercial and recreational (party/charter and private angler) fisheries affected, the EIS should more comprehensively assess historic and recent landings, revenue, and effort; fishery participants, including vessels, gear types, and dependency upon fishing within the project area; potential impacts beyond the vessel owner level (*e.g.*, shoreside support services such as dealers, processors, distributors, suppliers, etc.); and coastal communities dependent on fishing. Specifically, the COP only evaluates five years of data through 2018 and does not include the most recent data available. As noted further below, the EIS should consider a longer time series (at least 10 years) to more accurately capture annual variability in fishery operations and evaluate potential future impacts.

Our offshore wind socioeconomic impacts page (available at: https://www.fisheries.noaa.gov/resource/data/socioeconomic-impacts-atlantic-offshore-wind-development?utm_medium=email&utm_source=govdelivery) can help identify important commercial and recreational fisheries, while the status of many species can be found on our individual species pages (available at: https://www.fisheries.noaa.gov/find-species), and recent trends can be found on our Stock SMART page (available at: https://www.st.nmfs.noaa.gov/stocksmart?app=homepage). Information that can help characterize communities engaged in fishing activity can be found on our website describing social indicators for coastal communities (available at: https://www.fisheries.noaa.gov/national/socioeconomics/social-indicators-coastal-communities) and should be integrated into the EIS. Please note that our socioeconomic impacts reports represent historic fishing operations in the full lease area (0499) and not the Project areas described in the latest version of the COP. A more focused data request specific to the proposed Projects should be submitted to nmfs.gar.data.requests@noaa.gov to develop the "Affected Environment" section of the EIS.

The section describing the "Affected Environment" for protected species should include information on the seasonal abundance, density (where available), and distribution of marine mammals, sea turtles, ESA-listed marine fish, anticipated habitat uses (*e.g.*, foraging, migrating), threats, and the habitats and prey these species depend on throughout the area that may be directly or indirectly impacted by the Projects. The status of marine mammal stocks (see our stock status reports[2]), population trends, and threats should also be identified. Similar information should also be provided for all ESA listed species (see relevant status reviews on our ESA Species Directory, https://www.fisheries.noaa.gov/species-directory/threatened-endangered).[3] As the EIS is developed, impact evaluation specificity between species groups (*e.g.*, low frequency vs. mid frequency cetaceans) of marine mammals and sea turtles should be incorporated. A broad grouping approach (*e.g.*, all marine mammals) creates uncertainty and

[2] https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments

[3] Please note that NOAA Fisheries biological opinions should not be used as a reference unless referring to specific conclusions for which the particular project that the biological opinion was issued. We do not recommend relying on NOAA Fisheries Biological Opinions to support conclusions reached by BOEM for other projects that were not the subject of that Opinion.

gaps in the analysis and does not fully represent the variability of impacts amongst different taxa. As species within these taxa have different life histories, biology, hearing capabilities, behavioral and habitat use patterns, distribution, etc., project effects may not have the same degree of impact across all species. Thus, the impact conclusions (*e.g.*, minor, moderate) are clearer and better supported if the document describes the degree of impacts to each species (*e.g.*, green sea turtle vs. hawksbill) or groups of species (*e.g.*, mysticetes, odontocetes, pinnipeds). Additionally, for some marine mammal species (*e.g.*, harbor porpoise), data from European wind farms can be used to support each determination. This approach also allows the analysis to better identify the ability of those species or groups to compensate when exposed to stressors and better identify the benefit from mitigation and monitoring measures. This approach would ensure the analysis reduces uncertainty and reflects the best available scientific information. Also, wherever possible, we encourage you to identify effects to individuals (*e.g.*, injury, behavioral disturbance, disrupted foraging), as well as impacts at the population level.

Environmental Consequences

The "Environmental Consequences" section of the EIS must consider impacts resulting from the construction, operation and maintenance, and decommissioning of the proposed facility, including survey and monitoring activities that are anticipated to occur following approval of a COP. Impact descriptions should include both magnitude (negligible, minor, moderate, major) and direction of impacts (beneficial or adverse) and, where applicable, the duration. This section should consider all of the individual, direct, and indirect effects, including those impacts that may occur offsite as a result of the proposed activities, such as construction of landside facilities necessary to construct and support operations of the Atlantic Shores Projects. Impact producing factors from each phase of development should be considered, including site exploration, construction, operation and maintenance, and decommissioning.

All activities included in construction of the Projects should be considered, including the deposition of fill material, dredging, water withdrawals, pile driving, increased vessel traffic, anchoring, and transmission cable installation. All relevant impact producing factors affecting marine resources should be evaluated, including, but not limited to: elevated noise levels from both construction and WTG operation; increased vessel traffic; turbidity and sedimentation; electromagnetic fields (EMF); habitat alteration; presence of structures (WTGs, substations, and cables); and localized changes in currents. The document should also evaluate the potential impacts of chemical emission, including the release of chemical residues from wind farm operating materials and corrosion-protection systems. 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 from the installation of WTGs, offshore substations, cables, and scour protection. Analysis of habitat conversion should include site-specific benthic data collection and an evaluation of the Projects' impacts on different habitat types and on fisheries resources that rely on them. Impacts associated with decommissioning of the Projects should also be included, with details on how decommissioning would occur and the environmental consequences associated with the Projects' removal. The assessment of these impacts should be completed at scales relevant to each impact type to enable meaningful comparisons between alternatives.

It is important that the analysis provides a sufficient evaluation of baseline conditions and uses

the best available information to evaluate the alternatives and support the analysis of effects. Any conclusions related to the level and direction of the Projects' impacts should be fully supported by the analysis in the EIS and be consistent with impact definitions identified in the EIS. Importantly, the significance criteria definitions identifying the level of impacts from the Projects (*e.g.*, negligible, minor, moderate, major) should not embed terms defined by other statutes (*e.g.*, the definition of minor should not refer to the MMPA definition of "level A harassment") or apply other statute definitions to the impact criteria used for NEPA purposes. Rather, these definitions should be written in a way that it is clear to a reader how these impact determinations consider the spectrum of effects to individual animals (*e.g.*, temporary behavioral disturbance, injury). Use definitions that are appropriate for the resource being considered (*e.g.*, benthic habitat vs. marine mammals). As you know, we recently worked with you on the South Fork EIS to develop significance criteria definitions for impacts on NOAA trust resources (*i.e.*, marine mammals, benthic habitat, EFH, finfish, and invertebrates). That collaborative work should be carried forward for this and future NEPA documents. As we have stated in the past, to the extent that any conclusions are based on inclusion of mitigation measures, those measures must be clearly defined and include an indication as to whether the measure is considered part of the proposed action and will be required upon approval, or if that measure is an option that may be implemented by the developer at their own discretion. In preparation of the NEPA document for the Atlantic Shores Projects, we strongly recommend you review and incorporate similar comments we have made on previous BOEM documents to ensure a robust and sufficient analysis of NOAA trust resources, as we continue to have concerns regarding the content of recent EISs.

Using the best scientific information available for all marine trust resources is critical to analyzing the impacts resulting from these projects. Data used should include a sufficient range of years to reflect natural variability in resource conditions and fishery operations, including current conditions. We recommend that fisheries and marine resource survey analyses consider at least 10 years of data up to and including data within the past two years. This is especially important for marine mammals given recent distribution and habitat utilization shifts.

Temporary, long-term, and permanent direct and indirect impacts to water quality, protected species, habitats, and fisheries (ecological and economic) throughout construction, operation, and decommissioning should be addressed in the EIS. The temporal classification (e.g., short-term or long-term) should be appropriate for the species, habitat types, and impacts considered and should be clearly and consistently defined. The time of year that construction activities occur is also an important factor in evaluating potential biological, economic, and social impacts of the Projects.

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 biological impacts to marine species caused by the temporary or permanent loss/conversion of bottom habitat (*i.e.*, resource distribution, productivity, or abundance changes) and direct or indirect socioeconomic impacts to commercial and recreational fishing activities and support businesses from the Projects' construction and operation such as loss of access to important fishing areas due to the presence of structures (WTGs, substations, cables, scour protection). This evaluation should also

include any potential displacement of fishing activities and resulting increased gear conflicts, bycatch, catch rates, and fishing pressure in other locations. When structuring the fishery socioeconomic impact evaluation, you should address all of the elements identified in the checklist we provided in January 2021, or explain why specific elements on that checklist were not included in the EIS. As noted above, our fishery socioeconomic impact summaries can and should serve as the foundation for this analysis in the EIS, although additional project-specific analysis may be necessary to address particular impacts or mitigation/compensation arrangements with affected fisheries.

It is vital that all costs and benefits of available alternatives, including the no action alternative, are considered in a cost-benefit analysis. Costs and benefits should include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider (including potential economic, environmental, public health and safety, distributive impacts, equity, etc.).

The NEPA document should address effects of the Projects on Environmental Justice, including those specific to fishing communities with minority and low-income populations. We anticipate Environmental Justice concerns will be included as required under Executive Order 12898 (E.O. 12898, 59 FR 7629; February 16, 1994) *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This E.O. requires that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories…" and take into account E.O. 13985 (86 FR 7009; January 20, 2021) *On Advancing Racial Equity and Support for Underserved Communities Through the Federal Government*. In addition, for coastal communities that include tribal nations who value the sea and fish to sustain Native American life, projects should also consider E.O. 13175 (65 FR 67249; November 6, 2000) *Consultation and Coordination With Indian Tribal Governments*, which requires federal agencies to establish regular and meaningful consultation and collaboration with tribal officials where tribal implications may arise.

Mitigation

NEPA requires identification and consideration of reasonable mitigation measures to address adverse impacts resulting from the construction and operation of the wind energy facility and associated cable installation as well as the likelihood of their implementation. Under NEPA (40 CFR 1508.1(s)), mitigation includes:

- Avoiding an impact by not taking a certain action or parts of an action;
- Minimizing an impact by limiting the degree or magnitude of the action and its implementation;
- Rectifying an impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating an impact over time, through preservation and maintenance operations during the life of the action; and
- Compensating for an impact by replacing or providing substitute resources or environments.

The EIS must clearly identify what mitigation measures are included as part of the proposed action and thus evaluated in the analysis, which measures are proposed as required, and measures that are optional and could be implemented by the developer to potentially reduce impacts. The document should provide information on how mitigation measures are considered in the context of the definition of effects levels (*e.g.*, negligible, minor, moderate, major), and how mitigation would offset those levels of effect. An analysis of the effectiveness of any proposed mitigation should also be included in the NEPA document. Measures to avoid and minimize impacts such as speed restrictions for project vessels, soft start procedures, noise dampening technologies, construction time of year restrictions, anchoring plans, or micro-siting should be discussed in detail, including what resources would benefit from such mitigative measures and how/when such benefits (or impact reductions) would occur. The EIS should analyze temporary effects and anticipated recovery times for marine resources within the impacts analysis.

While the Projects should be planned and developed to avoid and minimize adverse effects to marine resources and existing uses (*i.e.*, fisheries habitat, fishing, and NMFS scientific survey operations) to the greatest extent practicable, compensatory mitigation should be proposed to offset unavoidable permanent and temporary impacts. This should include discussion and evaluation of potential compensatory mitigation for unavoidable adverse impacts to fisheries habitats and the lost functions and values resulting from those impacts. Compensatory mitigation for both ecological losses as well as social and economic losses should be discussed in the EIS, including any loss of fisheries revenue resulting from the construction and operation of the Projects and conservative quotas set in response to reduced scientific survey access and associated increasing uncertainty in stock assessments along with any potential proposed measures to compensate for such losses. Additionally, the potential for bycatch measures resulting from protected species interactions due to shifts in fishing activity and increased uncertainty in protected species assessments should be analyzed and discussed. Details of compensation plans describing qualifying factors, time constraints, allowed claim frequency, etc. should also be included when possible, particularly if used as mitigation measures to reduce economic impacts from access loss/restriction, effort displacement, or gear damage/loss. Finally, mitigation necessary to offset negative impacts to longstanding marine scientific survey operations (*e.g.*, loss of access to the Projects' areas, changes to sampling design, habitat alterations, and reduced sampling due to increased transit time) and fisheries dependent data collections must also be considered and evaluated in the document (see description of scientific survey impacts below).

Cumulative Effects

The EIS should include a complete analysis of the cumulative impacts of the Projects. This analysis should describe the effects of the proposed projects, which in combination with any past, present, and reasonably foreseeable future actions, may result in cumulative impacts on the ecosystem and human environment. This analysis should include a broad view of all reasonably foreseeable activities, including but not limited to: energy infrastructure (including future wind energy projects); sand mining; aquaculture; vessel activity; fisheries management actions; disposal sites; and other development projects. Consistent with efforts to evaluate the cumulative effects for both the Vineyard Wind and South Fork Wind projects, offshore wind development projects that have been approved and those in the leasing or site assessment phase should also be evaluated. Specifically, the cumulative effects analysis should consider at a

minimum all 16 COPs BOEM recently announced it plans to process by 2025. We encourage you to use the final cumulative impact analysis from the Vineyard Wind project to help inform discussions of cumulative effects on marine resources from other offshore wind development projects for this EIS. Although lease auctions for the New York Bight have not yet been conducted, consideration of the impacts from potential projects in the New York Bight Wind Energy Areas are also warranted, particularly given the fact that lease areas will be defined and auctions completed before the EIS for these projects have been finalized. Further, the EIS should consider additional cumulative impacts from potential future lease areas in the Central Atlantic and Gulf of Maine, as announced in the October 13, 2021, Department of the Interior press release.[4]

The EIS should evaluate cumulative impacts of the Projects' construction, operation, and decommissioning. Consideration of impacts from multiple projects 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 the migration and movements of 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.

Assessment of Hydrodynamics and Oceanographic Conditions

An assessment of the potential impacts of the Atlantic Shores project-specific (turbine level) and the full build-out/cumulative offshore wind scenario on hydrodynamics, oceanographic, and atmospheric conditions will help evaluate impacts on species distribution and the effects to hydrodynamic conditions. The potential impact of offshore wind development is not well known, but large scale energy extraction from wind farms and the physical presence of wind turbine foundations could have a significant impact on ocean stratification in this region and, therefore, the ecology, habitat, and egg/larvae and prey distribution of a number of federally-managed fish species and protected species. We recognize there is uncertainty regarding the scope and scale of impacts that may result from the introduction of new structures into the offshore environment and related energy extraction from the wind turbines; however, it is critical that this issue is thoroughly addressed and that the EIS considers the best available scientific information to support any conclusions regarding these impacts, including ongoing studies on this topic. In particular, the EIS should contain a robust assessment of the potential effects of both the Atlantic Shores Projects and the full build-out scenario on prey resources for North Atlantic right whales and other species. Potential impacts to plankton distribution should be clearly discussed as their distribution, aggregation, and possible abundance may shift, and this could have a significant impact on North Atlantic right whales, along with other large whales and numerous species of planktivorous pelagic fish, as zooplankton are the primary source of prey for many higher trophic level organisms. In addition, consideration of impacts to species recruitment and larval distribution due to changes to ocean stratification and circulatory patterns resulting from the development of wind projects should be discussed in this section. This should specifically address, but not be limited to, Atlantic surfclam and ocean quahog; these are economically and ecologically important species that are/have been found in high concentrations in the lease area.

[4] https://www.doi.gov/pressreleases/secretary-haaland-outlines-ambitious-offshore-wind-leasing-strategy

Assessment of Overlapping Activities

The EIS should evaluate, in detail, the cumulative impacts on protected species, habitat, and fisheries resources associated with overlapping construction activity of regional projects, including elevated noise levels, displaced fishing effort, cable routing and burial, and changes in species abundance, among other impacts. As you know, the Atlantic Shores Projects are immediately adjacent to the Ocean Wind project, and certain impact factors may overlap with other regional wind projects such as Empire Wind, Skipjack, and U.S. Wind. Survey and construction activities by these other projects may temporarily make the habitat unusable for certain species, and may adversely affect certain activities (migration, feeding, spawning) or multiple sub-populations of particular species. Specific information related to the timing of the construction activity and the expected number of proposed construction seasons is important, particularly for evaluating cumulative impacts to marine mammals, sea turtles, and spawning and migratory activity of fish and invertebrates. Vessel strikes are a documented threat to a number of protected species including Atlantic sturgeon, sea turtles, and large whales, including critically endangered North Atlantic right whales. The EIS should evaluate, in detail, the cumulative effects of increased vessel traffic during all phases of the Projects. In addition, 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.

Assessment of Regional Fishery Impacts

The EIS should evaluate the cumulative impacts of multiple projects on fishing operations, such as changes to time and area fished, gear type used, fisheries targeted, and landing ports. Some fishing vessels operate in multiple areas that may be subject to wind project development. While some may choose to continue to fish in these areas, others may be displaced from one or more project areas and fish in different areas outside the project areas. Therefore, it is important to evaluate how all existing and potential future wind projects could affect overall fishing operations due to effort displacement, shifts from one fishery to another, changes to gear usage and frequency, changes to fishery distribution and abundance, and increased fishing effort due to fishing in less productive areas. The EIS should consider the socio-economic impacts on fishing entities and communities that cannot easily relocate fishing activity due to cultural norms (fishing grounds claimed or used by others), cost limitations (too expensive to travel greater distances to other fishing areas), and other relevant limiting factors such as fishing permits and associated regulations. Shifts in fishing behavior, including location and timing, may result in cumulative impacts to habitat, as well as target and bycatch species (both fish and protected species) that have not been previously analyzed in fishery management actions. Finally, reduced regional scientific survey access to project areas could increase uncertainty in associated stock assessments and result in more conservative quotas that would negatively impact fishery operations in all fisheries. Accordingly, the analysis should also consider cumulative impacts of all wind projects in the context of existing fisheries management measures.

Project-specific Monitoring Programs and Regional Surveys
Given the extent of potential offshore wind development on the OCS and in this region in particular, the cumulative effects analysis will be a critical component of the EIS. Establishing 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. As you are aware, we have been working with state agencies, developers, and research institutions through the Responsible Offshore Science Alliance to develop a regional scientific research and monitoring framework, including project-specific monitoring plan/study guidance to better identify and understand cumulative impacts and interactions between marine resources, fisheries, and offshore wind energy. Similarly, we are engaged in the development of the Regional Wildlife Science Entity in an effort to address regional science and monitoring of impacts to wildlife and protected species. It is imperative that project-specific monitoring efforts are integrated into existing regional monitoring programs throughout the OCS, unless there is a project or location specific research question explicit to characteristics and dynamics unique to the site and relevant to trust resources management. Monitoring at multiple scales that takes an ecosystem-based approach to assessing monitoring needs of fisheries, habitat, and protected species should be required. This will be important in assessing the cumulative impacts of the Projects' development and informing any future development. You should also coordinate with our agency early in the process regarding any potential effects of monitoring activities on NOAA trust resources; we note that survey or monitoring activities may require permits or authorizations from us.

Endangered Species Act
The following listed species occur, at least seasonally, in the Atlantic Shores Projects lease area (OCS-A 0499): 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 present in the lease area seasonally, with occurrence largely limited to April - November. Additionally, oceanic whitetip shark (*Carcharhinus longimanus*) and giant manta ray (*Manta birostris*) may occur in the more offshore portions of the lease area. More information on these species is available on our regional ESA information site[5]. North Atlantic right whale sightings are available at our NOAA Right Whale Sightings Map page[6]. Please note, a tech memo[7] was recently published with the new population estimate (368 individuals) for North Atlantic right whales, which was significantly lower than the previous estimate. Additionally, the 2020 marine mammal Stock Assessment Reports[8] are available. There is no designated critical habitat that overlaps with the lease area. Depending on vessel traffic routes, additional ESA species and/or critical habitat may

[5] https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-species-critical-habitat-information-maps-greater

[6] https://apps-nefsc.fisheries.noaa.gov/psb/surveys/MapperiframeWithText.html

[7] Pace, RM. 2021. Revisions and Further Evaluations of the Right Whale Abundance Model: Improvements for Hypothesis Testing. NOAA Tech Memo NMFS-NE-269; 49 p. Available online at https://apps-nefsc.fisheries.noaa.gov/rcb/publications/tm269.pdf

[8] https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports

occur in the Project area. Please see Attachment B to this letter for a list of recommended scientific references for consideration related to the presence of ESA-listed species in or near the lease area.

ESA Section 7 Consultation

Under section 7(a)(2) of the 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 activities that are reasonably certain to occur following the proposed approval of the Atlantic Shores Projects COP (including surveys, construction, operation, and decommissioning) may affect ESA-listed species and/or designated critical habitat, ESA 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 with any other Federal agencies that may be issuing permits or authorizations for these projects, as necessary, 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 and issuance of any MMPA take authorization by NOAA's National Marine Fisheries Service (NMFS)) regarding any wind energy facility proposed in the lease area. Given the extremely tight timelines proposed for these projects, it is critical that we receive a draft Biological Assessment (BA) with the cooperating agency review draft of the EIS. Further, the BA must contain a thorough and complete description of the proposed action which includes all proposed mitigation measures. The BA must also reflect consideration of not only the construction, operation, and decommissioning of the planned projects, but also any and all proposed survey or monitoring activities proposed for any stage of these projects, including surveys of fisheries resources. We have developed a document (Information Needs for Assessing Effects of Offshore Wind Activities on ESA-listed Species) to identify information needs for considering effects of offshore wind projects on ESA-listed species and critical habitat, and we strongly encourage you to use that as you develop the BA.

Considerations for the EIS

We expect that any environmental documentation regarding a proposed offshore wind facility in the lease area will fully examine all potential impacts to listed species, the ecosystems on which they depend, and any designated critical habitat within the action area. We encourage you to use the ESA Information Needs document when developing the EIS. We also strongly urge you to carefully consider the information we have provided for the Vineyard Wind 1 and South Fork NEPA documents, as well as the issued Biological Opinions and MMPA authorizations. and incorporate that information and analysis into this EIS, as appropriate.

The construction and operation of a wind energy facility and installation of subsea electrical cables have the potential to impact listed species and the habitats on which they depend. Potential effects of offshore wind energy development on listed species and their habitat that should be considered by BOEM when making any determinations about the Atlantic Shores Projects 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 noise during any geophysical and geotechnical surveys, pile driving, wind turbine operations, and other activities;
- Potential interactions, including entanglement, injury, and mortality, of listed species from proposed surveys or monitoring of fisheries resources;
- Any activities which may displace species from preferred habitats, alter movements or feeding behaviors, increase stress, and/or result in temporary or permanent injury or mortality;
- Disruption and conversion of habitat types that may affect the use of the area, alter prey assemblages, or result in the displacement of individuals during all phases of the proposed project;
- Impacts to water quality through sediment disturbance or pollutant discharge; project lighting as a potential attractant;
- Effects from electromagnetic fields and heat from inter-array and export cable to listed species and their prey (*i.e.*, ability to forage, attraction, etc.); and
- Potential changes to pelagic habitat resulting from the presence of wind turbines.

The EIS should also consider how any proposed wind farm may displace or alter fishing or existing vessel activity that may change the risk to protected species from interactions with fisheries or vessels either within or outside the lease area, including potential risks of interactions with recreational fishing activity around foundations and entanglement in marine debris that may become ensnared on the foundations. Additionally, the EIS should consider effects of any surveys that may occur following potential COP approval that may affect listed species (*e.g.*, gillnet or trawl surveys to characterize fisheries resources), as well as any pre- or post-construction monitoring that may affect listed species. For further information on effects to consider, please refer to the ESA Information Needs document.

It is our understanding BOEM will develop a BA to support your eventual request for ESA section 7 consultation. While we understand that you intend to prepare the BA as a stand-alone document (*i.e.*, you are not planning for the EIS to serve as the BA), we anticipate and expect that the BA will be an appendix to the Draft EIS. We are not opposed to an approach whereby the EIS would serve as the BA, provided sufficient detail and analyses can be included. We understand the BA and the NEPA document are likely to evaluate effects of activities consistent with a design envelope and are likely to take a "maximum impact scenario" approach to assessing impacts to listed species that may occur. We encourage early coordination with us to determine which impact-producing factors should be analyzed based on a "worst case" or "maximum impact" scenario and which parts of the design envelope would need to be narrowed to carry out a reasonable analysis that would support your request for ESA section 7 consultation.

We encourage you to require minimization and monitoring measures that minimize the risk of exposure to potentially harassing or injurious levels of noise to marine mammals, sea turtles, and Atlantic sturgeon. Mitigation measures should be required during pile driving that will act to reduce the intensity and extent of underwater noise and avoid exposure of listed species to noise that could result in injury or behavioral disturbance. The use of protected species observers and other relevant technologies (e.g., Passive Acoustic Monitoring) to establish and monitor clearance zones prior to pile driving is essential. Project scheduling should take into account the

need for adequate visibility during the pre-pile driving clearance period, as well as for the duration of pile driving activities. Real-time and archival passive acoustic monitoring should also be used as a secondary detection/monitoring system during construction, to increase situational awareness in vessel corridors and around the Projects' area, and to monitor the distribution of marine mammals in the lease area during construction and operation.

We encourage you to work with Atlantic Shores to develop a schedule for the Atlantic Shores Projects that minimizes potential impacts to North Atlantic right whales. Specifically, you should consider time of year restrictions for pile driving that would avoid pile driving during the months when the density of North Atlantic right whales is highest in the lease area and the development of robust measures for other times of year that would minimize the exposure of right whales to noise that could result in behavioral disturbance. 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 desensitization, 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)[9]. While BOEM and Atlantic Shores will need to consider effects to all listed species, given the imperiled status of North Atlantic right whales, implementing measures to ensure that no right whales are injured or killed as a result of the Atlantic Shores Projects is critical.

Mitigation measures should also be included that minimize the risk of vessel strike for whales, sea turtles, and Atlantic sturgeon, including consideration of vessel speed restrictions regardless of vessel size and robust measures to monitor vessel transit routes for North Atlantic right whales. Recent events and new information[10] demonstrate that large whales are susceptible to lethal vessel strikes from vessels of all sizes. Any surveys or monitoring that are carried out related to the Projects (*e.g.*, gillnet or trap surveys to document fisheries resources) must carefully consider the effects to North Atlantic right whales and other ESA-listed species, and mitigation measures should be considered to eliminate the potential for entanglement of whales and to minimize risk to sea turtles and Atlantic sturgeon during such activities.

Marine Mammal Protection Act

Section 101(a) of the MMPA (16 U.S.C. 1361) prohibits persons or vessels subject to the jurisdiction of the United States from taking any marine mammal in waters or on lands under the jurisdiction of the United States or on the high seas (16 U.S.C. 1372(a)(1), (a)(2)). Sections 101(a)(5)(A) and (D) of the MMPA provide exceptions to the prohibition on take, which give us the authority to allow the incidental, but not intentional, take of small numbers of marine mammals, provided certain findings are made and statutory and regulatory procedures are met. ITAs may be issued as either (1) regulations and associated LOAs or (2) Incidental Harassment Authorizations (IHAs). LOAs may be issued for up to a maximum period of five years under an Incidental Take Regulation (ITR); IHAs may be issued for a maximum period of one year. We also promulgated regulations to implement the provisions of the MMPA governing the taking

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

[10] see Kelley, D. E., Vlasic, J. P., & Brillant, S. W. (2021). Assessing the lethality of ship strikes on whales using simple biophysical models. *Marine Mammal Science*, *37*(1), 251-267. https://doi.org/10.1111/mms.12745

and importing of marine mammals (50 Code of Federal Regulations (CFR) part 216) and published application instructions that prescribe the procedures necessary to apply for an ITA. U.S. citizens seeking to obtain authorization for the incidental take of marine mammals under NMFS' jurisdiction must comply with these regulations and application instructions in addition to the provisions of the MMPA.

Information about the MMPA and 50 CFR part 216 is available on our website at https://www.fisheries.noaa.gov/topic/laws-policies#marine-mammal-protection-act. Information on the application process is available at https://www.fisheries.noaa.gov/node/23111 and the application along with detailed instructions is available at https://www.fisheries.noaa.gov/national/marine-mammal-protection/apply-incidental-take-authorization. Information on NMFS' process to determine if a received application meets the adequate and complete requirements, as well as the 14 questions that all applications must satisfy for said designation, is available at: https://www.fisheries.noaa.gov/national/marine-mammal-protection/adequacy-and-completeness-mmpa-incidental-take-applications and https://www.fisheries.noaa.gov/national/marine-mammal-protection/apply-incidental-take-authorization.

Because activities associated with the construction of the Atlantic Shores Projects have the potential to result in the harassment[11] of marine mammals, we anticipate that a request for an ITA pursuant to section 101(a)(5) of the MMPA may be submitted to us by the Projects' proponent. NMFS' proposal to issue an ITA that would allow for the taking of marine mammals, consistent with provisions under the MMPA and incidental to an applicant's lawful activities, is a major Federal action under 40 CFR 1508.1(q)[12], requiring NEPA review. Rather than prepare a separate NEPA document, NMFS, consistent with the CEQ regulations at 40 CFR 1506.3, intends to adopt BOEM's Final EIS to support its decision to grant or deny Atlantic Shores LLC's request for an ITA pursuant to section 101(a)(5)(A) or (D) of the MMPA. NOAA may adopt all or portions (*e.g.*, specific analyses, appendices, or specific sections) of a NEPA document prepared by another federal agency if the action addressed in the adopted document (or portion) is substantially the same as that being considered or proposed by NOAA, and NOAA, after independent review and evaluation, determines the document (or portion) satisfies 40 CFR 1506.3.

When we serve as a cooperating agency and we are adopting another agency's EIS, we ensure all resources under our jurisdiction by law, and over which we have special expertise, are properly described and the effects sufficiently evaluated, documented, and considered by the lead agency's EIS. Of particular importance is that the Draft and Final EIS address comments and incorporate edits NMFS provides during document development and cooperating agency review. As a cooperating agency per 40 CFR 1501.8, we must determine that the Final EIS properly

[11] Harassment, (as defined in the MMPA for non-military readiness activities (Section 3(18)(A)), is any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment) or any act of pursuit, torment, or annoyance that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns (Level B harassment). Disruption of behavioral patterns includes, but is not limited to, migration, breathing, nursing, breeding, feeding or sheltering.

[12] All references to the Council on Environmental Quality NEPA regulations included in this letter apply to the 2020 regulations effective September 14, 2020.

addresses our comments and input in order for NMFS to determine the EIS is suitable and legally defensible for adoption per 40 CFR 1506.3 and NOAA's NEPA procedures[13], and subsequent issuance of an ITA.

As such, the document body must contain the following items: the purpose and need of NMFS' action, a clear description of NMFS' roles and responsibilities as both a cooperating and adopting agency (language we previously provided to BOEM for the South Fork Draft EIS); and a range of alternatives which incorporate a description of NMFS' action, to include the No Action alternative.

A summarized list of NOAA's adoption requirements is below, and more information can be found in NOAA's NEPA Companion Manual available at https://www.nepa.noaa.gov/docs/NOAA-NAO-216-6A-Companion-Manual-01132017.pdf:

- The other agency's EIS (or portion thereof) fully covers the scope of our proposed action and alternatives and environmental impacts;
- An adequate evaluation of the direct, indirect, and cumulative impacts on marine mammals and the marine environment, including species listed under the ESA;
- An adequate discussion of the MMPA authorization process necessary to support implementation of the action;
- A reasonable range and evaluation of alternatives to the proposed action, including a no action alternative and alternatives to mitigate adverse effects to marine mammals, including species listed under the ESA;
- A thorough description of the affected environment including the status of all marine mammals species likely to be affected;
- A thorough description of the environmental impacts of the proposed action and alternatives, including direct, indirect, and cumulative impacts on marine mammals and projected estimate of incidental take;
- Identification and evaluation of reasonable mitigation measures to avoid or minimize adverse impacts to marine mammals, including species listed under the ESA; and
- The listing of agencies consulted.

As part of our review, we must also determine if your EIS meets the requirements of 40 CFR Part 1500-1508, specifically basic requirements for an EIS as described in 40 CFR 1502. Therefore, the EIS must contain an adequate evaluation of the impacts on all marine mammals that may be present in the Projects' area. In order to take a requisite "hard look" at environmental impacts, the analysis should consider the affected environment and degree of impact on each resource which involves an evaluation of direct and indirect effects, as well cumulative effects; the duration of the impact; whether it is beneficial or adverse and the geographic scale in which the action is occurring (*e.g.*, local, regional). Specifically, the EIS must include an analysis of the impacts of elevated underwater noise on marine mammals

[13] NOAA Administrative Order (NAO) 216-6A "*Compliance with the National Environmental Policy Act, Executive Orders 12114, Environmental Effects Abroad of Major Federal Actions; 11988 and EO 13690, Floodplain Management; and 11990, Protection of Wetlands*" issued April 22, 2016 and the Companion Manual for NAO 216-6A "*Policy and Procedures for Implementing the National Environmental Policy Act and Related Authorities*" issued January 13, 2017.

resulting from pile driving, site characterization surveys, and other project-related activities; the risk of vessel strike due to increases in vessel traffic and/or changes in vessel traffic patterns; any activities that may increase the risk of entanglement; any activities that may result in the displacement of individuals or changes to migratory behavior; any activities that may result in altered prey assemblages or changes in feeding behavior; and any other activities that may result in harassment, injury, or mortality to marine mammals.

For specific marine mammals issues, we refer you to the discussion on marine mammals in the ESA section above. We note because all marine mammals are protected under the MMPA, those comments apply to all marine mammal species. We specifically recommend that the analysis of impacts on marine mammals and corresponding significance determinations be separated by species group (*i.e.*, mysticetes, odontocetes, and pinnipeds). For the noise impacts analysis, we recommend a similar approach using the hearing groups identified in NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS, 2018).

Magnuson-Stevens Fishery Conservation and Management Act

As currently described in the NOI, these facilities (inclusive of the wind farm areas, offshore and inshore export cables and corridors, and shoreside landing points) will be constructed, operated, and maintained in areas designated EFH for various life stages of species managed by the New England Fishery Management Council (NEFMC), Mid-Atlantic Fishery Management Council (MAFMC), South Atlantic Fishery Management Council (SAMFC), and NMFS. Species for which EFH has been designated in the Projects' area include, but are not limited to butterfish (*Peprilus triacanthus*), summer flounder, windowpane flounder (*Scophthalmus aquosus*), clearnose skate, bluefish (*Pomatomus saltatrix*), longfin squid, black sea bass (*Centropristis striata*), scup, spiny dogfish (*Squalus acanthias*), winter flounder, ocean quahog, sea scallop, and Atlantic surfclam. The Projects' proposed area is also designated EFH for several Atlantic highly migratory species (tuna, swordfish, billfish, small and large coastal sharks, and pelagic sharks) including, but not limited to sandbar shark and sand tiger shark (*Carcharias taurus*). The sand tiger shark has been listed as a Species of Concern by NOAA. "Species of concern" are species about which we have some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA (69 FR 19975; April 15, 2004)

The most up-to-date EFH and HAPC designations should be used in your evaluation of impacts to EFH. HAPCs are a subset of EFH that are especially important ecologically, particularly susceptible to human-induced degradation, vulnerable to developmental stressors, and/or rare. EFH and HAPC for species managed by the NEFMC have been modified under the Omnibus Amendment which was approved and implemented in 2018. The EFH mapper should be used to query, view, and download spatial data for the species managed by the New England, Mid-Atlantic, and South Atlantic Councils and for Highly Migratory Species. The EFH mapper can be accessed from our habitat website at https://www.habitat.noaa.gov/protection/efh/efhmapper/. The mapper is a useful tool for viewing the spatial distribution of designated EFH and HAPCs, however the mapper should be used for reference purposes only and does not include Atlantic salmon EFH, blueline tilefish, chub mackerel, or the summer flounder HAPC for the Greater Atlantic Region. The full designations for each species may be viewed as PDF links provided

for each species within the Mapper, or via our website links to the New England Fishery Management Council's Omnibus Habitat Amendment 2 and the Mid-Atlantic Fishery Management Council's FMPs. You should also be aware that the Final Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) went into effect on September 1, 2017. This amendment contains several changes to the EFH designations for sharks and other highly migratory species. More information can be found on our website at https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species.

Considerations for the EIS

The Atlantic Shores Projects are proposed to be constructed in or directly adjacent to important habitat for numerous federally-managed species and their prey. Additionally, the export cable corridors likely overlap sensitive offshore and nearshore-estuarine habitats such as subtidal and intertidal flats, coastal marsh, SAV, and others. The NEPA document, and the EFH, benthic resources, finfish, and invertebrates sections, in particular, should accurately describe the Projects' area and the resources that rely on habitats that are susceptible to project impacts. The document should fully describe the distinct habitat features of the entire project area and the importance of different habitat types for providing structure and refuge, as well as habitats important for eggs, larvae, and juveniles. The evaluation of the Projects' impacts should not only consider impacts of the Projects against the cumulative geographic scope (*e.g.*, the OCS), but also clearly evaluate anticipated impacts of project construction and operation to the distinct habitat types found in the lease area, along the export cable route, and inshore landfall/inland locations. The document should analyze the effects to the physical and biological habitat features and the biological consequences of those effects. It will be important to consider impacts of the Projects on all life stages (adults, juveniles, larvae, eggs), and we recommend focusing on species and life stages that may be more vulnerable to impacts.

Additionally, habitats that support particularly sensitive life stages of species should be identified and described. For example, juvenile summer flounder inhabit a variety of inshore coastal and estuarine habitats, including SAV (eelgrass and other species). Any area with SAV is designated as a HAPC and should be identified and mapped. Project activities that adversely affect SAV should be avoided or minimized to the extent practicable. Additionally, species with adhesive or demersal eggs or neutrally buoyant larvae, such as winter flounder, are particularly sensitive to actions such as dredging and trenching. Furthermore, sensitive or unique features such as those designated as New Jersey (NJ) Prime Fishing Areas in accordance with N.J.A.C. 7:7-9.4 should be identified and described, and any potential impacts be analyzed. A large portion of the lease area is designated a NJ Prime Fishing Area ("Lobster Hole"), in addition to a smaller feature ("The Wall") being present, closer to shore. Other Prime Fishing Areas overlap with, or are very close to, the export cable routes. These areas are designated NJ Prime Fishing Areas because of their demonstrable history of supporting a significant local intensity of recreational or commercial fishing activity, which likely results from high fish production, high benthic faunal density, and species diversity; dense aggregations of fish are likely supported by high local primary production. It is important that the EIS fully describe and analyze impacts of the Projects on sensitive habitats and unique benthic features as well as vulnerable life stages of any NOAA trust resource, and evaluate ways to avoid and minimize those impacts. If it is not feasible to avoid or minimize negative impacts, mitigation measures must be proposed and analyzed.

We would also note that impacts to complex habitats and benthic features, such as those found in the Projects' area, are known to result in long recovery times and are potentially permanent. Such impacts may result in cascading long-term to permanent effects to species that rely on this area for spawning and nursery grounds and the fisheries and communities that target such species. The evaluation of impacts from the Projects' construction and operation should evaluate the potential for recovery and the anticipated recovery times based on the habitat type and components that would be impacted. Benthic features (*e.g.*, sand ridges and banks; ridge and swale complexes) and complex habitats are more vulnerable to permanent impacts or may take years to decades to recover from certain impacts. The variability in recovery times by habitat type and components should be fully discussed and analyzed in the document.

The analysis should include discussion of the potential effects of habitat alteration from construction and operation of the Projects using the best available scientific information. The analysis should address the potential impact of converting unconsolidated soft bottom and smaller-grained hard habitats that support distinct assemblages of fish and shellfish to artificial structures (WTGs and scour protection) that may attract larger predatory species and lead to shifts in the invertebrate communities. While the WTGs may create a reef effect, the document should clearly distinguish the difference between man-made structures and any natural complex habitat - such as pebbles/granules and cobbles - that may be present in the area. The distinction between the ecological functions and values of natural and man-made structures should be incorporated into the analysis. The decommissioning and removal of WTG structures should also be incorporated into the analysis. Furthermore, numerous species feed, rest, spawn, drift, and settle in this same area, so comprehensive analyses related to changes in hydrodynamics and underwater noise, vibrations, and turbidity and sedimentation as a result of WTG placement/operation and scour protection placement should be undertaken. Functionally immobile species such as Atlantic surfclam and ocean quahog are particularly susceptible to impacts based on their life history strategies. Near permanent disturbances, such as increased noise and vibrations from the presence and operation of WTGs, will likely increase stress in Atlantic surfclams, ocean quahogs, and other species, leading to a potential cascade of negative biological consequences (e.g., reduced feeding and respiration, poor body condition, reduced survivorship, reduced fecundity).

The document should evaluate the extent to which the introduction of artificial hard structures (WTGs and scour protection) will have both direct and indirect impacts on marine resources that could lead to changes in the distribution and abundance of Federally managed species and their prey. For example, artificial hard structures will permanently eliminate soft bottom habitats for numerous species such as Atlantic surfclam, ocean quahog, sea scallop, longfin squid, benthic prey species, and various flatfish (e.g. flounder). This change in habitat could alter predator-prey interactions by providing additional habitat for structure-oriented species (*e.g.*, black sea bass and other large predators) and species like moon snails and starfish that prey on bivalves. These species could become more abundant and aggregate within the Project area due to presence of WTGs and scour protection, potentially changing species interactions. Potential changes to community structure from habitat conversion should be fully evaluated in the EIS. Furthermore, Atlantic surfclams and ocean quahogs burrow into sand and gravelly sediments and are directly susceptible to habitat loss and mortality from the construction of turbine foundations, permanent placement of foundations and scour protection, and trenching of cables in the lease area and in

the export cable corridor. Sea scallops inhabit the same areas, but are epifaunal, existing primarily on surficial sediments. Numerous flat fish (*e.g*., flounder) also burrow into surficial sediments to ambush prey and seek refuge from larger predators, making them more susceptible to construction activities in soft bottom areas, and to the permanent elimination of soft bottom. The EIS should fully evaluate all of the direct, indirect, individual, cumulative, and synergistic estimated impacts to fish and invertebrates due to the potential conversion of existing natural substrates with artificial materials.

EFH Consultation

In the MSA, Congress recognized that one of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats. Congress also determined that habitat considerations should receive increased attention for the conservation and management of fishery resources of the United States. As a result, one of the purposes of the MSA is to promote the protection of EFH in the review of projects conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat.

The MSA requires federal agencies to consult with the Secretary of Commerce, through NMFS, 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 identified under this Act," 16 U.S.C. § 1855(b)(2). This process is guided by the requirements of our EFH regulation at 50 CFR 600.905. Pursuant to the MSA, each 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, "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

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.

As stated above, adverse impacts to EFH may result from actions occurring within or outside of areas designated as EFH. In addition, the EFH final rule also states that the loss of prey may

have an adverse effect on EFH and managed species. As a result, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat may also be considered adverse effects on EFH. The EFH regulations state that for any Federal action that may adversely affect EFH, Federal agencies must provide NMFS with a written assessment of the effects of that action on EFH (50 CFR 600.920(e)). This EFH assessment should include analyses of all potential impacts, including temporary and permanent, and direct and indirect individual, cumulative, and synergistic impacts of the proposed projects.

The EFH assessment must contain the following mandatory elements: (i) a description of the action, (ii) an analysis of the potential adverse effects of the action on EFH and the managed species, (iii) the federal agency's conclusions regarding the effects of the action on EFH, and (iv) proposed mitigation, if applicable (50 CFR 600.920(e)(3)). Due to the potential for substantial adverse effects to EFH from the proposed projects, an expanded EFH consultation as described in 50 CFR 600.920(f) is necessary for these projects. As part of the expanded EFH consultation, the EFH assessment for the proposed projects, the assessment should also contain additional information, including: (i) the results of an on-site inspection to evaluate the habitat and the site specific effects of the Projects, (ii) the views of recognized experts on the habitat or species that may be affected, (iii) a review of pertinent literature and related information, (iv) an analysis of alternatives to the action, and (v) other relevant information.

The EFH expanded consultation process allows the maximum opportunity for NMFS and the Federal action agency, in this case, BOEM, to work together to review the action's impacts on EFH and federally managed species, and for our agency to develop EFH conservation recommendations (EFH CRs) to avoid, minimize, or otherwise offset adverse effects to EFH and federally managed species. Although the EFH consultation is a separate review mandated pursuant to the MSA, our EFH regulations encourage the consolidation of the EFH consultation with other interagency consultation, coordination, and environmental review procedures required by other statutes, such as NEPA, where appropriate. Because the information contained within the EIS is needed to support a complete EFH assessment, we request you use the NEPA document as the vehicle within which to present the EFH assessment. The EFH assessment should be included within a separate section or appendix of the Draft EIS document and be clearly identified as an EFH assessment.

Considerations for the EFH Assessment

We understand you permit the use of a Project Design Envelope (PDE) in the preparation of a COP, and the NEPA document will focus on analysis of the maximum impacts that would occur from the range of design parameters. However, for purposes of the EFH consultation, the EFH assessment should be consistent with the EFH regulations under the MSA. Specifically, you are required to include in your assessment an analysis of the potential adverse effects on designated EFH, including the site-specific effects of the Projects, and measures that can be taken to avoid, minimize, or offset such effects (CFR 600.920(d-e)). You must assess the potential adverse impacts that would occur as a result of the range of design parameters under consideration in the PDE, rather than a maximum impact scenario. Should the EFH assessment provide insufficient details to assess impacts of the Projects, we may determine that the assessment is incomplete and that consultation under the MSA cannot be initiated, or we may provide precautionary

conservation recommendations based upon the level of information and analysis available.

To help ensure adequate information to initiate the EFH consultation, the expanded EFH assessment should include full delineation, enumeration, and characterization of all habitat types in the Projects' area including the lease areas, cable corridors, and landing sites. Particular attention should be paid to HAPCs, sensitive life stages of species, ecologically sensitive habitats, and difficult-to-replace habitats such as SAV, natural hard bottom substrates, particularly substrates with attached macroalgae and epifauna (including corals), and shellfish habitat and reefs. The habitat mapping data should also be shared directly with us in usable geographic information system (GIS) format (or cloud-based GIS data viewer) for review, apart from the body of the EFH assessment and maps and figures contained therein. To aid BOEM and the Projects' applicant in the development of comprehensive and complete EFH assessments, we have published our *Recommendations for Mapping Fish Habitat*[14], dated March 2021. This document is an updated version; a previous version was submitted to you on May 27, 2020. To further streamline the consultation process, we also shared a technical assistance document with you in January of 2021, titled *Essential Fish Habitat (EFH) Information Needs for Offshore Wind Energy Projects in the Atlantic* which provides a checklist of information that should be incorporated into the EFH assessment.

While a draft/preliminary EFH assessment was provided in the COP, this document primarily re-states the EFH designations from the various Fishery Management Councils or the NMFS in narrative form and provides maps from the EFH Mapper. The limited effects analysis in the draft document is flawed and insufficient as it appears to broadly discount adverse impacts while highlighting perceived benefits of the projects. We have provided numerous guidance documents to aid in the preparation of the NEPA document and EFH assessment and are currently working with you on an EFH Assessment Template to further streamline the consultation process. We recommend BOEM use the various guidance documents and template, and work directly with us to develop a comprehensive EFH assessment and not heavily rely on the draft document provided in the COP.

As stated in our habitat mapping recommendations, EFH checklist, and through regular communication with you, early coordination in the consultation process is essential. We appreciate Atlantic Shores's early coordination and communication efforts and are hopeful that these efforts continue as data is collected and future data collection efforts are proposed and undertaken. Comprehensive benthic data will help accurately characterize and delineate fish habitat within the lease area and cable corridors to ensure we can differentiate and distinguish between, and within, areas of sensitive and complex habitats to provide appropriate conservation recommendations. Accurate characterization of the project areas will be critical to ensure our recommendations are appropriate and able to reflect any heterogeneity that may exist across the sites. Although we have been presented with figures and representations of data during meetings with Atlantic Shores, we have yet to review any comprehensive habitat data, including maps or mapping documents.

In the absence of fine-scale and accurate fish habitat characterization and delineation, we will

[14]https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/60637e9b0c5a2e0455ab49d5/1617133212147/March292021_NMFS_Habitat_Mapping_Recommendations.pdf

take a conservative approach to our assessment of project impacts and development of conservation recommendations for the Projects. All data related to habitat mapping (acoustic survey results, seafloor sampling data, GIS data, figures/maps, etc.) should be shared with us as soon as practicable (once it is processed), so we can begin reviewing and providing comments, which will allow for more streamlined projects' review and consultation. Upon review of this information, a habitat mapping-specific meeting for the Atlantic Shores Projects should be scheduled.

Fish and Wildlife Coordination Act

The 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). As a result, our FWCA recommendations must be given full consideration by federal action agencies. Your consultation with us under the FWCA may occur concurrently with the EFH consultation under the MSA.

Under the FWCA, our authority extends to numerous other aquatic resources in the area of the proposed projects, including, but not limited to, the following species and their habitats: striped bass (*Morone saxatilis*), American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis)* (collectively known as river herring), Atlantic menhaden (*Brevoortia tyrannus*), Atlantic silversides (*Menidia menidia*), oyster (*Crassostrea virginica*), blue mussel (*Mytilus edulis*), tautog (*Tautoga onitis*), weakfish *(Cynoscion regalis)* and other assorted fish and invertebrates. NOAA jointly manages a number of these species through Interstate FMPs with the Atlantic States Marine Fisheries Commission. A list of Commission species and plans can be found on their website at http://www.asmfc.org.

We anticipate all of these species will be included in your impact assessments, both in the EFH assessment and NEPA document. We also expect the assessment to include impacts to the recreational and commercial fishing communities that rely on these species. The behaviors and habitat needs of diadromous and estuary-dependent fishes (associated with cable route locations) may not be represented by a discussion solely of the surrounding marine fishes in the WTG area. The discussion for FWCA species should be designed around an ecological guild model that uses locally important species to evaluate the Projects' impacts to organisms or populations associated with the various trophic levels and life history strategies exhibited by FWCA species known to occupy the Projects' area as residents or transients. Focus should be on issues surrounding particular species, life history stages, or habitat components that would be most susceptible to the various potential impacts of the Projects.

Fisheries Management Comments
Species important to both commercial and recreational interests are found within the Projects' area and associated cable corridors. The COP adequately identifies most species and commercial and recreational fisheries that may be affected by the proposed operations, including private recreational vessel operations and those targeting highly migratory species. However, additional detail regarding menhaden landings and revenue should be included in the EIS. Our commercial and party/charter socioeconomic impact summary reports (available at https://www.fisheries.noaa.gov/resource/data/socioeconomic-impacts-atlantic-offshore-wind-development?utm_medium=email&utm_source=govdelivery) provide an overview of the landings, revenues, gear types, and ports that would be affected by individual leases/projects, along with vessel dependency upon this area and species catch within such areas relative to total regional landings and revenue. However, our reports currently only evaluate the entire Atlantic Shores lease area (lease 0499) and not the Project areas identified in the COP. A data request, including updated shapefiles for the Project areas, should be submitted to nmfs.gar.data.requests@noaa.gov for us to provide you with updated information specific to the areas to be evaluated in the EIS.

Atlantic surfclams, Atlantic menhaden, and black sea bass are the primary species caught within the lease area that are managed directly or indirectly within federal waters. The surfclam fishery is by far the primary commercial fishery affected in terms of landing amounts and fishing revenue, recognizing that menhaden are periodically caught in larger volumes. Other managed species such as Atlantic sea scallops, longfin squid, and summer flounder are routinely caught within the lease area, but at lower volumes. According to our socioeconomic impact summaries, surfclam vessels landed an average of 1.7 million lbs. each year, earning an average of $1.2 million from the lease area mainly based out of Atlantic City, NJ, with landings from the lease area representing nearly 10 percent of landings coast wide in 2008. Between 1,300-2,700 commercial fishing trips are taken in the lease area each year by 142-360 individual vessels. Although a majority of commercial vessels derive a small portion of yearly fishing revenue from the lease area, several entities depend upon this area for over 20 percent of their yearly revenue, with a few entities dependent upon this area for over 50 percent most years and even over 60 percent in one year. Black sea bass was by far the most dominant species caught by party/charter vessels operating in the lease area, with up to 3,000 party/charter fishing trips earning up to $288,000 in sales during certain years.

Some fishery operations are not fully captured in available VTR data and are underrepresented in our commercial socioeconomic impact summary report. For example, vessels targeting lobsters and Jonah crabs are only required to submit vessel trip reports (VTRs) if they are issued a Federal permit for another species (many are not). Further, because this report is based on modeled vessel trip report data of individual reported fishing locations, it addresses the inherent imprecision in available location data, but does not precisely represent individual fishery or fishing vessel impacts. Information on highly migratory species catch are only partially captured in VTRs available from the Greater Atlantic Regional Fisheries Office and are instead found in VTRs available from our Southeast Regional Office and the large pelagics survey (available at https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-downloads). Such sources should be consulted when preparing the EIS. Private angler recreational catch data are not collected with sufficient area precision to determine the amount of catch inside a

particular wind project area. Despite this limitation, the Projects' area is likely to affect important regional recreational fisheries, and a discussion of private angler catch should be included in the EIS comparable to a similar discussion already included in the COP. As noted in the COP, fishing tournaments, particularly for highly migratory species such as tunas and marlin, are an important component of the fishery that may be affected by these projects and should be discussed in the EIS.

BOEM should use information from all available and appropriate sources to characterize fishing operations and evaluate the potential impacts of the proposed projects on private anglers, commercial and party/charter fishing vessels, and associated communities. As noted above, consideration of data across a broad time frame (10 years or more), including data from the most recent 2 years, is necessary to reflect both recent operations and annual fluctuations in fishing operations due to changing environmental conditions, market price, and management measures. As such, the COP and future EIS should include the most recent information available and reflect the past 10 years of fishing, not the 5-year period assessed in the COP. In evaluating the use of existing data sources, please refer to the list of data limitations provided in our January 2021 fisheries socioeconomic information needs checklist. Despite the acknowledged limitations, we rely on VTRs as the best available source of area-based data for all federally-managed commercial and party/charter fisheries. Both vessel monitoring system (VMS) and automatic identification system (AIS) data provide higher resolution spatial data, but such sources are not adequate to provide information on all commercial fisheries or fishing vessels. When using these data to analyze the impacts of the proposed projects, BOEM should recognize such limitations and tailor impact conclusions based on the data used. Care should be taken to put operations into the proper context in future analyses to avoid mischaracterizing fishing operations and potential impacts associated with the proposed projects.

A quantitative analysis of the potential biological, social, and economic costs of the Projects to fishing industries and their communities must be included in the EIS. As noted above, we have provided a checklist outlining the elements we expect to be included in an analysis of the socioeconomic impacts of these projects. Our previously referenced socioeconomic impact summaries address nearly all of the elements on the checklist and can be used as the foundation of such an analysis. The analysis should also address potential costs associated with reduced fishing revenues as a result of short- or long-term effort displacement, impacts on catch rates, changes to species composition, potential impacts of construction activity on spawning success and future recruitment, and permanent or short-term changes to EFH during construction, operation, and decommissioning the Projects. Vessels may experience increased operational costs from increased insurance rates to fish within wind farms or additional fuel required to transit around wind farms or search for new fishing locations, although the proposed WTG layout and orientation seems consistent with operational patterns documented by VMS data. Opportunity costs such as revenue lost by fishing effort that is displaced into less productive areas, including vessels displaced out of the Projects' 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 should be included in the EIS, including impacts to cultural norms, fishermen or fishing community social relationships, and health and well-being (see Fisheries Social Impact Assessment Guidance Document https://media.fisheries.noaa.gov/dam-

migration/01-111-02.pdf and Practitioner's Handbook https://spo.nmfs.noaa.gov/sites/default/files/TM212_0.pdf). Finally, the EIS should consider and discuss any mitigation measures contemplated to reduce any adverse impacts to fishing operations, particularly those due to loss of area access or gear damage/loss.

Consistent with our comments on other projects, we recommend BOEM avoid/minimize impacts to fishery resources and existing and anticipated future fishing operations from these projects, particularly the commercial surfclam fishery - the primary commercial fishery within the lease area. As noted above, these projects could convert soft bottom to artificial hard bottom, affecting the habitats used by certain species, while construction activities could negatively impact adult fish/invertebrates and bury or harm eggs and larvae. Specifically, construction and operational activities produce noise, sedimentation, and vibration which can increase stress and reduce feeding behavior. This may result in adverse impacts to bivalve species, such as surfclams, if subject to these factors for prolonged periods of time or during the spawning season. As noted in the COP, WTGs may attract structure-oriented species such as black sea bass, indicating that the Projects also have the potential to alter predator/prey relationships and sources of natural mortality, while attracting recreational fishing effort and increasing potential commercial/recreational fishing conflicts. These effects could have short- and potentially long-term impacts to vulnerable resources and potential consequences to fisheries and associated fishing communities that target them.

Federal Fisheries Surveys, Fisheries Dependent Data, & Stock Assessments

As noted for other wind development projects, the Atlantic Shores projects are anticipated to have major adverse impacts on NMFS Northeast Fisheries Science Center scientific surveys, which will, in turn, result in adverse impacts on fishery participants and communities, conservation and recovery of protected species, and on the American public. These projects would have direct impacts on the federal multi-species bottom trawl survey conducted on the Fisheries Survey Vessel (FSV) Henry Bigelow, the surfclam and ocean quahog clam dredge surveys conducted on chartered commercial fishing platforms, the integrated benthic/sea scallop habitat survey, ship and aerial-based marine mammal and sea turtle surveys, and the shelf-wide Ecosystem Monitoring Survey (Ecomon). Based on standard operating practices conducted by the NOAA Office of Marine and Aviation Operations, WTG arrays would preclude safe navigation and safe and effective deployment of mobile survey gear on NOAA ships. The impacts to our scientific surveys from these projects will be driven by four main mechanisms: 1) exclusion of NMFS sampling platforms from the wind development area, 2) impacts on the random-stratified statistical design that is the basis for data analysis and use in scientific assessments, advice, and analyses; 3) the alteration of benthic, pelagic, and airspace habitats in and around the wind energy development; and 4) potential reductions in sampling outside wind areas caused by potential increased transit time by NOAA vessels. Adverse effects on monitoring and assessment activities would directly impact the critical scientific information used for fisheries management and the recovery and conservation programs for protected species. These impacts would result in increased uncertainty in the surveys' measures of abundance, which could potentially lead to lower quotas for commercial and recreational fishermen and lower associated fishing revenue based on current fishery management council risk policies. These impacts will occur over the lifetime of wind energy operations at the Projects' area and in the region (to at least 2050).

Given the anticipated development of offshore wind in our region, it is critical to expeditiously establish and implement a regional federal scientific survey mitigation program to address this significant issue. Such a survey mitigation program would include the following elements:

1. Evaluation of scientific survey designs;
2. Identification and development of new survey approaches;
3. Calibration of new survey approaches;
4. Development of interim provisional survey indices;
5. Integration of project-specific monitoring plans to address regional survey needs; and
6. Development of new data collection, analysis, management, and dissemination systems.

Information from project-specific mitigation plans could be critical inputs to the development and implementation of any future regional survey mitigation program. Project-level impacts on scientific surveys should require project-level mitigation measures for each of the seven scientific surveys disrupted by the Atlantic Shores projects. As project monitoring plans are further considered and developed, these approaches should be standardized, meet existing scientific survey protocols and develop new methods using independent-peer review processes, calibrate methods to and integrate them with federal regional scientific surveys, and implement annual data collections for the operational life span of the Projects or until such time as a programmatic federal scientific survey mitigation program is established. Text provided in documents prepared for other projects with similar impacts can be used to inform the assessment of scientific survey impacts for these projects. Consistent with work we have done with you in the past, the NEPA document should include a full description of scientific surveys to be impacted, the history of each time series, and relative importance of the impacted scientific surveys on management advice, decision-making, and other end-users. We encourage you to work closely with us to ensure potential impacts to our scientific survey operations and consequent effects to fisheries stock assessments, fishery management measures, and protected species conservation efforts are evaluated in the EIS for this and other projects, including any efforts to mitigate such impacts.

In addition to impacts on fisheries independent survey data collections, analysis of impacts on fisheries dependent data collections, *e.g.*, landings, biological samples, and observer data, due to potential changes in effort should also be required. This assessment should consider potential changes in mortality rates for target and non-target species and potential fisheries interactions with marine mammals and threatened and endangered species. This analysis should also consider the potential changes in fisheries dependent data collections on stocks expected to be impacted by offshore wind development impact producing effects and on the anticipated displacement of fishing operations. How these effects impact specific stock assessments should also be evaluated in addition to how these changes may impact the effectiveness of fishery management measures in meeting their objectives.

Attachment B

Suggested Scientific References (Not Exhaustive) Regarding Use of the Projects' Area by ESA-Listed Species, see ESA Information Needs document for additional sources on the abundance and distribution of listed species

Fish

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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

October 27, 2021

Todd Schaible, Chief
Regulatory Branch
U.S. Army Corps of Engineers
Philadelphia District
100 Penn Square East
Philadelphia, PA 19107-3390

Dear Mr. Schaible:

We have reviewed Public Notice (PN) NAP-OPR-2020-0753-39 dated September 23, 2021, the essential fish habitat (EFH) assessment, and the supporting documents provided in response to our October 6, 2021, request for clarification on the proposed action. The PN describes an application by Mr. Thomas McArthur of Northstar Marina Holdings, LLC to reconfigure the existing Bayview Marina on Barnegat Bay in Barnegat Light Township, Ocean County, New Jersey. The applicant proposes to reconfigure and rehabilitate an existing marina to allow for increased vessel berthing capacity, work which will include: removal and installation of bulkhead, pilings, piers, and floating docks; removal of uplands to expand the boatlift; installation of a fuel dock; and dredging of 1.63 acres of waterway within the marina basin. The total number of slips will be increased from 45 to 66 slips. Work would be performed using land based and barge mounted equipment and all the old docks and pilings will be replaced with non-polluting materials.

Our primary concern is that impacts to submerged aquatic vegetation (SAV) have not been adequately avoided and minimized. Based upon the information provided, we recommend that the project be redesigned to eliminate any expansion of the marina beyond the boundaries of the existing docks and wave screens and that no new dredging outside the existing marina basin and in mapped SAV be permitted. We do not object to maintenance dredging within the existing basin and the reconfiguration of the basin within its current footprint.
According to the PN, the applicant proposes the following:

- Dredging, with 10 years' maintenance, 1.63 acres to a depth of -7 feet below mean low water (mlw) with a one-foot allowable overdepth. This includes approximately 0.27 acres outside the existing marina basin and within mapped SAV habitat.
- Replacement of the existing 290-foot bulkhead in its present location using non-polluting vinyl material.
- Reconstruction of the southern and western existing breakwaters with non-polluting timber material with the bottom of the breakwater being no closer than 18 inches from existing substrate and with gaps in the vertical planking.

- Reconstruction of the northern breakwater, 11 feet shorter in length, in its current location with a vinyl sheathing design to the substrate.
- Installation of a 75-foot long, 6-foot wide service dock connected to the bulkhead with a 4-foot wide by 38-foot ramp/gangway.
- Construction of new docks attached to the breakwaters with associated finger piers and ramp/gangways including a new floating fueling dock.
- Installation of eighty (80) 12-inch piles using a barge-mounted vibratory hammer pile driver to support the new structures.
- The excavation of a 250 square foot triangular area of uplands to expand the existing boat lift.
- Installation of two travel lift fixed piers and associated bulkheading.

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act (FWCA) require federal agencies to consult with one another on projects such as this that may adversely affect essential fish habitat (EFH) and other aquatic resources. In turn, we must provide recommendations to conserve EFH. These recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or undertaken by that agency. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure.

Magnuson-Stevens Fishery Conservation and Management Act (MSA)
The project area has been designated as EFH for a for a number of federally managed species including Atlantic butterfish (*Peprilus triacanthus*), Atlantic sea herring (*Clupea harengus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), king mackerel (*Scomberomorus cavalla*), scup (*Stenotomus chrysops*), Spanish mackerel (*Scomberomorus maculatus*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), winter flounder (*Pseudopleuronectes americanus*), winter skate (*Leucoraja ocellata*), little skate (*Leucoraja erinacea*) and clearnose skate (*Raja eglanteria*). The project area has also been mapped by the New Jersey Department of Environmental Protection (NJDEP) as containing submerged aquatic vegetation (SAV) and high densities of hard clams (*Mercenaria mercenaria*).

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 final rule also states that the loss of prey may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat, and the definition of EFH includes waters and substrate necessary to fish for feeding.

Therefore, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat may also be considered adverse effects on EFH. As a result, activities that adversely affect shellfish can adversely affect the EFH for winter flounder, scup, little skate and other federally managed species by reducing the availability of prey items.

Submerged Aquatic Vegetation

SAV has been designated as a habitat area of particular concern (HAPC) for summer flounder by the Mid-Atlantic Fishery Management Council. HAPCs are subsets of EFH identified based on one or more of the following considerations: 1) the importance of the ecological function; 2) extent to which the habitat is sensitive to human-induced degradation; 3) whether and to what extent, development activities are stressing the habitat type; and/or 4) rarity of habitat type (50 CFR 600.815(a)(8)). In addition, the U.S. Environmental Protection Agency has designated SAV as a special aquatic site under Section 404(b)(1) of the federal Clean Water Act because of its important role in the marine ecosystem for nesting, spawning, nursery cover, and forage areas for fish and wildlife. It is a priority habitat for us for the same reasons.

Seagrasses are among the most productive ecosystems in the world and perform a number of irreplaceable ecological functions which range from chemical cycling and physical modification of the water column and sediments to providing food and shelter for commercial, recreation as well as economically important organisms (Stephan and Bigford 1997). SAV acts as foundational habitat for a number federally managed species, including black sea bass, bluefish, Atlantic herring, summer flounder, winter flounder, and scup. Larvae and juveniles of many important commercial and sport fish such as bluefish, summer flounder, spot (*Leiostomus xanthurus*), Atlantic croaker (*Micropogonias undulatus*), herrings (*Clupeidae*) and many others appear in eelgrass beds in the spring an early summer (Fonseca et al 1992). Heckman and Thoman (1984) concluded that SAV beds are also important nursery habitats for blue crabs (*Callinectes sapidus*). According to Peterson (1982) in Kenworthy (1988) shallow dwelling hard clams may be protected from predation by the rhizome layer of seagrass beds. A single acre of seagrass can support up to 40,000 fish and 50 million invertebrates (Miththapala 2008).

SAV beds serve additional ecological benefits, including decreasing wave energy (Donatelli, et al. 2019) and sequestering carbon (Mejia Muñoz 2017). Loss of SAV can result in increased shoreline erosion, leave coastal areas prone to flooding, and release stored gases back into the atmosphere, further contributing to rising global temperatures. In addition to natural factors, anthropogenic stressors contributing to SAV loss include physical disturbance (particularly from dredging, scour, and pile driving) and sedimentation. Construction of piers, bulkheads, seawalls, groins, and jetties have been shown to have negative impacts on SAV bed (Johnson et al. 2007), often leading to permanent losses.

In their letter dated October 8, 2021, the applicant's consultant, ACT Engineers note that "Submerged aquatic vegetation (SAV) typically grows along the shallow margins of the Barnegat Bay in waters less than one meter (M) in depth." However, a 2019 paper by Donatelli et al. found that SAV densities in the Barnegat Bay were highest between 0.5 and 1.5 meters (1.6 to 4.9 feet) in depth. This means that a far larger portion of the project site than originally suggested is likely to be SAV habitat and that the applicant's contention that the proposed

marina expansion area is not suitable habitat for SAV is incorrect. Further, mapping by NJDEP has consistently indicated that the project area is SAV habitat. In addition, no site specific surveys have been provided to us to demonstrate that the project area, particularly the area of the proposed expansion and new work dredging does not support or is not capable of supporting SAV. This issue was raised as the primary concern during the August 2020, joint permit processing (JPP) meeting where we clearly expressed that we would object to any marina expansion into the mapped SAV. As currently proposed, approximately 0.27 acres of SAV habitat would be dredged to -8 ft. at mlw and would no longer be capable of supporting SAV. Also, as discussed at the JPP meeting, we are concerned that any westward expansion of the marina would force existing boat traffic that transit the area along the slightly deeper water (approximately -4 to-6 ft. mlw) along western bulkhead to move farther westward into shallower areas that support denser beds of SAV.

Overall, SAV abundance continues to decrease faster than restoration efforts can counter, and a lack of suitable sites for mitigation means emphasis must be placed on avoidance. Without an SAV survey of the project site, we must assume that the marina expansion, and ensuing changes to vessel traffic, will have permanent deleterious impacts. We recommend that a permit not be issued as proposed and the project be redesigned to eliminate the expansion towards the historically-mapped SAV bed. We do not object to maintenance dredging within the existing basin and the reconfiguration of the basin within its current footprint.

Water quality and, in particular, water clarity is considered among the most critical, if not the most critical, factor in the maintenance of healthy SAV habitats (Stephan and Bigford 1997). Seagrasses require at least 15% to 25% of the incident solar radiation (at the water surface) just for maintenance (Kenworthy et al. 1991). Increases in suspended sediments and the subsequent reductions in water transparency caused by dredging or other construction activities such as the installation of piles limits photosynthesis. Experiments by Short et al. (1991) with eelgrass have shown that reductions in light decrease growth, promote a reduction in plant density and can ultimately eliminate an eelgrass population altogether. As a result, we typically recommend that activities that generate suspended sediments including dredging and pile driving be avoided in and near SAV beds when eelgrass and widgeon grass during the growing season, from April 15 to October 15 of any year, to avoid affecting the plant's ability to photosynthesize and its growth and survival. This seasonal in-water restriction should be applied to the proposed pile driving, bulkhead and breakwater construction and reconstruction, as well as any dredging authorized.

Winter Flounder

The proposed marina expansion, dredging, and pile driving will also have an adverse effect on winter flounder early life stages and their EFH. Winter flounder have demersal eggs that sink and remain on the bottom until they hatch. After hatching, flounder larvae are initially planktonic, but following metamorphosis they assume an epibenthic existence. Winter flounder larvae are negatively buoyant (Pereira et al. 1999). They are typically more abundant near the bottom (Able and Fahay 1998). These young-of-the-year flounder tend to burrow in the sand rather than swim away from threats. Because eggs or newly metamorphosed larvae are located on the bottom and are not mobile, they can be harmed by the deposition of suspended sediments and the installation of the cofferdams during bridge construction/rehabilitation activities. Seasonal in-water work restrictions from January 1 to May 31 are needed to minimize adverse impacts to winter flounder

early life stages and their EFH.

Shellfish
The recent mapping by NJDEP (https://www.nj.gov/dep/landuse/download/map_058.jpg), Inventory of New Jersey's Estuarine Shellfish Resources (McCloy and Joseph 1985) and the U.S. Department of Interior shellfish maps (U.S. DOI 1963) all identify the project area as hard clam habitat. In addition to their commercial value, shellfish have an important ecological role in the Barnegat and Manahawkin Bay complex. As filter feeders, they play a role in improving water quality in the bays, and serve as a food source for a variety of fish that feed the siphons of shellfish. In addition, the siphons of hard clams were identified as prey species for a number of federally managed fish including winter flounder, little skate, and scup (Steimle et al. 2000). Because pressure treated lumber leaches metals such as a copper, chromium, and arsenic, into the water and adjacent sediments, which can result in impaired growth and reproduction and increased mortality in shellfish, we recommend alternative or non-polluting materials be used in any structures in and over the water in area mapped by NJDEP has having high or moderate densities of hard clams of supporting soft clams (*Mya arenaria*). We are pleased that the applicant has proactively proposed this and recommend it be included on the project plans and as a special condition of the permit.

We also note that the applicant proposes to reconstruct the northern breakwater in its current location. Unlike the southern and western breakwaters with spaces between vertical slats and at least 18 inches between the bottom of the breakwater and the substrate, the applicant proposes to use vinyl sheeting that will extend to the substrate. We generally recommend that breakwaters be constructed with gaps between the slats and that a minimum of 18 inches of clearance be provided between the bottom of the breakwater and the substrate to allow fish access and water flow. We recommend that the breakwater be redesigned in this manner or that the applicant provide justification for the proposed design.

EFH Conservation Recommendations
We recommend pursuant to Section 305(b)(4)(A) of the MSA that you adopt the following EFH conservation recommendations to minimize adverse impacts on EFH, including winter flounder early life stage EFH and summer flounder HAPC:

- Redesign the marine reconfiguration to eliminate the expansion along the western side of the marina to avoid expanding the marina into mapped SAV.
- Conduct no in-water work during the SAV growing season (April 15 through October 15) to reduce impacts to SAV and EFH/HAPC for summer flounder.
- Conduct no in-water from January 1 to May 31 to minimize adverse impacts to winter flounder early life stages and their EFH.
- Construct all new and replacement structures with alternate or non-polluting materials (i.e., no treated lumber) to avoid adverse effects to shellfish which are prey for several federally managed species.
- Redesign the northern breakwater to allow gaps between vertical slats and at least 18 inches of clearance between the bottom of the slats and the substrate.
- Require that spill control equipment such as oil booms and absorbent pads be available at the marina.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures adopted by you for avoiding, mitigating, or offsetting the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects pursuant to 50 CFR 600.920(k). This response must be provided within 30 days after receiving our EFH conservation recommendations and at least 10 days prior to permit issuance. Please also note that further EFH consultation must be reinitiated pursuant to 50 CFR 600.920(j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above determination.

Endangered Species Act

Threatened or endangered species under our jurisdiction including federally listed species Atlantic sturgeon (*Acipenser oxyrhynchus*) and sea turtles may be present in the project area. As the lead federal action agency, you are responsible for determining the nature and extent of effects and coordinating with our Protected Resources Division as appropriate. Our Protected Resources Division's website (http://www.greateratlantic.fisheries.noaa.gov/section7) contains guidance and tools to assist action agencies with their description of the action and analysis of effects to support their determination. Should you have any questions about the section 7 consultation process, please contact Peter Johnsen at (978) 282-8416 or by email (peter.b.johnsen@noaa.gov).

Conclusion

As discussed above, we do not object to the reconfiguring and rehabilitating the existing marina within its current footprint, but due to the impacts to mapped SAV habitat, we recommend that any expansion outside the current footprint, particularly to the west, not be authorized and the seasonal restrictions on in-water work be included as special conditions of the permit. Should you have questions about our recommendations, or wish to coordinate further on this project, please contact Maggie Sager at our Highlands, NJ field office at Lauren.M.Sager@noaa.gov. We look forward to your response to our EFH conservation recommendations.

Sincerely,

GREENE.KAREN.M.1365830785 Digitally signed by GREENE.KAREN.M.1365830785 Date: 2021.10.27 07:47:46 -04'00'

For
Louis A. Chiarella
Assistant Regional Administrator
for Habitat Conservation

cc: USACE – L. Slavitter
FWS- E. Schrading
EPA – R. Montgomerie NOAA
PRD – E. Carson-Supino
MAFMC - C. Moore
NEFMC – T. Nies
ASMFC – L. Havel

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
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October 25, 2021

James Bennett
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Sterling, Virginia 20166

RE: BOEM's Response to NOAA EFH Conservation Recommendations for the South Fork Project

Dear Mr. Bennett:

We received your letter dated October 7, 2021, in response to the Essential Fish Habitat (EFH) conservation recommendations (CRs) we provided to you on June 7, 2021. In response to our first CR in that letter, you submitted an EFH addendum to us on July 26, 2021, to provide further clarification on the proposed project. After review of the EFH addendum, we provided additional comments and CRs on August 31, 2021. Your October 7th letter responds to our CRs offered on June 7th and August 31st.

The South Fork Project is proposed on Cox Ledge, a sensitive ecological area that provides valuable habitat for a number of federally managed fish species and other marine resources. Based on our Northeast Fisheries Science Center's fisheries science expertise and supporting peer-reviewed publications, this project has a high risk of population-level impacts on Southern New England Atlantic cod. Our EFH CRs for this project are intended to minimize these adverse impacts. As outlined in your letter, BOEM is not planning to adopt or to only partially adopt a number of these recommendations. For some of the recommendations, operational decisions are being deferred to a future process (e.g., a requirement on the applicant to prepare a real-time adaptive acoustic monitoring plan for cod aggregations and subsequent requirement to avoid activities in areas with those aggregations). We appreciate the ability to continue to participate in the design of potential EFH mitigation measures but have continuing concerns that we recommend BOEM address as either the ROD is finalized or these subsequent processes are implemented.

Time of Year Restriction for Atlantic Cod (CR#6)
Your response indicates that you are not adopting all our recommendations regarding time of year restrictions to protect spawning cod on Cox Ledge. We understand that BOEM has replaced our static seasonal restriction to protect spawning cod with an untested adaptive approach requiring the applicant to prepare an acoustic monitoring plan and, based on that monitoring, to avoid activities that would disrupt spawning aggregations. Below we point out some of our concerns about the assumptions BOEM has made regarding both the biological and operational rationales for not fully adopting our recommendations as this issues will need to be

addressed for both the adaptive management regime being adopted by BOEM and for future EFH consultations in this area; and to identify areas where BOEM may wish to strengthen its documentation of its decision in the upcoming Record of Decision.

Pile Driving

Regarding pile driving, your decision is based in part on an assumption that cod spawning behavior will occur 4-6 hours after sunset and that pile driving would not have a lingering effect on this behavior given that pile driving could at the latest begin 1.5 hours before sunset and would only be expected to continue for a predicted maximum of 250 minutes (about 3.5 hours after sunset). You state that "acoustic masking" is the main environmental stressor from this activity and that the effect "ceases as soon as the noise source stops…., there is no lingering effect." No support is provided for this conclusion in your October 7 letter and the conclusion does not appear to be supported by the peer-reviewed literature. Specifically, peer-reviewed literature indicates that elevated noise may cause cod to flee, change swim speed and direction, or freeze; and that this behavioral impact can persist well beyond the cessation of the generated noise (Andersson et al. 2017; Engas et al. 1996; Mueller-Blenkle et al. 2010). In addition to the vulnerability of southern New England cod spawning aggregations to disruptions that we presented in our EFH letter dated June 7, 2021, other peer-reviewed publications from Europe have also evaluated the potential effects of pile driving for offshore wind farm development during cod spawning seasons. These studies determined that such activities are likely to have substantial adverse impacts on cod aggregations and result in the dispersal of such aggregations (Rossington et al. 2013; Hammar et al. 2014). Further, Hammer et al. (2014) evaluated the potential effects of wind farm construction on a genetically and ecologically distinct cod population, similar to the southern New England region cod population that relies on Cox Ledge for spawning. Both pile driving and cable laying activities were identified as the most impactful project activities, with pile driving identified as the most detrimental for population level effects (Hammer et al. 2014).

In addition, your assumption does not appear to consider cod mating and spawning behaviors. Atlantic cod spawning involves a complex sequence of competition and courtship behaviors that extend over long periods of time, with individual residence time within aggregations projected to last several weeks, well beyond the diel pattern you noted in your October 7th letter of when actual spawning occurs (Rowe and Hutchings 2003; Windle and Rose 2006; Zemekis et al. 2014). Further, the long-term to permanent abandonment of spawning locations resulting from repeated stressors has been documented in Atlantic cod (Ames 2004). Cod spawning activity is a highly structured social process that includes behaviors during both daytime and nighttime and thus simply restricting night-time pile driving will not avoid significant disruption to spawning. While we appreciate that BOEM had determined to restrict pile driving from January 1 to April 30 and potentially from December 1 to December 31, pile driving noise, particularly at the start of the spawning season (November and December), could prevent aggregations from forming, disrupt existing aggregations, and/or cause cod to leave or abandon the area altogether. Cod demonstrate site fidelity during spawning, so a single year abandonment of those locations may have significant implications for recruitment. We know that November and December are critical times for spawning activity in this region (Dean et al. 2021, *in review*) and restricting pile driving during the spawning season is necessary to avoid population effects

(Hammar et al. 2014).

We note that the assumption of no lingering effect and minimal impacts to cod spawning aggregations is inconsistent with the assessment of impacts presented in both your FEIS and EFH Assessment for the project. In both documents, you determined that pile driving would not only result in the potential masking effects discussed in your response, but in your FEIS you go on to state that pile driving may "alter behavior in ways that could disrupt localized cod spawning aggregations (Dean et al. 2012)." Your EFH Assessment (April 2021) states: "...underwater noise sufficient to alter behavior or cause [temporary threshold shift] could have disruptive effects on cod spawning (Dean et al. 2012)." We note that your interpretation of the implications of Dean et al. (2012) presented in your response to our CRs is inconsistent with your analysis in the FEIS and EFH Assessment. Given the emerging data on the significance of Cox Ledge for spawning Southern New England cod, it is important we maintain a consistent and common understanding of the potential effects of offshore wind development to this spawning population. This is a high priority given the cumulative and population level impacts this project and additional proposed development on Cox Ledge could have on this important cod population.

In addition, cod biomass is at historic lows, and impacts to spawning success could have long-term population impacts for the species. Few Atlantic cod in the region live longer than six years and individuals may only have two to three opportunities to participate in spawning groups. Thus, population level impacts are a high risk of this activity, which is expected to occur over multiple consecutive spawning seasons for this and other projects on and adjacent to Cox Ledge. Further, as discussed in our June 7th letter, the Georges Bank cod stock, of which the southern New England population is a critical component, is in very poor condition. The most recent stock status update estimates the Georges Bank sustainable spawning stock biomass at only 7 percent of the target for maximum sustainable yield (National Marine Fisheries Service - 3rd Quarter 2021 Update Table A. Summary of Stock Status for FSSI Stocks). While information indicates that cod in southern New England, unlike other spawning components, has increased in abundance during the last 20 years (Langan et al. 2020), the Georges Bank stock overall remains at historic lows. Therefore, spawning impacts on the southern New England stock component will likely affect the entire Georges Bank stock and further constrain stock recovery. Thus there is a heightened need to minimize adverse impacts of this project on southern New England cod.

Other Bottom Tending Construction Activities

In your October 7th response, you draw a second conclusion related to the consequences of bottom tending construction activities for cod spawning aggregations. Specifically, you state that cable laying activities are unlikely to result in permanent dispersion of an aggregation, as these activities would be limited in duration and areal extent at any location. To support this determination you cite Morgan et al. (1997), a Canadian trawl study that was conducted within a large, robust Atlantic cod spawning aggregation (5 km x 25 km in area). Reliance on the effects of a single otter trawl pass through a large spawning aggregation to evaluate potential effects to cod spawning aggregations in this region from cable laying activities, is not well supported. Specifically, the cod spawning aggregations on Cox Ledge, as compared to the Canadian aggregation in the Morgan et al. (1997) study, have been identified by recent research as being highly perturbed and sparse in their distribution (personal communication, Van Parijs 2021). Further, cable installation, as detailed in the

COP (Section 3.1.3.3), requires multiple, consecutive bottom-tending disturbances within the same area. In addition to the cable installation equipment itself, multiple pre-lay installation operations and post-lay operations are required, including seafloor preparation, installation trials, and the installation of cable protection material in areas where cable burial target depth is not achievable. Seafloor preparation requires multiple steps, including a pre-lay grapple run and boulder relocation that may require multiple passes and/or deployment of specialized tools to the seafloor. It is also expected that approximately five to ten cable installation test trials will occur in different areas along the cable route. Further, geophysical surveys would occur throughout the installation, potentially including multibeam echosounder (MBES), side scan sonar, sub-bottom profiler or imager, cable tracking equipment, and/or visual surveys. The suggestion that these activities are analogous to a single trawl pass is unfounded. As discussed above, Hammar et al. (2014), also recommended a time of year restriction for cable laying activities during the cod spawning season to avoid and minimize impacts to spawning activity.

In your response, you also make the comment that fishing is currently allowed during cod spawning in the project area as justification for not incorporating the recommended time of year restriction. You note that the science on the importance of this area for cod spawning is emerging, and ongoing evaluation of the cod stock structure in the region could result in changes to the management of fisheries in this area. However, it does not appear that you have considered either: 1) the extent and composition of fisheries in the area; or 2) the additive adverse effects of pile driving and bottom-tending construction activities, including cable laying activities. As you know, the New England Fishery Management Council is in the midst of a multi-year process to evaluate cod stock structure, including considering designating a distinct stock for cod around Cox Ledge based on peer reviewed research. Stock designation is the first step toward conserving and sustainably managing sub-populations through management measures that include spawning season fishing restrictions, among others, as implemented for the existing cod stocks in the Gulf of Maine and Georges Bank. Pile driving noise impacts a far greater area than individual fishing events, with the potential to disrupt cod spawning aggregations at one time over an area miles in diameter. Further, as described previously, the inter-array cable installation will require multiple steps and elements that are not analogous to mobile bottom-tending fishing gear. In addition, fishing is regulated to address impacts from fishing activity and minimize impacts to spawning cod, and stock assessments account for fishing mortality. The fact that fishing may occur in this area is not an appropriate justification for not implementing protective measures to reduce impacts of construction activities on spawning Atlantic cod.

Operational Feasibility

In your response to our CR, you also suggest time of year protective measures for Atlantic cod may not be economically and technically feasible, and could result in an additional construction season, which would create further impacts to other marine resources. The project schedule information you referenced from the COP (Table 1.5-1) in your October 7th response to our CRs does not appear to support this assessment. A similar table that supports this schedule is also provided in Table 2.2 in the EFH assessment. These construction timelines state that neither pile driving nor bottom disturbing activity in the lease area are expected to occur in quarter 1 (Q1), which includes January through March. While the table in the COP suggests turbine foundation installation may occur in Q4 (October through December), Orsted has indicated to NMFS that monopile installation will

likely occur in Q2 and Q3 (April through September) of 2023. Therefore, restrictions on pile driving to protect spawning cod would not be expected to cause schedule delays because, by Orsted's own estimation and plan, these activities would only occur outside of our recommended time of year restriction. On October 6, 2021, you provided us with a letter from Orsted to BOEM, which suggests bottom disturbing activities are now proposed in Q1. Rather than considering opening a restriction at the end of the spawning season (potentially in March, for example), which would reasonably support project activities while minimizing impacts on cod spawning, you state that our recommended time of year restriction is infeasible. It is not clear what this current determination is based on and we encourage BOEM to work with applicants at an earlier stage in the process to better document operational constraints so that both agencies can better address and design mitigation measures. If other projects are similarly slated to have a significant amount of activities during peak cod spawning periods, these cumulative effects will lead to a population level decline of southern New England cod. We encourage BOEM to more fully address these considerations in its Record of Decision on this project and in future projects.

Adaptive Management

While we have identified concerns with some of the underlying rationale for BOEM's determination on this issue, BOEM has recognized the potential for significant disruptions to cod spawning and has proposed an alternative mitigation measure which would require the applicant to prepare a real-time adaptive acoustic monitoring plan to detect large aggregations of adult cod and/or passive acoustic monitoring to detect Atlantic cod spawning vocalizations. We will be allowed to comment on the plan and you have indicated that you will require the applicant to avoid certain Project activities in any area with aggregations of Atlantic cod indicative of spawning behavior. We do not know how effective such a measure would be in avoiding or minimizing impacts to cod spawning. Effectiveness will rely on multiple factors, including the specifications of the monitoring design and methodology. This approach also assumes that cod will be acoustically detectable prior to the initiation of any avoidance behaviors pile driving or bottom disturbances in the lease area may elicit. To help ensure the monitoring plan is designed to detect cod in the area, we recommend that you require the monitoring plan be developed in coordination with NMFS rather than simply allowing for NMFS comment after it is submitted to BOEM.

Acoustic monitoring (CR#8 and CR#10)

Given the importance of Cox Ledge for a number of marine species, particularly spawning Atlantic cod, it is critical to monitor the specific effects of these changes in the acoustic environment. While we appreciate the incorporation of sound verification measures, you indicate that you are not adopting our recommendation to monitor baseline construction and operations changes to the soundscape, but indicate you will consider such monitoring for funding in your annual Studies Development Plan. We note that in the South Fork FEIS, (#70; page G-16) you include a monitoring plan that substantially addresses our CR#8, but focuses on the monitoring of marine mammals and protected species. It is not clear why you have not noted this in your October 7, 2021 letter, or why this monitoring was not expanded to include monitoring for Atlantic cod spawning activity, which would partially address our CR#10. BOEM could simply require the data collected to also be evaluated for

acoustic conditions and other soniferous species, such as Atlantic cod. We would request that you expand and require the acoustic monitoring data collected for marine mammals also be evaluated for soniferous fish species, particularly during the Atlantic cod spawning season.

In your response you also note that you are looking to expand the cod study (CR #10). Expanding the current study, both in spatial extent, and through additional passive acoustic monitoring gliders and biological sampling, would help to address outstanding concerns and data gaps regarding the full extent of cod spawning activity within and surrounding the Southern New England wind energy areas. Once project construction begins, the ability to distinguish between natural changes/shifts in spawning aggregations and those resulting from project construction will be substantially compromised. Furthermore, given the emerging studies demonstrating the importance of this area for Atlantic cod, it is critical we understand the extent of spawning activity in this area prior to commencement of large scale development. Absent such information, we cannot understand the true effects of these projects or protective measures necessary to reduce these impacts.

Habitat Impact Minimization (CR #2 & #3)

As you know, we identified five turbine locations (#1, #5, #15, #16A, and #17A) that will have the most negative impacts on complex habitats on Cox Ledge. These turbine locations were identified in our CR#2 and in your FEIS for the project, and we recommended that these turbine locations be removed from further consideration. You indicate that you will partially implement this suggestion by removing three of five locations (#5, #16A, and #17A) and have determined that the other two turbines (#1 and #15) cannot be removed due to economic and technical reasons. However, you have indicated that you intend to remove two different turbine locations (#6 and #9). Removing turbines #6 and #9 instead of #1 and #15 will provide some benefits to soft-bottom habitats but does not provide an equivalent reduction of impacts to complex habitat.

Overall, this project will result in substantial permanent impacts to complex habitats on Cox Ledge. While the October 7 letter is clear that the determination is based primarily on operational and technical issues that were not apparent until late in the application process, we are concerned both for this project and future projects that your determination appears to be influenced by habitat data and delineations that both NMFS and BOEM had previously agreed were to be used for illustrative and approximate calculations in the FEIS only. These data do not have the sampling resolution to determine site-specific impacts or analyze potential micrositing of turbine locations and inter-array cables. This mutual understanding of the data is reflected in your response to CR#3 where you state that micrositing of turbine locations and associated inter-array cables will be based upon multibeam backscatter data, consistent with our recommendations in CR#3. Specifically, you state that turbines and associated inter-array cables should be microsited into areas of low multibeam backscatter returns. The calculations of habitat impacts identified in your response to our CR#2 does not appear to consider the data limitations.

In your response to our CR#3, you also site economic and technical reasons for not micrositing turbine locations #2, #12, #13, #14, and the offshore substation to areas outside of complex habitats. In your response to CR#14, you indicate that confirmed unexploded

ordnance locations affected micrositing feasibility. Given that you have concluded that economic and technical constraints associated with constructing on Cox Ledge will prevent a more direct reduction of habitat impacts, we recommend that in this and future projects, BOEM mitigate for areas where habitat impacts are not being minimized and consider such operational constraints earlier in the approval process, when the applicant may have a better ability to alter operations to avoid such harm.

As indicated, the decision to remove turbine locations #6 and #9 instead of turbine locations #1 and #15, and the decision to not microsite other turbine locations, will result in impacts to complex habitats. We do appreciate that to offset these impacts, you will require additional habitat information be collected at turbine locations #1 and #15 to evaluate impacts to complex habitats. Based on this information, you have indicated that you will require the applicant to provide a plan that would include a proposal for the use of nature-inclusive design materials or materials appropriate for Atlantic cod habitat to mitigate for impacts to complex habitat permanently disturbed at these two sites. We appreciate that NMFS will be allowed to review and comment on the plan. We would ask you to consider extending this mitigation framework to the other turbine sites where you have concluded that micrositing is operationally or technologically infeasible, particularly for the southern row of turbine locations that overlap with particularly complex habitat areas.

In providing guidance to the applicant on this mitigation plan, NMFS recommends that BOEM require the applicant to consider all construction impacts to these habitats, not just those occurring from turbine placement, but also impacts associated with seafloor preparation, vessel anchoring, and cable installation. This is particularly important for turbines #1 and #15 where we anticipate the greatest extent of otherwise avoidable impacts, and to the locations where micrositing to reduce impacts will not be conducted. To accurately assess impacts for mitigation, pre-construction and post-construction surveys should be completed using sidescan sonar at a resolution capable of detecting and distinguishing pebble, cobble, and boulders. Once the site has been characterized both pre and post construction, mitigation to enhance and restore the impacted habitat should be required. Specifically, for the development of the mitigation plan for turbine locations #1 and #15, we request that all areas of complex habitat impacted during construction be restored using natural rounded stone, comparable pre-construction conditions, to restore physical characteristics of the impacted habitats, although we recognize BOEM's assessment that the use of certain types of natural material may not be operationally or technologically feasible. Further, we request that the mitigation plan require all scour and cable protection for these two turbines to use natural rounded stone, or if this is not feasible for engineering reasons, a minimum of a 12- to 18-inch veneer of natural stone, with comparable grain size to adjacent substrates, should be applied over all engineered protection to restore natural substrates.

Conservation Recommendations in State Waters

In your response to our EFH CRs, specifically CRs #4 and #12 and in your FWCA response, you suggest BOEM does not have jurisdiction in state waters and thus does not have the authority to require measures to minimize adverse impacts of the South Fork project in state waters. BOEM's position appears inconsistent with BOEM's policy and practice as evidenced by the most recent authorized wind project (Vineyard Wind) and past BOEM-

authorized oil and gas projects on the OCS where restrictions were imposed without geographic limits for multiple resources. Through our discussions, and as stated in your letter, you support these recommendations and have secured the Corps' commitment to adopt our recommendations in state waters. We appreciate your willingness to work with us and the Corps on providing more clarity on this issue, as it has significant implications for our consultations on offshore wind projects going forward. However, we continue to have concerns with this conclusion late in the permitting process and are concerned about the implications of this determination in our ability to efficiently and timely ensure compliance of future projects. We look forward to discussing this matter in greater detail.

Fish and Wildlife Coordination Act

In addition to our EFH conservation recommendations, we also offered recommendations under the Fish and Wildlife Coordination Act (FWCA) in our June 7, 2021 letter. In your response, you state that "the Department of the Interior has consistently determined that the FWCA does not apply to Outer Continental Shelf (OCS) leases and permits." We maintain our position that the FWCA applies to these projects and we will continue to consult and offer recommendations through the FWCA, as appropriate, to help minimize impacts of these projects on marine resources. We appreciate your consideration of our FWCA recommendations and your stated plans to coordinate with the Corps to ensure the Corps permit incorporates these recommendations.

Feasibility of Protective Measures

Throughout your response, you often refer to the "economic and technical feasibility" of requiring measures to avoid, minimize, or mitigate impacts. Although you plan to adopt, or partially adopt, CRs # 3, 4, 5, 6, 9, and 15, you offer options for the developer to not comply with that recommendation, should the recommendation not be "economically or technically feasible." We have significant concerns with this language and recommend it be removed.

Conclusion

We appreciate your further consideration of these comments, in particular as BOEM continues to adaptively develop more refined mitigation measures after the issuance of the Record of Decision. Given the importance of Cox Ledge and the resources it supports, we request your continued considerations of measures to reduce impacts of offshore wind development to this important area. Should you have any questions, please feel free to contact Alison Verkade at alison.verkade@noaa.gov. We look forward to further coordination with you on this project and future offshore wind projects.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
for Habitat and Ecosystem Services

cc:

Brian Hooker, BOEM
Brian Krevor, BOEM
Tim Timmerman, USEPA
Tom Chapman, USFWS
Stephan Ryba, USACE NAN
Naomi Handell, USACE NAD
Christine Jacek, USACE
Candace Nachman, NOAA
Lisa Berry Engler, MACZM
Grover Fugate, RI CRMC
Julia Livermore, RIDEM
Tom Nies, NEFMC
Chris Moore, MAFMC
Lisa Havel, ASMFC

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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

October 7, 2021

Brock Giordano, RPA
EHP Supervisor, NY Sandy
U.S. Department of Homeland Security
Federal Emergency Management Agency
FEMA Region II
26 Federal Plaza, Suite 1307
New York, New York 10278

RE: Essential Fish Habitat Consultation, FEMA-4085-DR-NY Super Storm Sandy: PW4768 NYC EDC 79th Street Boat Basin Marina PAAP

Dear Mr. Giordano:

We have reviewed the information provided in your September 21, 2021, letter and accompanying essential fish habitat assessment (EFH) for the reconstruction and expansion of the 79th Street Boat Basin (a New York City Parks property on the Hudson River) in the Borough of Manhattan, New York. Project components are being implemented with financial assistance from the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Program by the New York State Division of Homeland Security and Emergency Services (NYSDHSES) (Applicant) and the New York City Economic Development Corporation (EDC) (Sub-Applicant).

The project consists of the removal of most existing structures within the boat basin that sustained damage from Superstorm Sandy (i.e., timber floating docks, fixed piers, guide piles, mooring piles, dolphins, gangways, and the existing dockhouse); dredging and removal of debris from the basin; reconstruction and elevation of the dockhouse; construction of new fixed piers, floating docks, and a partial depth fixed wave screen; pier extension; and replacement of the existing timber docks and timber guide piles with concrete docks and steel guide piles.

Project activities are anticipated to disturb approximately 10.8 acres of subtidal areas for dredging (i.e. 90,500 cubic yards of material to -10.5 feet NAVD88, with one additional foot of allowable overdredge) and the removal of sunken debris, and includes permanent impacts to 0.01 acres (614 square feet) of subtidal area for the area to be covered by the new steel piles and 1.6 acres of water column for the additional shading expected from the expansion of the boat basin. Construction activities associated with the project may also temporarily disrupt aquatic life in the vicinity of the project area due to turbidity, noise, and physical activity in the water column.

Although the EFH assessment did not include details related to the purpose and need of replacing the existing boat basin with a larger footprint, proposed best management practices (BMPs) have been incorporated to avoid and minimize disturbances. Such BMPs include:

- the use of a full-length turbidity curtain surrounding the project area
- dredging using an environmental bucket with no barge overflow and upland disposal
- dredging only where needed
- working outside of in-water protective windows (winter flounder early life stage EFH (January 15 through May 31) and anadromous species (March 1 through June 30)
- use of a vibratory hammer with a soft start and cushion block for impact hammer, if needed
- grated surfaces to allow light penetration
- with the exception of navigation lights, minimizing artificial lighting through orientation away from surrounding waters at night to the greatest extent practicable.

Construction is anticipated to begin in June 2022 and last up to 19 months.

The New York State Department of Environmental Conservation (NYSDEC) is requiring compensatory mitigation for the conversion of the littoral zone within the dredged area. The plan for this mitigation will be developed in coordination with NYSDEC as the project design and environmental review advances. We request to be included in future coordination with the NYSDEC on the development of the compensatory mitigation plan to provide input on mitigation options, especially if the mitigation includes aquatic habitat conversions or the placement of fill in aquatic habitat, which may potentially affect our resources.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act (FWCA) require federal agencies to consult with one another on projects such as this that may adversely affect EFH and other aquatic resources. In turn, we must provide recommendations to conserve EFH. These recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or undertaken by that agency. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure.

The Hudson River in the vicinity of the project area has been designated as EFH for a number federally managed species including bluefish (*Pomatomus saltatrix*), winter flounder (*Pseudopleuronectes americanus*), summer flounder (*Paralichthys dentatus*), windowpane flounder (*Scophthalmus aquosus*), Atlantic herring (*Clupea harengus*), Atlantic butterfish (*Peprilus triacanthus*), clearnose skate (*Raja eglanteria*), little skate (*Leucoraja erinacea*), red hake (*Urophycis chuss*), and winter skate (*Leucoraja ocellata*). The Hudson River is also a migratory and spawning corridor for anadromous fish such as American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*).

We have reviewed the EFH assessment provided and agree with your conclusion that the adverse

effects of this project on EFH will not be substantial. As discussed in the EFH assessment, project activities have been designed to avoid and minimize impacts to the extent practicable, which includes a limited in-water work and a construction schedule aimed to avoid winter flounder early life stage EFH (January 15 through May 31) and anadromous species (March 1 through June 30), in addition to the BMPs to be used during construction. Although not currently anticipated as part of this project, the in-water avoidance windows will also be used for any future maintenance dredging operations.

Based upon all of the information provided, we do not have any objections to the proposed project and additional EFH conservation recommendations are not warranted. Please note that further EFH consultation must be reinitiated pursuant to 50 CFR 600.920(j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above determination. This includes the nature of compensatory mitigation required by the NYSDEC, should proposed activities include the placement of fill in aquatic habitats.

Endangered Species Act

Federally listed species may be present in the project area and consultation, pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, may be necessary. We understand that you are currently working with our Protected Resources Division on the submission of a request for ESA consultation. Should you have any questions about the Section 7 consultation process, please contact Edith Carson-Supino at 978-282-8490 or by e-mail (Edith.Carson-Supino@noaa.gov).

Conclusion

As always, we are available to coordinate with your staff so that this project can move forward efficiently and expeditiously as possible while still meeting our joint responsibilities to protect and conserve aquatic resources. If you have any questions or need additional information, please contact Jessie Murray in our Highlands, NJ field office at (978) 675-2175 or by e-mail (Jessie.Murray@noaa.gov).

Sincerely,

GREENE.KAREN.M.1365830785

Digitally signed by GREENE.KAREN.M.1365830785
Date: 2021.10.07 09:10:01 -04'00'

Karen M. Greene
Mid-Atlantic Field Offices Supervisor
Habitat Conservation and Ecosystem Services

cc:

GARFO PRD – E. Carson-Supino
FEMA – K. Bartowitz
New York District ACOE – S. Ryba
NYSDEC – D. McReynolds
FWS – S. Sinkevich
EPA Region II – M. Finocchiaro
NEFMC – T. Nies
MAFMC – C. Moore
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New England Fishery Management Council

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

October 4, 2021

Michelle Morin, Bureau of Ocean Energy Management
Office of Renewable Energy Programs
45600 Woodland Road (VAM-OREP)
Sterling, Virginia 20166

Re: Notice of Intent to Prepare an EIS for the Sunrise Wind project

Dear Ms. Morin,

Please accept these comments from the New England Fishery Management Council (New England Council) and Mid-Atlantic Fishery Management Council (Mid-Atlantic Council) regarding the Notice of Intent to prepare an Environmental Impact Statement (EIS) for the Construction and Operations Plan (COP) for the Sunrise Wind project off Rhode Island. The COP proposes to install up to 122 turbines and one offshore electrical service platform. Up to 186 miles of alternating current cables would connect the turbines and offshore service platform, and a direct current export cable up to 106 miles long would connect the wind farm with the onshore connection point in Brookhaven, New York.

The New England Council has primary management jurisdiction over 28 marine fishery species in federal waters and is composed of members from Maine to Connecticut. The Mid-Atlantic Council manages more than 65 marine species[1] in federal waters and is composed of members from the coastal states of New York to North Carolina (including Pennsylvania). In addition to managing these fisheries, both Councils have enacted measures to identify and conserve essential fish habitats (EFH), protect deep sea corals, and sustainably manage forage fisheries. The Councils support policies for U.S. wind energy development and operations that will sustain the health of marine ecosystems and fisheries resources. While the Councils recognize the importance of domestic energy development to U.S. economic security, we note that the marine fisheries throughout New England and the Mid-Atlantic, including within the Sunrise Wind project area and in surrounding areas, are profoundly important to the social and economic well-being of communities in the Northeast U.S. and provide numerous benefits to the nation, including domestic food security.

General comments

The pace and number of offshore wind projects in development in our region pose challenges for thorough analysis of potential impacts, informed public input, and adopting lessons learned from each project. There are currently 14 lease areas in the COP development and review phase, 3 lease areas in the site assessment phase, and multiple additional areas in the New York Bight are

[1] Fifteen species are managed with specific Fishery Management Plans, and over 50 forage species are managed as "ecosystem components" within the Mid-Atlantic Council's FMPs.

planned to be leased[2]. Eight projects, including this one, entered the DEIS development phase through issuance of NOIs between March and September, and one additional NOI is expected later this year. Consulting and coordinating on these projects are already taxing available resources in the fishing, fishery management, and fishery science communities, and we expect at BOEM as well. Consistency in approaches and adopting lessons learned from one project to the next will benefit stakeholders who engage in the review process for these complex projects.

The PDF "posters" in the online scoping page[3] are very valuable for providing a summary of the project at a glance in a more easily accessible format than searching for the relevant sections of the over 1,000-page COP. We appreciate that posters on commercial and recreational fishing were included. We hope this approach can be used for other wind projects as well.

As the impacts analysis is developed, clear terminology will be important for readers to understand the complexity of the alternatives considered and the large number of impact-producing factors and environmental resources evaluated. In addition, both magnitude and direction of impacts should be specified when characterizing impacts and the EIS should define short and long term in the context of impacts.

We understand that the BOEM regulations allow offshore wind project developers to revise their COPs throughout the environmental review process. This poses significant challenges for stakeholders and partner agencies to understand and provide input on the likely impacts of the project. We understand that the final project design must fall within the analyzed project design envelope. The project design envelope approach is logical given the time needed to complete environmental review and continuous advances in technology. However, we are concerned that the desire to allow flexibility in final project design can result in too wide of a design envelope and uncertainty in the actual impacts of the project. To help address this concern, we request that BOEM announce to the public whenever a COP has been revised and include a list of the specific changes.

Along these lines, we appreciate any steps that BOEM can take to make this COP and future COPs easier to navigate. For example, we find the page/section naming convention somewhat confusing and suggest not referring to individual pages as sections in the footers. Also, grouping the references by document section seems unnecessarily complicated; providing them in alphabetical order would be more useful, especially if the reader loses track of which section they were reviewing when a particular study was cited.

Alternatives to consider in the EIS

The Sunrise Wind project has a maximum capacity of 1,300 MW. Sunrise has a contract with New York for 880 MW, and up to 44 MW (5%) can be added to this contract without an amendment, for a total of 924 MW. The remaining 376 MW have not yet been contracted for. It is challenging to accurately understand the impacts when the most likely project capacity is yet to be determined. It is also unclear if the impacts assessed in the COP are based on 924 MW or 1,300 MW. A uniform East-West/North-South 1nm x 1nm grid layout is described as the preferred alternative in the COP to be consistent with adjacent projects. Based on the rationale

[2] https://www.boem.gov/renewable-energy/state-activities

[3] https://www.boem.gov/renewable-energy/state-activities/sunrise-wind-scoping-virtual-meetings

that this uniform layout allows for transit in multiple directions, an additional designated transit lane is not included in the COP. The project design envelope considers turbines ranging from 8-15 MW. The number of turbine locations needed will depend on the size of turbines selected and the amount of power to be generated. Given the large range of parameters in the project design envelope, the number of turbine locations could vary widely. For example, an 880 MW project using 15 MW turbines would only require 59 turbine locations, while a 1,300 MW project with 12 MW turbines would require 109 turbine locations.

The EIS should analyze multiple distinct alternatives associated with smallest, largest, and one or more intermediary potential scales of the project in terms of the number of turbines which might be installed. When describing alternatives for fewer than the full 122 turbines, the EIS should outline how it will be determined which of the 122 possible locations may not be used. These choices have implications for habitat, fisheries, and other environmental impacts. It will be important to clearly outline a wide range of possible scenarios, especially if the project size is unknown at the time of EIS completion.

A mix of bottom types exist at the project site, including along the cable corridor. We recommend that BOEM develop a habitat minimization alternative which would micro-site inter-array and export cables and exclude potential turbine or substation locations with the goal of minimizing impacts to sensitive habitats including eelgrass, hard bottom, and complex topography. The COP states that the export cable "will be sited to avoid and minimize impacts to sensitive habitats (e.g., hard bottom habitats) to the extent practicable"; however, it is not clear how this determination will be made and the amount of flexibility there is with turbine micrositing (Section 4-217). Because benthic data are not provided in the COP or appendices, we are unable to recommend specific areas to be avoided.

Provision of high-resolution benthic habitat maps early in the process is important. These data are needed for NMFS to conduct essential fish habitat consultations. This consultation process is designed to avoid impacts wherever possible and determine mitigation measures where impacts cannot be avoided. These data should be included in the COP. We are also concerned that there seems to be a disconnect between complex seabed in an engineering and construction context vs. the level of complexity that provides shelter for fishery species, especially during their early life history. While features less than 0.5 meters in size may not constitute complex hazards from a cable or turbine installation standpoint, pebbles and cobbles on centimeter scales can offer refuge from flow and predation and provide feeding opportunities for juvenile fish. Reworking and removing epifauna from these sediments during cable and turbine installation will affect the fish that use these habitats. The New England Council has worked to protect complex habitats at these spatial scales from the impacts of fishing, for example, on Nantucket Shoals. The analyses prepared for the Council's Clam Dredge Exemption Framework articulate what we consider complex seabed in a fisheries context, and the types of areas we would seek avoidance of wind development[4].

The EIS should also consider an alternative which would minimize impacts to commercial and recreational fisheries. Similar to a habitat alternative, this could include reducing the number of turbines installed and excluding locations that have greater overlaps with fishing activity. We

[4] See Appendix A at https://www.nefmc.org/library/clam-dredge-framework.

recommend working with affected fishermen to understand the locations of greatest concern. In addition, we recommend time of year construction restrictions as mitigation measures to reduce impacts to fishery species. Offshore, pile driving restrictions between November and January would help minimize impacts on spawning Atlantic cod. Nearshore, activities that result in sedimentation, including cable laying, should be avoided in times and areas when vulnerable life history stages are present on or near the seabed. For winter flounder, considering eggs, larvae, and early juveniles, times of greatest vulnerability occur between January and May. Longfin squid spawn in the project area during between May and August, and their eggs are vulnerable to as little as 3-4 mm of sedimentation. Overall, the habitat conservation recommendations provided by NMFS in June 2021 for South Fork Wind are appropriate to consider for Sunrise Wind as well. Further justification for these recommendations is provided in the following section.

Sunrise Wind considers the use of monopile foundations for wind turbine generators and piled jacket foundations for the DC conversion station. The different impacts associated with these two foundation types should be clearly identified in the EIS. We also recommend considering a closed loop cooling system alternative for the DC conversion station, in addition to the proposed open loop approach.

For all alternatives, the EIS should be clear on which measures to avoid, minimize, or mitigate negative impacts will be required as opposed to discretionary. Only required measures should influence the impacts conclusions in the EIS. Monitoring studies should not be considered environmental protection measures (Section 4-227) as monitoring is not equivalent to mitigation. Avoidance, minimization, and compensation for negative impacts should all be considered, with compensation thoroughly planned for, but used only as a last resort if avoidance or mitigation are not possible or are not achieved. Avoidance should be the first priority.

Fisheries and habitat considerations

BOEM should coordinate early and often with NOAA Fisheries on the most appropriate data for analysis of potential impacts to fisheries, including fishing and transiting locations, as well as socioeconomic impacts. The EIS should clearly and repeatedly acknowledge the limitations of each data set and should include recent data and should analyze multiple years of data to capture variations in fisheries and environmental conditions. Important data limitations, including but not limited to the location of private recreational fishing effort, should be supplemented with stakeholder input. Summary information on Council-managed fisheries is also available on the Council websites, www.mafmc.org, and www.nefmc.org, at fishery management plan-specific links, typically via annual fishery information reports (MAFMC) or recent plan amendment or framework documents (both councils).

Commercial, for-hire recreational, and private recreational fishing will all be impacted by this project in different ways. Therefore, they should be considered separately, but in the same or adjacent sections of the document. The EIS should describe how impacts may vary by target species, gear type, fishing location (e.g., from shore, mid-water, on different bottom types, near structures such as shipwrecks, other artificial reefs, or boulders) and commercial or recreational fishing (including recreational fishing from shore, private vessels, party/charter vessels, and tournaments).

Turbine foundations and their associated fouling communities will create artificial reefs, which are expected to attract certain fishery species (e.g., black sea bass). However, the addition of new structured habitat in this area will replace existing habitat types and could displace other species which prefer soft sediments (e.g., flatfish). The EIS should acknowledge that although the artificial reef effect will be beneficial for some species, it will not be universally beneficial for all species. Secondary, cascading effects should be evaluated in the impacts analyses because community composition could change within and beyond the project area through the introduction of predators, re-distribution of juveniles, etc.

Commercial and recreational fishermen may not be able to take full advantage of any increased availability of target species due to concerns about safely maneuvering, drifting, or anchoring near turbines. Safety considerations will vary based on weather, gear type, vessel size, and specific fishing practices which can vary by target species. Although some fishermen may have experience fishing near the five turbines off Block Island, this may not prepare them for fishing safely within the Sunrise Wind project, which could include up to 122 turbines. The EIS should evaluate these safety considerations and their potential variations across different fisheries. In addition, if fishermen shift their effort outside the project area during construction or long-term operations, this will potentially put them in areas of higher vessel traffic and gear conflict.

Fishing vessels utilize certain fishing grounds based on where target species are located and where management regulations allow; thus, vessels cannot necessarily relocate to a different area to avoid the windfarm without socioeconomic impacts. The COP suggests that there will be direct, long-term impacts on fishing, but these impacts will be minimal because commercial fishermen will still be permitted to fish within the area and there will likely be a 1nm x 1nm layout (Section 4-613). We do not agree with this conclusion as some fishermen may choose not to fish within the wind energy area for navigation safety reasons and may not be able to recoup the loss of landings and revenue by shifting effort elsewhere.

In addition, relocation of boulders for cable laying, as described in the COP, will cause disruptions in private and for-hire recreational fishing activity, as some boulders are targeted by recreational fishermen and it could take several trips to find their new locations. While the relocated boulders may continue to attract recreational fishery species, relocation is not a negligible impact on the fleet. Detailed reporting on where boulders are moved to should be required as a mitigation strategy. In addition, if boulders are aggregated as suggested in the COP, this could result in potential hangs for commercial mobile bottom-tending gears, which is another important reason to widely disseminate the new locations.

The likely extent of impacts to all types of fishing will be important to understand in the context of developing mitigation agreements for affected fishing industry members. Fishing effort can change based on management actions such as a change in access areas, changes in quota allocations, and other management changes. It is important to account for the dynamic nature of fishing effort over time when evaluating impacts to fishermen and fishing communities. This is an area of the EIS where cumulative considerations are especially critical and this project cannot be considered in a vacuum; many other wind farms are proposed within the Massachusetts, Rhode Island, and New York wind energy areas, and fishing will be affected over a large area if all these projects are installed.

The impacts of the project will not be felt only by fishermen from nearby ports, and the EIS should consider commercial and recreational fisheries over a wide geographic area that may be impacted by the project. For example, vessels traveling from ports north and south of the project area may transit through and/or fish in the area. The ports most impacted in terms of revenue in the project area include New Bedford, MA ($7.6 M), Point Judith, RI ($5.3 M), Little Compton, RI ($2.3 M), and Newport, RI ($1.4 M) (NMFS 2021). Table 4.4.3-1 summarizes information on species of economic or ecological importance; however, this was determined by landings information, not revenue, an important economic metric. Based on NMFS 2021 analysis, monkfish is one of the most impacted fisheries both in terms of landings and revenue; however, this species was not called out in the text in Section 4-232. Atlantic herring is listed as a species that may be present in the project area (Section 4-233). The EIS should give special consideration to Atlantic herring, given its overfished status. Ocean quahogs are harvested in and around this area; however, confidentiality precludes including fishery-level data within the COP and appendices due to the small number of vessels. It is nonetheless important to monitor impacts as we have concerns about the individual and cumulative effects of wind development on this fishery.

Commercial and recreational fisheries provide a wide range of benefits to coastal communities; not all are captured by looking only at financial metrics. The EIS should not overly rely on ex-vessel value when assessing and weighting impacts across various fisheries. Focusing on ex-vessel value can mask other important considerations such as the number of impacted fishery participants, the use of a low-value species as bait for a high-value species, or a seasonally important fishery. For example, the project area is very important to the skate fishery, which supplies bait for other fisheries including lobster, Jonah crab, red crab, and others. The EIS should address indirect effects, such as impacts on a fishery which does not occur in the area but relies on bait harvested from the area.

Models exist to estimate the amount of fisheries revenue generated from within the project area; however, it is important to acknowledge that changes in transit patterns will also have economic impacts which will be challenging to accurately quantify. Furthermore, updated data should be used to the greatest extent possible to estimate impacts from the project.

Neither the COP nor any of the appendices, including the Fisheries Communication Plan (Appendix B), specify the availability of mitigation funds if impacts such as fishing gear loss occur. Mitigation funds must be available to all affected vessels and ocean users who rely on this project area for revenue. The availability of such funds and their influence on impacts determinations should be explained in detail in the EIS.

The COP notes that “The SRWF is located adjacent to, and south of, a terminal glacial moraine—a high boulder hazard area Section 4-67”. It is unclear how many boulders will be encountered along the inter-array and export cable routes (Section 4-205), but some boulders will be relocated and may be placed in new configurations on the seabed prior to construction and installation activities. A loss of attached fauna is expected when boulders are moved. The COP asserts that function will be restored in less than one year due to recolonization (Section 4-9 and

4-205). Two studies done at the Block Island Wind Farm[5] are referenced to support this one-year timeframe. We were unable to locate a copy of the 2016 report, but we disagree that Guarinello and Carey (2020) provides evidence for one-year recovery of benthic epifauna. This study notes a progression from bare cobble and rock (March 2016) towards moderate epifaunal cover (August 2016), mostly an invasive tunicate, *Didemnum vexillum*. The authors noted that they could only hypothesize, based on this initial colonization, that affected cobbles and boulders would eventually host a more diverse array of attached fauna and associated mobile taxa, which is the endpoint we would argue constitutes benthic recovery. This partial recovery in a less than one year timeframe should not be used as rationale to suggest minimal benthic impacts are associated with boulder relocation. These concerns also apply to impacts of anchoring, which were considered as part of the Guarinello and Carey study.

The EIS should describe the potential amount of external cable armoring that may be required if sufficient cable burial depth cannot be achieved. The COP suggests a target burial depth 3-7 ft (Section 4-217). We recommend a 7-foot burial depth because we are concerned that given the amount of dredge activity in the project area, there is a risk the cable will become unburied. The EIS should also describe the characteristics of the cable protection materials which may be used. These materials should mimic natural, nearby habitats where possible. These materials will contribute to the net amount of complex habitat that would exist in the area once the project is constructed. The EIS should acknowledge that the addition of new complex habitat due to cable armoring will replace existing habitat types and the impacts of such a change should be analyzed. In addition, the fishing industry is especially concerned with the use of concrete mattresses due to the potential for hanging/snagging mobile gears.

The COP (page 4-617) states that cable protection will have minimal impacts on fisheries as it will be used in areas that are not likely currently trawled or dredged. Sufficient information has not been provided to support this statement and this conflicts with concerns we have heard from fishermen. It should also be considered that natural snags are already well known to fishermen, and in many cases are charted, but that it will take time for fishermen to learn the locations of the cable protection materials. The EIS and COP should provide maps of benthic features so that readers can use these maps to evaluate conclusions reached regarding both habitat and fisheries effects of development.

The COP states that sediment suspension and deposition are likely to affect water quality, benthic and shellfish resources, finfish and EFH, marine mammals, sea turtles, and commercial and recreational fisheries (Table 4.2-2). During installation of the export cable, sediment is anticipated to be suspended into the water column "with limited transport" and is "expected to settle out onto the seafloor" when construction is complete (Section 4-16). Effects of cable installation through jet plowing generate both noise and sediment plumes, which may affect

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[5] Guarinello, M. L., & Carey, D. A. 2020. Multi-modal Approach for Benthic Impact Assessments in Moraine Habitats: a Case Study at the Block Island Wind Farm. *Estuaries and Coasts*. doi:10.1007/s12237-020-00818-w.

INSPIRE Environmental. 2016. Hard Bottom Baseline and Post-Construction Surveys, Year 0 Report for 2015 Baseline and 2016 Post-Construction Surveys to Characterize Potential Impacts and Response of Hard Bottom Habitats to Anchor Placement at the Block Island Wind Farm (BIWF). Prepared by INSPIRE Environmental, Middletown, RI for Deepwater Wind Block Island, LLC, Providence, RI. 98 pp.

biological processes for fishes, for example Atlantic cod, an acoustically sensitive species that relies on particular spawning grounds, or squid, which lay their egg mops on the seabed and could be materially impacted by sediment deposition, which will occur along a broad geographic area along the 292 miles of cable routing. It will be important for the impacts analysis, including the EFH assessment, to consider how installation during different seasons will affect particular species and life stages during spawning, juvenile settlement, etc. The nature of these repeated effects over time should be accounted for in the analysis of impacts to habitats and fishes.

Water entrainment occurs during jet plowing as cables are installed, and also occurs at the AC/DC conversion station for the purposes of cooling the DC cable. Entrainment at the conversion station could have substantial and sustained impacts on important forage fish species like sand lance and on ichthyoplankton and zooplankton, including fish eggs and larval stage fish and invertebrates, with a discharge volume of 8.1 million gallons of water per day for the life of the project (Section 4-103). While "the total estimated losses of zooplankton and ichthyoplankton from jet plow entrainment were less than 0.001 percent of the total zooplankton and ichthyoplankton abundance present in the study area" and will be temporary during construction (Section 4-205), entrainment volumes at the AC/DC conversion station are larger and will continue for many years. In a cumulative effects context, the magnitude of entrainment impacts will likely increase as additional lease areas are developed further offshore, using DC transmission cables, and requiring AC/DC conversion stations. The cumulative effects from loss of zooplankton include the potential loss of food source for the endangered North Atlantic Right Whale. The EIS should estimate the numbers of eggs, larvae, and zooplankton that may be entrained annually due to the conversion station. The EPA finalized a rule in 2014 establishing a set of best technology available standards for entrainment for existing facilities that withdraw > 2 million gallons of water per day, 25%+ of which is used for cooling purposes.[6] The EIS should consider the impact associated with applying these standards. Given entrainment issues are new in the context of offshore wind, BOEM should further evaluate these issues in closed and open loop systems to better understand impacts and any potential mitigation measures that could help offset impacts.

The importance of protecting cod spawning aggregations in the Sunrise project area cannot be overstated. The COP states that that "Atlantic cod has spawning habitat within localized regions near the SRWF" (Section 4-232), and "an active Atlantic cod winter spawning grounding (that) has been identified in a broad geographical area that includes Cox Ledge and surrounding locations" (Section 4-258). The Atlantic Cod Stock Structure Working Group concluded there are more than two stocks of Atlantic cod, including a likely separate Southern New England stock, which overlaps with the Cox Ledge EFH Area (Peer Review of the Atlantic Cod Stock Structure Working Group Report 2020[7]). This area could be greatly beneficial for stock rebuilding given this and other surrounding complex habitat areas are important for cod spawning and survival of juvenile cod. Because cod are shown to have high spawning site fidelity, if NEFMC delineates a separate Southern New England stock, there could be population

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[6] https://www.nsenergybusiness.com/features/featureepas-new-water-intake-rule-what-does-it-mean-for-power-plants-4311140/

[7] Kritzer, J. 2020. Peer Review of the Atlantic Cod Stock Structure Working Group Report. Presented to the NEFMC Scientific and Statistical Committee. June 4, 2020. Available at https://s3.amazonaws.com/nefmc.org/PresentationACSSWG-Review-Panel-Report.pdf.

level effects in the reasonably foreseeable future from impact pile driving noise that can result in injury up to 8.4 mi for large fish and 10.1 mi for small fish (Section 4-261). This magnitude of sound attenuation impact from wind farm construction noise is consistent with the >40,000-foot impact area stated in the South Fork EFH Assessment[8] and the 8-mile impact radius from each monopile foundation stated in the South Fork DEIS[9]. It is important to note that the impact from pile-driving is very different than the impact from fishing, and fishery management measures may be re-evaluated if NEFMC delineates this new stock based on this new information. Therefore, we do not agree with the conclusion that "Given the availability of similar surrounding habitat, Project activities are not expected to result in measurable impacts on spawning Atlantic cod" (Section 4-258). Overall, any potential positive effects (e.g., potential increased productivity of cod due to the reef effect) are not likely to outweigh the negative effects on juvenile and spawning cod (noise, potential for increase in removals if cod aggregate around artificial reefs); thus, it will be important to evaluate the impacts to these localized spawning aggregations when evaluating where turbines should be sited, and how and when construction activities should be allowed to occur. Turbine siting should be informed by recent and ongoing research including the BOEM funded acoustic telemetry study evaluating the distribution and habitat use of spawning cod on and around Cox Ledge (Section 4-233).

Potential impacts of electromagnetic fields (EMF) on fishery species are a concern to the fishing community. For example, studies have suggested that EMF can result in changes in behavior, movement, and migration for some demersal and pelagic fish and shellfish species[10]. The extent to which EMF may or may not impact marine species should be thoroughly described in the EIS. The EIS should acknowledge the limitations of the current scientific knowledge in this area and should provide justification, including supporting scientific studies, for all conclusions regarding EMF.

In addition, piling driving activities and installation of the foundation and inter-array cables are all expected to have more than just "limited impacts on finfish…because they are not expected to be near the seafloor during work activities" (Section 4-259). Pelagic species will likely be impacted by the noise and vibrations generated from these activities and may change their behavior and/or feeding patterns to avoid the impacted area, as suggested in Section 4-262, which is not a negligible impact.

Through modeling work, the physical presence of turbines has been estimated to alter the near-surface and near-bottom temperatures, and thus, the juvenile transport of commercially important species like sea scallop (Chen, et al. 2021). The COP states construction, operations and maintenance, and decommissioning of the wind farm "are not expected to measurably impact oceanographic and meteorological conditions" (Section 4-58). The EIS should acknowledge both the individual project's potential to materially affect oceanographic and hydrodynamic conditions based on ongoing research efforts and the project's contribution to cumulative effects from development of several wind farms on a regional scale. The EIS should also utilize the

[8] South Fork Wind Farm and South Fork Export Cable Essential Fish Habitat Assessment with NOAA Trust Resources, April 2021, For the National Marine Fisheries Service. U.S. Department of the Interior, Bureau of Ocean Energy Management Office of Renewable Energy Programs.

[9] South Fork Wind Farm and South Fork Export Cable Project Draft Environmental Impact Statement, January 2021.

[10] https://greenfinstudio.com/wp-content/uploads/2017/10/GreenFinStudio_EMF_MarineFishes.pdf

findings from ongoing research funded by BOEM in its impact assessment to understand how wind energy facilities will likely affect local and regional physical oceanographic processes (Section 4-59).

In the context of both cable and turbine installation, any place where the bottom sediments will be disturbed must be evaluated for sediment contamination to understand the potential for environmental effects associated with contaminant release. Two obvious sources of contamination are dredged spoils from inshore, nearshore, or harbor maintenance and disposal of onshore materials (including waste). For many years, such disposal was not evaluated carefully and not regulated as it is today. As a result, sediments and other material with unacceptable levels of heavy metals and persistent organic pollutants (POPS) were disposed in ocean waters and may remain in locations where they could be disturbed. These sources of contamination need to be assessed and managed as part of the offshore wind development process.

The COP states that "Decommissioning will involve removing the structures and foundations in the SRWF to a depth of 15 ft (4.6 m) below the seafloor" (Section 4-9), which is assumed to include the removal of the offshore cable system. It is essential that cables be removed during decommissioning. Abandoned, unmonitored cables could pose a significant safety risk for fisheries that use bottom-tending gear and the long-term risks to marine habitats are unknown.

The EIS should consider aquaculture separately from commercial and recreational fishing. Aquaculture is distinct from wild capture fisheries in many ways. For example, gear is installed in the water long term, there is a different management and regulatory process, and different environmental impacts.

Cumulative impacts

The EIS must include a meaningful cumulative impacts assessment. We supported the criteria used in the Vineyard Wind 1 EIS for defining the scope of reasonably foreseeable future wind development; however, that scope should now be expanded to include the anticipated New York Bight lease areas. The cumulative effects of the adjacent wind projects should be thoroughly evaluated, especially due to the 106-mile-long export cable corridor and 186-mile inter-array cables of the Sunrise Wind farm. In addition, it will be important to consider that many lease areas are not proposed to be developed through a single project, but rather will be developed in stages through multiple projects.

The cumulative effects analysis should also consider the impacts of cables from many planned projects. As we have commented in the past, there could be multiple benefits to coordinated transmission planning across multiple projects. For example, shared cable corridors could decrease the amount of disturbed habitat. Impacts to sensitive species could also be slightly reduced if multiple cable installations are coordinated in terms of timing to avoid especially sensitive times of year. To help stakeholders better understand the potential cumulative impacts of the offshore export cables planned for all projects, we recommend the creation of information products to show the planned locations of all export cables (e.g., through the Northeast and Mid-Atlantic Ocean Data Portals). We recognize that the final precise cable routes have not been determined for most projects and this should be noted in the information products. Earlier dissemination of draft proposals via these platforms would promote better understanding of these

projects in relation to each other and to other activities. As we understand it, this data sharing is planned for projects as they enter the scoping phase/once the COP has been distributed, but only a few projects that are further along in the process (Vineyard Wind 1, South Fork Wind) are available to date.

Cumulative impacts and risks need to be evaluated for species that are widely distributed on the coast. Species such as bluefish, flounders, and others that migrate along the coast could be affected by multiple offshore wind projects, as well as other types of coastal development, at both the individual and population level. Climate change will also be an essential consideration in the cumulative effects analysis as the distributions and abundance of many species are changing (some increasing, some decreasing) due to climate change and other factors. The EIS should acknowledge that impacts from the construction of wind farms will occur in this context.

We continue to have significant concerns about the cumulative impacts of offshore wind development on fishery independent surveys. Major negative impacts to these surveys would translate into greater uncertainty in stock assessments, the potential for more conservative fisheries management measures, and resulting impacts on fishery participants and communities. We are encouraged by BOEM's commitment to working with NOAA on long term solutions to this challenge through the regional, programmatic, Federal Survey Mitigation Program, described in the Record of Decision for the Vineyard Wind 1 project.

Conclusion

We appreciate the opportunity to provide comments to ensure that issues of social and ecological importance are considered in the forthcoming EIS for the Sunrise Wind COP. We look forward to working with BOEM to ensure that any wind development in our region minimizes impacts on the marine environment and can be developed in a manner that ensures coexistence with our fisheries.

Please contact us if you have any questions.

Sincerely,

Thomas A. Nies
Executive Director, New England Fishery Management Council

Dr. Christopher M. Moore
Executive Director, Mid-Atlantic Fishery Management Council

cc: J. Beaty, M. Luisi, W. Townsend, J. Bennett, A. Lefton

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
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BOSTON, MASSACHUSETTS 02109-3912

October 1, 2021

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

RE: Sunrise Wind Construction and Operations Plan Environmental Impact Statement Scoping Comments

Dear Ms. Morin:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, we submit the following comments as part of the NEPA scoping process for the Sunrise Wind project.

Our comments are based on information provided in the Bureau of Ocean Energy Management (BOEM) Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) and the Sunrise Wind Construction and Operations Plan (COP). The NOI explains that the Sunrise Wind project will "construct and operate up to 122 wind turbine generators, an OCS-DC [offshore converter station], inter-array cables, an OnCS-DC [onshore converter station], an offshore transmission cable making landfall on Long Island, New York, and an onshore interconnection cable to the Long Island Power Authority Holbrook Substation." The wind farm is proposed in federal waters 30.5 miles east of Montauk, New York, and 18.9 miles south of Martha's Vineyard, Massachusetts. According to the NOI the project will generate up to 1,300 MW of renewable energy consistent with the State of New York Clean Energy Standards Order and the Climate Leadership and Community Protection Act. A power purchase agreement (PPA) is in place for the project to deliver 880 MW of energy to the New York State Energy Research and Development Authority. According to the COP Sunrise Wind is considering port facilities in New York, Connecticut, Maryland, Massachusetts, New Jersey, Rhode Island, and Virginia to support construction and operation activities.

The construction and operation of the Sunrise Wind project could result in a wide range of impacts to resources that are within EPA's areas of jurisdiction and expertise. Our scoping comments are intended to help support BOEM's efforts to develop a comprehensive DEIS that identifies and discusses measures to avoid or mitigate impacts and informs project permitting that will follow the NEPA process. Please note that many of our comments have been offered previously during the scoping period for other projects reflecting in part the similarity in some

types of impacts for each of the projects under review. We offer our comments to help promote consistent continued improvement of the impact assessment across all projects subject to BOEM's review.

In addition to coordination with affected states and local communities, we recommend that BOEM continue to work closely with federal agencies and tribes with relevant air, water and natural resource responsibilities and interests during the development of the DEIS. We also encourage BOEM to continue to expand on past coordination with the fishing industry and state and federal agencies charged with protecting fishing and marine mammal resources. We strongly encourage BOEM to take the necessary time to develop and present complete information in the DEIS that fully describes existing conditions and supports a discussion of the likely impacts of each alternative. The discussion should present sufficient information to allow the reader to understand how the project is designed to avoid or minimize impacts associated with the installation and operation of WTGs and associated cables. A full assessment of key impacts for the entire project should be presented in the DEIS, not later, as the analysis will help inform state and federal permitting for the project.

Thank you for the opportunity to provide NEPA scoping comments for the Sunrise Wind project. EPA agrees to serve as a cooperating agency in support of BOEM's NEPA work for the project, and in that role review draft documents and attend coordination meetings as appropriate and as resources permit. EPA will continue to work closely with BOEM to support a successful NEPA analysis of the project consistent with the objectives of Executive Order 14008. We believe the issues identified in this letter and attachment can be fully addressed in the NEPA process, and we are willing to work with your agency to develop a strategy to achieve that goal. Should you have any questions or wish to discuss our concerns, please contact me at (617) 918-1025.

Sincerely,

Timothy L. Timmermann
Director, Office of Environmental Review

Sunrise Wind Environmental Impact Statement Detailed Scoping Comments

Alternatives

Consideration of a reasonable range of alternatives in the DEIS is a critical part of the NEPA process. We recommend that BOEM evaluate a range of alternatives for the various elements of the Sunrise Wind project including the offshore export cable, the inter- array cables, landfall location, and the overall configuration of the wind farm (WTG locations) within the lease area. Our experience with previous projects demonstrates that is important for the DEIS to fully consider alternatives in the DEIS to allow for the development of a project that meets the project purpose and need while also avoiding, minimizing, and offsetting impacts to the greatest degree possible consistent with the input of state and federal stakeholders. The alternatives analysis should analyze the difference in overall impacts associated with the deployment of a range of WTG MW generation capacities.

Habitat Alternative

We recommend that the DEIS include a Fisheries Habitat Impact Minimization alternative (Habitat alternative) designed with input from key state and federal agencies and stakeholders. The DEIS should specifically detail how the 880 MW project (which presumably will not occupy the entire lease area footprint) can be configured to avoid cod spawning areas, complex bottom habitat (a portion of the northern project lease area overlaps Cox Ledge) and other marine resources. The habitat alternative should be informed by location specific benthic and habitat characterizations that can then be used to evaluate and compare the impacts of the alternatives.

Consideration of project specific information at the DEIS stage, not later in the process when opportunity for public comment is past, will allow for a transparent discussion of the overall layout and size of the project within the design envelope. The DEIS analysis of the Habitat alternative should contain enough information to describe whether portions of the lease should be avoided due to potential impacts to complex bottom habitat and the least impactful location for other elements of the project especially the proposed export cable corridor. We specifically recommend that BOEM consider an alternative that avoids placement of wind turbines within the complex bottom habitat located in the northwest corner of the lease site.

The COP (page 4-67) describes survey data that reveals the presence of high-density boulder fields in the northwest corner of the lease area, citing Appendix G1. We note that Appendix G1 (Marine Site Investigation Report) is labeled "Confidential – Not for public disclosure." While the COP provides some discussion and graphics that are based on this survey, detailed information on complex benthic habitat is critical to the public's understanding of whether any aspect of project construction is likely to impact important benthic habitat and inform options for avoiding or minimizing impacts. We recommend that the Marine Site Investigation Report (Appendix G1) be made available to the public for review as part of the DEIS, as well as any other reports that present information on benthic surveys of the lease site or cable transit routes. Business sensitive information can always be redacted in the report, if warranted.

The COP (page 4-173) points to benthic community studies conducted at surrounding lease sites, but it's unclear if any benthic community studies were conducted within the Sunrise lease area. Any such studies would be important to understanding the benthic community structure within the project area that may be affected by the construction and/or operation of the project.

Scope of Analysis

The number of offshore wind projects currently at various stages of the BOEM review process presents an opportunity for an expansion of the consideration of relevant intra-lease issues in the upcoming DEIS and ones that follow. We repeat a recommendation made for previous projects that BOEM analyze whether capacity limitations of the onshore transmission grid will limit lease area development and whether there are opportunities for the development of shared export cables and/or common cable corridors that can benefit multiple projects while reducing project impacts and costs. BOEM is uniquely positioned to conduct such an analysis and we believe that analysis would help to identify broader actions and issues that should be addressed to more fully support the goals of Section 207 of the January 27, 2021 Executive Order entitled "Tackling the Climate Crisis at Home and Abroad." We encourage BOEM to include this information in the cumulative impact scenario discussion in the DEIS.

Air Permitting and Other Air Pollution Control Programs

Pursuant to Section 328 of the Clean Air Act (CAA), Congress required EPA to establish federal air permitting rules to control air pollution from the outer continental shelf (OCS) in order to attain and maintain ambient air quality standards and comply with the provisions of part C of Title I of the CAA. EPA promulgated permitting rules in 40 CFR Part 55, which establish air pollution control requirements for OCS sources consistent with section 328(a)(1) of the CAA. OCS sources located within 25 nautical miles of a State's seaward boundary are subject to both the federal requirements of Part 55 and the state and local requirements of the corresponding onshore area (COA). Beyond 25 miles, OCS sources are not subject to the state and local requirements of the COA. EPA has not delegated Part 55 to any states in the northeastern part of the United States and is the permitting authority for New England OCS areas. Permits issued pursuant to 40 CFR Part 55 regulate and restrict air emissions related to construction and operation activities associated with OCS sources, including certain vessels servicing or associated with OCS sources. Permits are required before project construction can begin.

EPA received a Notice of Intent (NOI) pursuant to 40 CFR § 55.4 on September 9, 2021 from Sunrise Wind, LLC for the project locating in OCS Lease Area 0487. The September 9, 2021 NOI identified Massachusetts as the Nearest Onshore Area (NOA), as defined in 40 CFR §55.2. If EPA does not receive a request from any neighboring state air pollution control agency to be designated as the COA, Massachusetts (the NOA) will become the designated COA without further Agency action after 60 days (40 CFR 55.5(b)(1)). The Sunrise Wind COP sufficiently characterizes the air permitting obligations for the project and identifies that, for air permitting purposes, requirements shall be the same as would be applicable if the source were located in the COA, i.e., Massachusetts.

For EPA to issue a permit under Massachusetts air pollution control regulations, EPA must first have incorporated by reference relevant Massachusetts air pollution control requirements into 40 CFR Part 55. EPA previously incorporated various Massachusetts air pollution control requirements into 40 CFR Part 55 for purposes of permitting the Vineyard Wind 1 offshore wind project. See 83 FR 56259 (November 13, 2018). Due to periodic changes to state regulations, EPA is required to conduct a consistency update from time to time to ensure the incorporated regulations at 40 CFR Part 55 are consistent with the current regulations of the COA. Since the last consistency review, Massachusetts adopted changes to its rules for Air Pollution Control found in 310 CMR 7.00, and most recently amended in March 2021. Pursuant to 40 CFR 55.12(c), EPA will conduct a consistency review of the onshore regulations in Massachusetts and determine if a consistency update rulemaking is necessary.

Pursuant to 40 CFR Part 55.4(a), Sunrise Wind must submit an air permit application to EPA within 18 months from the submittal date of the NOI (September 9, 2021). EPA will then issue a draft permit subject to a public comment period no less than 30 days and a public hearing, if deemed necessary. At the conclusion of the public comment period, EPA will address all public comments, make adjustments to the permit as needed and issue a final permit. EPA will provide all relevant permit documents (application, draft permit, fact sheet, supplemental documents, public comments, response to public comments, and final permit) on our CAA permitting website (www.epa.gov/caa-permitting/epa-issued-caa-permits-region-1). The process to issue a final air permit will run in parallel with the NEPA process, and EPA intends to issue a final decision on the OCS air permit no later than 90 days after BOEM's issuance of a Record of Decision. EPA met with representatives from Sunrise Wind on July 19, 2021 to discuss the OCS air permit NOI and again on August 10, 2021 to discuss the air modeling protocols for the air permit application. EPA will continue to work with Sunrise Wind on its OCS air permit application.

EPA reviewed the COP with respect to the project's impact on air quality and provides the following comments to clarify EPA's OCS air permitting requirements and to assist BOEM in evaluating air quality related impacts in the DEIS.

- Appendix K of the COP provides anticipated air emission estimates from construction and operation activities. Emission estimates from construction activities are projected to be significant, with annual estimates of up to 2,092.8 tons per year (TPY) of nitrogen oxides (NOx), 38.6 TPY of fine particulates (PM2.5/10), 49.1 TPY of volatile organic compounds and 230,504 TPY of Carbon Dioxide Equivalent (CO_2e) within 25 nautical miles of the center of the windfarm. Additional estimated emissions from activities from a single potential supporting Port of Providence are 253.7 TPY of NOx, 4.7 TPY of fine particulates, 6.0 TPY of VOC and 27,947 TPY of CO_2e. The COP estimates long-term operating emissions to be significantly lower (e.g., 183.8 TPY NOx). The COP, however, does not provide a quantitative "air quality impact analysis" to determine if project emissions would adversely affect the air quality resource. Although over the long-term the development of this project and others is expected to result in avoided emissions (as described in Section 4.4 of Appendix K), there are potential significant shorter-term

impacts that we recommend that BOEM assess onshore or at the state seaward boundary due to multiple projects being constructed or operating contemporaneously.

To determine air quality impacts, air quality modeling should be performed and analyzed with respect to relevant air quality standards and/or background concentrations. For ease of public review and understanding, the EPA recommends that the DEIS contain quantitative summary tables comparing the modeled concentrations to the National Ambient Air Quality Standards (NAAQS), state air quality standards, or other relevant reference measures. The EPA also recommends that the modeling performed for the DEIS locate receptors at the state seaward boundary. Locating the receptors at the state seaward boundary provides information on whether the NAAQS are protected and allows States to meet their State Implementation Plan and Coastal Zone Management Act (CZMA) responsibilities, and will help demonstrate that the air quality within nearshore areas is not adversely impacted. EPA is available to support BOEM with its evaluation of modeling for potential air emissions impacts.

- The EPA recommends that the DEIS include measures to monitor and mitigate for NAAQS pollutants, such as NOx, and $PM_{2.5}$, as well as any regulated toxic and greenhouse gas pollutants beyond what is described in Section 4.5 of Appendix K. EPA suggests that best available technologies and reasonable mitigation measures include the use of ultra-low sulfur fuels, including liquefied natural gas, inherently lower-emitting and high efficiency engine designs, use of Tier 4 certified engines, use of fuel cells and marine batteries, and electric cranes and support equipment. Also, as described in Section 2.1 of Appendix K, wind turbine generators (WTGs) may be equipped with a generator engine for emergency backup power. Diesel-fired engines on the WTGs are a source of air emissions and are subject to EPA's OCS air permit. EPA encourages BOEM to explore and describe in the DEIS options to require alternate lower-emitting power sources such as battery backup or fuel cell technology to provide emergency power to the WTGs during operations.

- Section 3.1 of Appendix K indicates that most of the emissions from the project are from vessel engines. To ensure the lowest long-term air quality impact from project vessels that will likely be used by multiple projects, the EPA recommends that BOEM require procurement of best available technology, i.e., the most efficient and lowest emitting vessels available during the vessel-contracting stage of the project (such as Tier 4 certified engines or alternative fueled vessels). In addition, the DEIS should consider the following mitigation options for these vessels:

    - the purchase of lower emitting or electrified crew vessels for ongoing operations and maintenance;
    - anti-idling practices, as noted in Section 4-35 of the COP;
    - retrofitting of older equipment; and
    - add-on air pollution control devices.

- Section 4-137 and Appendix K of the COP indicate that emissions of sulfur hexafluoride (SF_6) are expected from gas-insulated switchgears on the WTGs and the offshore converter station (OCS-DC). SF_6 is the most potent known greenhouse gas, with the potential to trap infrared radiation approximately 23,000 times more effectively than carbon dioxide. SF_6 is also a very stable chemical, with an atmospheric lifetime of 3,200 years. Thus, a relatively small amount of SF_6 can have a significant impact on global climate change. The COP indicates that gas insulated switchgears containing SF_6 will be equipped with gas density monitoring devices to detect SF_6 gas leakages should they occur. This is an important and necessary step. However, EPA recommends that BOEM require adoption of SF_6-free switchgears ("clean-air"), especially given that there are projected to be a significant number of switchgears at each project and the switchgears will be operating in a harsh marine environment. If SF_6-free switchgears are determined to be technically infeasible, or are unavailable, Sunrise Wind would be required to limit leaks to less than 1% in accordance with the Massachusetts Regulations at 310 CMR 7.72. We look forward to working with BOEM and the offshore wind industry to help transition away from the use of SF_6 in project equipment.

- The COP indicates that multiple ports may support the project along the Atlantic coast. Many ports are located adjacent to communities with existing air quality issues and/or environmental justice concerns. EPA recommends that the DEIS explore the feasibility of requiring emission reduction best practices for ports such as vessel speed reduction requirements, sulfur restrictions in fuel, chemical and waste storage/transfer, dust control or the use of marine shore power systems beyond what is described in Section 4.5 of Appendix K and Sections 3.5.6 and 4-139 of the COP. In addition, the use of Tier 4 Final EPA certified equipment can further reduce emissions at ports. More information regarding air emissions reduction methods at ports can be accessed at https://www.epa.gov/ports-initiative.

- EPA's OCS air permit will contain, at a minimum, requirements for emissions control, emissions limitation, monitoring, testing, and reporting for OCS sources constructing and operating at the Sunrise Wind project area. As part of this effort, Sunrise Wind will be required to provide an analysis demonstrating that ambient impacts will not affect protected Class I areas. If this information would benefit BOEM's analysis of air quality impacts, we recommend you coordinate with EPA and the applicant on receiving the most recent ambient air impacts analysis and assessment for incorporation into the DEIS analysis.

- Climate change impact mitigation and overall improvements to air quality due to avoided emissions are important benefits of offshore wind development. Similar to Section 4.3.4 of the COP, EPA recommends that the DEIS describe how the project may advance the reduction of emissions from the power generation sector in the northeast and emphasize the "avoided emissions."

Air Pollutant Emissions

EPA recognizes the long-term potential environmental and public health benefits of the Sunrise wind renewable energy project with respect to avoided emission of numerous air pollutants including NOx, CO_2 and SO_2. We recommend that the DEIS discuss potential emission reductions associated with the proposed project and alternatives under consideration. In particular, we recommend that BOEM's analysis highlight the air quality benefits of avoided emissions, particularly in areas where there may be issues regarding attainment of the NAAQS. Two helpful tools in this regard are highlighted below:

- EPA's AVoided Emissions and geneRation Tool (AVERT) (www.epa.gov/avert) has previously been used to estimate the avoided emissions of offshore wind development, e.g., for the South Fork Wind DEIS, and is a preferred tool for estimating avoided emissions from renewable energy projects. We recommend that BOEM use AVERT which offers analytical benefits, such as $PM_{2.5}$ avoided emission rates, hourly offshore wind generation profiles, hourly avoided fossil fuel generation and emissions, and county-level criteria air pollutant reductions. These analytical enhancements increase the data available to the public regarding the benefits of offshore wind and they should be presented in the DEIS. While AVERT is intended to be a straightforward tool to use, we request that BOEM and/or the consultant preparing the DEIS contact EPA to ensure proper use of AVERT and accurate reporting of avoided emissions in the DEIS. The EPA contact for AVERT is Emma Zinsmeister (Zinsmeister.Emma@epa.gov).

- EPA's COBRA model (www.epa.gov/cobra) has been previously used to estimate and monetize the changes in health outcomes due to changes in certain criteria air pollutant emissions of offshore wind development, e.g., for the South Fork Wind DEIS. We recommend BOEM use COBRA to estimate the economic benefit of avoided health impacts due to offshore wind development displacing onshore fossil fuel generation. Note that the COBRA analysis requires county-level emissions changes, which can be derived from AVERT. BOEM should also consider evaluating the health impacts of non-power sector-related onshore emissions of $PM_{2.5}$, NO_X, SO_2, NH_3 and VOCs in COBRA as well. While COBRA is intended to be a straightforward tool to use, we request that BOEM and/or the consultant preparing the DEIS contact EPA to ensure accurate reporting of health impacts. The EPA contact for COBRA is Emma Zinsmeister (Zinsmeister.Emma@epa.gov).

General Conformity

Conformity refers to the requirement that an agency of the federal government must take into account (i.e., conform to) the provisions of the air pollution prevention and control program (i.e., implementation plan) established by a state or tribe, when the federal agency proposes an action to occur within areas under state/tribal jurisdiction that are experiencing poor or vulnerable air quality. Such areas are either currently exceeding (i.e., violating) the National Ambient Air Quality Standards (NAAQS), referred to as nonattainment areas, or have recently attained the

standards after a period of nonattainment and the standards must now be maintained (i.e., maintenance areas). The implementation plan is a collection of rules and regulations applicable within the nonattainment/maintenance areas which are intended to improve air quality for the timely attainment of the NAAQS. The plan is legally enforceable on both the state and federal levels.

Under the Clean Air Act (CAA) Section 176(c) conformity requirement, a federal agency must work with state, tribal and local air governments responsible for improving air quality. A federal action cannot go forward if the action's emissions would cause new violations of the NAAQS, increase the frequency or severity of existing violations, or delay attainment or interfere with milestones used to mark the progress of attaining or maintaining the NAAQS.

Conformity applies to federal agencies taking actions that support transportation plans and non-transportation projects, where actions supporting non-transportation projects are referred to as "general" federal actions, hence, General Conformity. The regulations implementing the CAA conformity requirement for general federal actions are found at 40 CFR part 93 subpart B. The General Conformity regulations ensure that emissions caused by a general federal action proposed to occur within a nonattainment or maintenance area will conform to the provisions of the applicable implementation plan, which will assist the state or tribe in attaining the NAAQS in a timely manner.

Federal agencies supporting projects that are planned to occur within either a nonattainment or maintenance area may be subject to the General Conformity regulations at 40 CFR part 93 subpart B. If otherwise subject to General Conformity, the agency would calculate the annual increase in emissions (i.e., net emissions) of the criteria pollutant(s) that caused the area to be nonattainment (i.e, the relevant pollutants). Specifically, if the annual net increase in the relevant pollutant(s) caused by the action would equal or exceed the threshold rates in the tables under 40 CFR 93.153(b)(1) and (b)(2), the federal agency must prepare an analytical demonstration of conformity that shows the action will not cause new violations of the NAAQS in the nonattainment/maintenance area, will not make existing violations worse, and will not delay attainment of the NAAQS within the area, as required by the provisions of the applicable implementation plan. Based on the demonstration, the federal agency would be required to make a positive finding (i.e., determination) of conformity.

Section 4.3.4.1 Affected Environment, Subsection General Conformity of the COP offers a consistent viewpoint on this issue where it states, "Under NEPA, BOEM will assess Project-related impacts to air quality. Under the CAA, BOEM is obligated to make a general conformity determination based on 40 CFR §51, Subpart W, and Part 93, Subpart B, entitled "Determining Conformity of General Federal Actions to State or Federal Implementation Plans."

In Table 4.3.4-6 "Applicable General Conformity de minimis Thresholds based on Project Counties' Attainment Status", the COP lists Providence County, Rhode Island as in attainment for NAAQS and therefore, General Conformity is not applicable. However, on February 16, 2018, the United States Court of Appeals for the District of Columbia Circuit issued its decision in *South Coast Air Quality Management District v. EPA ("South Coast II," 882 F.3d 1138),*

vacating portions of EPA's 2008 ozone NAAQS SIP Requirements Rule, but upholding EPA's revocation of the 1997 ozone NAAQS. The court decision referred to the 1997 ozone NAAQS nonattainment or maintenance areas that were designated attainment for the 2008 ozone NAAQS as "orphan areas." Due to this, the classification and designation status of the entire state of Rhode Island remains in moderate nonattainment for the 1997 8-hour ozone NAAQS until such time as EPA determines that it meets the CAA requirements for redesignation to attainment.

In the South Coast II decision, the court stated that federal partners must do Transportation Conformity if in orphan areas but was not explicit regarding General Conformity. Consistent with what we have told our federal partners, BOEM must decide whether to apply the South Coast II decision for purposes of General Conformity when planning a project in an orphan nonattainment area. If BOEM decides that General Conformity is applicable in orphan nonattainment areas per the South Coast II decision, then the emissions that occur within those areas should be considered under General Conformity. We note that BOEM, and the Department of the Interior as a whole, must be consistent with the interpretation of the South Coast II decision for this project and future projects.

In Table 4.3.4-9 "Estimated General Conformity Emissions during Construction of the Sunrise Wind Project", the COP lists emissions exceeding de minimus thresholds within 3 miles of the state of Rhode Island. Considering this and the fact that Rhode Island is in nonattainment for the 1997 ozone NAAQS, EPA recommends that a full analysis be conducted and that BOEM make a determination of General Conformity and include it in the DEIS.

Climate Issues

The EPA recognizes the long-term potential benefits of the proposed Sunrise Wind renewable energy project with respect to greenhouse gas reductions and climate change mitigation. We recommend that the DEIS discuss greenhouse gas emission reductions/climate change benefits of avoided emissions, the contribution of the project towards meeting individual state GHG reduction goals, and potential climate change impacts associated with the proposed project and alternatives.

On and offshore project development areas may be vulnerable to the impacts of climate change, including but not limited to increased temperature, increased frequency of severe storms, sea level rise, changes in local hydrologic conditions, increased precipitation, severe drought, etc. We recommend that the description of the affected environment include an analysis of projected future changes, including future climate scenarios, that may affect the proposed project. We also recommend that the DEIS discuss how components of the project are designed to be durable in the face of sea level rise, storm surges, changes in coastal currents and severe weather events.

National Pollution Discharge Elimination System (NPDES) Permitting

Congress enacted the Federal Water Pollution Control Act, codified at 33 U.S.C. § 1251 – 1387 and commonly known as the Clean Water Act (CWA), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this

objective, the CWA makes it unlawful for any person to discharge any pollutant into the waters of the United States from any point source, except as authorized by specific permitting sections of the CWA, one of which is § 402. See CWA §§ 301(a), 402(a). Section 402(a) established one of the CWA's principal permitting programs, the NPDES Permit Program. Under this section, EPA may "issue a permit for the discharge of any pollutant or combination of pollutants" in accordance with certain conditions. CWA § 402(a). NPDES permits generally contain discharge limitations and establish related monitoring and reporting requirements. See CWA § 402(a)(1) and (2). The regulations governing EPA's NPDES permit program are generally found in 40 CFR §§ 122, 124, 125, and 136. EPA Region 1 is the permitting authority for facilities located in Massachusetts and New Hampshire as well as for projects discharging to federal waters offshore of the New England States. The COP (Part 1.4.2.3) correctly identifies that the cooling water withdrawals and discharges at the offshore converter station (OCS-DC) will require a NPDES permit issued by EPA Region 1 before discharges begin.

Pursuant to 40 CFR §§ 122.21(a)(1), 122.21(c)(1) and 124.3(a), Sunrise Wind must submit a complete NPDES permit application to EPA at least 180 days before the date on which the discharge is to commence, unless a later date has been granted by the permitting authority. EPA will review the application for completeness and identify any deficiencies that must be rectified. Once the application is complete, EPA will then develop a draft permit. Once the draft permit is developed, EPA will issue a public notice making the permit available for public comment for a period no less than 30 days and, if requested, a public hearing. 40 CFR §§ 124.10, 124.11, 124.12. After the public comment period, EPA will consider all the comments submitted, write responses to all significant comments, make adjustments to the permit as needed, and issue a final permit. 40 CFR §§ 124.15, 124.17. If there are no comments seeking changes to the draft permit, the final permit will be effective upon issuance. 40 CFR § 124.19(b)(3). If comments are received, commenters have 30 days from when the permitting agency serves notice of issuance of the final permit to appeal the permit to EPA's Environmental Appeals Board. 40 CFR § 124.19(a). Where comments were submitted but the final permit is not appealed, the final permit becomes effective on the first day of the calendar month following 60 days after issuance. If appealed, the contested permit conditions are stayed, while uncontested conditions can go into effect, unless they are inseverable from other conditions that have been appealed. 40 CFR § 124.16. EPA will post the draft permit, fact sheet, response to comments, and final permit on the Region 1 NPDES website. The process to issue a final NPDES permit will run in parallel to the NEPA process. A final permit is expected to be issued after BOEM's issuance of a Record of Decision. EPA met with representatives from Sunrise Wind on March 16 and August 10, 2021 and will continue to work with Sunrise Wind on its NPDES permit application.

EPA recommends that BOEM evaluate a range of alternatives that includes consideration of the cooling water withdrawals and effluent discharges of the OCS-DC. The DEIS should describe the water withdrawals and discharge of pollutants from the OCS-DC and evaluate the potential water quality impacts of its operation with particular focus on cooling water intake requirements at CWA Section 316 (b) and ocean discharge criteria at CWA Section 403(c). *See* 40 CFR Part 125 Subparts I and M. In addition, EPA recommends that BOEM consider a reasonable range of alternative methods of reducing or eliminating pollutant discharges and reducing or eliminating any adverse effects from water withdrawals for cooling. EPA reviewed the COP to assess the

project's potential impact on water quality and provides the following comments to clarify the NPDES permitting requirements and to assist BOEM in evaluating water quality related impacts in the DEIS.

- The OCS-DC will be a new facility with point source pollutant discharges and a cooling water intake structure with a design flow greater than 2 million gallons per day (MGD). The facility will use at least 25 percent of the water it withdraws specifically for cooling purposes. As such, SRWF is subject to the requirements in 40 CFR Part 125 Subpart I (Requirements Applicable to Cooling Water Intake Structures for New Facilities Under Section 316(b) of the Act). The COP (Part 1.4.2.3) indicates that the facility is subject to the Track I requirements for new facilities defined at 40 CFR § 125.84(b). EPA notes that the requirements at 40 CFR § 125.84(b) apply to new facilities that withdraw equal to or greater than 10 MGD. The design flow of the OCS-DC intake structure is expected to be 8.1 MGD. As such, the facility would satisfy the requirements of Section 316(b) by complying with either the Track 1 requirements at 40 CFR § 125.84(b) or the Track 1 requirements at § 125.84(c) for facilities that withdraw less than 10 MGD (but more than 2 MGD). The DEIS should consider the impacts of cooling water withdrawals on the community of aquatic organisms in the area of the intake, including consideration of how those effects could be reduced by any mitigation measures employed to comply with the requirements of Section 316(b). The analysis should include estimates of impingement and entrainment of aquatic life and the impact of those losses on finfish resources, essential fish habitat, plankton, sea turtles and marine mammals, birds, and threatened and endangered species. We also specifically recommend that BOEM consider the proximity to local cod spawning habitat and other habitat characteristics that would influence the density of early life stages of fish in the vicinity of the OCS-DC.

- The OCS-DC will discharge cooling water. The DEIS should evaluate the impacts from the discharge of pollutants to the receiving water, including the thermal discharge and any chemicals or other additives to the facility's effluent. Discharges of pollutants from a point source to the territorial seas, the contiguous zone, and ocean must satisfy CWA Section 403(c) (Ocean Discharge Criteria) and implementing regulations at 40 CFR Part 125 Subpart M. The DEIS should evaluate the impacts of the discharges on the marine environment consistent with determining whether the discharge will cause unreasonable degradation of the marine environment. 40 CFR § 125.122. This evaluation should estimate the quantities and composition of pollutants to be discharged, their potential to bioaccumulate in the environment, and their potential to be transported to areas beyond the immediate point of discharge. In addition, the evaluation should assess the composition and vulnerability of the biological communities which may be exposed to such pollutants, as well as the presence of spawning sites, nursery/forage ares, migratory pathways, or other types of habitat necessary for survival and propagation of critical life stages of the organisms comprising the biological community. The evaluation should also determine the effects on any special aquatic sites (e.g., marine sanctuaries, refuges), the potential impacts to human health, and the effects on existing or potential recreational and commercial fishing. Finally, the assessment should also evaluate whether the facility can be operated consistently with the enforceable requirements of any applicable

approved Coastal Zone Management Plan, and whether it will comply with applicable marine water quality criteria developed pursuant to CWA section 304(a)(1). As an example, EPA's 1986 Quality Criteria for Water ("Gold Book") includes recommended criteria for protecting marine aquatic life from thermal discharges.

- NPDES permits issued by EPA must comply with the procedures and implementing regulations of a number of applicable federal laws. For the SRWF, applicable federal laws include the National Historic Preservation Act, the Endangered Species Act, the Magnuson-Stevens Act, the Marine Mammals Protection Act, and the Coastal Zone Management Act. 40 CFR § 122.49. Consultations in accordance with the applicable provisions of each Act conducted by BOEM (as described in Part 1.4.1 of the COP) may also fulfill EPA's obligations for consultation in connection with the NPDES permit if the consultations consider the potential impacts from the water withdrawals and discharges resulting from operation of the OCS-DC.

Environmental Justice

EPA Region 1 has a strong commitment to promoting the principles of environmental justice outlined in Executive Order 12898 - *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The Presidential Memorandum accompanying Executive Order 12898 emphasizes the importance of using the NEPA review process to promote environmental justice and directs Federal agencies to analyze the environmental effects, including human health, economic and social effects, of their proposed actions on minority and low-income communities. Mitigation measures outlined or analyzed in an environmental assessment, environmental impact statement, or record of decision, whenever feasible, should address significant and adverse environmental impacts of proposed Federal actions on minority communities and low-income communities. Environmental justice, as defined by EPA, means the fair treatment of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement of environmental laws and policies, and their meaningful involvement in the decision-making process of the government.

It appears that the installation and operation of offshore components of the Sunrise Wind project are unlikely to impact minority and low-income communities. However, we encourage BOEM to analyze whether noise, air and traffic impacts from onshore construction and associated project support operations within port areas may cause community impacts that should be considered in the environmental justice analysis for the DEIS. As a preliminary step we recommend that BOEM use EJSCREEN to help determine if there are communities with environmental justice concerns that may be affected by these types of impacts during construction or operation of the project.

EJSCREEN is a publicly accessible online mapping system that combines environmental and demographic data to enable analyses of populations who may experience adverse environmental impacts. In addition to data concerning communities of color and low-income populations, the tool provides demographic data regarding linguistic isolation, education, and age, all of which

may enhance EJ-related analyses and outreach. The EJSCREEN tool is available at https://www.epa.gov/ejscreen.

We encourage BOEM to use the results of the screening to identify issues for analysis in the DEIS and to help focus outreach to affected communities. Outreach goals should include increased and meaningful public engagement and participation. EPA encourages Sunrise Wind and BOEM to provide notices of public meetings, notices of informational events, and/or other related resources at frequently visited community locations. These locations may include, but may not be limited to schools, faith centers, community centers, barbershops, salons, and medical centers. We also recommend the continuation of outreach and community dialogue after the project is constructed to monitor the potential for adverse impacts. The establishment of an EJ working group that includes community, business, and government participants should be considered to support this objective. Such a working group could meet on an intermittent frequency both during and following project construction.

We also recommend that the DEIS identify mitigation measures to address project impacts to communities with EJ concerns. We encourage BOEM and Sunrise Wind to incorporate and support requirements for emission reduction best practices for ports such as vessel speed and idle reduction requirements, Tier 4 EPA certified equipment or retrofitting of older equipment, and/or the use of shore power systems for equipment and hoteling. More information regarding air emissions reduction methods at ports can be accessed at https://www.epa.gov/ports-initiative.

Based on our review of the COP we offer the following specific observations:

- In section 4.7.6.1 – Affected Environment: "Potential environmental justice areas" were identified using >50% minority population and/or >23.59% low-income population. We note that this is a very simplified benchmark for identifying communities where EJ concerns related to the project may need to be addressed. We recommend that BOEM consider an expanded approach through consideration of EPA's EJ Mapping tools to better understand factors beyond race/ethnicity and income levels in the EJ evaluation.

- Section 4.7.6.2 – "Potential Impacts" highlights one community with potential EJ concerns (North Bellport, NY) in proximity to onshore construction/O&M activities. The text states, "…no effects [from construction] would be unique to minority or low-income populations." An impact does not need to be unique to matter in the context of community impacts. We recommend that the DEIS analysis consider alternate ways to present project impacts so they can be understood by the impacted communities.

Tribal Consultation and Engagement

The COP describes efforts by Sunrise Wind to engage tribes that claim cultural affiliation to the area of potential effect. The consultation and engagement process included consideration of terrestrial and marine archaeological resource impacts as well as plans to implement an unanticipated discovery plan (UDP). The UDP will include stop-work and notification procedures to be followed if potentially significant historic properties are encountered within the

lease area or areas affected by export cable are inadvertently disturbed during construction. The COP also details plans for continued engagement with tribes. EPA supports the tribal consultation and engagement efforts to date and encourages continued engagement with the culturally affiliated tribes throughout the NEPA process. We specifically request that the DEIS detail the consultation and engagement process, the proximity of project components to cultural resources, and plans for a UDP.

Wetland and Aquatic Resource Impacts

The COP states that, "… no wetlands or ecologically sensitive water resources are expected to be directly impacted by the Project." We support the efforts to design a project that avoids impacts and recommend that the DEIS include a specific discussion of existing wetlands, streams and other waters of the United States that could potentially be affected by various project components. The DEIS should explain how project activity on and offshore will comply with EPA's Clean Water Act regulations issued under Section 404 (b)(l), referred to as "EPA's 404 (b)(l) Guidelines." The DEIS should also include an evaluation of the measures incorporated into the project design to avoid, or where unavoidable, minimize direct and indirect impacts to wetlands and other waters. The evaluation of direct and indirect impacts should fully consider both temporary and permanent impacts.

The evaluation of indirect impacts should include any clearing impacts for the proposed terrestrial construction activities resulting in a change (either permanent or temporary) of cover type within a wetland (e.g., converting a forested wetland to an emergent or scrub/shrub wetland). In addition, construction related indirect impacts, including water quality impacts and erosion or sedimentation impacts to wetlands or waterbodies should be analyzed.

<u>Avoidance, Minimization and Mitigation for Impacts</u>
All construction practices which will be utilized to avoid and minimize impacts to wetlands and waters should be documented in the DEIS. Conditions proposed to protect wetlands and waters should also be documented.

If the project design changes and impacts to wetlands are unavoidable, the DEIS should also include a conceptual discussion of anticipated compensatory mitigation for unavoidable direct and indirect impacts to wetlands and other waters, including cover type conversions during construction and operation of the project. The mitigation analysis should also identify measures to address potential impacts to state and federally listed endangered and threatened species.

We also recommend that the discussion in the DEIS include the range of design/construction measures provided in the COP that can be implemented to avoid and minimize impacts of transmission cables as they transition to shore from the marine environment. We specifically request that the analysis discuss whether submerged aquatic vegetation exists (or has historically existed) in the nearshore cable landfall zone and what measures will be implemented to avoid work in those areas. We recognize and support the use of Horizontal Directional Drilling (HDD) as one tool to avoid impacts and recommend that the DEIS discuss the protocols that will be established to minimize impacts associated with this drilling technology.

Coordination

Finally, close coordination with the U.S. Army Corps of Engineers, National Marine Fisheries Service, appropriate state Coastal Zone Management offices, EPA, and other state regulatory agencies, will be essential for the portions of the proposed work that falls under each agencies' respective jurisdiction.

Water Supply Impacts

The proposed export cable landfall location (Holbrook) is situated over the sole source aquifer of Long Island, New York. The DEIS should describe potential for construction related impacts to the sole source aquifer and how they will be addressed.

Noise

Underwater noise can negatively affect marine life via auditory interference or by obscuring the ability of organisms to hear sounds necessary for survival including but not limited to: locating prey, mates or offspring; predator avoidance; navigation and locating habitat; and communication. The DEIS should assess whether construction and operation noise will cause potential short and long-term impacts that may disrupt normal behavioral patterns including migration, breathing, nursing, breeding, feeding, and sheltering. Technical guidance for assessing acoustic impacts is available from the National Oceanic and Atmospheric Administration. The DEIS should also describe mitigation that will be adopted to address construction and operation period noise impacts (including time of year restrictions) to marine life.

Spill Prevention

We recommend that the DEIS include a discussion of mitigation, minimization and monitoring measures to reduce risks to the marine environment and marine organisms in case of accidental spills.

Cumulative Activities Scenario

We encourage BOEM to continue to expand and refine the Cumulative Activities Scenario originally developed for the Vineyard Wind project. The discussion in the scenario provides an appropriate avenue for BOEM to consider interrelated impacts of the various projects within a geographic region over time and whether additional mitigation or impact reduction measures need to be considered. The Sunrise Wind project is one of several that could be under construction concurrently with other projects in the same general area. We continue to recommend a strong focus on cumulative impacts to complex bottom habitat, endangered species and marine related commerce including commercial fishing. The analysis should also consider impacts to navigation as additional offshore wind projects are approved and constructed over time. We also recommend that the activities scenario examine landside effects of the potential for increased noise, traffic, and air impacts from port activity to support the development and operation of offshore wind facilities over time.

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

September 30, 2021

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

RE: Docket Number BOEM-2021-0052
Scoping Comments for the Notice of Intent to Prepare an Environmental Impact Statement for Sunrise Wind's Proposed Wind Energy Facility Offshore Massachusetts, Rhode Island, and New York

Dear Ms. Morin:

We have reviewed the August 31, 2021, *Federal Register* Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for Sunrise Wind LLC's (Sunrise Wind) proposed wind energy facilities off the coast of Massachusetts, Rhode Island, and New York. The proposed facilities are in a portion of the Bureau of Ocean Energy Management (BOEM) Renewable Energy Lease Area OCS-A 0500 and the entirety of the area covered by BOEM Renewable Energy Lease Area OCS-A 0487, which have been merged and included in a revised Lease OCS-A 0487 which was issued to Sunrise Wind on March 15, 2021. This letter responds to your request for information as a Cooperating Agency on this project with legal jurisdiction and special expertise over marine trust resources, and as a consulting agency under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Fish and Wildlife Coordination Act (FWCA), and the Endangered Species Act (ESA). We are also an action agency for this project to the extent NOAA provides Incidental Take Authorizations (ITAs) under the Marine Mammal Protection Act (MMPA). If deemed sufficient to do so, we will rely on and adopt your Final EIS to satisfy our independent legal obligations to prepare an adequate and sufficient analysis under the National Environmental Policy Act (NEPA) and the regulations published by the Council on Environmental Quality (CEQ regulations (2020)) in support of our proposal to issue the MMPA ITA for the proposed project. It is our understanding that Sunrise Wind intends to apply for a Letter of Authorization (LOA) pursuant to section 101(a)(5)(A) of the MMPA. Our needs for sufficiency to support adoption are discussed in more detail in Attachment A to this letter.

As we understand from the NOI, BOEM intends to prepare an EIS to consider whether to approve, approve with modifications, or disapprove a Construction and Operations Plan (COP) submitted by Sunrise Wind and analyze the proposed construction and operation of commercial scale wind energy facilities on the outer continental shelf (OCS) approximately 18.9 miles south of Martha's Vineyard, 30.5 miles east of Montauk, New York, and approximately 16.7 miles from Block Island, Rhode Island. The wind facilities, collectively referred to as Sunrise Wind,

includes the construction, operation, and eventual decommissioning of up to 122 wind turbine generators (WTGs) connected by a network of inter-array cables, one offshore converter station, and one onshore converter station. The proposed facilities would generate between 880 and 1,300 megawatts (MW) of energy and be connected to shore by an export cable and an offshore transmission cable making landfall in Long Island, New York, and through an onshore interconnection cable to the Long Island Power Authority Holbrook Substation. The project may use several existing port facilities located in Rhode Island, Connecticut, and New York, to support offshore construction, assembly and fabrication, crew transfer, and logistics, but no final determination has been made on those port locations. The project would be located in water depths ranging from approximately 35 to 62 meters (115–203 feet). The WTGs would be spaced in a grid approximately 1.15 miles (1.0 nautical mile) apart within the lease area, consistent with the layout proposed for other adjacent projects (fixed east-to-west rows and north-to-south columns).

The NOI commences the public scoping process for identifying issues and potential alternatives for consideration in the Sunrise Wind COP EIS. Through the NOI, you are 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. In our role as a Cooperating Agency under NEPA, we offer comments and technical assistance related to significant issues, information, and analysis needs for the EIS related to resources in the project area over which we have special expertise or legal jurisdiction, including associated consultation and authorization requirements. Data related to the occurrence and status of these resources, evaluation of effects to them, and development of responsive mitigation are critical elements of the NEPA process, which require early identification of such issues in the scoping process and full evaluation throughout the NEPA process.

The high number of projects moving through the NEPA process between now and 2024 makes it very difficult for us to provide the detailed level of review and interagency cooperation we have provided in the past. The extensive interagency cooperation we have invested with you to improve the NEPA documents for previous wind energy projects is no longer feasible, and we will be required to take a more limited Cooperating Agency role in the process. Nonetheless, with respect to the Sunrise Wind NOI, we offer the following comments, as well as attached technical comments on specific issues of concern (see Attachment A).

General Comments

Construction and Operations Plan (COP) Updates

We rely on the information in the Sunrise Wind COP to help inform the comments and technical assistance provided during the scoping process. The COP was only made available to us through the BOEM website with the publication of the NOI, so our comments related to the COP are limited. Furthermore, sections of the COP accessible from the website are redacted, including benthic habitat mapping report, offshore habitat data, underwater acoustic assessments, as well as other habitat related reports (e.g., marine site investigation report, cable burial feasibility study) that are relevant to any comments and technical assistance we provide during this scoping process. Absent this information, we are limited to the extent of technical assistance we can

provide at this time. As a result, we may need to provide additional comments and technical assistance upon review of any updated information, including potential alternatives to minimize and mitigate impacts of the project on marine and estuarine resources. As we have discussed with you, receipt of this information after the regulatory process has begun is putting a substantial strain on our ability to review these projects as efficiently as possible. We look forward to continuing to work with you on this issue so that we can most effectively keep you informed of issues and concerns related to NOAA trust resources.

We understand that during the NEPA process, applicants are permitted to make modifications and updates to their COPs. We request, however, that if the COP is updated or changed at any time during the regulatory process, you notify the agencies immediately and make the most updated COP available to the agencies and the public. In addition, it is critical that you describe which sections and information in the COP have been updated so we may focus our efforts and provide an efficient review. This description should specifically outline any changes to the proposed action and other information that may affect consultation with our agency. As we have discussed in the past, any updates to the COP that occur after initiation of consultation with our agency may affect our consultation timelines. To reduce the potential need for multiple reviews, supplemental consultation and comment, and project delays, it is essential to ensure that project information is complete before initiating the environmental review for a project or continuing to advance the process for existing projects. Should unexpected revisions to the project occur, coordination with us as soon as possible is critical to help prevent inefficiencies and confusion that can result from multiple reviews, as well as delays that may affect project timelines and consultation initiation and conclusion.

Project Schedule

BOEM is planning to expedite the review of the Sunrise Wind COP through a two-year timeline to complete the NEPA process and consultations. The schedule also includes milestones for issuance of a requested MMPA Incidental Take Authorization to the developer. As you know, milestone dates associated with our consultations and authorization for this project are posted on the FAST-41 permitting dashboard. Our ability to initiate consultation and meet our milestone dates is contingent upon us making the determination that we have received complete and adequate consultation documents (Biological Assessment (BA) and EFH assessment) that contain all necessary information to consult on the project. Our Biological Opinion under the ESA will be comprehensive and must consider all proposed actions associated with the project, including the proposed issuance of an LOA. The timeline is also contingent upon NMFS' deeming receipt of an adequate and complete MMPA Letter of Authorization (LOA) application by the agreed upon date, currently targeted for May 10, 2022; to meet this deadline and avoid schedule delays, NMFS strongly recommends the applicant submit a draft application to our Office of Protected Resources approximately six months in advance of the May 2022 milestone date. If we do not receive the necessary information to initiate our consultations and start processing the LOA application by the dates outlined in the permitting timeline, it may result in delays in the overall project schedule.

Project Design Envelope

As described in BOEM's project design envelope (PDE) guidance, a "PDE approach is a permitting approach that allows a project proponent the option to submit a reasonable range of

design parameters within its permit application." While we understand and support the PDE approach, we note that it is critical to ensure that the range of design parameters are reasonable. A PDE that is too broad would impact your ability to provide a meaningful effects analysis in both the NEPA document and your consultation documents (BA and EFH Assessment). An analysis based on an overly broad PDE may grossly overestimate the effects of the action on protected species and habitat, which would likely result in very conservative mitigation measures.

The *Federal Register* notice refers to a "preliminary proposed action" described as including up to 122 turbines, with foundation types that may include monopiles, gravity base structures, or both. It is unclear if the proposed action is expected to be further modified during the NEPA process and at what point in the process any modifications may occur. As we noted above, we must have all necessary information, including an adequate and complete BA and EFH Assessment to initiate consultation. Modifications to the proposed action after consultation has been initiated may lead to delays in the project timeline, as these changes may affect our analysis in any consultations that are underway, including potential changes to EFH conservation recommendations and/or terms and conditions or reasonable and prudent measures being considered in the ESA consultation. The NEPA document should evaluate a reasonable PDE, with a proposed action that is consistent between the NEPA document and the consultation documents.

NOAA Trust Resources

To be successful in meeting the Administration's goal for responsible offshore development, we must identify, understand, and fully consider the effects of large-scale development of the OCS on our ocean resources and work to avoid and minimize adverse effects. In Attachment A we provide detailed scoping comments related to NOAA trust resources in the project area and alternatives and mitigation measures to consider for evaluation as you develop the EIS for this project. Of particular concern for this project area are effects to North Atlantic right whales and Atlantic cod. Critically endangered North Atlantic right whales occur in the Sunrise Wind lease area, along the proposed cable corridor, and along many of the anticipated vessel transit routes. The status of this species is extremely poor. The proposed construction, operation, and decommissioning of the Sunrise Wind project may have adverse effects on North Atlantic right whales and this warrants special consideration throughout the environmental review process. In addition, the project area overlaps with spawning habitat for Atlantic cod, a species of economic and cultural significance to our region. As you develop the EIS, it will be critical to fully consider both project and cumulative effects of offshore development on North Atlantic right whales and Southern New England Atlantic cod and evaluate ways to avoid and minimize adverse impacts to these species and their habitats. We strongly encourage you and the developer to consider all available options to minimize risk to these species and their habitats as a result of project development.

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. We are committed to implementing our national strategic goals to maximize fishing

opportunities while ensuring the sustainability of fisheries and fishing communities. In addition, we strive to recover and conserve protected species while supporting responsible resource development. To the extent possible, we will continue working with you to provide the necessary expertise, advice, and scientific information to avoid areas of important fishing activity and sensitive habitats; minimize impacts to fisheries and protected species; and support the conservation and sustainable management of our marine trust resources. To ensure we can continue to meet our collective objectives and ambitious timelines, it is imperative that we capitalize and build upon our collaboration on recent projects and integrate lessons learned into future project development and review. This will improve the quality of the NEPA document for this project and future projects, expedite our reviews, and result in more efficiencies in the process. We appreciate your willingness to work with us to address these challenges and recognize the collaborative work among our agencies to help gain efficiencies in the regulatory process. We look forward to continuing to work with you in this regard.

Should you have any questions regarding these comments, please contact Sue Tuxbury in our Habitat and Ecosystem Services Division at (978) 281-9176 or susan.tuxbury@noaa.gov. For questions regarding the EFH consultation for this project, please contact Alison Verkade in our Habitat and Ecosystem Services Division at (978) 281-9266 or alison.verkade@noaa.gov. For questions regarding ESA and section 7 comments, please contact Julie Crocker in our Protected Resources Division at (978) 282-8480 or Julie.Crocker@noaa.gov. For questions regarding MMPA Incidental Take Authorizations, please contact Jaclyn Daly in the Office of Protected Resources at (301) 427-8438 or jaclyn.daly@noaa.gov.

Sincerely,

Michael Pentony
Regional Administrator

cc: Brian Hooker, BOEM
JT Hesse, BOEM
Tom Nies, NEFMC
Chris Moore, MAFMC
Bob Beal, ASMFC
Tim Timmerman, EPA
Greg Lampman, NYSERDA
James Gilmore, NYSDEC
Jeffery Zappieri, NYDOS
Dan McKiernan, MADMF
Lisa Engler, MACZM
Jeffery Willis, RICRMC
Julia Livermore, RIDEM
Brian Thompson, CTDEEP
Peter Aarrestad, CTDEEP Fisheries
Jon Hare, NEFSC
Greg Power, NMFS APSD
Candace Nachman, NMFS Policy

Cristi Reid, NMFS Policy
Christine Jacek, USACE
Naomi Handell for USACE-NAN

ATTACHMENT A
SUNRISE WIND SCOPING COMMENTS

Alternatives Analysis

The "Alternatives" section of the EIS should consider and evaluate the full range of reasonable alternatives to the proposed action, including those that would minimize damage to the environment. The analysis must include development of one or more reasonable alternatives to avoid or minimize adverse effects to environmental resources, including NMFS trust resources. The regulations published by the Council on Environmental Quality provide: "[t]he primary purpose of an environmental impact statement prepared pursuant to section 102(2)(C) of NEPA is to ensure agencies consider the environmental impacts of their actions in decision making. It shall provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public o*f reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment* (emphasis added)." When signing the Record of Decision (ROD), BOEM and NMFS will have a duty to identify an environmentally preferable alternative recognizing that agencies can develop alternatives that meet the purpose and need while avoiding and minimizing adverse environmental impacts. Indeed, the fundamental purpose of NEPA as implemented by the CEQ regulations is to fully and fairly discuss and disclose, to both the public and decision-makers, means and measures, including alternatives, to avoid and minimize adverse impacts. Compensating for unavoidable adverse impacts through development of compensatory mitigation measures should be viewed as mitigation of last resort. Avoidance and minimization must be considered and fully and fairly evaluated through the alternatives development process before reaching that point. BOEM's purpose and need statement and screening criteria cannot be so narrowly focused to eliminate from full consideration reasonable alternatives that also minimize and avoid adverse effects.

For more vulnerable and difficult-to-replace resources such as natural hard bottom complex substrates (particularly those with macroalgae and/or epifauna), submerged aquatic vegetation (SAV), dense faunal beds (e.g., cerianthid beds), shellfish habitat and reefs, other biogenic reefs, and prominent benthic features, alternatives that avoid and minimize impacts to these habitats should be evaluated and given full consideration. Compensatory mitigation should be provided for unavoidable adverse effects. Inherent to this is the necessity to conduct high-resolution benthic habitat mapping that characterizes and delineates all habitats in the lease area and within all potential cable corridor areas. To facilitate efficient review of the alternatives, we recommend the EIS discussion of the alternatives and comprehensive analyses associated with each be grouped into the three corresponding elements of the proposed project: (1) wind farm area; (2) offshore export cable routes and associated corridors; and (3) inshore export cable routes and associated corridors and landfall points. The proposed project should have multiple alternatives for each element that could be "mixed and matched" in the final selection of the single and complete project.

Fisheries Habitat Impact Minimization Alternative

The proposed Sunrise Wind project would be located on the southern edge of Cox Ledge, with a portion of the proposed development overlapping with hard bottom complex habitat that is

Essential Fish Habitat (EFH) for a number of managed fish species and trust resources for which NMFS has conservation responsibilities. While the minimization of impacts should be considered in the development of all alternatives, given the particular complexity of habitat in this lease area and the importance of Cox Ledge to NOAA trust resources, it will be critical for you to consider a discrete alternative that reduces impacts to fisheries habitats that are more sensitive and vulnerable to impacts. Cox Ledge is an important area for fishing activity, and adverse impacts to fish habitat or recruitment of economically valuable species may result in subsequent impacts on commercial and recreational fishing opportunities and associated communities. It will be especially important to consider both impacts to complex habitats and habitat use by Atlantic cod, a species that is culturally and economically significant to the region. Atlantic cod aggregate to spawn in the project area, and spawning activity is particularly vulnerable to disruption. The complex habitats used by Atlantic cod and other species are vulnerable to disturbances or alterations that can impact the physical and biological components of these habitats that provide complexity. Impacts to the physical (e.g. three-dimensional structure, crevices) and biological (e.g. epifauna) may be permanent or long-term, typically taking years to decades for recovery. Therefore, an alternative that minimizes effects of the project on these important habitats should be considered in the EIS.

Our ability to provide you with specific details and technical assistance related to this alternative(s) is limited by the habitat data available to us. While the offshore benthic habitat reports have not yet been made available to us and we have not yet received sufficient data to provide specific locations of concern, based on preliminary review of information from early coordination meetings we expect complex habitat areas to be found along the northern project boundary, where the project overlaps with Cox Ledge and known areas of cod spawning activities. There may also be large areas of complex habitats along the central and eastern portions of the lease area. The alternative should evaluate the habitat data and identify areas where construction should be avoided or where micrositing should be considered to minimize impacts. The alternative should not only consider locations for turbine removal and/or micrositing, but also consider portions of the lease where cod spawning aggregations have been detected and areas dominated by complex habitats that provide important functions for associated living marine resources, such as Atlantic cod.

A habitat minimization alternative(s) should consider impacts of the project both in the lease area as well as along the export cable. These components may be considered as two separate alternatives or a one alternative that identifies measures to reduce fisheries habitat impacts for the entire project area and includes both the lease area and the export cable corridor. This habitat impact minimization alternative(s) should evaluate not just impacts of WTG construction and operation, but also ways to minimize impacts from cables on sensitive habitats. This should include the inter-array cable routes and proposed export cable corridor, and potential routing modifications that avoid and minimize impacts to important, sensitive, and complex habitats located in the project area, including submerged aquatic vegetation (SAV). Specifically, the inter-array and export cables should be routed to avoid and minimize impacts to complex habitats and the onshore cable landing where SAV has been historically mapped. While the onshore landing includes the use of HDD for the final landfall connection, an in-water work area appears to fall within the mapped SAV beds, thus alternative in-water work areas should be considered and evaluated. Routing and construction methods that allow for full cable burial to

minimize permanent habitat impacts and potential interactions with fishing gear should be considered as a component of this alternative. This habitat alternative (or alternatives) should be evaluated as an individual alternative(s) that may be mixed or matched with other identified alternatives.

While measures to minimize impacts of the project on vulnerable habitats and species should be considered for all alternatives, the fisheries habitat impact minimization alternative should consider and fully evaluate these measures in detail. Specifically, measures to avoid and minimize impacts to complex habitats, cod spawning activity, squid spawning and egg development, as well as other vulnerable habitat features and life stages. Measures to avoid disrupting spawning activity (e.g. time of year restrictions, project placement) and settlement areas (e.g. avoiding complex habitats) should be fully evaluated. Further, this alternative should consider measures to increase habitat value through the material and composition of any proposed scour protection, for both cables and turbines. The analysis should consider how different types of materials employed may or may not maximize the habitat value for juvenile species, such as Atlantic cod. Mitigation measures evaluated through this alternative may also be considered or mixed and matched with other alternatives.

Offshore Converter Station

Sunrise Wind has proposed an Offshore Converter Station and one direct current (DC) submarine export cable bundle in place of using alternating current (AC) submarine cable bundles for exporting wind energy onshore from the lease area. Of particular concern for fisheries resources are the proposed water withdrawals required for the offshore converter station, including the potential for impingement or entrainment of early life stages of marine species, heated effluent discharge, and differences in EMF emission levels. Currently, the COP presents the results of impact assessments to resources associated with the proposed DC cable export option. While differences in the project components that would be necessary for the proposed DC export option and an AC export option are presented, there is no evaluation of how the different project components associated with each option would affect resources. An alternative that evaluates and considers the impacts to resources as a result of both an AC and the proposed DC export option should be included in the EIS.

In addition to an overall evaluation of the proposed water withdrawals and heated effluent discharges effects for vulnerable life history stages of species expected to occur in the project area, specific evaluations should focus on impacts to Atlantic cod and North Atlantic right whales. A species-specific evaluation of potential impacts to Atlantic cod eggs and larvae should also be included in the analysis of this alternative. This evaluation should incorporate and fully consider the proximity of cod spawning activity in the project area to evaluate the potential effects of the OCS to Atlantic cod. Similarly, the EIS should fully consider the potential for impingement or entrainment of copepods, which are a critical foraging resource for North Atlantic right whales.

The analysis of this alternative should address how each project component of the two different options (DC versus AC) would affect fisheries resources and the species that depend on those resources for food. This analysis should address not only what resources and habitats would be impacted, but also include a temporal component for each project element by specifying the duration of the identified impact and any expected recovery timeframes. For example, the DC

option requires only one foundation with a seawater cooled converter station that will operate for the life of the project, resulting in continuous impacts from water withdrawals and effluent discharges over the life of the project; whereas the AC option would require additional in-water structures with associated construction and operation impacts, which may vary based on resources present.

The alternative should be structured to allow for a "mix and match" approach to be combined with each other alternative evaluated in the EIS. For example, if this alternative is incorporated into the Fisheries Habitat Minimization Alternative, the refinement of the export cable corridor and inclusion of higher habitat value cable protection could further minimize any long-term to permanent impacts that could result from the installation of multiple cable bundles necessary for the AC cable option. The alternative should fully evaluate how each option (DC versus AC) would affect the resources in the project area considering both the duration and extent of each identified impact.

Coordinated Cable Routing

Offshore export cable routing alternatives that use common corridors with adjacent projects should be evaluated and discussed. For lease areas that are adjacent to one another, BOEM should develop common cable corridors to both increase efficiency and predictability and reduce resource impacts. Specifically, common cable corridors would lead to efficiencies in planning, project development, and benthic habitat mapping, more predictability and time savings for applicants and resource agencies. In addition, establishing common cable corridors would facilitate comprehensive avoidance and minimization of impacts to marine resources by reducing the number of corridors and allowing for programmatic-level review and comment.

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. It is important that the geographic area encompass all project related activities, including the lease area, cable corridors, landing sites, and the use of ports outside of the immediate project area. This analysis should also include any necessary landside facilities and the staging locations of materials to be used in construction. You should ensure that findings for each effect/species are supported by references where possible and in context of the proposed project to allow for a well-reasoned and defensible document.

The description of the "Affected Environment" should recognize the ocean environment as dynamic, not static, and acknowledge that the environment, and species within the environment, vary over time and seasons. This section should include information on the physical (temperature, salinity, depth, and dissolved oxygen) and biological (e.g. plankton) oceanography. It is important that the EIS discuss seasonal changes and long-term trends in the environment as well as hydrodynamic regimes and how they influence the distribution and abundance of marine resources. Within this section, the EIS should include results of on-site surveys, site-specific habitat information, and characterization of benthic and pelagic communities. Additional details should be provided related to all habitat types located within the project area with a particular focus on complex habitats.

The "Affected Environment" section should also include all of the biological, cultural, and socioeconomic issues related to fisheries and marine resources that may be affected by this project, including species that live within, or seasonally use, the immediate project area and adjacent locations, including habitat use for spawning activity. For benthic resources, fish, and invertebrate species, this section should include an assessment of species status and habitat requirements, including benthic, demersal, bentho-pelagic, and pelagic species and infaunal, emergent fauna, and epifaunal species living on and within surrounding substrates. The discussion of the affected commercial and recreational (party/charter and private angler) fisheries should assess landings, revenue, and effort; fishery participants, including vessels, gear types, and dependency upon fishing within the project area; potential impacts beyond the vessel owner level (e.g., shoreside support services such as dealers, processors, distributors, suppliers, etc.); and coastal communities dependent on fishing. Our offshore wind socioeconomic impacts page (available at: https://www.fisheries.noaa.gov/resource/data/socioeconomic-impacts-atlantic-offshore-wind-development?utm_medium=email&utm_source=govdelivery) can help identify important commercial and recreational fisheries, while the status of many species can be found on our individual species pages (available at: https://www.fisheries.noaa.gov/find-species), and recent trends can be found on our Stock SMART page (available at: https://www.st.nmfs.noaa.gov/stocksmart?app=homepage). Information that can help characterize communities engaged in fishing activity can be found on our website describing social indicators for coastal communities (available at: https://www.fisheries.noaa.gov/national/socioeconomics/social-indicators-coastal-communities) and should be integrated into the EIS.

The section describing the "Affected Environment" for protected species should include information on the seasonal abundance and distribution of marine mammals, sea turtles, ESA-listed marine fish, anticipated habitat uses (e.g., foraging, migrating), threats, and the habitats and prey these species depend on throughout the area that may be directly or indirectly impacted by the project. The status of marine mammal stocks (see our stock status reports[1]), population trends, and threats should also be identified. Similar information should also be provided for all ESA listed species (see relevant status reviews on our ESA Species Directory, https://www.fisheries.noaa.gov/species-directory/threatened-endangered).[2] As the EIS is developed, specificity between species groups (e.g., low frequency vs. mid frequency cetaceans) of marine mammals and sea turtles should be incorporated. A broad grouping approach (e.g., all marine mammals) creates uncertainty and gaps in the analysis and does not fully represent the variability of impacts amongst different taxa. As species within these taxa have different life histories, biology, hearing capabilities, behavioral and habitat use patterns, distribution, etc., project effects may not have the same degree of impact across all species. Thus, the impact conclusions (e.g., minor, moderate, major) are clearer and better supported if the document describes the degree of impacts to each species (e.g., green sea turtle vs. hawksbill) or groups of species (e.g., mysticetes, odontocetes, pinnipeds). Additionally, for some marine mammal species (e.g., harbor porpoise), data from European wind farms can be used to support each

[1] https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments

[2] Please note that NOAA Fisheries biological opinions should not be used as a reference unless referring to specific conclusions for which the particular project that the biological opinion was issued. We do not recommend relying on NOAA Fisheries Biological Opinions to support conclusions reached by BOEM for other projects that were not the subject of that Opinion.

determination. This approach also allows the analysis to better identify the ability of those species or groups to compensate when exposed to stressors and better identify the benefit from mitigation and monitoring measures. This approach would ensure the analysis reduces uncertainty and reflects the best available scientific information. Also, wherever possible, we encourage you to identify effects to individuals (e.g., injury, behavioral disturbance, disrupted foraging), as well as impacts at the population level.

Environmental Consequences

The "Environmental Consequences" section of the EIS must consider impacts resulting from the construction, operation and maintenance, and decommissioning of the proposed facility, including survey and monitoring activities that are anticipated to occur following approval of a COP. Impact descriptions should include both magnitude (negligible, minor, moderate, major) and direction (beneficial or adverse) of impacts and, where applicable, duration (temporary, long-term, permanent). 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 the proposed project, such as construction of landside facilities necessary to construct and support operations of the Sunrise Wind project. Impact producing factors from each phase of development should be considered, including site exploration, construction, operation and maintenance, and decommissioning.

All activities included in construction of the project should be considered, including the deposition of fill material, dredging, water withdrawals and associated egg/larval entrainment/impingement, pile driving, increased vessel traffic, anchoring, high-resolution geophysical surveys, seafloor preparation including handling of any unexploded ordnance detected in the area and boulder relocation, and transmission cable installation. All relevant impact producing factors affecting marine resources should be evaluated, including, but not limited to, elevated noise levels, increased vessel traffic, turbidity and sedimentation, electromagnetic fields (EMF), habitat alteration, presence of structures (WTGs, substations, and cables), and localized changes in currents. The document should also evaluate the potential impacts of chemical emission, including the release of chemical residues from wind farm operating materials and corrosion protection systems. The ecological impacts resulting from the loss of seabed and the associated benthic communities and forage base and changes to predator/prey relationships should be evaluated. This should include a discussion of the ecological and economic impacts associated with habitat conversion from WTG installation, offshore substations, cable installation, and scour and cable protection. This analysis should also include site-specific benthic data collection and an evaluation of impacts of the project on different habitat types and fisheries resources that rely on them. 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. Further, the assessment should include a robust analysis of the effects of any ongoing or planned surveys or monitoring of fisheries resources by the developer and the effects of those surveys on protected species (e.g., potential for entanglement of ESA listed whales, sea turtles, and Atlantic sturgeon in gillnet surveys). The assessment of these impacts should be completed at scales relevant to each impact type to enable meaningful comparisons between alternatives.

It is important that the analysis provides a sufficient evaluation of baseline conditions and uses

the best available information to evaluate the alternatives and support the analysis of effects. Any conclusions related to the level and direction of project impacts should be fully supported by the analysis in the EIS and be consistent with impact definitions identified in the EIS. Importantly, the significance criteria definitions identifying the level of impacts from the project (e.g., negligible, minor, moderate, major) should not embed terms defined by other statutes (e.g., the definition of minor should not refer to the MMPA definition of "level A harassment") or apply other statute definitions to the impact criteria used for NEPA purposes. Rather, these definitions should be written in a way that it is clear to a reader how these impact determinations consider the spectrum of effects to individual animals (e.g., temporary behavioral disturbance, injury). We also encourage you to use definitions that are appropriate for the resource being considered (e.g., benthic habitat vs. marine mammals). As you know, we recently worked with you on the South Fork EIS to develop significance criteria definitions for impacts to NOAA trust resources (i.e. marine mammals, and benthic habitat, EFH, finfish and invertebrates). That collaborative work should be carried forward for this and future NEPA documents. As we have stated in the past, to the extent that any conclusions are based on inclusion of mitigation measures, those measures must be clearly defined and include an indication as to whether the measure is considered part of the proposed action and will be required upon approval, or an option that may be implemented by the developer at their own discretion. In preparation of the NEPA document for Sunrise Wind, we strongly recommend you review and incorporate comments we have made on previous BOEM documents to ensure a robust and sufficient analysis of NOAA trust resources.

Using the best scientific information available for all marine trust resources is critical to analyzing the impacts resulting from this project. Data used should include a sufficient range of years to reflect natural variability in resource conditions and fishery operations, but also current conditions. We recommend that fisheries and marine resource survey analyses consider at least 10 years of data up to and including data within the past two years. This is especially important for marine mammals given recent distribution and habitat utilization shifts.

Temporary, long-term, and permanent direct and indirect impacts to water quality, protected species, habitats, and fisheries (ecological and economic) throughout construction, operation, and decommissioning should be addressed in the EIS. The temporal classification (e.g., temporary, long-term, or permanent) should be appropriate for the species, habitat types and impacts considered and should be clearly and consistently defined. The time of year that construction activities occur is also an important factor in evaluating potential biological, economic, and social impacts of the project and should be clearly specified for each project activity to the extent possible.

It will be particularly important to evaluate how construction timing overlaps with cod spawning activity in the project area and across Southern New England. Cod spawning in Southern New England occurs between November and April. Successful cod spawning relies on the presence of aggregations of cod and complex behavioral interactions that require the use of low frequency sound communication (“grunts”) by the males to attract females for “mating.” If this mating behavior is disrupted and the aggregations are dispersed, reproduction may not occur for the rest of the spawning season, or even in subsequent years if cod abandon spawning grounds that have been affected. The potential overlap of project construction and in-water activities should be

fully evaluated in the EIS, as well as measures to avoid and minimize impacts to cod spawning.

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 biological impacts to marine species caused by the temporary or permanent loss/conversion of bottom habitat (i.e., resource distribution, productivity, or abundance changes) and direct or indirect socioeconomic impacts to commercial and recreational fishing activities and support businesses from project construction and operation such as loss of access to important fishing areas due to the presence of structures (WTGs, substations, cables, scour protection). This evaluation should also include any potential displacement of fishing activities and resulting changes to catch rates and increased gear conflicts, bycatch, and fishing pressure in other locations. When structuring the fishery socioeconomic impact evaluation, you should address all of the elements identified in the checklist we provided in January 2021, or explain why specific elements on that checklist were not included in the EIS. As noted above, our fishery socioeconomic impact summaries can and should serve as the foundation for this analysis in the EIS, although additional project-specific analysis may be necessary to address particular impacts or mitigation/compensation arrangements with affected fisheries.

It is vital that all costs and benefits of available alternatives, including the no action alternative, are considered in a cost-benefit analysis. Costs and benefits should include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider (including potential economic, environmental, public health and safety, distributive impacts, equity, etc.).

The NEPA document should address effects of the project on Environmental Justice, including those specific to fishing communities with minority and low-income populations. We anticipate Environmental Justice concerns will be included as required under Executive Order 12898 (E.O. 12898, 59 FR 7629; February 16, 1994) Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This E.O. requires that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories…" and take into account E.O. 13985 (86 FR 7009; January 20, 2021) On Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. In addition, for coastal communities that include tribal nations who value the sea and fish to sustain Native American life, projects should also consider E.O. 13175 (65 FR 67249; November 6, 2000), which requires federal agencies to establish regular and meaningful consultation and collaboration with tribal officials where tribal implications may arise.

Mitigation

NEPA requires identification and consideration of reasonable mitigation measures to address adverse impacts resulting from the construction and operation of the wind energy facility and associated cable installation as well as the likelihood of their implementation. Under NEPA, mitigation includes:

- Avoiding an impact by not taking a certain action or parts of an action;
- Minimizing an impact by limiting the degree or magnitude of the action and its implementation;
- Rectifying an impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating an impact over time, through preservation and maintenance operations during the life of the action; and
- Compensating for an impact by replacing or providing substitute resources or environments.

The EIS must clearly identify which mitigation measures are included as part of the proposed action and thus, evaluated in the analysis, which measures are proposed as required, and measures that are optional and could be implemented by the developer to potentially reduce impacts. The document should provide information on how mitigation measures are considered in the context of the definition of effects levels (e.g. negligible, minor, moderate, major), and how mitigation would offset those levels of effect. Mitigation measures must be relevant to the impact to be mitigated and capable of actually reducing impacts (e.g., as proposed in the COP, a monitoring study alone is not an effective mitigation measure). An analysis of the effectiveness of any proposed mitigation should also be evaluated in the EIS. Measures to avoid and minimize impacts such as speed restrictions for project vessels, soft start procedures, noise dampening technologies, construction time of year restrictions, anchoring plans, or micro-siting should be discussed in detail, including what resources would benefit from such mitigative measures and how/when such benefits (or impact reductions) would occur. We strongly encourage BOEM to require measures that reduce noise levels during construction to the maximum extent practicable where data suggests technology is more effective (e.g., if bubble curtains are proposed, requiring a double bubble curtain vs. single bubble curtain). The EIS should analyze temporary effects and anticipated recovery times for marine resources within the impacts analysis.

While the project should be planned and developed to avoid and minimize adverse effects to marine resources and existing uses (i.e. fisheries habitat, fishing and NMFS scientific survey operations) to the greatest extent practicable, compensatory mitigation should be proposed to offset unavoidable permanent and temporary impacts. This should include discussion and evaluation of potential compensatory mitigation for unavoidable adverse impacts to fisheries habitats and the lost functions and values resulting from those impacts. Compensatory mitigation for both ecological losses as well as social and economic losses should be discussed in the EIS, and incorporate all affected entities. Compensatory mitigation for social and economic impacts from this and other projects should consider any increased operational costs (i.e., increased steaming time to search for fish or transiting around turbines) or loss of fisheries revenue (i.e., lower catch) resulting from the construction and operation of the project. Compensatory mitigation should also consider more conservative quotas set in response to reduced scientific survey access and associated increased uncertainty in stock assessments along with any potential proposed measures to compensate for such losses. Additionally, the potential for bycatch measures resulting from protected species interactions due to shifts in fishing activity and increased uncertainty in protected species assessments should be analyzed and discussed. Details of compensation plans describing qualifying factors, time constraints, allowed claim frequency, etc. should also be included when possible, particularly if used as mitigation measures

to reduce economic impacts from access loss/restriction, effort displacement, or gear damage/loss. Finally, mitigation necessary to offset negative impacts to longstanding marine scientific survey operations (e.g., loss of access to project areas, changes to sampling design, habitat alterations, and reduced sampling due to increased transit time) and fisheries dependent data collections must also be considered and evaluated in the document (see description of scientific survey impacts below).

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 reasonably foreseeable future actions, may result in cumulative impacts on the ecosystem and human environment. This analysis should include a broad view of all reasonably foreseeable activities, including but not limited to, energy infrastructure (including future wind energy projects), sand mining, aquaculture, vessel activity, fisheries management actions, disposal sites, and other development projects. Consistent with efforts to evaluate the cumulative effects for both the Vineyard Wind and South Fork Wind projects, offshore wind development projects that have been approved and those in the leasing or site assessment phase should also be evaluated. Specifically, the cumulative effects analysis should consider all 16 COPs BOEM recently announced it plans to process by 2025. We encourage you to use the final cumulative impact analysis from the Vineyard Wind project to help inform discussions of cumulative effects on marine resources from other offshore wind development projects for this EIS. However, for this project, additional focus on cumulative impacts of multiple projects potentially impacting marine resources in the area at the same time and over consecutive seasons should also be incorporated. Although lease auctions for the New York Bight have not yet been conducted, consideration of the impacts from potential projects in the New York Bight Wind Energy Areas are warranted, particularly if the lease areas are defined and auctions completed before the EIS for this project has been finalized.

The EIS should evaluate cumulative impacts of project construction, operation, and decommissioning. Consideration of impacts from multiple projects throughout the region and outside the Rhode Island/Massachusetts Wind Energy Area is particularly important for migrating species of marine mammals, sea turtles, fish, and invertebrates that may use or transit multiple proposed project areas. The potential cumulative impacts on the migration and movements of 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.

Assessment of Hydrodynamics and Oceanographic Conditions

An assessment of the potential impacts of the Sunrise Wind project-specific (turbine level) and the full build-out/cumulative offshore wind scenario on hydrodynamics, and oceanographic and atmospheric conditions, will help evaluate impacts on species distribution and the effects to hydrodynamic conditions. The potential impact of offshore wind development is not well known, but the large scale energy extraction and the physical presence of wind turbine foundations could have a significant impact on wind speeds, wave heights, currents, vertical stratification of the water column, and primary production in this region, which could affect the ecology, habitat, and egg/larvae and prey distribution of a number of federally managed fish

species and protected species. We recognize there is uncertainty regarding the scope and scale of these impacts; however, it is critical that these issues are thoroughly addressed and that the EIS makes use of the best available scientific information, including the consideration of preliminary results of ongoing studies, to support any conclusions regarding these impacts. In particular, the EIS should contain a robust assessment of the potential effects of both the Sunrise Wind project and the full build-out scenario on prey resources for critically endangered North Atlantic right whales and other species. Potential impacts to plankton distribution should be clearly discussed as their distribution, aggregation, and possible abundance may shift, and this could have a significant impact on North Atlantic right whales, along with other large whales and numerous species of planktivorous pelagic fish, as zooplankton are the primary source of prey for many higher trophic level organisms. Given the consideration of including an offshore converter station that will withdraw large amounts of water, consideration of impingement and entrainment of plankton must be factored into this analysis. In addition, consideration of impacts to species recruitment and larval distribution due to changes to ocean stratification and circulatory patterns resulting from the development of wind projects should be discussed in this section.

Assessment of Overlapping Activities
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, displaced fishing effort, cable routing and burial, and changes in species abundance, among other impacts. Specific information related to the timing of the construction 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. Vessel strikes are a documented threat to a number of protected species including Atlantic sturgeon, sea turtles, and large whales, including critically endangered North Atlantic right whales. The EIS should evaluate, in detail, the cumulative effects of increased vessel traffic during all phases of the project.

The EIS should fully evaluate the cumulative effects of overlapping acoustic and benthic disturbance impacts on cod spawning aggregations across multiple spawning seasons. As discussed above, the project area overlaps with known spawning grounds for Atlantic cod. Because cod stocks region-wide are depleted in part due to low recruitment in recent years, adverse impacts to the spawning and recruitment of Atlantic cod associated with this project may result in significant long-term cumulative impacts to the southern New England spawning component of the Georges Bank stock. Cod that spawn in southern New England may soon be designated as a separate stock by the New England Fishery Management Council based on previously peer reviewed research. Overall, regional cod stocks are in poor condition and additional impacts to their discrete spawning aggregations and future recruitment, including cumulative impacts from multiple offshore wind development projects, may be detrimental to their recovery and result in significant long-term cumulative impacts to this distinct stock component and the species at large. The EIS must evaluate the potential cumulative effects of construction activity from this project and adjacent projects occurring during periods of cod spawning over multiple years, including the potential for population level effects should construction be permitted during periods of spawning activity.

In addition, 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.

Assessment of Regional Fishery Impacts

The EIS should evaluate the cumulative impacts of multiple projects on fishing operations, such as changes to time and area fished, gear type used, fisheries targeted, and landing ports. Some fishing vessels operate in multiple areas that may be subject to wind project development. While some may choose to continue to fish in these areas, others may be displaced from one or more project areas and fish in different areas outside the project areas. Therefore, it is important to evaluate how all existing and potential future wind projects could affect overall fishing operations due to effort displacement, shifts from one fishery to another, changes to gear usage and frequency, changes to fishery distribution and abundance, and increased fishing effort due to fishing in less productive areas. It is not enough to simply state that economic impacts of this project can be mitigated by fishing elsewhere without considering and addressing other factors that may impede effort displacement, including development of other wind projects in adjacent and nearby waters. The EIS should consider the socio-economic impacts on fishing communities that cannot relocate fishing activity due to cultural norms (fishing grounds claimed or used by others), cost limitations (too expensive to travel greater distances to other fishing areas), and other relevant limiting factors such as fishing regulations that limit where and when a particular vessel can fish with particular gear for a particular species. Shifts in fishing behavior, including location and timing, may result in cumulative impacts to habitat as well as target and bycatch species (both fish and protected species) that have not been previously analyzed in fishery management actions. Finally, reduced regional scientific survey access to project areas could increase uncertainty in associated stock assessments and result in more conservative quotas that would negatively impact fishery operations in all fisheries. Accordingly, the analysis should also consider cumulative impacts of all wind projects in the context of existing fisheries management measures.

Project-specific Monitoring Programs and Regional Surveys

Given the extent of potential offshore wind development on the OCS and in this region in particular, the cumulative effects analysis will be a critical component of the EIS. Establishing 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. As you are aware, we have been working with state agencies, developers, and research institutions through the Responsible Offshore Science Alliance to develop a regional scientific research and monitoring framework, including project-specific monitoring plan/study guidance to better identify and understand cumulative impacts and interactions between marine resources, fisheries, and offshore wind energy. Similarly, we are engaged in the development of the Regional Wildlife Science Entity in an effort to address regional science and monitoring of impacts to wildlife and protected species. It is imperative that project-specific monitoring efforts are integrated into existing regional monitoring programs throughout the outer continental shelf, unless there is a project or location specific research question explicit to characteristics and dynamics unique to the site and relevant to trust resources management. Monitoring at multiple

scales and which takes an ecosystem-based approach to assessing monitoring needs of fisheries, habitat, and protected species should be required. This will be important to not only assess the cumulative impacts of project development; it will also help inform any future development. You should also coordinate with our agency early in the process related to any potential effects of monitoring activities on NOAA trust resources; we note that survey or monitoring activities may require permits or authorizations from us.

Endangered Species Act

The following listed species may be found in the Sunrise Wind lease 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 present in the lease area seasonally, with occurrence largely limited to May - November. Additionally, oceanic whitetip shark (*Carcharhinus longimanus*) and giant manta ray (*Manta birostris*) may occasionally occur in the more offshore portions of the project area. More information on these species is available on our regional ESA information site[3]. North Atlantic right whale sightings are available at our NOAA Right Whale Sightings Map page[4]. Please note, a NOAA Tech Memo[5] was recently published with a new population estimate (368 individuals as of January 2019) for North Atlantic right whales. We note that this population estimate is significantly lower than the estimate in the 2020 Stock Assessment Report[6], which was a minimum population estimate of 408 individuals as of January 2018 (Hayes et al. 2021). The 2021 draft marine mammal Stock Assessment Reports are anticipated to be available later this year. There is no designated critical habitat that overlaps with the lease area. We do not have sufficient information on the project to determine if any vessel transit routes would overlap with any designated critical habitat. Depending on vessel traffic routes, additional ESA species may occur in the project area. Please see Attachment B to this letter for a list of recommended scientific references for consideration related to the presence of ESA-listed species in or near the lease area.

ESA Section 7 Consultation

Under section 7(a)(2) of the 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 activities that are reasonably certain to occur following the proposed approval of the Sunrise Wind COP (including surveys, construction, operation, and decommissioning) may affect ESA-listed species and/or designated critical habitat, section 7 consultation is required. It is our understanding BOEM will be the lead Federal agency for this consultation, and that you will coordinate with any other Federal agencies that may be issuing

[3] https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-species-critical-habitat-information-maps-greater

[4] https://apps-nefsc.fisheries.noaa.gov/psb/surveys/MapperiframeWithText.html

[5] Pace, RM. 2021. Revisions and Further Evaluations of the Right Whale Abundance Model: Improvements for Hypothesis Testing. NOAA Tech Memo NMFS-NE-269; 49 p. Available online at https://apps-nefsc.fisheries.noaa.gov/rcb/publications/tm269.pdf

[6] https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports

permits or authorizations for this project, as necessary, 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 and issuance of any MMPA take authorization by NOAA's National Marine Fisheries Service (NMFS)) regarding any wind energy facility proposed in the lease area. Given the extremely tight timelines proposed for this project, it is critical that we receive a draft Biological Assessment with the Cooperating Agency draft of the DEIS. This BA must reflect all activities associated with the full scope of the Sunrise Wind project including clearly defined mitigation and monitoring measures that BOEM considers as part of the proposed action. Further, the BA must reflect any and all proposed survey or monitoring activities proposed for any stage of the project, including surveys of fisheries resources. We encourage you to use the ESA Information Needs Checklist when developing the BA.

Considerations for the EIS

We expect that any environmental documentation regarding a proposed wind facility in the lease area will fully examine all potential impacts to our listed species, the ecosystems on which they depend, and any designated critical habitat within the action area. We have developed a checklist (ESA Information Needs document) to identify information needs for considering effects of wind projects on ESA-listed species and critical habitats and we strongly encourage you to use that as you develop the EIS. We also strongly urge you to carefully consider the information we have provided for the Vineyard Wind and South Fork NEPA documents and to incorporate that into this EIS as appropriate.

The construction and operation of a wind energy facility and installation of subsea 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 BOEM when making any determinations about construction and operation in the Sunrise 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 noise during any geophysical and geotechnical surveys, pile driving, wind turbine operations, and other activities;
- Potential interactions, including entanglement, injury, and mortality, of listed species from proposed surveys or monitoring of fisheries resources;
- Any activities which may displace species 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 and conversion of habitat types that may affect the use of the area, alter prey assemblages or result in the displacement of individuals;
- Impacts to water quality through sediment disturbance or pollutant discharge; project lighting as a potential attractant;
- Effects from electromagnetic fields and heat from inter-array and export cable to listed species and their prey (i.e. ability to forage, attraction, etc.); and
- Potential changes to pelagic habitat resulting from the presence of wind turbines.

The EIS should also consider how any proposed wind farm may displace or alter fishing or existing vessel activity that may change the risk to protected species from interactions with fisheries or vessels either within or outside the lease area, including potential risks of interactions with recreational fishing activity around foundations and entanglement in marine debris that may become ensnared on the foundations. Additionally, the EIS should consider effects of any surveys that may occur following potential COP approval that may affect listed species (e.g., gillnet or trawl surveys to characterize fisheries resources), as well as any pre- or post-construction monitoring that may affect listed species. For further information on effects to consider, please refer to the ESA Information Needs document.

It is our understanding BOEM will develop a Biological Assessment (BA) to support your eventual request for ESA section 7 consultation. While we understand that you intend to prepare the BA as a stand-alone document (i.e., you are not planning for the EIS to serve as the BA), we anticipate and expect that the BA will be an appendix to the EIS. We are not opposed to an approach whereby the EIS would serve as the BA, provided sufficient detail and analyses are included. We understand the BA and the NEPA document are likely to evaluate effects of activities consistent with a design envelope and are likely to take a "maximum impact scenario" approach to assessing impacts to listed species that may occur. We encourage early coordination with us to determine which impact-producing factors should be analyzed based on a "worst case" or "maximum impact" scenario and which parts of the design envelope would need to be narrowed to carry out a reasonable analysis that would support your request for section 7 consultation.

Through the EIS, you should consider requiring the development of minimization and monitoring measures that minimize the risk of exposure to potentially harassing or injurious levels of noise to marine mammals, sea turtles, and Atlantic sturgeon. Mitigation measures should be required during pile driving that will act to reduce the intensity and extent of underwater noise and avoid exposure of listed species to noise that could result in injury or behavioral disturbance. The use of protected species observers to establish and monitor clearance zones prior to pile driving is essential and project scheduling should take into account the need for adequate visibility during the pre-pile driving clearance period, as well as for the duration of pile driving activities. Real-time and archival passive acoustic monitoring should also be used as a secondary detection/monitoring system during construction, to increase situational awareness in vessel corridors and around the project area, and to monitor the distribution of marine mammals in the lease area during construction and operations. We encourage you to work with Sunrise Wind to develop a project schedule that minimizes potential impacts to North Atlantic right whales. Specifically, you should consider time of year restrictions for pile driving that would avoid pile driving during the months when the density of North Atlantic right whales is highest in the lease area and the development of robust measures for other times of year that would minimize the exposure of right whales to noise that could result in behavioral disturbance (e.g., requirements for use of best available sound reduction technology, consideration of reduced hammer energy, etc.). You will also need to carefully consider recent information on the use of the MA/RI and MA Wind Energy Areas by North Atlantic right whales and the increased seasonal use of these areas documented in recent years. This includes recent analyses which identify areas overlapping the Sunrise Wind lease area as

hotspots for right whales during the spring season, with records of feeding and social behavior (Quintana-Rizzo et al. 2021).

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)[7]. While BOEM and Sunrise Wind will need to consider effects to all listed species, given the imperiled status of North Atlantic right whales, implementing measures to ensure that no right whales are injured or killed as a result of the Sunrise Wind project is critical. We note that given the rapid pace of development of the lease blocks adjacent to the Sunrise Wind project and continued uncertainty surrounding construction schedules, consideration of the potential for overlapping construction periods (e.g., construction in multiple, adjacent leases in the same season) will be essential.

Mitigation measures should also be included that minimize the risk of vessel strike for whales, sea turtles, and Atlantic sturgeon, including consideration of vessel speed restrictions regardless of vessel size and robust measures to monitor vessel transit routes for North Atlantic right whales, including requirements for use of lookouts, reduced speeds, and use of PAM and other tools to increase the ability to detect and avoid whales along vessel transit routes. We strongly encourage you to require that vessels of all sizes reduce speeds to 10 knots or less in all Seasonal Management Areas and Slow Zones, including Slow Zones triggered by acoustic detections of North Atlantic right whales. Recent events and new information (see, https://doi.org/10.1111/mms.12745) demonstrate that large whales are susceptible to lethal vessel strikes from vessels of all sizes. Any surveys or monitoring that are carried out related to the project (e.g., gillnet or trap surveys to document fisheries resources) must carefully consider the effects to North Atlantic right whales and other ESA-listed species, and mitigation measures should be considered to eliminate the potential for entanglement of whales and to minimize risk to sea turtles and Atlantic sturgeon during such activities.

Marine Mammal Protection Act (MMPA)

Section 101(a) of the MMPA (16 U.S.C. 1361) prohibits persons or vessels subject to the jurisdiction of the United States from taking any marine mammal in waters or on lands under the jurisdiction of the United States or on the high seas (16 U.S.C. 1372(a)(1), (a)(2)). Sections 101(a)(5)(A) and (D) of the MMPA provide exceptions to the prohibition on take, which give us the authority to authorize the incidental but not intentional take of small numbers of marine mammals, provided certain findings are made and statutory and regulatory procedures are met. ITAs may be issued as either (1) regulations and associated Letters of Authorization (LOAs) or (2) Incidental Harassment Authorizations (IHAs). LOAs may be issued for up to a maximum period of five years; IHAs may be issued for a maximum period of one year. We also promulgated regulations to implement the provisions of the MMPA governing the taking and importing of marine mammals (50 Code of Federal Regulations (CFR) part 216) and published application instructions that prescribe the procedures necessary to apply for an ITA. U.S.

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

citizens seeking to obtain authorization for the incidental take of marine mammals under NMFS' jurisdiction must comply with these regulations and application instructions in addition to the provisions of the MMPA.

Information about the MMPA and 50 CFR part 216 is available on our website at https://www.fisheries.noaa.gov/topic/laws-policies#marine-mammal-protection-act. Information on the application process is available at https://www.fisheries.noaa.gov/node/23111 and the application along with detailed instructions is available at https://www.fisheries.noaa.gov/national/marine-mammal-protection/apply-incidental-take-authorization.

Because activities associated with the construction of Sunrise Wind have the potential to result in the harassment[8] of marine mammals, we anticipate that a request for an ITA pursuant to section 101(a)(5) of the MMPA may be submitted to us by the project proponent. NMFS' proposal to issue an ITA that would allow for the taking of marine mammals, consistent with provisions under the MMPA and incidental to an applicant's lawful activities, is a major federal action under 40 CFR 1508.1(q)[9], requiring NEPA review. Rather than prepare a separate NEPA document, NMFS, consistent with the CEQ regulations at 40 CFR 1506.3, intends to adopt BOEM's Final EIS to support its decision to grant or deny Sunrise Wind's request for an ITA pursuant to section 101(a)(5)(A) or (D) of the MMPA. NOAA may adopt all or portions (e.g., specific analyses, appendices, or specific sections) of a NEPA document prepared by another federal agency if the action addressed in the adopted document (or portion) is substantially the same as that being considered or proposed by NOAA, and NOAA determines the document (or portion) satisfies 40 CFR 1506.3.

When we serve as a Cooperating Agency and we are adopting another agency's EIS, we ensure all resources under our jurisdiction by law and over which we have special expertise are properly described and the effects sufficiently evaluated, documented, and considered by the lead agency EIS. Of particular importance is that the Draft and Final EIS address comments and incorporate edits NMFS provides during document development and Cooperating Agency review. As a Cooperating Agency per 40 CFR 1501.8, we must determine that the Final EIS properly addresses our comments and input in order for NMFS to determine the EIS is suitable and legally defensible for adoption, per 40 CFR 1506.3 and NOAA's NEPA procedures[10], and subsequent issuance of an ITA.

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[8] Harassment, (as defined in the MMPA for non-military readiness activities (Section 3(18)(A)), is any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment) or any act of pursuit, torment, or annoyance that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns (Level B harassment). Disruption of behavioral patterns includes, but is not limited to, migration, breathing, nursing, breeding, feeding or sheltering.

[9] All references to the Council on Environmental Quality NEPA regulations included in this letter apply to the 2020 regulations effective September 14, 2020.

[10] NOAA Administrative Order (NAO) 216-6A "*Compliance with the National Environmental Policy Act, Executive Orders 12114, Environmental Effects Abroad of Major Federal Actions; 11988 and EO 13690, Floodplain Management; and 11990, Protection of Wetlands*" issued April 22, 2016 and the Companion Manual for NAO 216-6A "*Policy and Procedures for Implementing the National Environmental Policy Act and Related Authorities*" issued January 13, 2017.

As such, the document body must contain the following items: the purpose and need of NMFS' action, a clear description of NMFS' roles and responsibilities as both a cooperating and adopting agency (language we previously provided to BOEM for the South Fork Draft EIS), and a range of alternatives which incorporate a description of NMFS' action, to include the No Action alternative.

A summarized list of NOAA's adoption requirements is below, and more information can be found in NOAA's NEPA Companion Manual available at https://www.nepa.noaa.gov/docs/NOAA-NAO-216-6A-Companion-Manual-01132017.pdf.

- The other agency EIS (or portion thereof) fully covers the scope of our proposed action and alternatives and environmental impacts;
- An adequate evaluation of the direct, indirect, and cumulative impacts on marine mammals and the marine environment, including species listed under the ESA;
- An adequate discussion of the MMPA authorization process necessary to support implementation of the action;
- A reasonable range and evaluation of alternatives to the proposed action, including a no action alternative and alternatives to mitigate adverse effects to marine mammals, including species listed under the ESA;
- There is a thorough description of the affected environment including the status of all marine mammals species likely to be affected;
- There is a thorough description of the environmental impacts of the proposed action and alternatives, including direct, indirect, and cumulative impacts on marine mammals and projected estimate of incidental take;
- Identification and evaluation of reasonable mitigation measures to avoid or minimize adverse impacts to marine mammals, including species listed under the ESA; and
- The listing of agencies consulted.

As part of our review, we must also determine if your EIS meets the requirements of 40 CFR Part 1500-1508, specifically basic requirements for an EIS as described in 40 CFR 1502. Therefore, the EIS must contain an adequate evaluation of the impacts on all marine mammals that may be present in the project area. In order to take a requisite "hard look" at environmental impacts, the analysis should consider the affected environment and degree of impact on each resource which involves an evaluation of direct and indirect effects, as well cumulative effects; the duration of the impact; whether it is beneficial or adverse and the geographic scale in which the action is occurring (e.g., local, regional). Specifically, the EIS must include an analysis of the impacts of elevated underwater noise on marine mammals resulting from pile driving, site characterization surveys, and other project-related activities; the risk of vessel strike due to increases in vessel traffic and/or changes in vessel traffic patterns; any activities that may increase the risk of entanglement; any activities that may result in the displacement of individuals or changes to migratory behavior; any activities that may result in altered prey assemblages or changes in feeding behavior; and any other activities that may result in harassment, injury, or mortality to marine mammals.

For specific marine mammal issues, we refer you to the discussion on marine mammals in the ESA section above. We note because all marine mammals are protected under the MMPA, those

comments apply to all marine mammal species. We specifically recommend that the analysis of impacts on marine mammals and corresponding significance determinations be separated by species group (i.e., mysticetes, odontocetes, and pinnipeds). For the noise impacts analysis, we recommend a similar approach using the hearing groups identified in NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (NMFS, 2018).

Magnuson-Stevens Fishery Conservation and Management Act

As currently described in the NOI, this facility (inclusive of the wind farm area, offshore and inshore export cables and corridors, and shoreside landing points) will be constructed, operated, and maintained in areas designated essential fish habitat (EFH) for various life stages of species managed by the New England Fishery Management Council (NEFMC), Mid-Atlantic Fishery Management Council (MAFMC), and NMFS. Species for which EFH has been designated in the project area include, but are not limited to, Atlantic cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), monkfish (*Lophius americanus*), ocean pout (*Zoarces americanus)*, summer flounder (*Paralichthys dentatus*), pollock (*Pollachius virens)*, silver hake (*Merluccius bilinearis)*, winter flounder (*Pseudopleuronectes americanus*), Northern longfin squid (*Doryteuthis pealii*), winter skate (*Leucoraja ocellata*), little skate (*Leucoraja erinacea*), windowpane flounder (*Scophthalmus aquosus*), bluefish (*Pomatomus saltatrix*), black sea bass (*Centropristis striata*), red hake (*Urophycis chuss*), scup (*Stenotomus chrysops*), yellowtail flounder (*Limanda ferruginea*), Atlantic sea scallop (*Placopecten magellanicus*), Ocean quahog (*Arctica islandica*), and Atlantic surfclam (*Spisula solidissima*). The proposed project area is also designated EFH for several Atlantic highly migratory species, including, but not limited to albacore tuna (*Thunnus alalunga*), yellowfin tuna (*Thunnus albacares*), bluefin tuna (*Thunnus thynnus*), blue shark (*Prionace glauca*), sandbar shark (*Carcharhinus plumbeus*), white shark (*Carcharodon carcharias*), dusky shark (*Carcharhinus obscurus*), tiger shark (*Galeocerdo cuvier*), and sand tiger shark (*Carcharias taurus*). The sand tiger shark has been listed as a Species of Concern by NOAA.

The most up-to-date EFH and HAPC designations should be used in your evaluation of impacts to EFH. HAPCs are a subset of EFH that are especially important ecologically, particularly susceptible to human-induced degradation, vulnerable to developmental stressors, and/or rare. EFH and HAPC for species managed by the NEFMC have been modified under the Omnibus Amendment which was approved and implemented in 2018. The EFH mapper should be used to query, view, and download spatial data for the species managed by the New England, Mid-Atlantic, and South Atlantic Councils and for Highly Migratory Species. The EFH mapper can be accessed from our habitat website at https://www.habitat.noaa.gov/protection/efh/efhmapper/. You should also be aware that the Final Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) went into effect on September 1, 2017. This amendment contains several changes to the EFH designations for sharks and other highly migratory species. More information can be found on our website at https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species.

Considerations for the EIS

The NEPA document, and the EFH, benthic resources, finfish and invertebrates sections, in particular, should accurately describe the project area, including both the export cable corridor

and lease area, and the resources that rely upon these habitats. The document should fully describe the distinct habitat features of the entire project area and the importance of different habitat types for providing structure and refuge, particularly for juvenile species and other sensitive life stages. The evaluation of project impacts should not only consider impacts of the project against the cumulative geographic scope (e.g. the OCS), but also clearly evaluate anticipated impacts of project construction and operation to the distinct habitat types found in the lease area, along the export cable route, and inshore landfall locations. The document should analyze the effects to the physical habitat features and the biological consequences of those effects. It will be important to consider impacts of the project on all life stages (adults, juveniles, larvae, eggs), and we recommend focusing on species and life stages that may be more vulnerable to impacts.

The Sunrise Wind project is proposed to be constructed on the southern edge of Cox Ledge and overlaps with unique and complex habitats. Impacts to complex habitats are known to result in long recovery times and are potentially permanent. Loss of these important habitats may result in cascading long term to permanent effects to species that rely on this area for spawning and nursery grounds and the fisheries and communities that target such species. The evaluation of impacts from project construction and operation should evaluate the potential for recovery and the anticipated recovery times based on the habitat type and components that would be impacted. The analysis should fully consider the potential impacts of proposed action to complex habitats in the lease area and cable corridor. Complex habitats may be permanently impacted or take years to decades to recover from certain impacts and this variability in recovery times by habitat type and components should be fully discussed and analyzed in the document.

The analysis should include a broad discussion of the potential effects of habitat alteration from construction and operation of the project using the best available scientific information. The analysis should address the potential impact of converting smaller-grained hard habitats (e.g. pebbles and cobbles) that support early life history stages of finfish to artificial reefs that may attract larger predator species. Within soft bottom habitats WTGs may create a reef effect, and the document should clearly distinguish the difference between man-made structures and the natural complex habitat present in the project area. Specifically, artificial habitats are only a component of the EFH designation for two managed fish species (black sea bass and red hake) in the region. The distinction between the natural and man-made structures should be incorporated into the analysis and should not be evaluated as equal in terms of habitat functions and values. The limitations of habitat value from scour and cable protection, and other man-made structures, should be clearly disclosed and analyzed.

Atlantic cod EFH for vulnerable early life history stages have been designated in the project area. Ongoing studies and the evaluation of historical data suggest that portions of the lease area are used by Atlantic cod for spawning. The southern New England spawning population represents the southernmost spawning contingent of this species along the Atlantic coast and contributes to the availability of the species throughout Southern New England waters. Recent information indicates these fish comprise a genetically distinct spawning population. The protection of this spawning population enhances genetic diversity and may increase the potential for the species as a whole to adapt to climate change. As discussed above, Atlantic cod spawn in southern New England between November and April. Spawning aggregations can be easily disturbed by in-

water activities and disruptions to spawning aggregations may affect reproductive success, which could result in significant long-term effects to the stock, particularly if construction activities occur during spawning periods over multiple seasons. The NEPA document should fully evaluate potential impacts of project construction and operation on Atlantic cod, including potential impacts to early life stages (e.g. habitats that support early stage juveniles after they settle to the bottom) and spawning activity from pile driving and ground disturbing activities, as well as the cumulative population level effects that may occur as a result of construction timing over multiple seasons. Further, the proposed OCS will result in both entrainment and impingement impacts as well as heated effluent discharges that may adversely affect planktonic stage Atlantic cod eggs and larvae. Specific measures to avoid and minimize these impacts should also be analyzed and discussed in the NEPA document.

In addition to Atlantic cod, spawning activity and sensitive life stages (eggs, larvae and juveniles) of other managed species are present throughout both the lease area and export cable corridor. The EIS should discuss impacts to sensitive life stages that may be more vulnerable to impacts. For example, both winter flounder and longfin squid (two species with designated EFH in the project area) have demersal eggs found within the project area and export cable corridor that are particularly vulnerable to sedimentation and burial. The COP notes that nearly 5,300 acres may experience up to 10 mm of additional sediment build up following construction activities, which could result in mortality for demersal eggs such as those laid by longfin squid within the project area and along the export cable corridor. Similar to cod, squid demonstrate spawning migration to the same areas each year and elaborate spawning behavior that can be disrupted by noise and particle movement. As proposed, construction of cables is expected to occur in Quarters 2 and 4 during peak squid spawning season, while foundation installation is expected to occur during Quarters 3 and 4 and overlap with the peak cod spawning season. These activities would have detrimental impacts to these important species and should be thoroughly evaluated in the EIS, including measures to minimize impacts to these species and their habitats sessile shellfish species may also be more vulnerable to project impacts. Potential impacts of the project on vulnerable life stages, including potential impacts to recruitment, should be discussed in detail and specific measures for avoiding and minimizing impacts should be identified in the document.

EFH Consultation

In the MSA, Congress recognized that one of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats. Congress also determined that habitat considerations should receive increased attention for the conservation and management of fishery resources of the United States. As a result, one of the purposes of the MSA is to promote the protection of EFH in the review of projects conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat.

The MSA requires federal agencies to consult with the Secretary of Commerce, through NMFS, 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 identified under this Act," 16 U.S.C. § 1855(b)(2). This process is guided by the requirements of our EFH regulation at 50 CFR 600.905. Pursuant to the MSA, each 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, "waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

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.

As stated above, adverse impacts to EFH may result from actions occurring within or outside of areas designated as EFH. In addition, the EFH final rule also states that the loss of prey may have an adverse effect on EFH and managed species. As a result, actions that reduce the availability of prey species, either through direct harm or capture, or through adverse impacts to the prey species' habitat may also be considered adverse effects on EFH. The EFH regulations state that for any Federal action that may adversely affect EFH, Federal agencies must provide NMFS with a written assessment of the effects of that action on EFH (50 CFR 600.920(e)). This EFH Assessment should include analyses of all potential impacts, including temporary and permanent and direct and indirect individual, cumulative, and synergistic impacts of the proposed project.

The EFH assessment must contain the following mandatory elements: (i) a description of the action, (ii) an analysis of the potential adverse effects of the action on EFH and the managed species, (iii) the federal agency's conclusions regarding the effects of the action on EFH, and (iv) proposed mitigation, if applicable (50 CFR 600.920(e)(3)). Due to the potential for substantial adverse effects to EFH from the proposed project, an expanded EFH consultation as described in 50 CFR 600.920(f) is necessary for this project. As part of the expanded EFH consultation, the EFH Assessment for the proposed project, the assessment should also contain additional information, including: (i) the results of an on-site inspection to evaluate the habitat and the site specific effects of the project, (ii) the views of recognized experts on the habitat or species that may be affected, (iii) a review of pertinent literature and related information, (iv) an analysis of alternatives to the action, and (v) other relevant information.

The EFH expanded consultation process allows the maximum opportunity for NMFS and the

Federal action agency, in this case BOEM, to work together to review the action's impacts on EFH and federally managed species, and for our agency to develop EFH conservation recommendations (EFH CRs) to avoid, minimize or otherwise offset adverse effects to EFH and federally managed species. Although the EFH consultation is a separate review mandated pursuant to the MSA, our EFH regulations encourage the consolidation of the EFH consultation with other interagency consultation, coordination, and environmental review procedures required by other statutes, such as NEPA, where appropriate. Because the information contained within the EIS is needed to support a complete EFH Assessment, we request you use the NEPA document as the vehicle within which to present the EFH assessment. The EFH Assessment should be included within a separate section or appendix of the DEIS document and be clearly identified as an EFH assessment.

Considerations for the EFH Assessment

We understand you permit the use of a Project Design Envelope (PDE) in the preparation of a COP, and the NEPA document will focus on analysis of the maximum impacts that would occur from the range of design parameters. However, for purposes of the EFH consultation, the EFH Assessment should be consistent with the EFH regulations under the MSA. Specifically, you are required to include in your assessment an analysis of the potential adverse effects on designated EFH, including the site-specific effects of the project, and measures that can be taken to avoid, minimize, or offset such effects (CFR 600.920(d-e)). You must assess the potential adverse impacts that would occur as a result of the range of design parameters under consideration in the PDE, rather than a maximum impact scenario. Of particular concern is the adequacy of the habitat information that will be provided in the EFH assessment. Accurate characterization and delineation of habitats within the project area is a critical component of the EFH assessment and a prerequisite for meaningful and appropriate EFH conservation recommendations to be developed for incorporation into the project. Should the EFH assessment provide insufficient details to assess impacts of the project, we may determine that the assessment is incomplete and that consultation under the MSA cannot be initiated, or we may provide precautionary conservation recommendations based upon the level of information and analysis available.

To help ensure adequate information to initiate the EFH consultation, the expanded EFH Assessment should include full delineation, enumeration, and characterization of all habitat types in the project area including the lease areas, cable corridors and landing sites. Particular attention should be paid to HAPCs, sensitive life stages of species, ecologically sensitive habitats, and difficult-to-replace habitats such as natural hard bottom substrates, particularly substrates with attached macroalgae and epifauna (including corals), SAV, and shellfish habitat and reefs. The habitat mapping data should also be shared directly with us in usable GIS format for review, apart from the body of the EFH Assessment and maps and figures contained therein. To aid BOEM and project applicants in the development of comprehensive and complete EFH Assessments, we have published our *Recommendations for Mapping Fish Habitat*[11], dated March 2021. This document is an updated version, which was previously submitted to you on May 27, 2020. To further streamline the consultation process, we also shared a technical assistance document with you in January of 2021, titled *Essential Fish Habitat (EFH) Information Needs for Offshore Wind Energy Projects in the Atlantic* which provides a checklist

[11]https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/60637e9b0c5a2e0455ab49d5/1617133212147/March292021_NMFS_Habitat_Mapping_Recommendations.pdf

of information that should be incorporated into the EFH Assessment.

As stated in our habitat mapping recommendations, EFH checklist, and through regular communication with you, early coordination in the consultation process, particularly for projects at the size and scale of offshore wind development, is essential. We are concerned about the limited early coordination and communication for the Sunrise Wind project, particularly related to habitat mapping and data collection prior to initial benthic sampling in this unique habitat area. While some coordination has occurred subsequent to the initial sampling, there has been limited coordination and data sharing subsequent to follow-up surveys. As we have previously discussed, early coordination on proposed habitat mapping procedures, including: 1) data collection (sampling design and methodologies); 2) data processing and interpretation (including habitat characterization); and 3) the development of maps that accurately delineate fish habitat, benefits all parties and will help avoid unnecessary delays in project development and consultations. It is critical that the data being collected can be used to accurately characterize and delineate fish habitat within the lease area and cable corridors to ensure we can differentiate and distinguish between, and within, areas of sensitive and complex habitats to provide appropriate conservation recommendations.

This is particularly important for an area such as Cox Ledge which is dominated by complex habitats and unique features. Accurate characterization of these complex habitats and features at a fine scale will be critical to ensure our recommendations are appropriate and feasible. As we have discussed previously, early coordination and sharing of collected data is critical to ensure we can provide constructive feedback and identify any concerns early in the process to help avoid delays in the review process. Moving forward with habitat mapping efforts without appropriate coordination may result in the need for additional field seasons/sampling to collect and interpret additional data to accurately map fish habitat for consultation purposes. Coordination with us prior to finalizing the delineations and characterization of the new data will streamline project review and allow us to provide the most appropriate EFH conservation recommendations. Continuing to move forward with habitat mapping efforts without appropriate coordination may result in the need for additional field seasons/sampling to collect and interpret additional data to accurately map fish habitat for consultation purposes.

In the absence of fine-scale and accurate fish habitat characterization and delineation, we must take a conservative approach to our assessment of project impacts and development of conservation recommendations for the project. Given the complexity of habitat in the project area and in consideration of the time necessary for reviewing such technical information, we request all data related to habitat mapping (acoustic survey results, seafloor sampling data, GIS data, figures/maps, etc.) be shared with us as soon as practicable (once it is processed), so we can begin reviewing and providing comments, which will allow for more streamlined project review and consultation.

Fish and Wildlife Coordination Act

The 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). As a result, our FWCA recommendations must be given full consideration by federal action agencies. Your consultation with us under the FWCA may occur concurrently with the EFH consultation under the MSA.

Under the FWCA, our authority extends to numerous other aquatic resources in the area of the proposed project, including, but not limited to, the following species and their habitats: American lobster (*Homarus americanus*), sand lance (*Ammodytes dubius and Ammodytes americanus),* striped bass (*Morone saxatilis*), American shad (*Alosa sapidissima*), alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis)* (collectively known as river herring), Atlantic menhaden (*Brevoortia tyrannus*), Atlantic silversides (*Menidia menidia*), oyster (*Crassostrea virginica*), blue mussel (*Mytilus edulis*), tautog (*Tautoga onitis*), weakfish *(Cynoscion regalis)* and other assorted fish and invertebrates. NOAA jointly manages a number of these species through Interstate FMPs with the Atlantic States Marine Fisheries Commission. A list of Commission species and plans can be found on their website at http://www.asmfc.org.

We anticipate all of these species will be included in your impact assessments, both in the EFH Assessment and NEPA document. We also expect the assessment to include impacts to the recreational and commercial fishing communities that rely on these species. The behaviors and habitat needs of diadromous and estuary-dependent fishes (associated with cable route locations) may not be represented by a discussion solely of the surrounding marine fishes in the WTG area. The discussion for FWCA species should be designed around an ecological guild model that uses locally important species to evaluate the project impacts to organisms or populations associated with the various trophic levels and life history strategies exhibited by FWCA species known to occupy the project area as residents or transients. Focus should be on issues surrounding particular species, life history stages, or habitat components that would be most susceptible to the various potential project impacts.

Fisheries Management Comments

Species important to both commercial and recreational interests are found within the project area and associated cable corridor. The COP adequately identifies most species and fisheries that may be affected by the proposed operations based on a good overview of available information, but substantially underestimates the number of vessels that may be affected by this project. As noted in our socioeconomic impact summary reports for this project (available at https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/WIND/WIND_AREA_REPORTS/Sunrise_Wind.html#Most_Impacted_FMPs), skates, monkfish, silver hake (whiting), scup, longfin squid, Northeast multispecies (yellowtail flounder), summer flounder, American lobster, and Atlantic sea scallop are the primary commercial fisheries affected in terms of landing amounts and fishery revenue. The project area is the primary fishing location for the skate bait fishery. Impacts to the skate bait fishery could have indirect impacts on other fisheries (lobster,

Jonah crab, red crab) if bait supply is disrupted as a result of this project. When evaluating fishery impacts, the EIS should discuss these fisheries and associated direct and indirect impacts.

While our socioeconomic impact reports offer comprehensive summaries of historic fishery operations within the project area, some limitations should be noted. The true scale of surfclam/ocean quahog fishery operations within the project area and along the export cable corridor is somewhat masked and not directly identified in the species and fishery management plan (FMP) tables in our socioeconomic impact summary reports. Because we are required to protect confidential information, most surfclam/ocean quahog landings and revenues are aggregated in the "all others" category in Tables 1.1 and 1.2, respectively. Some sense of the scale of surfclam/ocean quahog operations can be identified in Tables 4.1 and 4.2, which describe fishery landings and revenue by gear type, respectively. While the COP notes the generally high historic activity by this fishery in affected areas based on vessel monitoring system (VMS) data, the EIS should more thoroughly evaluate the potential impacts on this fishery even if precise estimates cannot be shared. Because lobster vessels are only required to submit vessel trip reports (VTRs) if they are issued a Federal permit for another species (many are not), lobster and Jonah crab operations are not fully captured in available VTR data and are underrepresented in our socioeconomic impact summary report. Similarly, information on highly migratory species catch are only partially captured in VTRs available from the Greater Atlantic Regional Fisheries Office and are instead found in VTRs available from our Southeast Regional Office and the large pelagics survey (available at https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-downloads). Such sources should be consulted when preparing the EIS.

Our party/charter recreational fishing summary report (https://www.greateratlantic.fisheries.noaa.gov/ro/fso/reports/WIND/WIND_AREA_REPORTS/party_charter_reports/Sunrise_Wind_rec.html) provides detailed information on for-hire fishing activities within this project area. The report identifies the summer flounder, scup, black sea bass, and Northeast multispecies (groundfish) fisheries as the primary party/charter fisheries that operate in this area, and identifies the number of annual vessel trips and angler trips into the area by port. Private angler recreational catch data are not collected with sufficient area precision to determine the amount of catch inside a particular wind project area. Despite this limitation, the project area is likely to affect important regional recreational fisheries and a discussion of party/charter and private angler catch should be included in the EIS. Any requests for fishery data should be submitted to nmfs.gar.data.requests@noaa.gov.

BOEM should use information from all available and appropriate sources to characterize fishing operations and evaluate the potential impacts of the proposed project on private anglers, commercial and party/charter fishing vessels, and associated communities. As noted above, consideration of data across a broad time frame (10 years or more), including data from the most recent 2 years, is necessary to reflect both recent operations and annual fluctuations in fishing operations due to changing environmental conditions, market price, and management measures. As such, the COP and future EIS should include the most recent information available. We rely on VTRs as the best source of area-based data for all federally-managed commercial and party/charter fisheries. Both VMS and automatic identification system (AIS) data provide higher resolution spatial data, but such sources are not adequate to provide information on all

commercial fisheries or fishing vessels, especially the skate and whiting fisheries which do not have a VMS requirement. As discussed in the COP, multiple sources of data should be analyzed together to present a more complete picture of overall fishery operations and avoid drawing inappropriate conclusions by considering only one data source. In evaluating the use of existing data sources, please refer to the list of data limitations provided in our January 2021 socioeconomic checklist. When using these data to analyze the impacts of the proposed project, BOEM should recognize such limitations and tailor impact conclusions based on the data used. Care should be taken to put operations into the proper context in future analysis to avoid mischaracterizing fishing operations and potential impacts associated with the proposed project. Further, assumptions and methods used to extrapolate data from incomplete data sources should be clearly articulated, although extrapolations should be minimized to avoid reaching inaccurate conclusions from limited data. The socioeconomic impact analysis in the EIS for this project should request and use updated data reflecting the correct areas identified for this project.

A quantitative analysis of the potential biological, social and economic costs of the project to fishing industries and their communities must be included in the EIS. As noted above, we have provided a checklist outlining the elements we expect to be included in an analysis of the socioeconomic impacts of this project. Our previously referenced socioeconomic impact summaries address nearly all of the elements on the checklist and can be used as the foundation of such an analysis. The analysis should also address potential costs associated with reduced fishing revenues as a result of short or long-term effort displacement, impacts on catch rates, changes to species composition, potential impacts of construction activity on spawning success and future recruitment, and permanent or short-term changes to EFH during construction, operation, and decommissioning the project. Vessels may experience increased operational costs from increased insurance rates to fish within wind farms or additional fuel required to transit around wind farms or search for new fishing locations. 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, should be assessed. This is a critical analysis, as even marginal changes in costs could be impactful for some fisheries. Similarly, analysis of the affiliated non-market social impacts of such activities should be included in the EIS, including impacts to cultural norms, fishermen or fishing community social relationships, and health and well-being (see Fisheries Social Impact Assessment Guidance Document https://media.fisheries.noaa.gov/dam-migration/01-111-02.pdf and Practitioner's Handbook https://spo.nmfs.noaa.gov/sites/default/files/TM212_0.pdf). Finally, the EIS should consider and discuss any mitigation measures contemplated to reduce any adverse impacts to fishing operations, particularly those due to loss of area access or gear damage/loss.

Consistent with our comments on other projects, we recommend BOEM avoid/minimize impacts to fishery resources and existing and anticipated future fishing operations from this project. As noted above, this project could alter EFH for certain species, while construction activities and noise could disrupt spawning behavior, mask species communications, and negatively impact eggs and larvae. If WTGs increase habitat preferred by species such as black sea bass and enhance the geographic expansion of such stocks, the project could also alter predator/prey relationships and increase sources of natural mortality, while also attracting increased recreational fishing effort. These effects could have short- and potentially long-term impacts to

such resources and resulting consequences to fisheries that target them. Apart from indirect biological impacts, the project could result in direct impacts to fishing operations in the form of reduced area access, increased steaming time, and navigational/operational impediments. Beyond the operational impacts (access/navigation) due to the presence of structures, the COP notes that pre-construction preparation could involve relocating boulders and unexploded ordnance (UXO). Shifting the location of known obstructions or UXO may cause safety impacts to vessels, including gear/vessel damage and personal injury. Because dredge gear is used substantially throughout the project area and export cable, it is also important for the project to bury cables as deeply as possible to avoid damage to both fishing gear and cables. The EIS should discuss these issues and include measures to avoid and minimize such impacts.

Federal Fisheries Surveys, Fisheries Dependent Data, & Stock Assessments

We continue to observe that the impacts to our scientific surveys are incorrectly characterized and not accurately described in the COP prepared for this action. It is inaccurate to suggest that survey vessels or airplanes could simply alter course to avoid WTGs, or that a sampling location that is occupied by a WTG could be removed from future consideration without affecting the survey, sampling design assumptions, or concomitant scientific advice derived from the data collections. The brief text provided in the COP related to scientific surveys contradicts the best available scientific information on the issue. This should be rectified in the final version of the COP. More importantly, the analysis in the COP should not be carried forward into the EIS prepared for this project.

As noted for other wind development projects, the Sunrise Wind project is anticipated to have major adverse impacts on NMFS Northeast Fisheries Science Center scientific surveys, which will, in turn, result in adverse impacts on fishery participants and communities, conservation and recovery of protected species, and on the American public. This project would have direct impacts on the federal multi-species bottom trawl survey conducted on the FSV Henry Bigelow, the surfclam and ocean quahog clam dredge surveys conducted on chartered commercial fishing platforms, the integrated benthic/sea scallop habitat survey, ship and aerial-based marine mammal and sea turtle surveys, and the shelf-wide Ecosystem Monitoring Survey (Ecomon). Based on standard operating practices conducted by the NOAA Office of Marine and Aviation Operations, WTG arrays would preclude safe navigation and safe and effective deployment of mobile survey gear on NOAA ships. The impacts to our scientific surveys from this project will be driven by four main mechanisms: 1) exclusion of NMFS sampling platforms from the wind development area, 2) impacts on the random-stratified statistical design that is the basis for data analysis and use in scientific assessments, advice, and analyses; 3) the alteration of benthic, pelagic, and airspace habitats in and around the wind energy development; and 4) potential reductions in sampling outside wind areas caused by potential increased transit time by NOAA vessels. Adverse effects on monitoring and assessment activities would directly impact the critical scientific information used for fisheries management and the recovery and conservation programs for protected species. These impacts would result in increased uncertainty in the surveys' measures of abundance, which could potentially lead to lower quotas for commercial and recreational fishermen and lower associated fishing revenue based on current fishery management council risk policies. These impacts will occur over the lifetime of wind energy operations at the project area and in the region (to at least 2050).

Given the anticipated development of offshore wind in our region, it is critical to expeditiously establish and implement a regional federal scientific survey mitigation program to address this significant issue. Such a survey mitigation program would include the following elements:

1. Evaluation of scientific survey designs;
2. Identification and development of new survey approaches;
3. Calibration of new survey approaches;
4. Development of interim provisional survey indices;
5. Integration of project-specific monitoring plans to address regional survey needs; and
6. Development of new data collection, analysis, management, and dissemination systems.

Information from project-specific mitigation plans could be critical inputs to the development and implementation of any future federal survey mitigation program if they are designed to address project level impacts on federal surveys. Project-level impacts on scientific surveys should require project-level mitigation measures for each of the seven scientific surveys disrupted by the Sunrise Wind project. Monitoring activities currently employed by Vineyard Wind have not been designed to mitigate project level impacts on NMFS scientific surveys. As project monitoring plans are further considered and developed, these approaches should be standardized, meet existing scientific survey protocols and develop new methods using independent-peer review processes, and methods should be calibrated to and integrated with federal regional scientific surveys, and annual data collections implemented for the operational life span of the project, or until such time as a programmatic federal scientific survey mitigation program is established. Text provided in documents prepared for other projects with similar impacts can be used to inform the assessment of scientific survey impacts for this project. Consistent with work we have done with you in the past, the NEPA document should include a full description of scientific surveys to be impacted, the history of each time series, and relative importance of the impacted scientific surveys on management advice, decision-making, and other end-users. We encourage you to work closely with us to ensure potential impacts to our scientific survey operations and consequent effects to fisheries stock assessments, fishery management measures, and protected species conservation efforts are evaluated in the EIS for this and other projects, including any efforts to mitigate such impacts.

In addition to impacts on fisheries independent survey data collections, analysis of impacts on fisheries dependent data collections, e.g., landings, biological samples, and observer data, due to potential changes in effort should also be required. This assessment should consider potential changes in mortality rates for target and non-target species and potential fisheries interactions with marine mammals and threatened and endangered species. This analysis should also consider the potential changes in fisheries dependent data collections on stocks expected to be impacted by offshore wind development impact producing effects and on the anticipated displacement of fishing operations. How these effects impact specific stock assessments should also be evaluated in addition to how these changes may impact the effectiveness of fishery management measures in meeting their objectives.

Attachment B

Suggested Scientific References (Not Exhaustive) Regarding Use of the Project Area by ESA-Listed Species, see ESA Information Needs Checklist for additional sources on the abundance and distribution of listed species

Fish

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New England Fishery Management Council

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

September 20, 2021

Program Manager, Bureau of Ocean Energy Management
Office of Renewable Energy Programs
45600 Woodland Road (VAM-OREP)
Sterling, Virginia 20166

Re: Commercial and Research Wind Lease and Grant Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf of the New York Bight – Draft Environmental Assessment

Dear Sir/Madam,

Please accept these comments from the New England Fishery Management Council (New England Council) and Mid-Atlantic Fishery Management Council (Mid-Atlantic Council) on the Draft Environmental Assessment (EA) for wind lease and grant issuance and site assessment activities in the New York Bight. The draft EA considers only leasing these areas, which would allow lessees to conduct geophysical, geotechnical, and biological surveys, and, if authorized to do so pursuant to an approved Site Assessment Plan, install meteorological measurement devices to characterize the site's environmental and socioeconomic resources and conditions and to assess the wind resources in the lease areas. The draft EA does not consider the impacts of constructing wind farms as those impacts will be considered through separate Environmental Impact Statements after lessees have submitted Construction and Operations Plans.

We submitted comments during the April 2021 scoping period for this EA, and in August 2021 during the comment period for the proposed sale notice. We continue to be concerned about the issuance of additional leases in the New York Bight; however, we have not repeated most of those comments here and instead focused on the content of the draft EA. We understand that the National Environmental Policy Act regulations do not require a comment period on draft EAs and we appreciate that BOEM has provided this additional opportunity for input.

The New England Council has primary management jurisdiction over 28 marine fishery species in federal waters and is composed of members from the coastal states from Connecticut to Maine. The Mid-Atlantic Council manages more than 65 marine species[1] in federal waters and is composed of members from the coastal states of New York to North Carolina (including Pennsylvania). In addition to managing these fisheries, both Councils have enacted measures to identify and conserve essential fish habitats (EFH), protect deep sea corals, and sustainably manage forage fisheries. The Councils support policies for U.S. wind energy development and operations that will sustain the health of marine ecosystems and fisheries resources. While the Councils recognize the importance of domestic energy development to U.S. economic security, we note that the marine fisheries throughout New England and the Mid-Atlantic are profoundly important to the social and economic well-being of communities in the Northeast U.S. and provide numerous benefits to the nation, including domestic

[1] Fifteen species are managed with specific Fishery Management Plans, and over 50 forage species are managed as "ecosystem components" within the Mid-Atlantic Council's FMPs.

food security.

General Comments

As we have stated in previous comment letters, geophysical, geotechnical, and biological surveys should be coordinated across lease areas and individual wind energy projects so consistent baseline data are collected, considering the recent recommendations of the Responsible Offshore Science Alliance relative to fisheries assessment and NOAA Fisheries habitat mapping recommendations for seabed characterization. This will help ensure that existing conditions are accurately characterized, potential impacts are accurately assessed, and actions to avoid, minimize, and mitigate negative impacts are effective. The EA should be revised to acknowledge that survey activities will have different impacts if they are coordinated across all lease areas, compared to if coordination does not occur. Coordinated science could have positive impacts across a range of affected resources.

There is overlap between the resources described in the 'benthic resources', 'commercial and recreational fishing', and 'finfish, invertebrates, and EFH' sections. For example, bivalves are generally noted as benthic resources; however, some bivalve species support important commercial fisheries. Assuming BOEM intends to retain the resource groupings as-is, it would be helpful to acknowledge these overlaps, and clarify what aspects of impacts are evaluated in each section.

We do not think it is necessary to include Atlantic salmon as a potentially affected species in the New York Bight; however, we defer to NOAA and USFWS on this issue. The New England Council identifies EFH for salmon, and the furthest southern extent is the mouth of the Connecticut River, which is north of the study area.

Impacts to Benthic Resources (Sections 4.2.1 and 4.3.1)

A general description of benthic habitat characteristics is provided on page 29. These sand-dominated features will be fundamentally altered due to the installation of wind turbines and associated scour protection structures. The EA estimates that these changes, combined with other ongoing human activities and climate change, will result in moderate adverse impacts to benthic resources (p. 31). The magnitude and direction of this impact is probably reasonable, but scant justification is provided for this finding, and additional discussion and rationale should be added to section 4.2.1. It will be important to map benthic features at appropriate spatial scales before, during, and after construction to allow for a thorough evaluation of changes to benthic resources, and the impacts that these changes may have on fish and fisheries.

The text on pages 28-30 is very general and provides little detail on the nature or magnitude of the impacts of various activities (fishing, offshore wind development, sand mining, navigational dredging) on benthic species. There is a substantial body of literature on both fishing gear effects and a smaller but rapidly growing body of literature on the benthic effects of wind development that could be used to develop a more robust discussion of potential impacts.

The benthic resources section emphasizes the impacts of fishing and gives less emphasis to impacts associated with offshore wind development, except for in the conclusions on pages 30-31. We acknowledge that cumulative assessments are complex, as multiple activities combined with climate

change interact to affect the benthos. However, it would be useful to characterize the expected relative magnitude of different activities (fishing, dredging, offshore wind development, etc.) so their relative effects on benthic resources can be compared. The New England Council has developed a model of fishing gear effects that describes the spatial distribution and magnitude of fishing on the seafloor for multiple benthic gear types. The New England Council webpage has more information, and data products can be downloaded from the Northeast Ocean Data Portal. Multiple activities combined with climate change interact to affect the benthos.

Impacts to Commercial and Recreational Fisheries (Sections 4.2.2 and 4.3.2)

We recommend that the language in section 4.2.2 be revised to refer to management at the federal and state level, rather than at the federal and regional level. The Mid-Atlantic and New England Fishery Management Councils work at the regional level in federal waters and the Atlantic States Marine Fisheries Commission works with member states to manage fisheries at the regional level in state waters. This section should also note that NOAA Fisheries has management authority for certain tunas, sharks, swordfish, and billfish.

The list of managed species included in section 4.2.2 is far from comprehensive. This language should be revised to clarify that this list includes examples of prominent fisheries in the New York Bight, rather than all managed fisheries in the region.

Page 35 of the draft EA states "Generally, the activity and value of fisheries are expected to remain fairly stable during the time frame of [sic] considered in this EA." The final EA should more clearly indicate that this is an assumption made for the purposes of analyzing and comparing the two alternatives and that actual future fisheries activity and value may vary under both alternatives. For example, stocks under a rebuilding plan may see reduced fishing activity and revenues and changing market conditions can impact revenues. We acknowledge that there are many challenges associated with predicting future conditions with a high degree of precision. Generally, we recommend using multi-year averages to assess fisheries conditions and impacts as landings, value, and other socio-economic characteristics can vary year to year.

As we have noted in past comment letters, using only ex-vessel value to define the most affected fisheries can exclude fisheries which may have socioeconomic importance for other reasons (e.g., high volume but lower ex-vessel value, a seasonally or locally important fishery, or a lower value species that is used as bait for a higher value species).

Section 4.2.2 (p. 35) references NOAA's Fish and Shellfish Climate Vulnerability Assessment (Hare et al. 2016) regarding the potential vulnerability of fishery species to environmental change. A forthcoming Habitat Climate Vulnerability Assessment draws similar conclusions by habitat type. Once this assessment is published, it should also be incorporated into all relevant EA and EIS documents for offshore wind energy development in this region. NOAA Headquarters habitat staff are the primary point of contact for this work.

We are pleased that the draft EA acknowledges that "noise generated from low-frequency sound (produced by some survey equipment) may result in decreased catch rates of fish while the survey is occurring. Decreased catch rates may be most notable in hook and line fisheries because

behavior changes may reduce the availability of the fish to be captured in the fishery" (p. 48). Local captains have shared observations with us suggesting that these impacts are temporary, but they do persist for a short while after the survey vessel leaves the immediate area. The EA should acknowledge that although these impacts may be temporary and negligible to minor when considered at the fishery-wide or fish population level, they can be much greater in magnitude for individual captains. For example, a single day of especially poor fishing on a for-hire vessel can have negative impacts for the captain and crew if it results in fewer repeat customers and fewer recommendations of their business to prospective customers.

We recommend improved communication between offshore wind developers and fishermen regarding the use of sub-bottom profilers and other survey equipment that may be of concern to commercial and recreational fishermen. For example, the Notices to Mariners regularly shared by developers could include more details on the types of survey equipment to be used. This could allow captains to adjust their planned fishing locations if they wish to minimize impacts from certain types of survey equipment. The draft EA concludes that the effects of surveys and survey vessels on fishing vessel navigation are likely to be negligible (p. 49). We do not necessarily disagree with this conclusion but suggest that BOEM evaluate this statement based on evidence from the many site assessment activities that have already occurred throughout the region. As stated in the draft EA, this conclusion is presented as a reasonable conjecture, rather than an evidence-based finding.

Impacts to Finfish, Invertebrates, and Essential Fish Habitat (Sections 4.2.3 and 4.3.3)

Pages 36-37 note the overfished status of bluefish and Atlantic mackerel, which are stocks managed by the Mid-Atlantic Council. The document should also highlight New England Council-managed species that occur in the New York Bight and are overfished and/or experiencing overfishing. For a current list of species, see NOAA Fisheries' quarterly stock status updates. The spatial extent of a species' essential fish habitat designation is a reasonable way to assess whether its distribution extends into the New York Bight.

Page 37 suggests fishing and cable/pipeline installations have similar effects but at different spatial scales. We acknowledge that there is a large difference in scale, but fishing is mainly a surface activity, whereas cable installations create deep trenches, and can occur in nearshore habitats where mobile gear fishing typically does not occur. In addition, the impacts of both fishing and offshore wind development on benthic and water column EFH, versus the impacts of these activities on fish and shellfish, are distinct and it is overly simplistic to lump them together in a single discussion. For example, the acoustic and hydrodynamic effects of fishing on the water column are minimal and temporary, whereas offshore wind structures and the noises they generate may have very different effects on these habitats that persist long-term.

Page 38 states that the installation of wind turbines and offshore substation foundations "may have potential effects on the Mid-Atlantic Bight Cold Pool" but that "BOEM does not anticipate that planned offshore wind structures would negatively affect the Cold Pool, although they could affect local conditions." Potential impacts to the Mid-Atlantic Cold Pool and resulting impacts on fishery species are of concern to the Councils and other fishery stakeholders. This is also an area of ongoing

research.[2] The final EA should more clearly document what is known about potential impacts to the Cold Pool and resulting potential impacts to marine species and fisheries. The final EA should acknowledge data gaps and ongoing research. If the conclusion of no negative impacts to the Cold Pool is maintained, further clarity on the supporting rationale should be provided.

The EA notes that submerged aquatic vegetation (SAV) and purpose-built artificial reefs are not present in the WEAs but could occur along the cable routes and could be impacted by bottom sampling (p. 46). SAV distributions can shift over time due to environmental conditions, but are generally known, and reef locations should be charted and fully knowable. Given that the spatial distributions of these resources are generally understood, it should be possible to minimize, if not entirely avoid, impacts to SAV, and impacts to artificial reefs should be entirely avoidable by not including their locations in planned routes. Avoidance of at least artificial reefs (including shipwrecks) should be a stipulation of the leases.

We urge caution when evaluating the potential distribution of soft and stony corals in the wind energy areas and potential cable corridors (p. 46). We agree that the shallow waters of the Mid-Atlantic Bight are generally unlikely to harbor a diversity of coral species; however, systematic directed sampling for corals in shallow waters has not taken place. As documented in the NJ report (Geo-Marine 2010), coral species can occur at artificial reef sites, and thus may occur on natural hard bottom as well. Predictive models[3] indicating higher or lower likelihood of suitable habitats for corals are largely based on deep water records and incorporate fewer samples of shallow water taxa, so these results should be used with caution.

Cumulative Effects

As we stated in our April 2021 scoping comments, this EA should acknowledge the cumulative impacts of all types of pre-construction monitoring in these areas and in all other lease areas within the geographic scale relevant to each impacted resource. Specifically, the EA should acknowledge cumulative removals of fishery species, cumulative takes of protected species, and cumulative habitat impacts resulting from survey activities in lease areas across the region.

This draft EA does not consider construction of wind farms within these proposed new lease areas as a "reasonably foreseeable planned action" (p. D3-D5). We understand that this is because construction and operation of wind farms within these areas will be analyzed through future project specific EIS documents, and is not within the scope of this draft EA. The forthcoming EIS documents must consider the cumulative impacts of construction and operation of wind farms within these lease areas

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[2] For example, two recent reports on potential impacts of offshore wind energy development on the Cold Pool which do not appear to be referenced in the draft EA are available at the following links: https://scemfis.org/wp-content/uploads/2021/01/ColdPoolReview.pdf; https://rucool.marine.rutgers.edu/wp-content/uploads/2020/10/PartnersWorkshop_WhitePaper_Final.pdf

[3] Kinlan, B. P., Poti, M., Drohan, A. F., Packer, D. B., Dorfman, D. S., & Nizinski, M. S. (2020). Predictive modeling of suitable habitat for deep-sea corals offshore the Northeast United States. Deep Sea Research Part I: Oceanographic Research Papers, 158, 103229. doi:https://doi.org/10.1016/j.dsr.2020.103229

as well as all other lease areas within the geographic scope relevant for each impacted resource.

Other considerations

Section 4.2.4 (p. 39) notes that globally, fishing gear interactions constitute a significant threat to marine mammals, and notes which gears are the primary sources of concern in the Mid-Atlantic Bight. Fishing gear interactions estimated for the study region[4] or the Mid-Atlantic Bight may provide more valuable information than world-wide estimates. These numbers could then be compared to estimates for regional offshore wind surveys and construction. We recommend a similar approach when considering potential impacts to sea turtles, specifically that regional take estimates would provide a more useful context for estimating offshore wind impacts.

Conclusion

We appreciate the opportunity to provide comments to ensure that issues of social and ecological importance are considered as BOEM considers leasing areas of the New York Bight for wind energy development. We look forward to working with BOEM to ensure that any wind development in our region minimizes impacts on the marine environment and can be developed in a manner that ensures coexistence with our fisheries. We would be happy to assist in communicating information to the fishing industry through our respective Council processes.

Please contact us if you have any questions.

Sincerely,

Thomas A. Nies
Executive Director, New England Fishery Management Council

Dr. Christopher M. Moore
Executive Director, Mid-Atlantic Fishery Management Council
cc: J. Beaty, M. Luisi, W. Townsend, J. Bennett, A. Lefton

[4] The geographic boundaries for the analysis for marine mammals, sea turtles, fish/fishing, and birds include the entire NY Bight and some waters offshore Rhode Island (RI) and Massachusetts to the north and Delaware to the south given their highly mobile and, in some cases, migratory nature.