New England Fishery Management Council

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

June 30, 2023

Jessica Stromberg
BOEM Office of Renewable Energy Programs
45600 Woodland Road
Sterling, Virginia 20166

Re: Draft Environmental Impact Statement for Atlantic Shores South Wind Project off New Jersey

Dear Ms. Stromberg,

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 draft environmental impact statement (DEIS) for the Atlantic Shores South Wind Project. The DEIS analyzes the potential environmental impacts of the project as described in the Construction and Operations Plan (COP) submitted by the developer (i.e., the proposed action), as well as the impacts of four other action alternatives, three of which have sub-alternatives, and a no action alternative.

The Mid-Atlantic Council manages commercial and recreational fisheries for 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). The New England Council manages over 28 marine fishery species in federal waters and is composed of members from the coastal states of Maine to Connecticut. In addition to managing these fisheries, both Councils have enacted measures to identify and conserve essential fish habitat (EFH), protect deep sea corals, and sustainably manage fisheries for forage species. 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 marine fisheries throughout New England and the Mid-Atlantic, including within the Atlantic Shores South project area and in surrounding areas, are profoundly important to the social and economic well-being of communities in this region and provide numerous benefits to the nation, including domestic food security.

Our key recommendations are as follows. Additional details are provided below.

- We recommend that BOEM approve a combination of Alternatives C1, C2, and E to reduce impacts to fisheries, fish species, and habitats.
- In addition, we recommend removal of an additional wind turbine generator location to avoid negative impacts to the Atlantic City Reef.
- We support the use of fewer larger substations versus a larger number of smaller substations to reduce the number of foundations needed and therefore reduce the impacted area.
- All permanent structures, including offshore substations and meteorological towers, should be placed within the same uniform grid layout as the turbines to reduce safety risks for navigation.

[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.

- 60-day comment periods are preferable over 45-day periods for public review and input on DEIS documents.
- The purpose and need section should clarify that BOEM is not bound to only consider approval of projects large enough to meet existing state energy procurements.
- The project design envelope (PDE) is very broad which poses challenges for evaluation of preferred alternatives and impacts analysis. This envelope should be refined prior to publication of the FEIS to focus on likely turbine capacities/sizes, foundation types, and substation sizes.
- If additional mitigation measures will be required beyond those agreed to by the developer, the FEIS should identify which are assumed for the purpose of impacts determinations.

General Process Comments

Given the current pace of offshore wind energy development in this region combined with workload constraints, we are unable to provide a detailed review of this project and the DEIS. The analysis in the DEIS has important ramifications for terms and conditions which may be implemented through final project approval, including fisheries mitigation and compensation measures. With this in mind, we strongly encourage BOEM to consider the recommendations listed in the wind energy policies adopted by both Councils, which apply across all projects.[2] Our two Councils worked together on and adopted the same wording for these policies. We also urge BOEM to adopt the recommendations provided by NOAA Fisheries for this project, including recommendations for data considerations, impacts analysis, and ways to minimize the negative impacts of this project on marine habitats, commercial and recreational fisheries, and fishery species.

We recommend that BOEM extend the comment period for this and future DEIS documents to 60 days, consistent with multiple other projects (e.g., Sunrise Wind, CVOW, New England Wind, SouthCoast Wind). A 60-day comment period for DEIS review is preferable over 45 days given the length and complexity of the DEIS and associated documents. The beginning of this comment period overlapped with opportunities related to Gulf of Maine research and commercial leasing and the New England Council was working during that time to prepare comments on these issues.

Purpose and Need

The National Environmental Policy Act requires consideration of a range of alternatives which could meet the defined purpose and need for the action. The DEIS does not clearly and succinctly define the purpose and need, which poses challenges for commenting on specific configurations of the alternatives. Section 1.2 of the DEIS (Purpose and Need of the Proposed Action) describes broad federal renewable energy goals, the overall New Jersey state goal for renewable energy, the goals of Atlantic Shores LLC, and the roles of BOEM, NMFS, and the U.S. Army Corps of Engineers. Section 1.2 lists several MW goals but does not clearly state a specific level of energy production which would qualify as meeting the purpose and need of the action. Later sections of the document suggest that to meet the purpose and need, Project 1 must be capable of producing a total of 1,510 MW to meet the 2021 procurement from the New Jersey Board of Public Utilities and Project 2 must be capable of producing 1,327 MW to satisfy the goals of Atlantic Shores LLC, which is actively seeking contracts for Project 2. The DEIS notes that 1,327 MW for Project 2 would align with the required payments under an interconnection service agreement Atlantic Shores intends to execute with the regional

[2] Available at https://www.mafmc.org/s/MAFMC_wind_policy_Dec2021.pdf

transmission organization PJM. If these are BOEM's requirements for alternatives, this should be clearly stated in Section 1.1. For example, Section 2.2 (Alternatives Considered but Not Analyzed in Detail) indicates that an alternative would not be analyzed in detail if "it does not meet the primary goals of the applicant," including if it "results in the development of a project that would not allow the developer to satisfy contractual offtake obligations" (page 2-46). On the surface, this means that there may not be any detailed analysis of the benefits to other resources (habitat, protected species, etc.) of a smaller project. Without such analyses, there is not a fair comparison of the benefits from projects of varying sizes.

As we have stated in previous comment letters for other wind projects, the implication that BOEM will not consider approval of projects smaller than proposed by the developer or necessary to meet existing procurements is very concerning as it limits BOEM's ability to consider ways to reduce the potential negative impacts, including "protecting biodiversity and ocean co-use." The Atlantic Shores South FEIS and future DEIS and FEIS documents for other projects should indicate that BOEM's ability to "approve [a COP] with modifications" could mean approving a smaller project than what is proposed in the COP or than would be necessary to meet existing procurements. For example, state energy procurements are often made well before detailed site characterization data have been collected and before the impacts of the project have been fully analyzed. This can result in overly ambitious procurements which can pose challenges for reducing the negative impacts of the project.

We also suggest expanding on the terms biodiversity and ocean co-use to make it clear that the project will avoid risks to the health of marine ecosystems, ecologically and economically sustainable fisheries, and ocean habitats. BOEM should clearly acknowledge that if these risks cannot be avoided, they should be minimized, mitigated, and compensated for.

Alternatives to Meet the Purpose and Need

The Draft EIS evaluates the following alternatives:

- **Alternative A** is the No Action alternative, under which BOEM would not approve the COP and the project would not be constructed.
- **Alternative B** is the proposed action, as described in the COP submitted by Atlantic Shores Offshore Wind LLC. Alternative B includes construction, operations, maintenance, and eventual decommissioning of up to 200 total wind turbine generators (105-136 wind turbine generators for Project 1, all on monopile foundations, and 64-95 wind turbine generators for Project 2, all on monopile or all on piled jacket foundations), up to 10 offshore substations (up to 5 in each project), up to 1 permanent meteorological (met) tower, up to 4 temporary meterological and oceanographic (metocean) buoys (up to 1 met tower and 3 metocean buoys in Project 1 and 1 metocean buoy in Project 2), up to 585.2 nautical miles of interarray and interlink cables, and up to 8 transmission cables totaling up to 441.2 nautical miles in length and making landfall at up to two onshore locations (Sea Girt and Atlantic City). The project design envelope (PDE) for the proposed action includes multiple foundation types, a range of scour protection materials, and options for HVAC and HVDC export cables. A range of offshore substation sizes are considered.
- **Alternative C** includes three sub-alternatives to minimize impacts to habitat, including fisheries habitat.

    - Under **Alternative C1**, up to 16 wind turbine generators, 1 offshore substation, and associated interarray cables within the Lobster Hole area as identified by NMFS would not be constructed.
    - Under **Alternative C2**, up to 13 wind turbine generators and associated interarray cables in a NMFS-identified sand ridge complex would not be constructed.
    - Under **Alternative C3**, up to 6 wind turbine generators and associated interarray cables would not be constructed within 1,000 feet of the sand ridge complex area identified by NMFS but further demarcated based on additional data.
    - Under **Alternative C4**, turbine locations near the C1 and C2 turbines would be microsited rather than eliminated, outside of a 1,000-foot buffer around the ridge and swale features. We understand this to be represented by the grey buffer around the yellow ridge and purple swale lines shown on Figures 2.1-9 and 2.1-10. It would be easier to visualize this alternative if the buffer were emphasized on the map, since it is difficult to discern relative to the benthic classification (dark green, light green, and blue shading). These figures should be referenced in Section 2.1.3.4, where Alternative C4 is described.
- **Alternatives D1-D3** aim to reduce visual impacts by prohibiting surface occupancy at various distances from shore (12, 12.75 and 10.8 miles) and establishing maximum sizes for the turbines in Project 1. This would remove 21, 31, and 6 positions, respectively. The DEIS notes that Alternatives D1 and D2 would reduce energy production and may not be feasible. The removed positions do not appear to overlap with the habitat alternative, Alternative C.
- **Alternative E** would exclude or microsite 4-5 positions to create a setback between Atlantic Shores South and Ørsted's Ocean Wind 1 of at least 0.81 nm. Some of these positions are excluded under the habitat alternatives (one for C1, two for C2 and one for C3). The DEIS notes that the USCG consulted with BOEM and determined that a 0.8-1.08 nm spacing is sufficient for search and rescue and other navigational concerns.
- **Alternative F** includes three sub-alternatives for different foundation types for the wind turbine generators, offshore substations, and permanent met tower.
    - **Alternative F1** would use piled foundations (monopile or pile jacket). These are the only foundation types currently in use for the four projects in U.S. waters that are currently in operation (Block Island Wind and CVOW) or under construction (Vineyard Wind 1 and South Fork).
    - **Alternative F2** would use suction bucket foundations (mono-bucket, suction bucket jacket, or suction bucket tetrahedron base).
    - **Alternative F3** would use gravity-based foundations (gravity-pad tetrahedron base or gravity-base structures).

The DEIS indicates that the action alternatives are not mutually exclusive and BOEM may select a combination of alternatives that meet the purpose and need of the proposed project. It would be useful to include a table showing which combinations of Alternatives B-F would meet the purpose and need. While there is some overlap in position removals between Alternatives C2, C3, and E, these are distinct from Alternatives C1 and D, and there is no overlap between the lobster hole turbines (C1) and the visual alternatives (D1-D3). In total, C1, C2, D2, and E combined appear to remove 60 positions. New Jersey's existing 1,510 MW procurement can be met with these removals, regardless of the turbine size used (11-15 MW).

The PDE and the range of alternatives consider multiple foundation types, cable types, turbine sizes, placement positions for both wind turbine generators and offshore substations, etc. Assessing some of these design choices as separate alternatives (e.g., Alternatives F1-F3) is useful for clearly comparing the relevant tradeoffs. However, the wide PDE results in uncertainty in the actual impacts of the project. We recommend the FEIS consider a narrower design envelope than the DEIS based on developments that will likely occur between now and finalization of the FEIS (e.g., phasing out of smaller turbine sizes, decisions regarding foundation types and the number and design of offshore substations). In addition to making the project difficult to conceptualize for the public, wide PDEs also pose challenges for federal agency consultations, since it is hard to provide targeted conservation recommendations when a wide range of approaches might be taken to developing the area.

The FEIS would benefit from additional details about the offshore project design. The DEIS does not indicate the MW capacity of the turbines that might be used, although the maximum physical dimensions provided on Table ES-1 of rotor diameters up to 280 m (page ES-7) corresponds to a massive 18+ MW turbine.[3] Without knowing turbine capacities, it is impossible to know how many positions would be realistically occupied (more specific than the PDE of up to 200 positions), how much cabling will be required, and how much habitat loss and conversion would be associated with the project, as currently procured or up to the 2,837 MW capacity.

Section 2.1.3.1 should provide more details on why the Lobster Hole is an important fishing area. In addition, a more detailed explanation should be provided for why only 16 specific wind turbine locations are considered for potential removal under this alternative and not other additional locations indicated in Figure 2.1-8 as "prime fishing areas" (presumably from the Prime Fishing Grounds of New Jersey dataset) overlapping with areas identified in the figure as ridge or swale features.

The differences in supporting data and rationale between Alternatives C2 and C3 should be better described in Sections 2.1.3.2 and 2.1.3.3. Alternative C2 appears to more completely avoid ridge and swale terrain as indicated by the 'benthic classification' shown on the charts, while Alternative C3 focuses on 'seafloor features' identified using benthic terrain modeling. Assuming the data used to map 'benthic classification' was collected at high resolution for the project, these data should take priority in terms of identifying ridge and swale habitats where turbines should not be placed. The 'seafloor features' identified through benthic terrain modeling seem most appropriately used to augment project data in areas where the seabed was incompletely mapped during site assessment. These alternatives would be better supported if the seabed in the lease area were fully mapped vs. running narrow survey lines between turbine rows. We have recommended more complete seafloor mapping (surficial sediments, bathymetric features) in past correspondence.

We appreciate that multiple foundation types are analyzed as individual alternatives (i.e., Alternatives F1 – F3). This is useful for comparing impacts and tradeoffs across different foundation types. Alternative F indicates that "one or more foundation types" could be utilized (page 2-39). We recommend clarifying whether all four types could be combined, or if one type would be used for turbines, and another for substations, or if foundations might vary with depth. It is difficult to estimate impacts at the scale of the project without this information, since there are tradeoffs associated with each foundation type.

[3] GE's Haliade-X 12 MW has a 220 m rotor diameter, and the Chinese turbine MySE 16 MW has a 242 m rotor diameter.

The FEIS should be clear about the interarray cable layout that would result from various offshore substation configurations. An indicative cable layout is provided in Figure 4.5-6 of the COP, Volume 1, but this accounts for only 3 offshore substations, and this does not reflect the range of substation configurations analyzed in the DEIS. Changes to the interarray layout will influence the amount of cabling required, and alternative connection configurations between turbines could reduce or increase impacts, depending on seabed conditions at different parts of the project area.

All alternatives use a uniform grid spacing for wind turbine generators. The orientation of the grid pattern is based on vessel traffic patterns within the lease area. The proposed 0.6 nautical mile spacing between wind turbine generators within this grid pattern is tighter than several other proposed projects (e.g., the Southern New England projects are on a 1x1 nm grid, which has 0.7 nm corridors on the diagonal) and poses concerns for safe navigation. However, no additional options for turbine spacing are considered in the DEIS. The DEIS notes that 2 nm spacing would not meet the purpose and need (page 2-47), but it does not indicate if a spacing of greater than 0.6 but less than 2 nm is feasible. It would be helpful to clarify the spacing of the grid in all directions in the description for Alternative B. The north to south corridors appear to be 0.6 nm and the southwest to northeast corridors appear to be wider – perhaps 1.0 nm as referenced in the fishing impacts section – but this is not clearly delineated in Section 2.

The DEIS also notes that under all alternatives, the offshore substations would be located along the same east-northeast to west-southwest rows as the wind turbine generators, but would be intermediate to two turbine positions, resulting in less than 0.6 nautical mile spacing in these cases and obstructing the north to south transit corridors along those two rows of turbines (one row for Project 1 and one for Project 2). The locations considered for the permanent met tower are outside the grid layout in both directions and therefore would obstruct transit in both directions. These offshore substation and met tower grid obstructions are very problematic, especially considering the already tight spacing of this project. The grid layout should apply to all permanent structures within the project area, not just the wind turbines.

Recommendations for Preferred Alternatives

The size and number of turbines associated with the proposed action will influence the overall spatial extent of the project, and therefore will affect the magnitude of impacts. We recommend working with NOAA Fisheries habitat staff to optimize the final number, type, and locations of turbines, cables, and offshore substations to minimize impacts to habitat and fisheries.

We recommend a combination of Alternatives C1, C2, and E to reduce impacts to fisheries, fish species, and habitats. Alternative C1 avoids placement of turbines in an important fishing ground, and Alternative C2 minimizes impacts on a sand ridge complex in the southern part of the lease area. Alternative E improves the ability of vessels to safely transit between this wind farm and Ocean Wind 1 located just south of it, but with a different grid orientation. To achieve the greatest reduction in negative impacts, we recommend that the full extent of these alternatives be implemented (i.e., the maximum number of locations removed under each alternative).

Although not presented as distinct alternatives, Alternative B presents a choice of up to 10 small offshore substations (5 in Project 1 and 5 in Project 2), up to five medium offshore substations (up to two in Project 1 and up to 3 in Project 2), and up to 4 large offshore substations (two in each of the two

projects). Given the level of impact that is likely to result from each substation installation and operation, we recommend fewer larger substations versus a larger number of smaller substations to reduce the impact and number of foundations needed.

As noted above, all offshore substations and the permanent met tower must be located at regular grid positions. Locating these structures outside of the regular grid spacing for the wind turbine generators negates the safety benefits of the grid pattern. If necessary, fewer wind turbine generators should be used to maintain the uniform grid spacing for all permanent structures within the project area. As noted above, we also recommend using the larger substations to reduce the number of positions occupied.

We recommend careful consideration of the environmental impact tradeoffs of using HVDC or HVAC cables. For example, HVDC technology can reduce the number of cables and the width of cable corridors, but requires offshore converter stations. We are encouraged to note that Atlantic Shores South intends to use closed loop cooling technologies on offshore converter stations, which will avoid entrainment impacts.

We also recommend careful consideration of the environmental impacts and tradeoffs regarding the different choices for foundation types. We generally prefer design choices that result in the smallest spatial extent of impacts to marine habitats. However, as described in the DEIS, some foundation types with larger footprints would have lesser sound impacts during construction, which is an important consideration for some marine species. We recommend working closely with NOAA Fisheries to determine how to best balance these tradeoffs.

Affected Environment and Impacts Analysis

Given time constraints and other fisheries management priorities, we were not able to review the affected environment and impacts analysis sections in detail. We strongly urge BOEM to work closely with NOAA Fisheries to refine these sections as needed for the FEIS.

Overall, the evidence and information provided should be consistent with impact determinations. For every analysis in the FEIS, we recommend including detailed information on the methods, caveats, and assumptions for stakeholders to understand and evaluate potential impacts and resulting avoidance, minimization, mitigation, and compensation measures. These comments apply to fisheries impacts as well as other impact analyses in the FEIS.

Finfish, invertebrates and EFH impacts (Section 3.5.5)

The analysis should clearly state the differences in expected impacts between HVAC vs. HVDC cabling and how that interacts with small, medium, or large offshore substations to affect fish, invertebrates, and EFH. Specifically, different configurations of cables and substations will alter interarray cable layouts and the width of export cable corridors, potentially running cables through additional areas of sand ridge habitats. We are also concerned about differences in impacts between HVAC and HVDC on electrosensitive fishes.

Our previous understanding was that closed loop cooling systems for AC to DC power converter stations were not economically or technically feasible at this time. We are encouraged to see this type of system proposed as it avoids entrainment related impacts to fish eggs and larvae. The FEIS should

provide more clarity on if this is in fact a viable technology if it is being considered as an alternative to HVAC cabling.

We appreciate that the fish, invertebrates, and EFH impacts analysis for Alternative F includes a table comparing the acreage of installed structures, habitat conversion, and scour protection for each foundation type. We had requested this information when commenting on an EIS for another project.

Fisheries impacts (Section 3.6.1)

We appreciate that the DEIS describes impacts to NMFS scientific surveys (e.g., by precluding sampling from occurring and by impacting the random-stratified statistical design; page 3.6.7-13).

Page 3.6.1-66 references the potential for fishermen to switch gear types and/or target species. This may not be feasible given the high cost, potentially lower prices, and different permits that would be required. Such adaptation would only occur over the longer term and may require fishery management changes. It should not be assumed that fisheries management will adapt in any particular way as fisheries management must achieve a number of varied objectives and offshore wind energy development is just one consideration.

We appreciate that the DEIS acknowledges that the impacts of Atlantic Shores South "on other fishing industry sectors, including seafood processors and distributors and shoreside support services, would be long term and moderate to major, depending on the fishery in question" (page 3.6.1-67).

The DEIS compares fishery landings and revenues within the project area to all federal waters from Maine through Cape Hatteras, North Carolina. This comparison minimizes the potential impact of Atlantic Shores South on fisheries. We recommend also comparing revenue exposure to a more geographically specific area or port.

The DEIS describes commercial and recreational fisheries within the lease area and the export cable corridor. Some fisheries will be impacted by activities within both the lease area and the export cable corridor, while other fisheries will be primarily impacted by one or the other. It is important to consider the differences in impacts due to the different activities which will occur in the lease area and the cable corridor and the different fisheries that operate in those areas. Different mitigation measures may also be relevant for the two areas. For these reasons, we support the approach of analyzing the lease area and export cable corridor separately in terms of their impacts on fisheries, as well as considering their combined impacts.

Page 2-49 of the DEIS suggests that a 246 foot (75 meter) buffer between cables and artificial reefs would make the project infeasible because all cables could not fit in the cable corridors with repair bights. Smaller buffers do not appear to be analyzed in the DEIS. The impacts of placing cables or turbines near artificial reefs (e.g., sedimentation impacts) are not analyzed in the Section 3.6.1, which describes the impacts of the alternatives on commercial and for-hire fisheries. This is concerning because the proposed action would place the offshore export cable and one turbine near artificial reefs, including the Atlantic City Reef, the Axel Carlson Reef, and the Manasquan Inlet Reef (Figure 3.6.1-12). Potential impacts to these important recreational fishing areas must be analyzed.

The DEIS provides few details on the likely extent of and methods to be used for boulder clearance. The FEIS should address this topic in more detail. We are concerned about the impacts of boulder

removals required for cable installation, especially when done via plow (grapnel or boulder clearance plows). We recommend using grabs to relocate boulders given plowing will have a much larger impact on benthic habitats than grabs. The nature of this impact is very different from dredging used to harvest seafood, and the scientific literature on fishing gear impacts is unlikely to provide a reasonable proxy for the impacts of boulder clearance plows. For example, fishermen attempt to avoid boulders to reduce the risk of costly damage to fishing gear, and the penetration depth of fishing gear is much less than a boulder clearance plow.

The FEIS, and all future NEPA documents for other wind projects, should specify if an impact is adverse or beneficial. Generally, this is done throughout the DEIS but there are a few areas where the direction of impact is not specified. Additionally, some impact producing factors (e.g., presence of structures) are expected to have both adverse and beneficial impacts (e.g., adverse for soft bottom species and beneficial for structure-oriented species). The clarity of these descriptions would be improved if "adverse" or "beneficial" were specified for each impact, or, at a minimum, at the beginning of each section. This should be done consistently throughout all sections of the document.

Mitigation, Terms and Conditions

Mitigation measures are necessary to reduce the potential negative environmental and socioeconomic impacts of the Atlantic Shores South project. The recommendations outlined in our offshore wind energy policies, referenced above, should be reflected as terms and conditions for approval of the project. We provided a separate comment letter on the draft Guidelines for Mitigating Impacts to Commercial and Recreational Fisheries.[4] These comments supported many of the mitigation measures recommended in BOEM's draft guidance. We recommend that all final mitigation guidelines be reflected in terms and conditions for BOEM's approval of this project. This is especially important given the DEIS does not firmly commit to any mitigation measures, although developer-proposed measures are denoted separately in Appendix G (Table G-1, page G-2) and the impacts of these measures are evaluated as part of the proposed action. The FEIS should clearly indicate which mitigation measures will be required, including those proposed by the developer and those required by other agencies, and how they affect the impacts determinations.

Some minor formatting changes to Appendix G would improve readability. Tables G1 and G2 have identical formatting and it is hard to tell at a glance if the measures on a specific page are developer-proposed (Table G1) or otherwise being considered by BOEM (Table G2). Repeating the header on each page would help. A listing of the meaning of the Measure Number codes (GEO, AQ, BAT, WET) would also be useful.

The Councils are supportive of time of year restrictions to reduce potential impacts to sensitive life stages of fishery species, to reduce impacts to fisheries, and to avoid impacts to submerged aquatic vegetation and other structured habitats throughout the project area and cable route. The DEIS indicates that the developer has agreed that some time of year restrictions may be required, specifically Measure Number COA-06 in Table G-1 on page G-10 notes that "time of year restrictions for construction will be followed, as required, through permitting and resource agency consultation". Further detail should be provided in the FEIS on specific time of year restrictions, what exactly these measures would achieve, and any monitoring measures that would be in place. We recommend

[4] Available at https://www.mafmc.org/correspondence.

working with NOAA Fisheries on impact determinations and identification of sensitive habitats and fishing periods to avoid as ways to mitigate impact.

The DEIS notes that the Mid-Atlantic and New England Councils previously recommended removal of one wind turbine generator location to avoid negative impacts to the Atlantic City Reef, an important recreational fishing area.[5] The DEIS states that "BOEM determined that this alternative would be more suitable to address as a Project mitigation measure" (DEIS page 2-49). This is logical given that it affects just one turbine location. To reiterate our previous comments, we support removal of this turbine location as a mitigation measure.

The DEIS states that burial of the proposed export cables would target a depth of 5 to 6.5 ft (Measure Number BEN-03, page G-13) and that the export cable design would include a monitoring system to "detect anomalous conditions, insufficient or excess cable depth, or potential cable damage" (Measure Number OCE-05, page G-5). The Councils have not endorsed a specific cable burial depth, but rather have recommended depths that are adequate "to reduce conflicts with other ocean uses, including fishing operations and fishery surveys, and to minimize effects of heat and electromagnetic field emissions" (from the BOEM Draft Fisheries Mitigation Guidance). Assuming a depth of 6 feet is sufficient to address these objectives, we recommend the FEIS include this target burial depth as the minimum end of the range. We also recommend explaining more details on the type and frequency of monitoring for burial depth.

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.[6] The DEIS notes that BOEM will require appropriate shielding and burial, and that cable bundling can be used to reduce magnetic field intensity and effects (page 3.5.2-17). The extent to which EMF may or may not impact marine species, including the differences between different types of cables and how they would be installed for this project must be thoroughly described in the FEIS. We recommend describing EMF mitigation measures in the alternatives and/or in Appendix G; we only found reference to these issues in the environmental consequences section of the DEIS.

Appendix G of the DEIS states that cable protection measures "will be limited…and will be designed to minimize effects on fishing gear to the maximum extent practicable, and fishermen will be informed of the areas where cable protection is installed" (page G-27). The details of these protection measures are not specified in Appendix G. Chapter 2 of the DEIS, which describes the alternatives considered, does not appear to detail specific cable protection materials. These materials are listed in Chapter 3 as (1) rock placement, (2) concrete mattresses, (3) rock bags, (4) grout-filled bags, and (5) half-shell pipes (page 3.5.2-16). The materials under consideration should be noted in Chapter 2 when the proposed action is described. Per the Councils' offshore wind energy policy, we recommend that if cable armoring is needed, the materials should be selected based on value to commercial and recreational fish species. Natural materials, or materials that mimic natural habitats, should be used whenever

[5] See https://www.mafmc.org/s/NEFMC-MAFMC-to-BOEM-re-NOI-to-Prepare-EIS-for-Atlantic-Shores-OSW.pdf. Staff at BOEM, MAFMC, and NJ DEP subsequently discussed a specific proposal.
[6] https://greenfinstudio.com/wp-content/uploads/2017/10/GreenFinStudio_EMF_MarineFishes.pdf

possible. These materials should not be obtained from existing marine habitats and must not be toxic.[7] These recommendations also apply to scour protection placed around foundations. Different protection materials may have distinct environmental impacts.

We recommend developing a clear strategy for boulder relocation that is protective of habitats in the area, potentially relocating them to soft bottom directly adjacent to existing hard bottom areas. We also recommend this type of seabed clearance be done during times of year that minimize direct impacts to spawning seasons of vulnerable finfish species. Mobile gear fishing activity should also be considered when planning specific placement options. Relocation areas with similar habitat impacts might have higher or lower potential for conflict with trawling and dredging activities. Recreational fishermen often fish on boulder habitats. Maps of boulder relocation sites should be made available to recreational and commercial fishing communities and others.

Appendix G describes various measures to mitigate impacts on aviation and radar (page G-33 and G-34). While the fishing industry has proven adaptable in the face of change, more deliberate mitigation measures that support vessel radar upgrades could minimize impacts to fishermen and others navigating through and around the project area. An adaptation fund is included within the mitigation measures identified in the Empire Wind DEIS. We recommend a similar fund for Atlantic Shores South to support vessel radar upgrades and training to help minimize impacts to fisheries and others navigating through and around the project area.

Unexploded ordnances (UXOs) can be uncovered during site preparation activities. Exposed UXOs present a significant risk to mariners, especially those towing mobile gear that could bring UXO to the surface. We found no references to UXO in the main body of the DEIS, except for a note in Chapter 3 that detonation of UXO is among the activities that will generate noise, and no references at all in Appendix G. We recommend that the terms and conditions specify that developers are responsible for the safe disposal of UXO exposed due to construction activities. This is an important aspect of mitigation. Our understanding is that some UXOs might be detected via surveys but are not exposed; in such cases, only mariner notification may be sufficient given disposal may present greater risks. Clear, timely, and repeated communication about UXO locations and any changes in the location or status of UXOs is essential and should not rely only on email notifications.

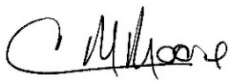
There are no specific compensation funds noted in Appendix G. Table G2, which outlines mitigation measures BOEM may require, notes that the lessee would have one year from COP approval to establish a compensatory mitigation fund. The details of this fund, including the amounts that will be set aside, are essential information to include in the FEIS. We support these types of compensation measures but emphasize that fishermen from multiple states fish in the project area and compensation for these individuals may also be needed. We support the use of regional, rather than state-specific compensation funds for fisheries impacts.

[7] For examples, see: Glarou, M., M. Zrust and J. C. Svendsen (2020). "Using Artificial-Reef Knowledge to Enhance the Ecological Function of Offshore Wind Turbine Foundations: Implications for Fish Abundance and Diversity." Journal of Marine Science and Engineering 8(5). Hermans, A., O. G. Bos and I. Prusina (2020). Nature-Inclusive Design: a catalogue for offshore wind infrastructure. Den Haag, The Netherlands, Wageningen Marine Research: 121p. Lengkeek, W., K. Didderen, M. Teunis, F. Driessen, J. W. P. Coolen, O. G. Bos, S. A. Vergouwen, T. C. Raaijmakers, M. B. de Vries and M. van Koningsveld (2017). "Eco-friendly design of scour protection: potential enhancement of ecological functioning in offshore wind farms. Towards an implementation guide and experimental set-up." (17-001): 87p

Conclusion

We appreciate the opportunity to provide comments to ensure that issues of social and ecological importance are considered in the FEIS for Atlantic Shores South. We look forward to working with BOEM to ensure that 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,



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cc: J. Beaty, M. Luisi, W. Townsend