New England Fishery Management Council

MID-ATLANTIC FISHERY MANAGEMENT COUNCIL

Dec 1, 2021

Genevieve Brune
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 Mayflower Wind project

Dear Ms. Brune,

Please accept these comments from the New England Fishery Management Council (New England Council) and the 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 Mayflower Wind project off Massachusetts. The COP proposes to install up to 147 turbines and up to 5 offshore substations at up to 149 total foundation locations. Alternating current cables would connect the turbines and offshore service platforms, and direct current (DC) export cables would connect the projects with onshore connection point(s) in Falmouth and Somerset, Massachusetts.

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 Mayflower 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. Along the Atlantic coast, seventeen leased areas are in the COP development and review phase, two lease areas are in the site assessment phase, and multiple additional areas in the New York Bight are planned to be leased soon. Nine projects, including this one, entered the

[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.

EIS development phase through issuance of NOIs since March 2021. 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.

Massachusetts has procured 804 MW from this project, but the project proposed via the COP has the potential to be substantially larger, up to 2,400 MW, and "Mayflower Wind is actively exploring additional offtake opportunities" (COP Vol. 1, p. 1-2). The amount of power required to meet the project purpose and need should be clearly stated in the EIS and the COP, and the impacts analysis should clearly reflect the project size(s) being considered. The total size of the project will influence both the range of alternatives and the impacts associated with the project, since more power means either a greater number of turbines and/or larger turbines.

The PDF "posters" in the online virtual page[2] are very valuable for providing a summary of the project in a more easily accessible format than searching for the relevant sections of the over 900-page COP (not including appendices). Past projects have included posters on commercial and recreational fishing activities in the lease area, which we have found useful, and would like to see included for all projects. This project includes a commercial fishing density poster but not one for recreational fishing. Generally, we recommend consistency in the information provided in these posters across projects.

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. The EIS should acknowledge the limitations of the current scientific knowledge on environmental effects and should provide justification, including supporting scientific studies, for all conclusions.

We understand that the BOEM regulations allow offshore wind project developers to revise their COPs throughout the environmental review process and 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 detail in the next section, 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 this concern, 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 foundation types, and the number and design of offshore substations).

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

Cumulative impacts

The EIS must include a meaningful cumulative impacts assessment. We supported the criteria used in the Vineyard Wind 1 and South Fork 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 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 of adjacent wind projects should be thoroughly evaluated. 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 given the COP notes that an anticipated total of up to 25 cable crossings are expected (COP Vol. 1, p. 3-51). For example, this project and multiple others have export cable corridors through Muskeget Channel. 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 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.

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 negative impacts for 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 Records of Decision for the Vineyard Wind 1 and South Fork projects.

Alternatives to consider in the EIS

BOEM's Federal Register notice (86-FR-60270) states that Mayflower Wind has capacity ranging from 1,600-2,400 MW. We were unable to find these total project capacity numbers in the COP. This information should be included in that document. Thus far 804 MW have been procured by Massachusetts, and Mayflower Wind is seeking additional contracts. Total capacity is important to understand because it relates to the purpose and need for the project and to the alternatives developed and analyzed. The size of the project is directly related to environmental impacts. The EIS should clarify how the project schedule included in the COP (Vol. 1 Section 3.2) may vary if additional procurements are or are not secured by a certain date.

A maximum of 147 turbines will be installed and the project will have either a modular, integrated, and/or DC converter substations. Piled (monopile or jacket), suction bucket jacket, and gravity-based foundations are all under consideration for the turbines and offshore substations (depending on the design option). A uniform East-West/North-South 1x1 nm grid layout is proposed in the COP based on the agreement reached with other MA/RI wind energy area leaseholders. 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.

Two offshore export cable corridors (ECCs) are under consideration: the Falmouth ECC, which is 87 miles in length and could include up to 5 cables, and the Brayton Point ECC, which is 124 miles in length and could include up to six cables. The COP and EIS should explain why two ECCs are being considered, especially given that the Brayton Point ECC is almost 40 miles longer than the Falmouth ECC. For example, if both corridors may be needed to integrate the project with the onshore grid, this should be explained in the COP and the EIS. It is unclear whether both locations are required for the maximum 2,400 MW project, or if they may be needed at smaller scales of the project.

The COP does not specify a potential range of MW capacities for the turbines, though the physical sizes of the turbines are described. Given rotor diameters ranging from 721.7-918.6 ft, we assume 12-20 MW turbines are being considered[3]. Without specifying the minimum and maximum likely turbine capacities, or the total amount of power to be generated, it is challenging to predict how many of the maximum 149 turbine and substation locations 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.

The EIS should analyze multiple distinct alternatives associated with smallest, largest, and one or more intermediary potential scales of this project in terms of the number of turbines which might be installed, the number of offshore substations, the total disturbed area of the seafloor, the length of the offshore EECs, and whether one or two ECCs are required. The final selected combination of parameters need not match exactly with an analyzed alternative but must be within the analyzed range. The EIS should acknowledge that different combinations of these parameters will 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

[3] See Shields, Matt, et al. 2021. Impacts of turbine and plant upsizing on the levelized cost of energy for offshore wind. Applied Energy. doi: 10.1016/j.apenergy.2021.117189.

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. The DEIS should also describe the range of inter-array cable layouts under consideration and estimate the differences in impacts associated with cabling designs. All the choices described above have implications for habitat, fisheries, and other environmental impacts. It will be important to clearly outline an appropriate 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,[4] hard bottom, and complex topography. Habitats at the offshore site are identified as being mostly sand and muddy sand except "for a few distinct areas of more coarse sediment found in well-defined rippled scoured depressions" (COP Vol 1, p. 4-9). Areas of glacial moraine along the export cable corridor (i.e., at Browns Ledge and Southwest Shoal) are of concern. Details should be provided on how determinations about micrositing 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.

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. BOEM must take a stronger role in facilitating coordinated transmission across projects and across developers to ensure that impacts are minimized. The Mayflower Wind COP states that offshore transmission cable easements within Massachusetts and Rhode Island waters have not yet been acquired for this project (COP Vol 1., p. 1-26); 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., Beacon Wind and future projects which may occur in the remaining sections of the MA/RI wind energy area).

The COP also notes that DC cables will be used for the Brayton Point export cables and conversion stations will be built both onshore and offshore. The Falmouth export cables are anticipated to be AC. If the offshore conversion station requires a cooling system, this should be described in the COP and the impacts analyzed in the EIS. 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.[5] Alternative types of cooling systems, e.g., closed loop, and/or AC cabling alternatives should be considered, in addition to open loop DC systems only.

[4] 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 COP, though other habitat areas of particular concern are acknowledged.

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

Provision of high-resolution benthic habitat maps early in the process is important. These data are needed for NOAA Fisheries 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. 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 recommend that wind energy development avoid.[6]

The EIS should also consider an alternative which would minimize impacts to commercial and recreational fisheries. This could include reducing the number of turbines and substations 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, we recommend time of year construction restrictions including for the cable corridors to reduce impacts to fishery species. For example, offshore, piling driving restrictions between November and January would help minimize impacts on spawning Atlantic cod that are known to occur along the Brayton Point cable corridor while construction restrictions to avoid sedimentation during the summer would minimize impacts on longfin squid egg mops. The COP notes that during construction and decommissioning, the project will seek to avoid, minimize, and mitigate impacts to marine organisms, specifically calling out sturgeon and winter flounder, through certain time-of-year restrictions (COP Vol. 2, Table 16-1). 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 be described in the EIS and in the COP but should not be considered environmental protection measures as monitoring is not equivalent to mitigation. Avoidance, minimization, and compensation for negative impacts should all be considered, with compensation thoroughly planned for and used 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, should include recent data, and analyze multiple years of data (e.g., 10 years) to

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

capture variations in fisheries and environmental conditions. Important data limitations 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).

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) and the 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. 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. If applicable, 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.

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.

Secondary cascading effects should also be evaluated as community composition could change within and beyond the project area. For example, this project area includes habitat for sea scallops. The addition of structured habitat may attract bivalve predators such as sea stars and moon snails, which could have negative impacts on shellfish species and could result in cascading ecological impacts. In addition, if construction of this project negatively impacts important prey species (e.g., sand lance and other forage species), this could have cascading impacts for marine food webs.

The EIS should describe the amount and type 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 and at crossings with other cables. 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 Block Island wind farm off Rhode Island and 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 sea 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 1x1 nm 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 Mayflower Wind project, which could include up to 147 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 could 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 sand wave clearance that cannot be avoided by micro-siting along the export cable corridor, as described in the COP (Vol. 1 p. 3-54), will cause disruptions in fishing activity. This type of seafloor preparation is expected to occur along 10% of both export cable corridors, especially in Muskeget Channel and Nantucket Sound (COP Vol. 1, p. 3-94). Fisheries that target boulders (e.g., some recreational fisheries and some commercial fisheries using gear types such as pots/traps) will be impacted if boulders are removed from fishing areas. 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. Other fisheries, such as commercial mobile gear fisheries, will be impacted if boulder relocation creates new potential snags in areas that were previously clear. Detailed reporting on and wide dissemination of information 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. This is an important consideration for Mayflower Wind given that there appears to be more fishing activity (landings and revenue) in the vicinity of the cable corridors account as compared to the lease area (COP Vol. 2, Section 11.1.1.4). Thus, it is important to evaluate impacts in the entire project area, not just the lease area where the turbines will be installed. Fishing effort can change based on management actions such as changes to access areas, updated state-by-state quota allocations for a target species (e.g., black sea bass, summer flounder, bluefish), and other changes. 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 important 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. 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.

The entire Massachusetts Wind Energy Area (denoted as the "Kirkpatrick Study Area"), which covers > 740,000 acres, 17% of which is the Mayflower lease area, was used to estimate recreational fishing activity in the COP (COP Appendix V, Section 3.2.3). The COP acknowledges that although certain popular fishing spots are well known (e.g., Appendix V Table 3-14), data on precise locations of private recreational fishing effort within the project area are generally lacking. Marine Recreational Information Program (MRIP) data cannot provide information on recreational fishing effort within this project area specifically; however, it can provide information on private and for-hire recreational fishing trips that occurred primarily in federal waters and returned to docks in southern Massachusetts, Rhode Island, Connecticut, and other areas deemed relevant to this project. Vessel trip report data can provide more detailed information on the locations of for-hire fishing effort.

COP Vol. 2, p. 16-30 includes a brief mention on the availability of gear loss claim funds if warranted due to entanglement and snags; however, compensation funds for displacement and

[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.

opportunity loss of commercial and recreational fisheries due to the presence and operation of wind turbines are not explicitly referenced. Mitigation and compensation funds should be explained in much further detail and 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 specific detail in the EIS. On November 12, 2021, several states sent a letter requesting that BOEM develop a fisheries compensation framework. BOEM recently published a request for information and is hosting a series of meetings to develop mitigation guidance. We support these efforts.

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 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.

Cables should be buried as much as possible to avoid the concerns listed above regarding external cable armoring materials where they are unburied. The COP suggests a target burial depth of 3.2 to 13.1 feet for all cables (e.g., COP Vol. 1, p. 3-43) and additional cable protection required in 10-15% of the export cable routes and 10% of inter-array cables (COP Vol. 1 p. 3-59 and 3-94). We are concerned about the 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 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.

We are concerned about impacts to rocky complex habitat resulting from constructing up to five offshore export cables through the Muskeget Channel and Nantucket Sound. Appendix M of the COP acknowledges targeted sampling is needed in the region including within the Muskeget Channel because of "the complex, heterogeneous habitat noted in the northern portion of the proposed export cable route" (COP Appendix M, Attachment 1, p. 2). Coastal areas off Massachusetts to a depth of 20 meters, including Muskeget Channel and the remainder of the offshore export cable corridor headed to the landfall site, are designated by the New England Council as a Habitat Area of Particular Concern for juvenile Atlantic Cod.

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 must be thoroughly described in the EIS.

Modeling work has suggested that the physical presence of turbines can alter 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 (Chen, et al. 2021). 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 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.

COP Vol. 1, Section 3.3. describes decommissioning and states that some components of the project may be fully removed, while other components may remain in place after decommissioning, depending on the decommissioning plan, which will be developed later. For example, Mayflower Wind "will assess the removal of scour protection depending on which strategy minimizes environmental impacts" (p. 3-89). These decisions will be made based on future environmental assessments and future consultations with various agencies. We recommend that all project components, including cables, should be removed from the offshore environment to the extent possible. 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 Mayflower Wind COP. We look forward to working with BOEM to ensure that any wind development in our region minimizes

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

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