RODA

Responsible Offshore Development Alliance

February 22, 2019

Dr. Walter Cruickshank, Acting Director
Bureau of Ocean Energy Management
45600 Woodland Road
Sterling, Virginia 20166

Re: Notice of Availability of a Draft Environmental Impact Statement for Vineyard Wind LLC's Proposed Wind Energy Facility Offshore Massachusetts [Docket No. BOEM–2018–0069]

Dear Dr. Cruickshank,

The Responsible Offshore Development Alliance (RODA) submits the following comments regarding the Draft Environmental Impact Statement (DEIS) and associated Construction and Operations Plan (COP) submitted by Vineyard Wind, LLC for its proposed wind energy facility in federal waters off of New England.[1] RODA is a membership-based coalition of fishing industry associations and fishing companies with an interest in improving the compatibility of new offshore development with their businesses. Our Board of Directors consists of representatives of commercial fishing businesses and vessels from federally- and state-permitted Atlantic fisheries from North Carolina to Maine. Currently our membership includes major Atlantic fishing associations, dealers, and affiliated businesses, plus over 120 vessels across nine states operating in approximately 30 fisheries. RODA does not advocate for or represent any one particular fishery; rather, it actively endorses only those positions that are common amongst commercial fishing industry participants, and it offers a platform for gathering input from a broad range of fishery representatives when multiple viewpoints exist.

We value the productive relationship RODA has had with the Bureau of Ocean Energy Management (BOEM) since our inception and the opportunity to engage in open communication on the impacts of offshore development to commercial fisheries. RODA thanks BOEM and its subject matter experts for the significant amount of work that went into the preparation of this DEIS, and notes the improved depth of its fisheries analysis in comparison to previous environmental review documents that we have reviewed. We look forward to working with you as you refine the DEIS prior to completion of any final Environmental Impact Statement and consequential decisions.

[1] 83 Fed. Reg. 63184 (Dec. 3, 2018).

Despite the scope of consideration regarding fisheries impacts in this DEIS, there is much pertinent information that is inaccurate, incomplete, absent, or only partially analyzed. We understand the complexity of offshore wind and fisheries interactions and the limited federal resources available to devote toward this topic, and therefore hope to continue working with BOEM and other federal partners to continue to build capacity and a robust scientific record for this issue.

In light of the aforementioned considerations, RODA submits the following comments to BOEM in regard to the Vineyard Wind Offshore Wind Energy Development Project DEIS, which are the result of extensive and direct input from a large number of fishing industry members. They are categorized by broad topic area and are mainly intended to serve as suggestions for improving fisheries-related analysis in this DEIS and those for future wind energy projects. They also identify areas where additional research is needed before, during, and after project implementation. While some of these recommendations may have more or less direct relevance to Vineyard Wind's Wind Development Area (WDA), its larger lease site, and the other lease sites in adjacent areas off of New England, we feel that they as a whole suggest critical elements for informing approaches to reduce the impacts of offshore wind energy development on commercial fishing.

Analytical Inconsistencies

There are several instances in the DEIS and COP where significant inconsistencies exist in the descriptions of fisheries and the analysis of impacts from the proposed action. Where these disparities arise from the content of the COP (and particularly in studies that Vineyard Wind has conducted), BOEM has the federal responsibility to conduct an independent and comprehensive review to determine their accuracy. In but one example, references to the lobster fishery include:

1. "[A]n estimated five to six lobster boats fished in the Vineyard WLA" (COP Section 7.6.2.2, Volume III; Epsilon 2018);
2. "No pots and traps or fishing effort by longline occurred in the WDA or along the OECC." (COP Section 7.6.2.2, Volume III; Epsilon 2018); and
3. "Following engagement with commercial fishermen, Jim Kendall, Vineyard Wind's Fisheries Representative, estimates that the majority of fishing vessels operating in the WDA are fixed gear vessels (i.e., gillnetting and lobster pot fishermen)" (Kendall, 2016; Vineyard Wind, 2011).

These statements, and others in the COP and DEIS as noted in these comments and those of other fishing industry members, are clearly inconsistent and make it difficult to provide informed comments regarding its analysis and conclusions.

Impacts Characterization

The DEIS defines "moderate" impacts as those where "[i]mpacts on the affected activity or community are unavoidable." RODA feels that many of the impacts characterized as "moderate" could in fact be further mitigated or avoided with proper research and safeguards that have not been contemplated in the DEIS. These are too numerous to specifically address in these comments, therefore we have highlighted some of the major ones and encourage BOEM to continue to engage in communications with fishing industry

members—and support relationship-building between the offshore wind energy and fishing industries—to identify existing or innovative methods to minimize impacts and promote coexistence. We also submit that the DEIS's list of "unavoidable" impacts should include ecosystem-level changes related to shifts in habitat suitability, species composition and abundance, and other factors.

Design Considerations

The following comments relate to fisheries considerations for the specific layout of the WDA as proposed in the COP.

Wind Turbine Generator (WTG) Layout Orientation

As noted in the DEIS, RODA continues to support an East-West turbine orientation to slightly lessen (but not eliminate) impacts to current fishing vessel operators in the WDA, per Alternative D2 (Section 2.1.4.2). As stated in the DEIS, additional survey work would be required to re-orient WTG placement, potentially delaying the construction schedule and timing of the project for at least one year (Section 2.1.4.2). RODA supports additional survey work implementing layout alternatives to reduce moderate and major impacts to the fishing community. The DEIS concludes that conducting such survey work would render the project economically unviable, but provides no justification in the record for that conclusion. It is therefore impossible to provide meaningful comments comparing the proposed action with Alternative D2.

WTG Spacing

As we have commented previously, the spacing between turbines is likely to be more indicative of impacts to fishing activity than the orientation. Even if the WDA was designed with an East-West orientation, there would remain a substantial number of fishing industry professionals who would not be capable of safely operating their vessels and gears within the array if turbines are separated by only one nautical mile or less.

According to RODA members and input from the fishing industry at large, most commercial fisheries will not be able to operate in an array with spacing of only one nautical mile. If wider spacing between WTGs was implemented, additional vessels would be able to actively fish in the WDA, but each gear type and vessel size would have specific operability thresholds that have not yet been studied or conclusively established. Again, RODA supports additional survey work and collaboration between BOEM and Vineyard Wind and other developers to investigate adequate turbine spacing to allow for fishing efforts with multiple gear types and vessels at this, and future, wind development sites.

RODA strongly disagrees with the statement in the DEIS that there would be a net increase in environmental impacts if the spacing between turbines were to be increased to 1.5 or 2 nautical miles. While larger spacing between turbines would increase the initial proposed project area, an increase in spacing to 1.5 nautical miles would still appear to accommodate the placement of ample turbines within the lease area to achieve the project's stated purpose and need of procuring 800 megawatts (MW) of offshore wind energy. Furthermore, it is irresponsible to cite the negative environmental impacts of cable laying and increased

vessel trips during construction (as referenced in the DEIS) without also looking at the potential environmental benefits of increasing the spacing between turbines—environmental benefits that could include, but would not be limited to, decreased biological impacts to fishery stocks due to larger undisturbed area between turbines, reduced economic impacts if more fishing could continue within the project area, and fewer safety risks.

Range of Alternatives Regarding Project Design

The DEIS does not sufficiently present all reasonable alternatives to the proposed action. RODA disagrees with the conclusion that "Alternative Spacing between Wind Energy Turbines" (Section 2.1.7) would not meet the purpose and need of the project and thus we believe it should be considered as a full alternative to the Proposed Action. With the information provided by the DEIS, we believe that rough calculations show that a spacing of 1.5nm between turbines would fit the purpose and need of the project. Approximately 800 MW are proposed to be generated from this project, and it is our understanding that Vineyard Wind plans to construct turbines with an individual output of 9.5 MW. In the current proposed action, 100 turbines will be constructed in the lease area, with locations for an additional six turbines for a total of 100-106 turbines in the VW Lease Area. It is unclear whether spacing of 2 nm between turbines would allow the project to meet its stated goals, but many fishing industry participants support a minimum 2-nm spacing so this possibility should be fully considered.

According to Figure 2.1-6 (page 2-17) the layout of alternative spacing of 1.5nm between turbines shows 14 turbines, out of 106, outside of the lease area. With the expectation of installing turbines that generate 9.5 MW, the 800 MW threshold for this project will still be met with only 92 turbines – all of which fit within the current lease area. There is no information that suggests that the 800 MW must be procured from within only one portion of the overall lease area (the WDA) in order to preserve room for future projects, when the entire WLA was delineated and leased without a specific procurement need. Thus, it is necessary for an alternative including increased turbine spacing to be added to the Final Environment Impact Statement and be explored in full.

Cable Burial

The DEIS currently does not provide sufficient analysis that a 5- to 8-foot burial depth of cables would be adequate to prevent exposure of cables (Section 3.4.5.3). Cable exposure is problematic for many reasons, and RODA suggests Vineyard Wind conduct thorough studies to ensure the best location and depth of cables to limit exposure risk, as well as the risk of impacts from heat or electromagnetic fields that may transfer from the cable to benthic sediment or the water column. Whether the cable is—and remains—buried are of key importance when assessing potential fisheries impacts. Robust approaches for evaluating cable burial best practices exist, and RODA recommends that the developer follow guides used in European offshore

energy projects such as the Cable Burial Risk Assessment (CBRA),[2] or similar methodology, to reduce exposure risk.

Strong tidal currents run through the area where the cable is proposed, which could plausibly result in cable exposure under certain conditions. It is imperative that the cable is not only initially buried to the correct depth, and that its depth is in fact verified by permitting authorities, but that a monitoring system is in place to ensure that it remains sufficiently below the surface. As you likely know, in August of last year both the Deepwater Wind cable and National Grid's Sea2shore Cable associated with the Block Island offshore wind facility were exposed,[3] despite assurances from regulators and the developer that the risk of such an event was extraordinarily low. So, too, do protective devices such as mattresses pose risks to fishing operations, safety, and gear. These risks should be more fully described and analyzed in the DEIS. RODA requests both the project developer and BOEM to continue to work with the fishing industry to develop solutions for proper cable installation, and to mitigate gear conflicts and loss that may result from cable interactions.

RODA supports requiring long-term monitoring of cables as referred to in the DEIS (Section 3.4.5.2), but advocates for monitoring to be conducted independently and more frequently than on an annual basis using the best available technological means. In addition to natural threats such as seismic activity, sediment mobility, and submarine landslides, there are numerous anthropogenic activities that pose a risk of cable exposure such as dredging, benthic fishing, and grounding of ships. Due to all of these potential threats, monitoring cables often and thoroughly is important. RODA believes that BOEM should require all developers to partake in regular and independent cable burial status monitoring.

Transit Lanes

RODA remains concerned that the process for identifying the MA/RI WEAs, the execution of power purchase agreements with individual states, and the development of Construction and Operations Plans for offshore wind energy projects have occurred before reasonable transit lanes have been identified for fishing vessels to travel to fishing grounds beyond the lease areas. While we are appreciative that Vineyard Wind and adjacent leaseholders have engaged extensively in conversations to identify such transit lanes, the leasing process must be modified so that necessary transit routes are identified *before* a developer is bound to terms that render it difficult to modify site plans to accommodate fishing vessels that must safely and efficiently traverse the large lease areas.

As you know, there is still no broad "consensus" on the location nor position of reasonable transit routes throughout the large complex of New England WEAs. To reiterate, the fishing industry "consensus" is that transit lanes must be a minimum width of 4 nautical miles in order to accommodate safe passage, and further studies must be done to ensure that radar interference will not extend beyond that distance.

[2] Matthiesen, J. (Ed.) Application Guide for the specification of the Depth of Lowering using CBRA. *Carbon Trust*. Retrieved from https://www.carbontrust.com/media/672369/owa-ct-appplication-guide-for-cbra-feb-04-1.pdf

[3] Trodson, L. (2018, August 17) Deepwater Wind's Cable Exposed. *The Block Island Times*. Retrieved from https://www.blockislandtimes.com/article/deepwater-wind's-cable-exposed/53036.

At this point, it is extremely difficult for the fishing industry to work toward "back-filling" lease plans with no-build areas to accommodate vessel transit when developers consider them to be essentially voluntary exercises. While most (but not all) of the transit lanes that have been contemplated for the Northeast lease areas to date tend to fall outside of the Vineyard Wind WDA, there is no assurance that any specific area will be designated as a transit lane given the inability of each of the adjacent leaseholders to achieve agreement on consistency between their project layouts. Other developers have not stated support for the transit lanes that fall to the south of the WDA; moreover, the majority of fishing vessel transit through the WLA actually occurs within the WDA itself. If Vineyard Wind's preferred location for transit lanes outside of the WDA is not included in the other projects' COPs, it is unclear that any functional lanes will be designated at all. The fishing industry broadly needs assurance that there are workable options on the table both for our industry and all developers, including the ones that acquired the new leases in the December 2018 auction.

Fishing vessel transit patterns can be determined from a number of sources including, but not limited to, VMS data, AIS data, fishing vessel plotter information, and knowledge acquired from fishermen themselves. To our knowledge, the first time there was a true evidence-based analysis of such patterns was only when RODA requested one of the National Marine Fisheries Service (NMFS) for a workshop on December 3rd, 2018. This should have been done far earlier for these areas. BOEM must conduct this type of analysis in advance of future lease sales, either through its interagency data access agreements or by working with partner agencies, states, or contractors. It should also not proceed with any leasing or project approvals that may interfere with the ability to delineate transit routes through lease areas until those areas are properly identified.

In addition to the necessary locations and widths of lanes through the arrays to accommodate fishing vessel transit, RODA has concerns about the way such lanes are characterized and evaluated from a broader vessel traffic viewpoint. Modeling and analysis tools that accurately reflect vessel movements and vessel interactions are critical to determine if routing measures are appropriate for all marine traffic and to evaluate the changes in navigational safety risk resulting from different siting and routing scenarios. Even with a "consensus" as to siting, proper modeling and analysis are necessary to evaluate transit lanes and their effects. We believe that the U.S. Coast Guard (USCG) is the only entity with the expertise to perform these analyses and BOEM should defer to any recommendations it issues with regard to vessel transit.

Finally, the DEIS fails to use consistent language in describing transit lanes. It uses "transit corridors" or "transit lanes," often interchangeably, to reference both access within an array and crossing through an array to access grounds on the other side. "Transit lanes" should refer to those routes necessary to access fishing grounds on the other side of a WEA—or to vessels crossing an array generally—not to fishing within an array. BOEM should continue to work with the USCG, other maritime experts, and the fishing industry to refine how transit lanes will be classified and what navigational principles will apply.

Trawl Survey Inaccessibility

RODA is concerned with the inability of fisheries research vessels to access the Vineyard Wind Lease Area as related to the Impacts on Commercial Fisheries and For-Hire Recreational Fishing (Section 3.4.5.3).

Fisheries rely on up-to-date and comprehensive data to ensure stock assessments are accurate and inform fishery management. At the most recent New England Fishery Management Council meeting (January 29th, 2019), NMFS stated that it will not be able to operate its survey vessels in WEAs. The loss of its ability to conduct fisheries-independent data collection due to inaccessibility will not only obstruct understanding of stock status within development areas, but will also increase uncertainty in regional stock assessment models.

We believe loss of consistency in survey efforts is a significant concern for the fishing industry as it may lead to increased scientific and management uncertainty, and potential decreases in catch limits as required by the Magnuson Stevens Act. Conducting surveys in adjacent or other areas cannot simply make up for survey efforts based on randomized sampling, and thus accuracy of stock assessment models may be diminished.

The DEIS suggests that "NMFS survey methodology may need to change to account for the inability to sample in certain areas" (Section 3.4.5.3) with no framework for developing such new methodology. RODA intends to work with NMFS to develop these novel methods, which will likely take time and resources for which the DEIS does not account.

Impacts to data collection for research purposes in development areas are at best unknown if NMFS (and other research survey vessels) cannot operate in this area or future energy development sites. While impacts to data collection and surveying seem minor when they pertain to a partial lease area, collectively wind energy development areas may critically hinder stock assessments in the region due to the impacts to research methodology and accessibility. We suggest that BOEM looks at this issue from a holistic standpoint and ensure that energy development projects do not come at the cost of scientific certainty needed to support sustainable fisheries.

Navigational Safety

While RODA applauds the proposed Marine Coordinator position to coordinate and communicate Vineyard Wind construction and installation plans with USCG, pilots, port authorities, state and local law enforcement, and commercial operators to decrease risk incidents (Section 3.4.7.3), we are concerned with the lack of a full analysis of vessel navigation in the area. We reiterate that the USCG is the entity with the best expertise to provide information regarding navigational safety, and recommend that BOEM fully adopt any recommendations it provides.

The current DEIS' impact analysis is based almost entirely on AIS data from a two-year period. This is not sufficient data to draw conclusions about vessel navigation in the WEA, as: (1) fisheries in the region exhibit significant interannual ecological variability; (2) vessels are not required to use AIS outside of the 12 nm Territorial Sea; and (3) the AIS data utilized in the impact analysis does not include navigation by vessels <65 feet. In order to ensure that incident risk is minimized, we hope that BOEM and developers will work

to better include vessels in smaller size classes. We request a full analysis using VMS data, which is readily available as seen by the analysis NMFS did for the NY Transit Workshop on December 3, 2018.[4]

The DEIS notes that increased traffic is expected at ports, particularly New Bedford (Section 3.4.7.3), leading to traffic jams and increased wait time to enter the harbor. As currently presented, the DEIS does not consider that increased time to market for many fisheries will reduce product value if fishing vessels are required to wait to offload. RODA suggests that mitigation for delayed offloading and determination be addressed prior to the start of construction and installation, and that offshore wind facility serve vessels give way to fishing vessels returning to port.

Lastly, while ground-based radar systems are expected to be located a sufficient distance from the WDA to not cause radar interference, the DEIS does not adequately addresses the potential for radar interference from vessels navigating in or near the WDA. BOEM and USCG have acknowledged this important issue; we believe that it must be fully addressed prior to construction in the development area.

Decommissioning

The DEIS provides very little detail regarding decommissioning requirements, noting instead that "[d]ecommissioning plans are subject to an approval process that includes public comment and government agency consultation." For example, it says "cables may be retired in place," but there is no description or analysis of any potential long-term impacts of deactivated cables or how those impacts would be monitored, much less how that decision would be made.

The National Environmental Policy Act (NEPA) requires a public comment process and consideration of the environmental impacts of any major federal action. If project decommissioning will not undergo further NEPA review, the DEIS should contain much more explicit detail regarding decommissioning activities. At a minimum there should be assurances as to the process and the factors BOEM will evaluate in making future decisions, in light of the vagueness of the DEIS. Additionally, RODA requests that future decisions restrict the use of explosives in decommissioning if it does not conduct a NEPA-compliant environmental review to assess the potential impacts of that activity, which are unknown to us at this time but could significantly negatively impact fishery resources.

Biological Impacts

The following sections highlight some major considerations related to impacts to the ecological environment. There is significant overlap between those characterized as "biological" or "habitat" related; these comments roughly reflect the breakout of those categories in the DEIS.

[4] It is our understanding that multiple agencies have access to these data sets and, regardless of which one performs such analyses, we urge closer cooperation to ensure that they are completed efficiently and correctly.

Impacts to Specific Fish Stocks Should be More Thoroughly Considered

In general, and as stated previously, the DEIS should provide more thorough analyses regarding the impacts of the proposed action to individual fish species and stocks. The DEIS's accompanying Biological Assessments provide some level of detail regarding impacts to protected (endangered) resources, but BOEM relies primarily on its EFH Assessment to describe specific affected fishery resources.

While the EFH descriptions overall appear to be accurate, there is much additional information, including life history, stock status, management structure, seasonality, and more, that influence the degree to which negative impacts to a given fish stock may have unusual or augmented biological and/or economic repercussions.

Atlantic cod, for example, are found throughout the WDA and are of particular importance to New England in terms of economics, ecology, history, and culture. However, despite this fish's significance, the stock condition is poor and its status unknown after massive population decreases roughly a decade ago. Atlantic cod catch in the U.S. was recorded at an all-time historical low in 2016 and it has just begun to show signs of population growth. Moreover, significant scientific uncertainty exists regarding the Georges Bank cod stock (that which is found in the WDA and all of the lease areas off of MA and RI). That uncertainty in large part fueled the reductions in catch limits and even led to the analytical assessment of this stock not being accepted during NMFS' most recent operational update meetings.

The depleted state of the Georges Bank cod stock, in addition to being concerning in and of itself, has outsized impacts on fishing practices and revenue. It is one component of the Northeast multispecies fishery complex, which is managed as a unit due to the mixed nature of the stocks both in terms of ecological interactions and how they are caught. The majority of the commercial fleet is managed according to a "sector," or "catch share" regime, which provides quota allocations of each stock to groups of fishermen. If a sector reaches its quota of any groundfish stock, it must stop fishing altogether in that stock area. Georges Bank cod has thus become a "choke stock"; if fishermen are unable to avoid catching it while targeting other—and often highly abundant—stocks (such as Georges Bank haddock), they lose the ability to continue to fish for those target stocks. Any further decreases in the Georges Bank cod population that result in lower catch levels will therefore not only jeopardize the recovery of the resource itself, but they will necessarily decrease revenues from all groundfish stocks. Moreover, population estimates for this stock rely heavily on NMFS trawl survey data. As described above, reduced survey coverage will increase the scientific uncertainty that is driving the severe catch limitations.

The DEIS does not provide any analysis of the true fisheries impacts from the Vineyard Wind proposal in light of this biological and management complexity. Rather, it focuses narrowly on habitat impacts and readily dismisses alteration of juvenile cod Habitat Area of Particular Concern (HAPC) due to the size of the WDA relative to the entire HAPC. RODA requests BOEM and Vineyard Wind to conduct a full, quantitative inquiry into the likely impacts to this depleted resource from the WDA within the HAPC, as well as to gather any necessary information to determine how the stock and fishery would be affected from full build-out of the lease area and adjacent sites.

Winter flounder, for its part, is one of the few fishery stocks in the WDA of specific focus in the DEIS. Although the DEIS states "[l]ocalized loss of demersal eggs could lead to reduced fish recruitment" and "[p]ermanent habitat alteration in the form of scour and cable protection would reduce the habitat for species such as winter flounder," it simply concludes without further analysis that "this would be limited and BOEM does not anticipate impacts on the flounder stock." It does not consider that the latest stock assessment, in 2017, concluded that the Southern New England/Mid-Atlantic winter flounder stock is overfished and extended its rebuilding timeline to 2023, nor that flounders are likely to be particularly sensitive to temperature increases associated with cables. As with Georges Bank cod, BOEM must evaluate impacts to the rebuilding timeline and the implications of delayed rebuilding on both the stock itself and on groundfish fishery catches and revenues overall.

Analysis of Impacts from Underwater Noise Is Incomplete

The DEIS sections regarding sound impacts to fish populations primarily focuses on noise arising from project construction and its potential effects on squid behavior. This is a critical issue due to the degree of known impacts and the importance of squid resources in the area. With regard to squid (and certain finfish species), however, the DEIS over-relies on assumptions that they will simply swim away from noise that exceeds tolerable thresholds, unless they are sessile or too small to swim away, in which case individuals will die but the population will quickly recover.[5] We understand that there is a need for further scientific research regarding impacts of underwater noise to specific stocks, including squid, and request additional resources to accomplish such studies. At a minimum, given the currently available information, these predicted impacts can and should be quantified based on how many individuals may be in an area at a given time, and how behavioral changes or mortality to those animals may impact stock abundance and recruitment, including considerations of seasonality and age structure.

Aside from its basic treatment of squid and certain finfish, the DEIS is silent on a wide variety of potential impacts from the sound associated with offshore wind energy facility construction. For example, there is peer-reviewed evidence that loud underwater sounds, and the associated pressure changes or vibrations, are likely to impact the survival and development of fish larvae and invertebrate stocks including scallops,[6] which is not considered in the DEIS.

Also related to the construction phase, the DEIS states that the PDE covers a hammer size up to 4000 kilojoules (kJ) for monopile foundations, and 3000 kJ for jacket foundations, which is consistent with current equipment specifications. However, its analysis for radial distance to thresholds for fish from impact hammering only includes hammer energies of up to 2500 kJ. We would expect that the increased energy levels would greatly multiply acoustic effects of piledriving, and the DEIS should reflect this.

[5] The DEIS makes similarly unsupported conclusions regarding sedimentation impacts to fish stocks, to which the essence of these recommendations also applies.

[6] De Soto, N. A., Delorme, N., Atkins, J., Howard, S., Williams, J., & Johnson, M. (2013). Anthropogenic noise causes body malformations and delays development in marine larvae. *Scientific reports*, *3*, 2831.

As to sound impacts from the operational phase of a wind energy facility, BOEM summarily states that "[n]o study has shown any behavioral impact of sound during the operational phase of wind energy facilities" and declares this information "low priority." To the best of our knowledge, there are also no studies showing that sound from wind energy facility operation *does not* impact fish behavior, and there is good reason to believe it would. This is an area that absolutely should be further studied, as there is a high probability of impacts. Studies from Europe show that species such as cod may perceive operational noise from wind energy facilities at distances of 7 km or greater.[7] There are also a wide range of studies showing that terrestrial wind energy activities do create behavioral shifts in human populations (such as implementing mitigation strategies for noise abatement), and that wind turbine noise "can be easily perceived (and be an annoyance) even for low sound pressure levels, making it generally incongruous with background noise".[8] Based on discussions with experts at Rutgers University, we understand that operational noise may impact shellfish too, particularly in early life stages; for bivalves, larval settlement and metamorphosis are highly sensitive processes that may be affected by changes in sound. Recent research has demonstrated that oyster settlement, for example, is highly influenced by underwater soundscapes.[9]

BOEM relies on assumptions regarding ambient noise at the Block Island Wind Farm (BIWF) to inform its DEIS; this information is not necessarily applicable to the Vineyard Wind lease area, which is much further offshore in an oceanographically and ecologically distinct area. Moreover, BIWF consists of significantly smaller turbines that are likely to produce much more limited operational sound. Vineyard Wind proposes to use turbines that are the largest ever in the world, and the impacts are frankly altogether unknown. We therefore request: (1) that BOEM require autonomous passive acoustic monitoring devices to record ambient noise in the lease area not only before and during construction, but throughout the life of the project; (2) that BOEM, Vineyard Wind, and/or others conduct studies on the impacts of construction *and* operational noise to fish populations; and (3) that any impacts found to be in excess of those predicted and analyzed in the DEIS are required to be fully mitigated during any project phase.

The DEIS Does Not Consider Impacts to Water Flow or Larval Dispersion

The DEIS contains virtually no consideration of the hydrographic effects of placing large fixed structures in the water column to either the physical or biological environment. The most relevant study of these impacts, to our knowledge, was commissioned by BOEM from Dr. Changsheng Chen at SMAST. The DEIS, inexplicably, cites this study to conclude that development of the Vineyard Wind WDA is not likely to influence southward dispersion of larvae, but ignores other pertinent information in the study. For example, with regard to large-scale variability, "the presence of wind turbines can increase the spatial dispersion and speed of larval movement, but will not block the larvae within the wind turbine facility area." For small-scale variability, "the presence of wind turbines can also decrease the spatial dispersion." The

[7] Wahlberg, M., & Westerberg, H. (2005). Hearing in fish and their reactions to sounds from offshore wind farms. *Marine Ecology Progress Series*, *288*, 295-309.

[8] Botelho, A., Arezes, P., Bernardo, C., Dias, H., & Pinto, L. (2017). Effect of wind farm noise on local residents' decision to adopt mitigation measures. *International journal of environmental research and public health*, *14*(7), 753.

[9] Lillis, A., Bohnenstiehl, D. R., & Eggleston, D. B. (2015). Soundscape manipulation enhances larval recruitment of a reef-building mollusk. *PeerJ*, *3*, e999.

study bluntly concludes that "the modeling assessment of the impact of the future offshore wind energy facilities on the marine environment should be done with consideration of the wave-current interaction process," which was not performed in the DEIS.

Benthic invertebrates are likely to be particularly sensitive to disruptions in larval dispersion patterns and sedimentation. They spawn in discrete areas and rely on having the correct currents to distribute larvae to suitable grounds for settlement. Even small-scale disturbances to those pathways—whether from mortality at a spawning site, inability to reach settlement areas, or both—could have serious repercussions for populations even outside of a wind energy array. The DEIS does not consider any of these relevant potential impacts for benthic species found within the lease area.

Evaluation of the impacts of the proposed action to ocean circulation patterns and water flow is particularly important given the location of the project area in the region of the Cold Pool. The Cold Pool is a 20-60 meter thick band of cold, near-bottom water that persists from spring to fall over the mid and outer shelf of the Mid-Atlantic Bight and the southern portion of Georges Bank. It is a geographic rarity and drives much of the productivity of a large portion of the Northeast Shelf Large Marine Ecosystem. The Cold Pool's uniqueness derives from a very low level of mixing and a highly stratified thermocline. The DEIS fails to consider impacts to the Cold Pool, resultant impacts to fisheries resources, and any other regional or local oceanographic effects that will arise from the installation of turbines, which are likely to increase mixing throughout the water column.

Research on Wind Energy Removal

In addition to mixing effects anticipated with the installation of massive fixed structures, other impacts are likely to result from atmospheric changes associated with large-scale offshore wind energy development. Wind energy facilities are designed to efficiently remove or harvest wind energy from the ecosystem, which may change underwater conditions based on reduced shear effect at the surface of the ocean. The DEIS does not address any potential environmental impact of removing energy from this atmospheric boundary layer, nor acknowledge that available information is very limited regarding the overall ecosystem shifts that may result from the combination of atmospheric and hydrographic changes.

While understanding and measuring large-scale climatic fluctuations is difficult, RODA would like to express concern with the lack of scientific research conducted on the impacts turbines will have on prevailing surface wind and atmospheric conditions. Numerous scientists and fishermen alike have expressed concern on the potential for these expansive wind farms to extract energy from ocean winds, which are responsible for many ecological processes unique to the region. We encourage BOEM and Vineyard Wind to support scientific studies to help better understand how these projects will affect the entire ecosystem.

The Predicted "Reef Effect" Is Highly Speculative and Poorly Supported in the DEIS

The DEIS makes a sweeping statement that the proposed project will have a "[m]oderate beneficial long-term reef effect from piles and scour protection." This proclamation is not supported by any evidence or

facts. In fact, the only study cited in the DEIS specific to a potential reef effect in any reasonable geographic proximity to the lease area is one conducted by the Minerals Management Service in 2009; that study concluded that the Cape Wind Energy Project would *not* create such an effect. It also notes that although a so-called reef effect has been observed around existing turbines in Europe, "benefits to fish and invertebrates [of such an effect] are inconclusive." It is therefore entirely unclear upon what information BOEM bases its positive conclusions in the DEIS.[10]

The supposition of beneficial impacts of a "reef effect" is particularly problematic in light of the DEIS's absence of analysis on a holistic, ecosystem basis. Ecosystem engineering is not necessarily a desirable process and should not be described so simplistically. One major consideration is that even if a "reef effect" did have the outcome of increased biomass compared to the original bottom structure, artificial habitats differ substantially in species composition from the habitat they replace.[11] Much evidence shows that artificial habitats—both marine and terrestrial—can also become hotspots for invasive species or reduce species richness.

Predicting changes in ecosystem composition resulting from habitat alteration is a highly location-specific exercise, and neither the COP nor the DEIS contains informed analysis as to what the expected outcomes of habitat alteration could be at this particular site. One example of special concern to the fishing industry is the possibility of increases in undesirable species such as the non-native European green crab. Moreover, research has shown that wind energy facilities in Europe attract seals and may in fact increase their populations.[12] Seal populations are already rapidly increasing in New England—with the harbor seal population more than tripling and grey seals more than doubling in roughly the last decade alone—and are a significant source of predation on severely depleted Atlantic cod and other important fishery stocks. Their growth in numbers has also fueled the increase in great white sharks in New England waters, which has had positive and negative impacts in its own right.

Finally, the DEIS provides no information on an anticipated timeline for any "reef effect" to take place. It also fails to evaluate whether the creation of hard benthic structure would be expected to increase abundance of species with an affinity to that substrate, or whether it would simply aggregate existing populations. If the latter, a "reef effect" could in fact have additional impacts to fishery catches that are not addressed in the DEIS.

[10] Notably, the DEIS is also internally inconsistent in finding a "moderate beneficial" impact despite the qualifier that "impacts on a population level for most species should be minimal," when elsewhere in the document biological impacts to fish are deemed "minor" or "negligible" due to the limited affected geographic area compared to the population range as a whole.

[11] Langhamer, O. (2012). Artificial reef effect in relation to offshore renewable energy conversion: state of the art. *The Scientific World Journal*, *2012*.

[12] Russell, D. J., Brasseur, S. M., Thompson, D., Hastie, G. D., Janik, V. M., Aarts, G., McClintock, B. T., Mattiopoulos, J., Moss, S. E. W. & McConnell, B. (2014). Marine mammals trace anthropogenic structures at sea. *Current Biology*, *24*(14), R638-R639.

Habitat Impacts

The DEIS oversimplifies ecosystem dynamics by concluding that hard-bottom fish stocks will increase after wind energy facility construction due to increased benthic structure such as scour protection, and soft-bottom stocks will decrease. This implies fishery stock dynamics are based purely on the amount of suitable habitat type. In fact, the drivers behind stock abundance and species richness are extremely complex. In general, the habitat impacts analysis in this DEIS and those for future lease sites should be far more rigorous, including consideration (and differentiation, where applicable) of any relevant information known from studies of European wind energy facilities. The lack of information in the DEIS and the overall high level of scientific uncertainty regarding these issues further highlight the need for both adaptive implementation and monitoring to better understand impacts to individual fish stocks, and cumulative effects modeling to show how all the elements referenced in the DEIS interact to impact fishery resources.

There Is No Evidence to Support Claims of Positive "Sanctuary Effects"

The DEIS states: "If the access to fishing locations is reduced, an artificial 'sanctuary' for fish can also develop," implying that this is a desirable outcome, without further explanation. In reality, the available research on the benefits of fisheries closures in temperate areas generally—and in New England specifically—do not support this assertion.[13]

The New England Fishery Management Council recently completed a rigorous assessment over nearly 15 years of its management program for fisheries habitat, which resulted in broad changes to its system of closed areas. As part of that exercise, it reviewed all known scientific information regarding closed areas in New England and comparable regions. One of its core findings, which was peer-reviewed twice, was that the best way to protect vulnerable habitat and fish stocks that rely on that habitat is to maximize catch per unit effort. That is, encouraging fishing in locations with the greatest concentration of target stocks (and relatively low concentrations of bycatch) provides greater net benefits to fisheries than does closing large areas to fishing. Moreover, a 2006 study by NMFS scientists compared scallop stock dynamics in areas inside and outside of the then-existing closed areas on Georges Bank, which are near the WDA and other sites proposed for lease development. That study found that long-term mean scallop recruitment was the same inside groundfish closures and in open areas.[14] In addition, studies from the University of Massachusetts at Dartmouth's School for Marine Science and Technology have shown no difference in epibenthic community productivity between areas that are open and closed to scallop fishing.[15]

[13] The DEIS also fails to provide a definition of what BOEM considers to be a "sanctuary effect." For the purpose of these comments, we assume it implies commonly-discussed beneficial outcomes from certain marine protected areas (especially in tropical areas) such as enhanced biomass, recovery of depleted fishery stocks, increased ecosystem productivity, and the like.

[14] Hart, D. R., & Rago, P. J. (2006). Long-term dynamics of US Atlantic sea scallop Placopecten magellanicus populations. *North American Journal of Fisheries Management*, *26*(2), 490-501.

[15] Stokesbury, K. D., & Harris, B. P. (2006). Impact of limited short-term sea scallop fishery on epibenthic community of Georges Bank closed areas. *Marine Ecology Progress Series*, *307*, 85-100. Epibenthic community surveys in Closed Areas I and II showed

Not only can "sanctuaries" fail to provide the hoped-for benefits of increased productivity, but poorly-planned displacement of fishing effort can have strongly negative biological impacts. Elsewhere in the DEIS, it states that fishermen may choose to avoid fishing in proximity to wind energy facilities, in which case:

> [T]hey may relocate to other fishing locations and continue to earn revenue. However, this could cause increased conflict in those locations, and vessels may incur increased operating costs (e.g., additional fuel to arrive at more distant locations) and lower revenue (e.g., less productive area; less valuable species).

This recurring prediction oversimplifies the ability of fishermen to simply move their operations to another area. Moreover, it is well-documented that assumptions about the spatial distribution of fishing effort before and after the implementation of a closure, if those assumptions do not take economic factors into effect, generally overstate the beneficial effects of closures and severely bias the predicted outcome.

In short, the assumption that closing certain areas to fishing will necessarily entail positive impacts to fisheries and benthic ecosystems is, at best, misleading. RODA is skeptical that wind energy facilities offshore New England will have a "sanctuary effect" at all; in order for BOEM to assert that they will, it must support its position with geographically-relevant ecological and economic studies and other information.

Temperature

The DEIS acknowledges that heat generated by power transmission from an offshore wind energy facility has the ability to affect water temperatures, and that temperatures in the project area are generally increasing as a result of climate change. However, the DEIS contains no actual analysis whatsoever of the potential impacts of those changes to the temperature of water or sediment resulting from heat emissions emanating from the inter-array or transmission cables.

Indeed, globally there are very limited studies on the operational heat-related impacts of submarine cables to fishery resources. Despite the lack of specific research to this end, the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Commission) cited the importance of this issue in its 2012 Guidelines on Best Environmental Practice (BEP) in Cable Laying and Operation. It noted that buried power cables lead to a significant rise in temperature of the surrounding sediment, stating that "[t]here is the potential that a long-lasting increase of the seabed temperature may lead to changes in physiology, reproduction or mortality of certain benthic species and possibly to subsequent alteration of benthic

that changes in number of fish and macroinvertebrate categories, and the density of individuals within each category, were similar in areas open to a short-term scallop fishery and in the control areas that were closed to fishing.

communities due to emigration or immigration" as well as changes in bacterial activity leading to potential secondary impacts to benthic flora and fauna.[16]

RODA requests that BOEM fully evaluate the extent of known information regarding temperature impacts of subsea cables, support future research to further understand how heat emissions affect fishery resources and ecosystems, and require any necessary mitigation measures (such as increased cable burial depths) to avoid these impacts.

Electromagnetic Fields

The DEIS also contains very little information about the impacts to fishery stocks from electromagnetic fields, and further species-specific analyses should be conducted in order to understand how cables would affect the organisms in the project area. Studies have shown changes in behavior in response to EMF, particularly for elasmobranchs.[17] Altering behavior of any organism should warrant additional investigation and should not be considered a "minor" impact, moreover impacts to species with high trophic positions will likely cascade throughout an entire ecosystem and thus should be analyzed in depth. Furthermore, EMFs acting as "barriers" to a particular habitat is not the only concern for exposure to these electromagnetic fields. Influences on predation, mating, and navigation are equally important and impacts of EMF on behavior should be analyzed holistically, not just if the fields repel an organism from an area.

Scour and Other Benthic Alterations

The proposed action would have significant impacts to benthic structure due to the installation of scour protection around the turbine bases. However, the DEIS lacks any description of what type of scour protection would be used or how the materials, amounts, or installation method would be determined (the same is also true for cable mattressing or other protection). These details will significantly influence impacts to benthic communities due to habitat alteration and changes in suspended sediment and water quality. BOEM should properly describe and analyze the relevant parameters and only approve scour protection methods that are least impactful to fishery resources.

Social Impacts

RODA is concerned with the DEIS' absence of analysis of potential social impacts the project will have on the community in the region. There are a number of social impacts to the commercial fishing industry that should be considered by BOEM and the developers. This includes impacts such as increased time away from family due to longer and displaced fishing trips, disparate impacts to low-income communities, and

[16] OSPAR Commission. (2012) *Guidelines on Best Environmental Practice (BEP) in Cable Laying and Operation* (Agreement 2012-2), OSPAR 12/22/1, Annex 14.

[17] Gill, A. B., Bartlett, M., & Thomsen, F. (2012). Potential interactions between diadromous fishes of UK conservation importance and the electromagnetic fields and subsea noise from marine renewable energy developments. *Journal of Fish Biology*, *81*(2), 664-695.

loss of historical knowledge and cultural practices. We hope that these issues will be addressed prior to approval of construction and installation permits as required by NEPA.

Additionally, the current DEIS does not address the potential loss in a qualified workforce for fishing companies if crew members are hired by wind developers. If local hiring mitigation measures outlined in Chapter 2 are included in the final COP, shifts in skilled workers from the fishing industry to wind development would limit the availability of experienced and skilled individuals. The fishing industry is dependent on a skilled workforce and careful consideration should be implemented in any local hiring mitigation plans.

Economic Impacts

RODA believes that, overall, there has not been an adequate study regarding the true economic impacts of offshore wind energy development (whether project-specific or regionally) to Atlantic fisheries. The most comprehensive study to date was performed by the Rhode Island Department of Environmental Management (RI DEM), cited in the DEIS, which calculated the "exposure" of fishing permits operating in the New England WEAs.[18] As noted in the many caveats in that report, it calculated only the amount of fisheries revenue derived from trips in an area, and utilized limited data with regard to species, timeframes, ecosystem impacts, and local economic impacts. It also lacked—and no study has fully examined—any analysis of the significant "multiplier effects" that make fisheries far more valuable throughout the supply chain than a simple exposure calculation would suggest. Needless to say, we therefore strongly disagree with the conclusions of the private and even more simplistic economic study Vineyard Wind presented to the RI CRMC in January 2019 concluding that realized fishery losses would be far less than those described by RI DEM.[19]

As with several other sections of the DEIS and COP, there are substantial inconsistencies in the economics impacts analyses. For example, the statement that "[s]even different Fisheries Use and Management programs regulate commercial and recreational fisheries in and around the WDA in both state and federal waters" is inaccurate given the large number of federal and state Fishery Management Plans that control fishing activity in the project area.

Additionally, as referred to in the *Habitat Impacts* section above, the implied ease of "relocating to other fishing locations" of the DEIS is irresponsible and unrealistic. For example, while the DEIS does discuss the potential increased transit time, it does not take into account economic loss for fisheries that are 'on the clock', such as scallops and monkfish, that will lose not only fishing time but also catch and revenue from fishing in alternative locations. There are a wide variety of management restrictions in each affected fishery that must be considered in determining the actual economic impacts of displacement. RODA therefore

[18] RIDEM Division of Marine Fisheries (2017) *Spatiotemporal and Economic Analysis of Vessel Monitoring System Data Within Wind Energy Areas in the Greater North Atlantic,* Addendum I. Rhode Island Department of Environmental Management.

[19] We also understand that additional studies may have been commissioned by the developer that are currently considered confidential; if any relevant management decisions are based upon these studies they must be made fully public and available for review.

encourages BOEM to work with NMFS, the regional fishery management councils, and our members to develop a credible and comprehensive framework for analyzing the economic impacts of offshore wind energy development to fisheries.

Finally, the DEIS refers to a number of vessels permitted in the MA WEA and Vineyard Wind WLA that will lose the majority of their revenue if displaced out of the area during construction and installation.[20] BOEM anticipates that compensation payments to affected fishermen will reduce impacts to "minor" during the construction disruption period. RODA strongly believes that simply buying off fishermen who have historically fished in the WEA is irresponsible and diminishes the loss of a profession to a "minor impact."[21] In order for offshore wind development to be sustainable and able to coexist with current ocean utilization, it is necessary that fishing practices and traditional fishing grounds be respected.

Jobs

According to the most recent Fisheries Economics in the U.S. summary report by NOAA, the seafood industry employed over 1.2 million individuals and generated $39.7 billion income in 2015. In Massachusetts alone, the seafood industry supported over 80,000 jobs in 2015.[22] The seafood industry is phenomenally important to the economy of the U.S. and in particular to the historic and current New England communities. Due to the proposed Vineyard Wind project, in conjunction with additional offshore wind projects that will be constructed in the coming decade, fishing industry jobs will be lost as fishing grounds are impacted through numerous ecological, environmental, and accessibility factors. RODA is concerned that the proposed COP from Vineyard Wind emphasizes the creation of jobs from the offshore development project as a sufficient offset to the potential jobs lost by the fishing industry by the project. While it is noted that there will be more positions created during the construction phase of the project, once built the operations and maintenance would employ only 169 full time employees based on the Proposed Action (DEIS, Table 3.4.1-4). It is unknown at this time how many fishery related jobs will be lost as a direct result of the proposed action, but as currently stated in the DEIS, the offset of jobs created does not come close to the number of jobs the fishing industry currently provides to the community.

Currently, the DEIS only addresses the potential creation of jobs in Massachusetts. We request the final EIS to include any positions that the Proposed Action would generate outside of Massachusetts, as the current development plan states that approximately 35 to 55 percent of jobs will be sourced within the United

[20] Kirkpatrick, A. J., Benjamin, S., DePiper, G., Murphy, T., Steinback, S. & Demarest, C. (2017) Socio-Economic Impact of Outer Continental Shelf Wind Energy Development on Fisheries in the U.S. Atlantic. U.S. Department of the Interior, Bureau of Ocean Energy Management.

[21] Importantly, it is also unclear in the DEIS what criteria BOEM will use to evaluate whether any proposed compensation payments are reasonable or sufficient and who would qualify as "affected fishermen" in order to achieve this predicted outcome of impact reduction.

[22] National Marine Fisheries Service (2017) Fisheries Economics of the United States, 2015. U.S. Dept of Commerce, NOAA Tech. Memo. NMFS-F/SPO-170, 247p.

States.[23] If these jobs are for the majority employing individuals outside of MA or New England, additional mitigation should be considered as this development action will cause MA and New England based fishermen and associated fishing industry employees to go out of business. In short, the creation of offshore wind jobs may not be sufficient to offset localized loss of employment.

Cumulative Impacts

The DEIS fails to adequately evaluate two distinct types of cumulative impacts: (1) the combined impacts of multiple factors to fishery resources; and (2) the impacts of the development of multiple wind energy facilities across the 1400 sq. nautical mile New England lease area complex. It also misrepresents the predicted impacts to fishery resources associated with climate change.

Compounding Impacts from Multiple Disturbances

Entirely absent from the DEIS is any consideration of how multiple impact factors may work together to exponentially impact fish and fisheries on an individual stock or ecosystem basis. For example, how might survivability of a given population or sub-population be affected by changes in water column sedimentation, currents, temperature, substrate change, etc., that occur concurrently, versus any one of these changes in isolation? This is a critical omission from the DEIS. BOEM must make every possible effort to characterize these cumulative impacts, which is one of the core requirements of NEPA. Where insufficient information is available to inform predictions, that must be clearly stated and considered as a high priority area for future research.

Cumulative Impacts of Large-Scale Offshore Wind Energy Development

The DEIS does facially address the potential cumulative impacts of multiple offshore wind energy projects in the same geographic region as the proposed action. However, because it considers the development of all adjacent lease sites (with the exception of the South Fork project) not to be "foreseeable," it ignores them in its analysis.

As many fishing industry members have expressed before, we remain concerned that BOEM continues to take the view that an offshore wind energy facility does not need to be analyzed for conflicts with other ocean uses until it is in the very late stages of development. While an agency has some discretion in what it considers a "foreseeable future action," The Department of Interior's own NEPA regulations define such actions as those that are:

[23] BVG Associates Limited (2017) U.S. Job Creation in Offshore Wind: A Report for the Roadmap Project for Multi-State Cooperation on Offshore Wind. NYSERDA Report 17-22.

> [S]ufficiently likely to occur, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision. These [activities include those] for which there are existing decisions, funding, or proposals.[24]

The regulations further exclude from this definition only those actions that are "*highly* speculative or indefinite" (emphasis added). A project does not have to be certain, highly likely, or have all its details finely planned-out in order to be *reasonably* foreseeable. Given the huge amount of money spent on the most recent lease sales, and the significant costs incurred by survey and other work on neighboring lease sites, it is certainly reasonable to expect that there will be additional wind energy facilities other than the South Fork project near the Vineyard Wind WDA. At a minimum, one could reasonably assume that the future projects may have similar Project Design Envelopes and/or similar environmental impacts to those of the proposed action, and BOEM could evaluate them accordingly with regard to the range of possible cumulative impacts.

RODA is especially concerned that the current process will never include a full consideration of the collective impacts to fisheries from the build-out of the entire area. When would this full analysis occur? It would be rather easy to break any large infrastructure project into such small components that the consideration of each isolation would never be viewed have significant impacts. However, just as pipelines are not evaluated based on each joint or segment, expansive wind energy areas are not best evaluated as a series of relatively small clusters of turbines.

The Council on Environmental Quality issued guidance to federal agencies with direct relevance to this issue, suggesting that an area-wide EIS may be appropriate in this situation:

> For example, when a variety of energy projects may be located in a single watershed, or when a series of new energy technologies may be developed through federal funding, the overview or area-wide EIS would serve as a valuable and necessary analysis of the affected environment and the potential cumulative impacts of the reasonably foreseeable actions under that program or within that geographical area… the overview EIS would be prepared for all of the energy activities reasonably foreseeable in a particular geographic area or resulting from a particular development program. This impact statement would be followed by site-specific or project-specific EISs. The tiering process would make each EIS of greater use and meaning to the public as the plan or program develops, without duplication of the analysis prepared for the previous impact statement.[25]

Although BOEM conducted a Programmatic EIS in 2007 related very generally to the development of offshore alternative energy in the United States, RODA submits that that document was glaringly inadequate and erroneous in its treatment of fisheries impacts, and it provided no details that would inform analysis of the impacts of offshore wind energy development in the New England region. We once again urge BOEM,

[24] 43 C.F.R. § 46.30. 2018.

[25] 46 Fed. Reg. 18026 (Mar. 23, 1981).

ideally in advance of its decision on the proposed action but at least before future projects are designed, to undertake a full evaluation of the impacts of building what is likely to be the world's largest offshore wind energy program to the region's highly productive and sustainable fisheries.

Climate Change

The DEIS correctly asserts that "[g]lobal climate change, including the resulting temperature increases, sea level rise, and stronger storm systems would likely affect fish, invertebrate, and EFH resources regardless of the Proposed Action." Improvements in climate models can make relatively informed predictions of how climate change may impact ocean ecosystems on global and regional scales, but significantly less is known regarding how it may affect individual stocks and ecosystems on spatially localized bases. Despite the large amount of unknown information, a wide body of scientific studies does exist that informs predictions and fishery management practices to the greatest extent possible.

BOEM cites none of this literature to support its sweeping conclusions that not only does it "not anticipate the Proposed Action would make any measurable contribution to those cumulative effects" but, incredibly, "the Proposed Action could ameliorate these effects, although its contribution would be negligible." It fails to even define to what "effects" it refers, which makes it difficult to submit an informed comment to this end. This conclusion appears to indicate that BOEM simply considers all impacts associated with climate change to be negative, and all activities to reduce carbon emissions to be positive. In reality, while reducing carbon emissions is an important societal goal, an honest inquiry into the best available science would show that climate change has been predicted to actually increase numerical density and growth rates of Northwest Atlantic fish stocks overall.[26] While the effects are certain to be of vastly different direction and magnitude on individual stocks, fisheries, and spatial scales, this is a scientifically complex topic that the DEIS does not evaluate—nor does it predict any anticipated reduction in the amount or pace of climate change on any spatial scale resulting from the Vineyard Wind project (or any other offshore wind energy project).

Mitigation and Compensation

Mitigation Generally

RODA strongly disagrees with the approach Vineyard Wind has taken to addressing the mitigation of impacts to fishing activities and resources, which is partially reflected in the DEIS but has primarily been approached through concurrent state-based methods that have been poorly integrated into the federal approval process. As we have expressed in the past, we believe that the development of a common framework for such "mitigation" must be done in a transparent, holistic, and well-structured manner that includes impacts from the wide variety of affected fishing businesses. Moreover, an appropriate mitigation plan must follow the principles of first *avoiding* conflicts, then *minimizing* those that are unavoidable,

[26] Blanchard, J. L., Jennings, S., Holmes, R., Harle, J., Merino, G., Allen, J. I., Holt, J., Dulvy, N. K. & Barange, M. (2012). Potential consequences of climate change for primary production and fish production in large marine ecosystems. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *367*(1605), 2979-2989.

mitigating the impacts from new development through appropriate use of communications and technology, and finally—only once those have been adhered to—considering *compensation* for any residual losses.

While several sections of the DEIS propose mitigation measures to offset impacts to traditional and historic fishing practices, too much emphasis is placed on monetary compensation.[27] Given the rapid pace and large scale of proposed offshore wind energy development in the region surrounding the WDA, and the U.S. Atlantic Ocean EEZ more generally, it is the federal government's duty to hold developers to standards that seek to maximize the operational compatibility of their projects with commercial fishing—particularly since the DEIS "anticipates that the use of compensation payments to affected fishermen would reduce impacts to minor to moderate." (Section 3.4.5.3). For more information on RODA's position regarding fisheries mitigation, please see the appended letter we submitted to Vineyard Wind on December 18, 2018.

RODA continues to believe that an appropriate fisheries mitigation plan can be developed despite imminent project deadlines and without delaying project approvals and that it is within the federal government's purview to coordinate such an approach. The New York Public Service Commission, for example, took a similar approach in its "Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement," which requires would-be bidders to "submit a fisheries mitigation plan, with a degree of specificity to be identified by NYSERDA in the bid solicitation, which may also include any best practices established by the Technical Working Group as of the time of the solicitation." By providing this placeholder language, NY was able to move forward with its procurement process despite not having a conclusive mitigation framework in place, so that best practices could be developed with full input from the industry on an appropriate timeline.

Finally, RODA submits that principles for effective fisheries mitigation should be approached at a regional scale and not limited to near-shore fishing communities or residents of only particular states. Fishery stocks shift in time and place, and it is therefore inappropriate to base any mitigation plan on a short time series or limited geographic scope when more comprehensive input can be considered and impacts more precisely modeled if the time is only taken to do so. Federally-permitted fishermen are authorized to fish in federal waters and must be treated equally when addressing changes to their fishing practices both in the near- and long-term. To date, the Vineyard Wind project has not utilized this approach and RODA remains deeply alarmed at the possible precedent that may be set by this faulty process with regard to future wind energy project development. We therefore hereby reiterate our request to BOEM to exercise federal leadership on this critical matter and utilize all available flexibility in requesting <u>all</u> developers to develop regional and open mitigation strategies collaboratively with the fishing industry, in order to ensure fairness and long-term compatibility.

Regional Science and Monitoring

The DEIS contemplates requiring Vineyard Wind to contribute up to $500,000 annually to a regional science monitoring program to determine impacts to fishing. RODA strongly supports this requirement, and further

[27] And even so, as noted above, the DEIS fails to require any specific process, amounts, or even guidelines for working with the fishing industry to determine whether monetary compensation is fair and fact-based, which is an important federal role for a large infrastructure project in federal waters.

requests that the selected program be public, transparent, and inclusive of broad fishing industry input regarding study prioritization and design. As you may know, we have been working collaboratively with offshore wind developers as well as federal and state agencies toward a regional model for coordinating this body of research and hope that Vineyard Wind will join us in establishing this framework, which we expect to be before the FEIS is completed.

While we strongly urge Vineyard Wind (and all offshore wind energy leaseholders) to join in this effort, we do not feel that the simple act of monitoring the impacts of a project should be characterized as "mitigation," as it is in the DEIS. Rather, it is in the public interest to efficiently and effectively gather as much information as possible about our offshore ecosystems in order to inform planning and management. This may inform the mitigation of impacts for future projects (including Vineyard Wind's newest lease area in New England), but in and of itself is less likely to do so for the projects with near-term anticipated construction dates. In order to view a developer's participation in a regional research effort as true "mitigation," BOEM should consider how it would address project modifications that may become necessary if monitoring results indicate that impacts exceed an acceptable threshold.

Dynamic Squid Avoidance Plan

The DEIS proposes the Dynamic Squid Fishing Avoidance Plan as a mitigation measure during the construction phase of the project. Currently, the squid industry does not have a dedicated representative to communicate such information to relevant fishing vessels. To require daily communication with cable vessel operators would require individual conversations with multiple vessels in the region. RODA does not believe that this would be a realistic or effective way to mitigate impacts to the squid fishery during cable-laying.

RODA believes that there are alternative mitigation measures that would significantly reduce the impact of the proposed project to the squid fisheries in the region. Primarily, RODA recommends cable laying be conducted outside of the peak squid fishery seasons and periods of peak spawning (May through August). This measure may potentially radically reduce the interference with the biology of the squid life history, and would improve the project's impact to the squid fisheries. Furthermore, in the draft COP, fishing revenue data from the 2016 fishing year is missing, pointing to incomplete data upon which compensation and mitigation measures have been assessed. We suggest that further analysis of data, per recommendations from the NMFS comment letter on this DEIS, should be conducted to ensure any mitigation and compensation is sufficient to the squid fishing industry.

To minimize negative interactions between vessels, RODA recommends cable-laying vessels to file sail plans several days in advance prior to in-water construction. Sail plans detailing anticipated dates, time, location and course headings of vessel operations would enable the squid fishing fleet to improve cable vessel avoidance *in situ*. Furthermore, we believe that it would be pertinent for cable laying and construction vessels to have dedicated personnel on board to communicate with fishing vessels in the area should issues arise. This, along with a daily operations update broadcast, would enable the squid fishing fleet to be aware of potential issues based on short term cable vessel intentions.

RODA

Responsible Offshore Development Alliance

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RODA and its member organizations thank you for your consideration of these comments. Please contact us at any time if we can provide additional information.

Sincerely,

Annie Hawkins, Executive Director

Lane Johnston, Policy Fellow

Responsible Offshore Development Alliance

RODA

Responsible Offshore Development Alliance

December 18, 2018

Mr. Lars Thaaning Pedersen, CEO
Vineyard Wind, LLC
700 Pleasant Street, Suite 510
New Bedford, MA 02740

Re: Fisheries Mitigation

Dear Mr. Pedersen,

The Responsible Offshore Development Alliance (RODA) is a membership-based 501(c)(6) coalition of fishing industry associations and fishing companies with an interest in improving the compatibility of new offshore development with their businesses. Our Board of Directors consists of representatives of commercial fishing businesses and vessels from federally- and state-permitted Atlantic fisheries from North Carolina to Maine. RODA does not advocate for or represent any one particular fishery; rather, it actively supports those positions that are common amongst commercial fishing industry participants, and it offers a platform for gathering input from a broad range of fishery representatives when multiple viewpoints exist.

A core tenet of RODA's philosophy is the belief that the only way to achieve a level of "coexistence" between offshore wind energy development and traditional, historic fishing is for the two industries to work together, with support from federal and state government partners, to identify mutually agreeable, data-supported solutions to potential conflicts. Part of this approach entails discussion regarding the most appropriate methods to address the short- and long-term impacts to the commercial fishing industry that will result from wind energy facility construction and operations.

First and foremost, the development of a common framework for such "mitigation" must be done in a transparent, holistic, and well-structured manner. There has yet to be a comprehensive, inclusive process for determining best practices for mitigation applicable to Atlantic wind energy projects. Nor is there even necessarily a common definition of "mitigation" specific to fisheries and offshore wind. The National Environmental Policy Act implementing regulations[1] and the Rhode Island

[1] "'Mitigation' includes: (a) Avoiding the impact altogether by not taking a certain action or parts of an action; (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) Rectifying the impact by repairing,

Ocean Special Area Management Plan provide some of the best available guidance.[2] Both suggest a step-wise path that follows the principles of *avoiding* conflicts, *minimizing* those that are unavoidable, *mitigating* the impacts from new development, then—and only once those have been adhered to—consider *compensation* for any residual losses.

While some developers and fishing industry representatives have begun preliminary dialogues regarding these difficult topics, there is a wide diversity of opinions and preferences, particularly with regard to compensation schemes that may arise. This is not a time for rushed agreements based on nothing but political compromise; a fact made even more salient by your company's recent success in the auction for OCS-A 0522, the rapid pace and scope of offshore wind energy development overall, and the precedent that decisions made now may set for the future.

We strongly believe that a coordinated, regional, evidence-driven process to address mitigation, including but not limited to compensation, will provide the best opportunity for equitable and lasting outcomes. We therefore request that Vineyard Wind, along with the other Atlantic offshore wind energy lease holders, commit to work with us to develop this fair, transparent, and consistent framework.

It will admittedly take substantial time to establish this process, inform it through collection and analysis of appropriate data, deliberate the full implications of various approaches, and ultimately, provide recommendations regarding best practices. While we understand that Vineyard Wind has rapidly-approaching deadlines and project milestones, we also strongly urge BOEM and the states to join us in supporting this approach. This should include by exercising all available flexibility in the relevant regulatory processes such that environmental reviews and approvals are not delayed, but that premature and poorly informed decisions can be obviated by a commitment to implement best management practices for mitigation and compensation in the future once duly identified.

Sincerely,

Annie Hawkins, Executive Director
Responsible Offshore Development Alliance

rehabilitating, or restoring the affected environment; (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; (e) Compensating for the impact by replacing or providing substitute resources or environments." 40 C.F.R. § 1508.20.

[2] "Proposed activities shall be designed to avoid impacts and, where unavoidable impacts may occur, those impacts shall be minimized and mitigated . . . Mitigation measures may include, but are not limited to, compensation, effort reduction, habitat preservation, restoration and construction, marketing, and infrastructure improvements." SAMP at 113, 154.

RODA

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cc: Dr. Walter Cruickshank, Acting Director, BOEM
Mr. Chris Oliver, Acting Administrator, NMFS
Adm. Karl Schultz, Commandant, United States Coast Guard
Mr. Grover Fugate, Executive Director, RI CRMC
Ms. Lisa Engler, Acting Director, MA CZM
Mr. Rob Klee, Commissioner, CT DEEP
Ms. Alicia Barton, CEO, NYSERDA
Ms. Catherine McCabe, Commissioner, NJ DEP
Mr. Mark Belton, Secretary, MD DNR
Mr. David Paylor, Director, VA DEQ
Mr. Michael Regan, Secretary, NC DEQ
Ms. Nancy Sopko, Director for Offshore Policy & Siting, AWEA
Messrs. Thomas Brostrøm and Jeff Grybowski, Co-CEOs, Ørsted US Offshore Wind
Mr. Christer af Geijerstam, President, Equinor US Wind
Mr. John Hartnett, Director, Mayflower Wind Energy
Mr. Doug Copeland, Regional Development Manager, EDF Renewables
Mr. Paul Rich, Director of Project Development, US Wind
Mr. Craig Poff, Development Director, Kitty Hawk Offshore Wind
Mr. Chris Wissemann, U.S. Offshore Wind Representative, Innogy