NEW BEDFORD
PORT AUTHORITY

123 MacArthur Dr
New Bedford, MA 02740
TEL (508) 961-3000
WWW.PORTOFNEWBEDFORD.ORG

ELECTRONIC SUBMISSION

August 13, 2021

Amanda Lefton, Director
Bureau of Ocean Energy Management
United States Department of Interior
1849 C Street NW
Washington, D.C. 20240

Re: BOEM-2021-0033
New York Bight Wind Energy Areas

Director Lefton,

I am writing to provide BOEM with additional information in support of the request in my previous correspondence to move the south-eastern facing boundary of the Hudson South WEA five (5) miles to the west. As outlined below, such a move would provide necessary protections to scallop habitat within and adjacent to the Hudson South WEA to the long-term benefit of the Hudson Canyon Access Area.

It is important to note at the outset that the south-easterly facing boundary of the Hudson South WEA is clearly drawn to precisely abut the Hudson Canyon Scallop Access Area. This is important because any researcher or scientist will tell you that nature never follows man-made lines.

Hudson Canyon Access Area

As you know, the Hudson Canyon Area is a scallop rotational area. Areas such as this represent a critical element of scallop resource conservation and management. The scallop fishery is managed on a rotational basis, similar to terrestrial farming. Access areas of historic scallop productivity, such as the Hudson Canyon Access Area, are closed periodically when resource surveys show the area contains large concentrations of small scallops. Scallop larvae settle and grow in a series of predictable, historically productive areas, where oceanic currents, bottom conditions, and water depth are ideal. An access area is re-opened when the scallops there reach a large harvestable size.

Scallop rotational fishing increases optimum scallop yield. If relatively larger scallops are harvested, fishing mortality is reduced because fewer animals need to be harvested to produce a pound of scallops. The marketplace highly values relatively larger scallops. Vessels are currently receiving well over $20, and even over $30, per pound for "access area scallops" at the start of fishing year 2021. (These prices are double the prices the National Marine Fisheries Service has used to estimate the value of scallops landed from the New York Bight.)

Rotational fishing also reduces habitat and bycatch impacts because scallop vessels are able to concentrate their fishing effort on dense concentrations of large scallops. Because each "access area trip" is limited to a certain number of pounds of scallops, the harvest is strictly controlled and can be managed for multiple years of production.

NEW BEDFORD
PORT AUTHORITY

123 MacArthur Dr
New Bedford, MA 02740
TEL (508) 961-3000
WWW.PORTOFNEWBEDFORD.ORG

Effect of Offshore Wind on Fisheries

There have been few studies that show the long-term effects of offshore wind systems on marine fisheries. There is, however, significant support in the studies that have been done for what the probable impact will be and what precautions are necessary to avoid those impacts. The effects of offshore wind on the environment are best summarized in an industry publication from 2017:

> "22.2.1.2 Marine Species
>
> Offshore wind turbines may impact marine species. Wind turbines and their scour protection may change the nearby fish distributions and wind farm constructions may create an artificial reef, which impacts the biodiversity of marine species. The construction of wind turbine foundations and the on-site erection of wind turbine towers may make seawater turbid and introduce additional objects on the seabed (blocking effect), which can cause damages to the benthic fauna and flora and block sunshine into the water. Berkenhagen et al.[1] indicated that the offshore wind farm constructions would induce a substantial effect on fisheries. In particular, the opportunities to catch valuable species would be considerably reduced. In addition to the blocking effect, the noise and the electromagnetic fields around operating wind turbines may lead to negative effects on fishes as well. Marine mammals such as porpoises and seals may also react to wind farm noise and electromagnetic fields, especially during the construction phase. The maintenance activities of wind turbines, such as part replacements or lubrications, may also impact on marine species by leaking oils or wastes into the surrounding seawater and polluting marine species living environments. With the increasing height of wind turbine towers and the increasing size of offshore wind farms, the environmental impacts of wind farms on fishes and marine mammals are becoming more evident." Environmental and Structural Safety Issues Related to Wind Energy, Kaoshan Dai, ... Zhenhua Huang, in Wind Energy Engineering, 2017.

All of this goes to the point that the two uses, offshore wind and fisheries, should not be forced together whenever possible. Every opportunity should be taken to minimize conflict.

Sedimentation and Turbidity

Wind turbines create wakes and changes to the currents in the areas they are located. These changes to the current cause sedimentation to be suspended in the water column and cause different bottom contours due to the settling of that sedimentation. One particular study used satellite images to measure the suspended particulate matter concentrations for offshore wind turbines. The study fund that there were clear "sediment plumes are associated with the wakes of individual turbine monopiles of offshore wind farms." They concluded that the sediment plumes "are 30–150 m wide, and several km in length" and in some cases as far as 10km downstream. The study went on to say that the "environmental impact of these wakes and the source of the suspended material are still unclear, but the wake size warrants further study. The underwater light field will be affected by increased suspended sediments and the turbid wakes could

[1] Decision bias in marine spatial planning of offshore wind farms: Problems of singular versus cumulative assessments of economic impacts on fisheries, J¨org Berkenhagen, et al. Marine Policy Journal, 2009

NEW BEDFORD
PORT AUTHORITY

123 MacArthur Dr
New Bedford, MA 02740
TEL (508) 961-3000
WWW.PORTOFNEWBEDFORD.ORG

significantly impact sediment transport and downstream sedimentation." Further "the spatial extent is considerable and the turbidity change may be persistent (repeating each current reversal), warranting further research on their environmental impact. Changes in the underwater light field affect for example primary production and visual predation. The observed wakes suggest changes in sedimentation patterns that could potentially cause bathymetric modification." Turbid wakes associated with offshore wind turbines observed with Landsat 8, QuintenVanhellemontKevinRuddick,Royal Belgian Institute for Natural Sciences (RBINS), Operational Directorate Natural Environment, Received 14 November 2013, Revised 17 January 2014, Accepted 18 January 2014. Scallops are filter feeders. Any change in the suspended sediment in the water will have an impact on scallop population and distribution.

Under the Scallop Research Set-Aside Program, researchers from the University of Massachusetts Dartmouth School of Marine Science and Technology ("SMAST") and the Woods Hole Oceanographic Institution ("WHOI") modeled scallop larval flow around wind turbines located and laid out according to the plans for Vineyard Wind. The preliminary results showed that the turbines can significantly enhance the mesoscale eddy circulation and turbulent mixing within and around the turbine area, reducing the horizontal larval dispersion and pushing the larvae offshore. See C. Chen et al., Assessing Potential Impacts of Offshore Wind Facilities on Regional Sea Scallop Larval and Early Juvenile Transports, NOAA Grant Number: NA19NMF450023 (May 6 and 12, 2021) (hereinafter, "Share Day Report")

The Share Day Report explained the model output in the following way: The preliminary results show that the flow field significantly changed with turbines. The flow tended to push the larvae offshore during the 2010 and 2013 simulation period. The turbines produced mesoscale flows and enhanced vertical mixing within and around individual turbines, which considerably reduced the horizontal dispersion around the wind energy development area. In those two years, a large number of larvae were advected into the Nantucket Lightship Closed Area. Although larval behaviors plan a critical role in the larvae dispersal and settlement by altering the flow-induced advection experienced at different depths, the turbines seem to significantly change vertical mixing and horizontal advection as well as horizontal turbulent dispersion.

Drs. Chen et al. have not yet modeled what might happen to scallop larvae from windfarms Hudson South. Taking the lessons from Southern New England, the larvae would seem to be "push[ed] … together and advected … as a group." If these New York Bight larvae are affected by wind farms according to the modeling, they may settle and grow, just in a different place, or only some may. There may be density dependent negative impacts on these small scallops as they are pushed together, or else, they may be advected onto less hospitable ocean bottom. With this sort of uncertainty, the UN precautionary principle signals erring on the side of the resource. In this instance, a 5 mile buffer may be the minimum empirically indicated. For its part the Share Day Report characterizes the changes in ocean circulation as occurring on a "mesoscale" level. Merriam-Webster on-line defines "mesoscale" as "of intermediate size; *especially* : of or relating to a meteorological phenomenon approximately 10 to 1000 kilometers in horizontal extent." https://www.merriam-webster.com/dictionary/mesoscale

All of this scientific research and data goes to the notion that the true extent of the impacts of these turbines on fisheries is unknown. What is known is that they clearly have an impact and that impact

NEW BEDFORD
PORT AUTHORITY

123 MacArthur Dr
New Bedford, MA 02740
TEL (508) 961-3000
WWW.PORTOFNEWBEDFORD.ORG

extends far beyond the immediate vicinity of the turbine. Given the results noted above and the uncertainty of the impact, a buffer of at least five (5) nautical miles between the Hudson South WEA and the vital scallop habitat in the Hudson Canyon Access Area is the best course of action here.

WEA Nominations

It is important to note here that, in balancing the interests of the stakeholders in this process, the area of the Hudson South WEA that would be covered by the proposed buffer is not important to the wind industry. As can be seen from slide shown by BOEM at the public meetings regarding New York nominations, wind energy developers nominated virtually none of the 5-mile strip along the south-eastern facing WEA boundary in response to the 2018 Call for Information and Nominations. Likewise the Scallop Fishing Intensity from the BOEM Area Identification Memorandum provides record evidence that areas of the most intense scallop fishing in the Hudson South WEA mostly corresponds with areas that developers did not nominate in response to the Call. In sum, an alternative treatment of the Hudson South WEA south-eastern boundary confers measurable benefits to the scallop fishery and fishing interests, with zero impact to wind interests as understood by the wind interests themselves.

Conclusion

Thank you for your attention and consideration of the above comments. I look forward to continuing our productive collaboration on issues pertaining to both offshore wind and commercial fishing and cooperating to ensure the sustained health and success of both industries.

Sincerely,

Blair S. Bailey
General Counsel
New Bedford Port Authority