RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF MARINE FISHERIES
Three Fort Wetherill Road
Jamestown, Rhode Island 02835

To: Dr. Walter Cruickshank, Acting Director of the Bureau of Ocean Energy Management

From: Jason McNamee, Chief of Marine Resources

Date: November 19, 2018

Re: Notice of Intent to Prepare an Environmental Impact Statement for Deepwater Wind South Fork, LLC's Proposed Wind Energy Facility Offshore Rhode Island and Massachusetts (Docket No. BOEM-2018-0010)

The Rhode Island Department of Environmental Management (RIDEM) Division of Marine Fisheries, has reviewed federal docket number BOEM-2018-0010 and has the following comments:

Alternatives to be Considered

- The proposed layout of the offshore wind turbines has spacing of 1 statute mile between WTGs.
    - The Rhode Island Marine Fisheries Council has recommended that all offshore wind farms in Southern New England have 1 nm spacing between WTGs that are oriented in a E-W grid pattern.
    - We recommend that a 1 nm-spaced grid pattern, as described in Attachment 1, be considered as a development alternative.

Scope of EIS

Staff found the COP to address the majority of factors warranting EIS evaluation. However, additional areas requiring further investigation are:

- Effect of Sound on Squid Mops
    - Given the finding of squid mops in the SFWF area (Appendix N: Pre-Construction Sediment Profile and Plan View Imaging Benthic Assessment Report), we recommend that research be done to evaluate the effects of sound on squid eggs.
        - Ongoing work at the NEFSC serves to address the impacts of noise on adult squid, but data on impacts to egg and larval life history stages are limited.
- Effect of EMF

- Appendix P - Section 2.5 Electromagnetic Field states, "It is generally believed that marine organisms do not sense the low frequency electric or magnetic fields at AC power transmission frequencies (i.e., 60 Hz)."
    - Staff note that the potential effect on certain species that are able to detect EMF produced by any SFEC alternating current cable, remain unknown at this time due to a lack of research.
        - Based on the existing literature (refer to Normandeau et al. 2011 for a comprehensive review), certain species will be able to detect different components of the EMF produced by the SFEC if a similar AC cable to the sea2shore cable (the BIWF AC transmission cable) is used. For example:
            - Cetaceans are believed to detect the earth's magnetic fields at levels down to 0.05 μT (equivalent to 0.5 mG; Normandeau et al. 2011).
            - Species of elasmobranchs like smooth dogfish and blue sharks are thought to be able to sense the electric fields at extremely low levels down to 5 nV/cm (equivalent to 5x10-8 mV/m; Kalmijn 1982; Heyer et al. 1981).
            - Sea lamprey may able to detect electric fields at 1 mV/cm (equivalent to 0.01 mV/m; Bodznick and Preston 1983a).
            - American eels can detect electric fields at 0.067 mV/cm (equivalent to 0.00067 mV/m; Rommel and McCleave 1973b).
            - Atlantic salmon can detect electric fields at 0.6 mV/cm, or 0.0006 mV/m (Rommel and McCleave 1973).
    - Additionally, research has indicated that certain species of crustaceans and elasmobranchs may be susceptible to behavioral change in close proximity to EMF-emitting cables (Hutchison et al. 2018).
        - American lobster (*Homarus americanus*) demonstrated a statistically significant, subtle change in behavior and little skate (*Leucoraja erinacea*) exhibited a strong behavioral response when exposed to the EMF of an HVDC cable.
        - While no physical barrier was created by the HVDC cable for either species, questions of how behavioral changes affect species fitness should be addressed (e.g., do lobsters "wide turns" result in increased energy expenditure?).
    - Therefore, while impacts of EMF on marine species are likely to be minimal, these effects need to be studied in more detail and addressed within the EIS.
- Commercial Fishing Exposure
    - Appendix Y - Commercial and Recreational Fisheries Technical Report addresses a variety of fisheries (by FMP, gear used, and port landed in) exposed by the SFWF and SFEC. While these data are valuable to understanding the commercial fishing activity within the SFWF WDA based on location reporting in Vessel Trip

Reports, we recommend that BOEM consider conducting site specific analysis of VMS data for more recent years (i.e. 2016-2018).

- There is high interannual variability in some of these fisheries in terms of where species are active and therefore where fishing activity occurs. In addition, many species' centroids are shifting geographically in response to changing ocean conditions. Consequently, more recent data are necessary to understand the true fisheries exposure and use of VMS data for applicable fisheries will ensure higher location accuracy.

- Appendix Y also describes the challenges associated with using MRIP data to assign estimated angler effort to the SFWF WDA or SFEC.
  - The COP describes that the MRIP data must be considered in conjunction with stakeholder input. However, no synthesis of MRIP and stakeholder data is presented. We recommend that the EIS contain this synthesis.

Literature Cited

Bodznick, D. and D. G. Preston. 1983. Physiological characterization of electroreceptors in the lampreys Ichthyomyzon unicuspis and Petromyzon marinus. Journal of Comparative Physiology 152:209-217.

Heyer, G. W., M. C. Fields, R. D. Fields, and A. J. Kalmijn. 1981. Field experiments on electrically evoked feeding responses in the pelagic blue shark, Prionace glauca. Biological Bulletin 161:344-345.

Hutchison, Z., Sigray, P., Halbo, H., Gill, A., King, J., and Gibson, C. 2018. Electromagnetic Field (EMF) Impacts on Elasmobranch (shark, rays, and skates) and American Lobster Movement and Migration from Direct Current Cables. BOEM OCS 2018-003

Kalmijn, A.J. 1982. Electric and magnetic-field detection in elasmobranch fishes. Science 218:916-918.

Normandeau, Exponent, T. Tricas, and A. Gill. 2011. Effects of EMFs from Undersea Power Cables on Elasmobranchs and Other Marine Species. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region, Camarillo, CA. OCS Study BOEMRE 2011-09

Rommel, S. A. and J. D. McCleave. 1973a. Prediction of oceanic electric-fields in relation to fish migration. Journal Du Conseil 35:27-31.

Rommel, S. A. and J. D. McCleave. 1973b. Sensitivity of American eels (Anguilla rostrata) and Atlantic salmon (Salmo salar) to weak electric and magnetic-fields. Journal of the Fisheries Research Board of Canada 30:657-663.

Attachment 1: Letter from the Rhode Island Marine Fisheries Council

Rhode Island Marine Fisheries Council

3 Fort Wetherill Road Jamestown, Rhode Island 02835
(401) 423-1920 Fax: (401) 423-1925

October 12, 2018

Grover Fugate, Executive Director
RI Coastal Resources Management Council
Stedman Government Center
Wakefield, RI 02879

Janet Coit, Director
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908

Dear Executive Director Fugate and Director Coit:

At the August 30, 2018 meeting of the Rhode Island Marine Fisheries Council, the Council received presentations on the nature and status of the offshore wind energy projects proposed for federal waters off southern New England by two developers, Deepwater Wind and Vineyard Wind. Following the presentations, members of the Council, as well as members of the public, posed questions and offered perspectives. Attached is a summary of that meeting.

At the next meeting of the Council, held on October 1, 2018, the Council discussed key issues raised at the August 30 meeting, with particular focus on potential impacts to marine fisheries. On the heels of that discussion, the Council unanimously adopted a recommendation which, in accordance with the Council's statutory authority, is offered in the form of advice to the CRMC and DEM. The Council requests that this advice be used for the purpose of developing comments on various aspects of offshore wind energy project proposals, undertaking federal consistency determinations, and exercising any other roles and responsibilities applicable to such projects and their impacts on Rhode Island's marine fisheries interests.

The recommendation adopted by the Council is as follows:

Recommend to the Director of DEM and CRMC that all wind power leases off southern New England be required to have turbines set in an east-west pattern with 1 nm of spacing to minimize the negative impacts on historical fishing activities, and further require that all structures are removed after the lease termination to restore fishing access to the entire area.

Thank you for your willingness to consider and to the extent possible act on this advice from the Council.

Sincerely,

Robert Ballou
Chair

cc: Members, RI Marine Fisheries Council

Rhode Island Marine Fisheries Council

3 Fort Wetherill Road Jamestown, Rhode Island 02835
(401) 423-1920 Fax: (401) 423-1925

MEETING SUMMARY
August 30, 2018

Chairperson: *B. Ballou (DEM)*
RIMFC members present: *D. Monti, J. Grant, A. Dangelo, T. Barao, C. Rein, J. Jarvis*
Division: *J. McNamee, S. Olszewski, J. Livermore, J. Lake, P. Duhamel*
Public: Approximately 7-8 persons in attendance

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1. **Approval of the Agenda:** The Chair, B. Ballou, noted that the meeting is meant to be informational only, with no formal recommendations votes or recommendations being sought at this time. He then inquired as to any modifications to the agenda or objections to adopting the agenda as modified; hearing none, the agenda was approved by consent.

2. **Presentation from Deepwater Wind regarding federal offshore wind development:** Eileen Kenny, Senior VP of Development, and John O'Keefe, Manager of Operations and Maintenance and Marine Affairs, were present from Deepwater Wind, with Mr. O'Keefe providing a powerpoint presentation. Following the presentation, the floor was opened to questions and comments from the Council and the public.

    - B. Ballou inquired as to the number of turbines proposed for the Southfork project; Mr. O'Keefe replied that although the exact number has yet to be finalized, it is anticipated that the South Fork project will include 15 turbines, and the Revolution project will include about 50 turbines.
    - A. Dangelo stated that he has been involved in the rod and reel research survey for the Southfork project, and that the area is very good for cod fishing. He expressed concern that his involvement was during the winter, when the fish weren't there. He asked if the survey would be continued throughout the year, given that the fishing is known to be better in the fall and spring. Mr. O'Keefe stated that the survey he participated in is a cod spawning survey; it is a constant-level survey, and not meant

to be part of the more comprehensive surveys that will be conducted for the 2-year pre-construction phase. Mr. O'Keefe stated that Mr. D'Angelo's recommendation -- for year-round rod and reel surveys -- is the kind of input needed to help determine the collaborative research needed beginning in 2019.

- D. Monti stated that the RI Party and Charter Boat Assoc. and the RI Saltwater Anglers Assoc. also have concerns about the rod and reel surveys, in that more surveys should be conducted. He asked how these groups could participate in developing the research plan and the types of surveys needed. Mr. O'Keefe stated that he could set up meetings to determine what type of information is needed, and that the process of determining the details of the research plan is beginning now, so there is time to provide such input.
- J. Jarvis stated that he is aware of concern from fishermen due to the newness of offshore wind in this area, and that there hasn't been a lot of time for environmental impacts studies. He is concerned about what happens to invertebrates, squid and other forage species from the turbine vibrations, as many fishermen's livelihood rely on this area. Mr. O'Keefe stated that he is very sensitive to such matters. He offered that the Block Island windfarm has provided a great deal of information about impacts. He said it is difficult to use data from European windfarms due to variability of sites and age of technology used with older windfarms common in Europe. He stated that newer turbines will have more megawatts, use longer blades, and have greater distances between turbines, and that shorter distances between turbines is known to be a problem.
- J. Grant asked about the life expectancy of the turbines, and their fate operations were to cease in the future. Mr. O'Keefe stated that the foundations are expected to last 50 years, the turbines 20-25 years. He also stated that a bond would be in place to cover the costs of decommissioning.
- M. Rice asked about the lessons learned from the BI windfarm, namely, if there is any evidence of impacts. Mr. O'Keefe replied that there have been no negative impacts to date, based on 6 years of study.
- D. Monti asked about cumulative impacts from several windfarms together; and if studies would be developed to look at cumulative impacts as each new project begins operations. He emphasized that lessons should be learned along the way. Mr. O'Keefe stated that several studies are occurring, and that they are being conducted by many other entities besides DWW. Ms. Kenny offered that the RODEO program provided real time observations during construction, looking a variety of things including visual and acoustic impacts, scour testing, and sediment modelling. She stated that there is a great deal of information and data publicly available.
- D. Fox, Town Dock asked about the release date for the COP for the project. Mr. O'Keefe said that it is expected to be released for 30-day public comment in late September/early October 2018.
- J. McNamee referenced the regional science collaboration initiative that is aimed at coordinating scientific work on multiple projects throughout the region, and asked whether DWW plans to use the same monitoring designs as used for the BI project, or is DWW open to new ideas? He also asked whether state agencies would have an opportunity to review the scientific designs of any new studies that would be occurring in the wind energy areas, as was provided for the BI project. Mr. O'Keefe

responded that the designs of the scientific studies will build upon those utilized for the BI project, but will be tailored to meet new needs and priorities; the study designs will be vetted both publicly and through existing connections with state agencies as this approach proved successful during the Block Island project.

- A. MacKown, Northwest Atlantic Marine Alliance, asked whether the technology will affect the size of the transmission cables. Mr. O'Keefe responded that the size of the cable will not be affected by the turbine technology.
- B. Ballou sought confirmation that the proposed layout for the South Fork project is a N-S/E-W square grid, with 1-mile spacing. Mr. O'Keefe replied in the affirmative, and that the layout is based on input from fishermen based on ability to navigate and fish between turbines.
- J. Grant asked about fishing prohibitions in the lease area, to which Mr. O'Keefe replied that there are none, and that DWW has no authority to place restrictions.

3. **Presentation from Vineyard Wind regarding federal offshore wind development:** Christa Banks, Fisheries Liaison, was present from Vineyard Wind, joined by Erich Stephens. Ms. Banks provided a powerpoint presentation. Following the presentation, the floor was opened to questions and comments from the Council and the public.

    - B. Ballou asked staff from CRMC to brief the Council on the status of the federal consistency determinations for both projects. J. Boyd from CRMC offered the following with respect to Vineyard Wind: application filed in April 2018, triggering 180-day window for review and determination; additional 2 months granted; thus, deadline is now December 6, 2018; hearing scheduled for November 27. The application was not required, because the project proposal is outside the OSAMP Area; VW submitted voluntarily. With regard to DWW: the COP was just filed; because the project is within the OSAMP Area, a federal consistency determination is required; the application for that is expected to be filed this fall, triggering a 180-day review period, during which a public hearing will be held.
    - D. Monti expressed concern that the proposed spacing between the turbines is not even. Ms. Banks acknowledged the desirability of even spacing and a squared grid pattern, at least for some ocean users such as fishermen; but also noted that the area is subject to heavy vessel traffic, e.g., by scallopers, to/from port and their offshore fishing grounds, so accommodating their interest's conflicts with the interests of others.
    - D. Monti also asked about the status of the research plan. Ms. Banks responded that the plan is currently being formulated via SMAST-hosted workshops. The goal is to establish and adopt regionally consistent research protocols. She also noted that BOEM has a number of ongoing research projects, including some that are assessing EMF effects. D. Monti expressed concern that he saw no input from recreational fishermen in developing the research plan or a specific protocol regarding what studies are needed; and that an industry standard regarding types of studies needed is necessary for all windfarm development proposals. E. Stephens from VW noted that the workshops are aimed at starting the planning process and that input from recreational fishermen will be part of the process. he also noted that a video trawl survey is being currently underway.

- J. Grant expressed concern that the E-W pattern, which is essential to enable traditional fishing activities (namely, trawling) to continue in the area, is not yet firmly decided. E. Stephens offered assurance that the matter is being addressed, i.e., that Vineyard Wind is actively pursuing this configuration.
- M. Rice emphasized the importance of assessing cumulative effects through a robust protocol. In response, it was noted that regional studies will facilitate cumulative impact analyses.
- D. Fox expressed concern that the proposed layout will eliminate commercial fishing in the area; that a grid pattern is essential. He stated that federal regulations require full removal of all wind farm components upon decommissioning, but this commitment is not adequately set forth in the Vineyard Wind COP. In response, it was noted that sufficient funds will provided via bond to cover full removal costs, however, it won't be clear, until decommissioning, whether it would be more environmentally sound to leave some components (e.g., cables) in place; the goal is, and will be, to minimize environmental impacts upon decommissioning. Mr. Fox expressed concern that components left behind at decommissioning will make the area unusable for fishing.
- A. MacKown noted that while there is no industry standard regarding turbine spacing, now is the time to establish such a standard. A grid pattern is essential to safe navigation. She suggested use of AIS transiting data to inform the process. Response was that a grid pattern has been proposed, which is based on transiting data, but that the resulting configuration does not align with other fishing-related needs.
- D. Fox stated that fishing in an E-W direction has been a fishing industry for years, but that the wind farms don't seem to understand this.
- D. Monti offered that the BI wind farm development has been very favorable for recreational fishing interests. Moreover, further renewable energy development will assist in reducing impacts of climate change.

Next Steps: B. Ballou asked if the Council wished to further consider the issues raised during the presentations, and potentially formulate recommendations to the CRMC and/or DEM, at a subsequent meeting. The Council unanimously supported moving forward in that way.

Meeting adjournment: Upon conclusion of deliberating all agenda items, *B. Ballou* inquired as to any objection to adjourning the meeting; hearing none, the meeting was adjourned by consent at approximately 8:15pm.