12 June 2017

Ms. Jolie Harrison, Chief
Permits and Conservation Division
National Marine Fisheries Service
Office of Protected Resources (F/PR1)
1315 East-West Highway
Silver Spring, Maryland 20910

Dear Ms. Harrison:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by Deepwater Wind, LLC (Deepwater Wind) seeking an incidental harassment authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA). Deepwater Wind is seeking authorization to take small numbers of marine mammals by harassment incidental to geophysical and geotechnical surveys off the coast of New York and Rhode Island[1] in 2017. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 12 May 2017 notice (82 Fed. Reg. 22250) announcing receipt of the application and proposing to issue the authorization subject to certain conditions.

Background

Deepwater Wind is proposing to conduct high-resolution geophysical (HRG) and geotechnical surveys to characterize seabed and subsurface geological conditions off the coast of Rhode Island and New York. The HRG and geotechnical surveys would begin in June 2017 and last for 168 and 75 days, respectively. Sub-bottom profilers (chirp, boomer, and sparker types) would be used during the HRG surveys, and the vessel's dynamic positioning system (i.e., thrusters) and vibracores would be used during the geotechnical surveys. The proposed activities are expected to occur during the day and at night.

NMFS preliminarily has determined that the proposed activities could cause Level A and/or B harassment[2] of small numbers of up to 18 species of marine mammals, but that the total taking would have a negligible impact on the affected species or stocks. NMFS does not anticipate any take of marine mammals by death or serious injury. It believes that the potential for temporary or permanent hearing impairment will be at the least practicable level because of Deepwater Wind's proposed mitigation measures. The mitigation, monitoring, and reporting measures include—

[1] In the area of the Rhode Island-Massachusetts Wind Energy Area (RI-MA WEA; https://www.boem.gov/Rhode-Island/) and along potential submarine cable routes to a landfall location in Easthampton, New York.
[2] The Commission noted an error in the number of survey days used in the take estimation process for geotechnical surveys. NMFS inadvertently assumed a total of 150 days (75 days each for vibracores and the dynamic positioning system). NMFS has since indicated it would base the numbers of takes on 53 days for vibracoring and 22 days for dynamic positioning system activities in the final incidental harassment authorization.

- conducting sound source verification measurements and adjusting the Level B harassment zones (based on 160 dB re 1 μPa for the HRG surveys and 120 dB re 1 μPa for the geotechnical surveys), as necessary;
- using vessel-based observers to monitor the exclusion zones[3] for 60 minutes before, during, and for 60 minutes after the HRG surveys;
- using ramp-up and delay procedures based on a 60-minute clearance time during the HRG surveys;
- using shutdown procedures if a "non-delphinoid" cetacean (i.e., a mysticete or sperm whale) is sighted and power-down procedures if a delphinoid cetacean or pinniped is sighted at or within the designated exclusion zone during the HRG surveys;
- reducing the dynamic positioning system's power to the maximum extent possible if a marine mammal enters or approaches the monitoring zone during the geotechnical surveys, with normal use resuming after a 60-minute clearance time;
- using passive acoustic monitoring during all HRG surveys;
- using infrared and night-vision technology for visual observations at night;
- using standard vessel strike avoidance procedures and monitoring the NMFS North Atlantic right whale reporting systems during all survey activities;
- reporting injured and dead marine mammals to the Office of Protected Resources and the Greater Atlantic Regional Fisheries Office Stranding Coordinator using NMFS's phased approach and suspending activities, if appropriate; and
- submitting field and technical reports and a final comprehensive report to NMFS.

Use of consistent source levels across surveys

For Deepwater Wind, NMFS used a source level for the sparker-type sub-bottom profiler that is considerably higher than the source level used previously for sparkers for Ocean Wind's HRG surveys (82 Fed. Reg. 20577). The reason for the difference in source levels for similar equipment is unclear. The source level proposed for use by Deepwater Wind was 213 dB re 1 μPa (root-mean-square; rms) (Crocker and Fratantonio (2016)), which is much greater than the 188.7-dB re 1 μPa (rms) source level used by Ocean Wind. The Commission understands that both source levels were based on in-situ measurements, with the source level based on an energy setting of 1,000 Joules for Deepwater Wind and 800 Joules for Ocean Wind. The source level difference of nearly 25 dB for those sparkers would not be explained by an energy output difference of only 200 Joules. The report used as the basis for the Ocean Wind source level has not been made publicly available, so there is no way to evaluate whether the methods used to measure and calculate source levels for the sparker were appropriate. The Commission recommends that NMFS (1) explain why the sparker source levels for the two projects were considerably different, (2) encourage applicants to disclose the methods used in measuring and calculating source levels of the various sound sources, and (3) ensure accuracy and consistency in source levels used by applicants for different projects with similar types of HRG equipment.

[3] A 400-m exclusion zone would be used for the sparkers and a 200-m exclusion zone (revised to 208 m for high-frequency cetaceans only based on the estimated distances to the Level A threshold in Table 7 of the *Federal Register* notice and discussion with NMFS) would be used for all other HRG surveys and geotechnical surveys.

Estimation of takes

The method used by NMFS to estimate the numbers of takes during the proposed activities, which summed fractions of takes for each species across project days, does not account for and negates the intent of NMFS's 24-hour reset policy. As the Commission has indicated in previous letters[4], this issue involves policy rather than mathematical accuracy. The Commission understands that NMFS has developed criteria associated with rounding that it plans to share with the Commission. The Commission looks forward to receiving and reviewing those criteria in the near future.

However, the Commission notes that NMFS's method of summing fractions of takes across project days[5] is especially troubling in this instance, as it leads to the conclusion that Level A harassment takes of harbor porpoises, harbor seals, and gray seals[6] would occur when in fact they are highly unlikely. The Level A harassment zones are estimated to be 5.12 m for the harbor porpoise and 0.65 m for the two seal species. None of these species is likely to approach vessels at such close distances. In any case, Deepwater Wind would be required to shut down activities when a marine mammal is observed approaching or within the 400-m exclusion zone, which is much larger than the estimated Level A harassment zones. NMFS generally does not authorize Level A harassment takes if the respective zones are able to be adequately monitored (82 Fed. Reg. 26063; 82 Fed. Reg. 17799). The Commission also is unaware of NMFS authorizing Level A harassment takes for any HRG surveys—thus, this authorization would set precedent. For these reasons, the Commission recommends that NMFS use a consistent approach for authorizing Level A harassment takes, especially in situations when mitigation measure implementation very likely would preclude taking in the respective Level A harassment zones.

Appropriate threshold for the Level B harassment zone

NMFS has proposed to authorize takes associated with the use of sub-bottom profilers, which NMFS has characterized as impulsive sources relative to the Level B harassment threshold of 160 dB re 1 µPa. However, researchers have observed that various species of marine mammals respond to sound from sources with similar characteristics (including acoustic deterrent devices, acoustic harassment devices, pingers, echosounders, and multibeam sonars) at received levels below 160 dB re 1 µPa[7]. Previous Commission letters to NMFS[8] regarding the use of sub-bottom profilers (specifically the chirp-type) have pointed out that those sources have temporal and spectral characteristics that suggest a lower, more precautionary Level B harassment threshold of 120 dB re 1

[4] See the Commission's 29 November 2016 letter detailing this issue.
[5] Which would be 168 days for HRG surveys.
[6] In addition to the Level B harassment takes.
[7] Based on data from Watkins and Schevill (1975), Olesiuk et al. (1995), Kastelein et al. (1997), Kastelein et al. (2000), Morton (2000), Culik et al. (2001), Kastelein et al. (2001), Calström et al. (2002), Johnston (2002), Morton and Symonds (2002), Kastelein et al. (2005), Barlow and Cameron (2003), Kastelein et al. (2006a and 2006b), Carretta et al. (2008), Calström et al. (2009), Brandt et al. (2012 and 2013), Götz and Janik (2013), Hastie et al. (2014), Tougaard et al. (2015).
[8] See the Commission's 23 June 2016 letter.

μPa would be more appropriate than 160 dB re 1 μPa. However, NMFS has not followed the Commission's previous recommendations that lower thresholds be adopted[9].

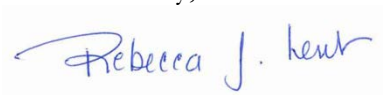
The Commission remains concerned that NMFS's behavior thresholds do not reflect the current state of understanding regarding the temporal and spectral characteristics of various sound sources and their impacts on marine mammals. Therefore, the Commission recommends that, until the behavior thresholds are updated, NMFS require applicants to use the 120- rather than 160-dB re 1 μPa threshold for acoustic, non-impulsive sources (e.g., chirp-type sub-bottom profilers, echosounders, and other sonars including side-scan and fish-finding).

Monitoring Level B harassment zones

Exclusion zones primarily based on Level A harassment have been established to mitigate takes associated with the HRG and geotechnical surveys. However, it does not appear that monitoring is planned for the Level B harassment zones for those same surveys. Monitoring of the Level B harassment zones is a standard requirement for all incidental harassment authorizations. NMFS indicated in Table 7 of the *Federal Register* notice that the maximum worst-case distances to the Level B harassment thresholds were 3.5 km for the vibracore, 893 m for the sparker[10], and 500 m for the dynamic positioning system. Those same distances informed NMFS's take estimation process. The Commission recommends that NMFS require Deepwater Wind to monitor the full extent of the Level B harassment zones for the purpose of enumerating Level B harassment takes and documenting any behavioral responses observed.

I trust these comments will be helpful. Please let me know if you have any questions with regard to this letter.

Sincerely,



Rebecca J. Lent, Ph.D.,
Executive Director

cc: James Bennett, Chief, BOEM Office of Renewable Energy Programs

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[9] 80 Fed. Reg. 50990.

[10] The distances for the vibracore and sparker were doubled to be conservative because spherical spreading loss was used.

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