



MARINE MAMMAL COMMISSION

28 April 2016

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 combined application submitted by DONG Energy Massachusetts LLC (DONG) seeking an incidental harassment authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA). DONG is seeking authorization to take small numbers of marine mammals by harassment incidental to geophysical and geotechnical surveys off the coast of Massachusetts¹ in 2016. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 5 April 2016 notice (81 Fed. Reg. 19557) announcing receipt of the application and proposing to issue the authorization subject to certain conditions.

Background

DONG is proposing to conduct high-resolution geophysical (HRG) and geotechnical surveys to characterize seabed and subsurface geological conditions in the Massachusetts Lease Area south of Martha's Vineyard and Nantucket. The HRG survey would begin in May 2016 and last for 30 days, while the geotechnical survey would begin in September 2016 and last for 6 days. Sub-bottom profilers (both chirper and sparker types) and acoustic pingers would be used during the HRG survey, and the vessel's dynamic positioning system (i.e., thrusters) would be used during the geotechnical survey. The proposed activities are expected to occur during the day and at night.

NMFS preliminarily has determined that the proposed activities could modify temporarily the behavior of small numbers of up to nine 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 DONG's proposed mitigation measures. The mitigation, monitoring, and reporting measures include—

¹ In the area of the Massachusetts Renewable Energy Development Lease Area (Lease Area; <http://www.boem.gov/Commercial-Wind-Leasing-Offshore-Massachusetts/>).

- conducting sound source verification measurements and adjusting the Level B harassment zones² (based on 160 dB re 1 μ Pa for the HRG survey and termed ‘exclusion zones’ and 120 dB re 1 μ Pa for the geotechnical survey and termed ‘monitoring zones’), as necessary;
- using vessel-based observers to monitor the exclusion zones for 60 minutes before, during, and for 60 minutes after the HRG survey;
- using ramp-up and delay procedures based on a 60-minute clearance time during the HRG survey;
- using shutdown procedures if a non-delphinoid (i.e., a mysticete or sperm whale) cetacean is sighted and powerdown procedures if a delphinoid cetacean or pinniped is sighted at or within the designated exclusion zones during the HRG survey;
- reducing the dynamic positioning system’s power to the maximum extent possible if a marine mammal enters or approaches the designated monitoring zone during the geotechnical survey, with normal use resuming after a 60-minute clearance time;
- using passive acoustic monitoring and night-vision equipment in combination with infrared video monitoring during nighttime HRG survey activities;
- using passive acoustic monitoring to “clear” the exclusion zones prior to ramp up of HRG sound sources during nighttime or low visibility conditions;
- 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.

Estimation of takes

The Commission has several concerns regarding how the numbers of takes were estimated. First, the method used to estimate the numbers of takes does not account for NMFS’s 24-hour reset policy; this results in an overestimated number of takes for nearly all the cetacean species. Specifically, fractions of takes for each species for the various activities were summed across days and then rounded. Instead, NMFS should have calculated the daily take estimate (determined by multiplying the estimated density of marine mammals in the area by the daily ensonified area for each activity type) and then rounded that to a whole number *before* multiplying the daily estimate by the number of days the associated activity would occur. For species in which estimated daily takes would round down to zero, NMFS should use the average group size as a proxy for the estimated number of takes, as has been done for other incidental harassment authorizations (80 Fed. Reg. 75380). If NMFS believes any of those species could be taken on multiple days, NMFS should multiply the average group size by the number of days of activities. The Commission has commented on NMFS’s inconsistent use of its 24-hour reset and standard rounding rules numerous times in the past, yet these issues continue to be problematic in NMFS’s proposed authorizations. Therefore, the Commission recommends that NMFS abide by its own policy of a 24-hour reset for enumerating the number of each species that could be taken and applying standard rounding rules

² A 200-m exclusion zone would be used for acoustic pingers, a 400-m exclusion zone would be used for the sub-bottom profilers, and a 3.5-km monitoring zone would be used for the dynamic positioning system.

before summing the numbers of estimated takes across days and, if model-estimated or calculated takes round down to zero, but that species has the potential to be taken, then group size should be used to inform the take estimates—these methods should be used consistently for all future incidental take authorizations.

With respect to gray and harbor seals, take estimates were underestimated for both the HRG and geotechnical surveys. An arbitrary 80-percent reduction factor was applied to the pinniped take estimates for the spring HRG survey because of the presumption that the original density estimate is an overestimation due to inclusion of the breeding populations of Cape Cod. That reduction factor is unsubstantiated given that the references³ cited by both NMFS and DONG are outdated and do not represent current population trends. In addition, neither NMFS nor DONG included estimates for gray or harbor seal takes that would occur during the fall geotechnical survey, even though the referenced source for the density estimates (Department of Navy 2007) indicated that the spring estimates apply also to the fall season. Therefore, the Commission recommends that NMFS revise its take estimates for gray and harbor seals to include (1) uncorrected take estimates for the spring HRG survey and (2) take estimates for the fall geotechnical survey based on densities stipulated in Table 6 of the *Federal Register* notice. The Commission understands that more recent survey data may be available for gray and harbor seals, specifically resulting from the Atlantic Marine Assessment Program for Protected Species (AMAPPS) project. The Commission recommends that NMFS advise future applicants to use updated density estimates that reflect best available information for gray and harbor seals and other marine mammals.

Lastly, the number of survey days used to estimate the numbers of takes for the planned HRG and geotechnical surveys was determined in an inconsistent manner. The timeframe for the HRG survey includes additional days for downtime due to weather, whereas the geotechnical survey does not include a similar contingency⁴. This is curious given that the HRG survey uses a moving sound source. If poor weather conditions occur, surveying the maximum length of tracklines on a given day is unlikely. Thus, inclusion of a weather contingency likely over-estimates the number of takes, since the HRG ensonified area is based on the full length of tracklines surveyed in a given day. Conversely, the geotechnical survey is assumed to use a stationary source and, no matter how long the geotechnical activity would occur on a given day (including a reduction in operation time due to inclement weather), the same area would be ensonified. Thus, the total number of days of potential activity should have been included for the geotechnical survey, which includes the additional five days for poor weather conditions. If NMFS plans to include weather contingency days for the HRG survey, the Commission recommends that it include the five days of weather contingency for the geotechnical survey as well and re-estimate the numbers of takes accordingly.

Appropriate threshold for disturbance 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 μ Pa. However, researchers have observed that various species of marine mammals respond to sound from sources with similar characteristics (including acoustic deterrent devices,

³ Schroeder (2000), Ronald and Gots (2003), and Kenney and Vigness-Raposa (2009),

⁴ Which was stipulated as 4 to 5 days in the *Federal Register* notice in addition to the 6 days of proposed survey activities.

acoustic harassment devices, pingers, echosounders, and multibeam sonars) at received levels below 160 dB re 1 μPa ⁵. Previous Commission letters to NMFS regarding the use of sub-bottom profilers (specifically chirpers or chirps) 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 μPa would be more appropriate than the 160-dB re 1 μPa threshold used by NMFS. However, NMFS has not incorporated the Commission's recommendation to use the more precautionary harassment threshold for sub-bottom profilers used in chirp mode⁶.

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., sub-bottom profilers/chirps, echosounders, and other sonars including side-scan and fish-finding).

Conditions warranting an incidental take authorization

DONG's proposed activities are not expected to result in any takes of marine mammals by Level A harassment, and the proposed mitigation measures are likely to reduce significantly the potential for takes by Level B harassment. NMFS has cited the Bureau of Ocean Energy Management (BOEM) lease as the source of the proposed mitigation measures contained in DONG's application, and DONG's proposed measures appear to be in compliance with, and in some cases go beyond⁷, the BOEM lease requirements⁸.

BOEM's Final Programmatic Environmental Impact Statement on Atlantic Proposed Geological and Geophysical Activities states that, for HRG surveys, "if an operator can effectively monitor the 160-dB zone to prevent both Level A and B harassment of marine mammals, it would be reasonable to assume that an incidental take assessment under the MMPA may not be necessary" (BOEM 2014). However, it is NMFS's responsibility under the MMPA to assess the likelihood that marine mammals may be taken and whether an incidental take authorization is needed. In addition, while NMFS may agree with and adopt the proposed mitigation measures set forth in the BOEM lease, it has an independent responsibility to assess the adequacy of those measures, including whether they will result in the least practicable impact on the affected marine mammal species and stocks.

⁵ 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).

⁶ 80 Fed. Reg. 50990.

⁷ For example, NMFS would require DONG to reduce dynamic positioning thrusters to the maximum extent possible if a marine mammal enters or approaches the monitoring zone. That requirement does not appear to be a condition of the BOEM lease and appears to have practicability concerns. Specifically, NMFS indicated in the *Federal Register* notice that a constant position over the drill, coring, or cone penetration site must be maintained to ensure the integrity of the geotechnical survey equipment. Any stoppage of a dynamic positioning thruster during the proposed geotechnical activities has the potential to result in significant damage to the survey equipment.

⁸ <http://www.boem.gov/Lease-OCS-A-0500/>

In considering whether an incidental take authorization is needed for the planned HRG survey, NMFS should consider the size of the Level B harassment zone (estimated to be less than 400 m), the proposed use of both visual and passive acoustic monitoring, and the proposed shutdown or powerdown activities to avoid Level B harassment takes when marine mammals are detected approaching the harassment zones. NMFS also needs to assess whether these measures will be sufficient to avoid any takes by Level B harassment from the HRG survey given the weather and sea state conditions likely to be encountered and the fact that operations will be conducted both during the day and at night.

Also, the Commission notes that in other instances in which mitigation measures include a requirement to shutdown activities when animals approach the Level B harassment zone, NMFS has reduced the estimated numbers of Level B harassment takes⁹, including a few instances when takes have been reduced to zero (e.g., for southern resident killer whales and humpback whales; 81 Fed. Reg. 3378). For the proposed authorization, the estimated numbers of takes for the various species during the HRG survey have not been reduced to account for implementation of the mitigation measures.

To resolve such issues, the Commission recommends that NMFS (1) work with the BOEM Office of Renewable Energy to develop clear and consistent guidance for applicants regarding appropriate mitigation measures and (2) the circumstances under which adoption of such measures would avoid the potential for taking marine mammals and the need for an incidental harassment authorization. The Commission further recommends that NMFS use a consistent approach for reducing (or not reducing) the numbers of estimated takes based on the requirement to implement mitigation measures to preclude taking in the respective Level B harassment zones.

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 This has become standard practice for incidental harassment authorizations involving Cook Inlet beluga whales, although the Level B harassment zone radii in those instances are greater than 9 km.

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