



# MARINE MAMMAL COMMISSION

28 July 2014

Ms. Jolie Harrison, Chief  
Permits and Conservation Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910-3225

Dear Ms. Harrison:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the application submitted by ExxonMobil Production Corporation (ExxonMobil), seeking authorization under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) to take small numbers of marine mammals by harassment. The taking would be incidental to conductor pipe installation activities to be conducted from August through November off the coast of California. The Commission also has reviewed the National Marine Fisheries Service's (NMFS) 30 June 2014 notice (79 Fed. Reg. 36743) announcing receipt of the application and proposing to issue the authorization, subject to certain conditions. The Commission provides the following recommendations and rationale.

## **BACKGROUND**

ExxonMobil proposes to install six conductor pipes at the Harmony Platform, Santa Ynez Production Unit, located in the Santa Barbara Channel, 10 km off the coast of California between Point Conception and the City of Santa Barbara. Each conductor pipe would consist of multiple sections of 66-cm diameter steel pipes totaling 505 m in length, with the final five to seven of those sections installed using a hydraulic hammer. Each pile-driven section would require 2.5 to 3.3 hours of pile driving and another 3.5 to 7.3 hours of hammer "downtime" for setup and welding of the next section. This sequence would be repeated on a continuous 24-hour basis for the pile-driven portion of each pipe until the entire conductor pipe has been installed.

NMFS preliminarily has determined that the proposed activities could result in a temporary modification in the behavior of small numbers of up to 30 species of marine mammals, but that any impact on the affected species would be negligible. It does not anticipate any take of marine mammals by death or serious injury. NMFS believes that the potential for temporary or permanent hearing impairment will be at the least practicable level because of the proposed mitigation and monitoring measures. Those measures include—

- (1) conducting in-situ sound source and sound propagation measurements during all in-water and in-air pile driving;
- (2) adjusting the exclusion zone (Level A harassment thresholds of 190 dB re 1  $\mu$ Pa for pinnipeds and 180 dB re 1  $\mu$ Pa for cetaceans) and the disturbance zone (Level B harassment threshold of 160 dB re 1  $\mu$ Pa for all marine mammals) for in-water pile driving, as necessary;

- (3) using a team of three platform-based protected species observers to monitor marine mammals within the in-water exclusion and disturbance zones and also the in-air disturbance zone (Level B harassment threshold of 90 dB re 20  $\mu$ Pa for harbor seals and 100 dB re 20  $\mu$ Pa for all other pinnipeds);
- (4) using lights, night-vision devices, and other appropriate equipment to monitor the disturbance zone at night or in periods of poor visibility;
- (5) using ramp-up, delay, and shut-down procedures;
- (6) reporting injured and dead marine mammals to the NMFS Office of Protected Resources and the West Coast Regional Stranding Coordinators using NMFS's phased reporting approach and suspending activities, if appropriate; and
- (7) submitting a final report to NMFS.

## RATIONALE AND RECOMMENDATIONS

### Density estimates

The densities used to estimate the numbers of takes were derived using two different methods. For humpback, blue, and fin whales, ExxonMobil and NMFS stated that they used densities from Redfern et al. (2013) because those data were derived in the same project area—the Santa Barbara Channel. However, the estimated densities for blue and fin whales in the *Federal Register* notice do not match the upper boundary of the density contours from Redfern et al. (2013), which are shown in Tables 6-3 and 6-4 of ExxonMobil's application. Those figures indicate that the density should be 0.006 whales/km<sup>2</sup> (not 0.008) for blue whales and 0.0065 whales/km<sup>2</sup> (not 0.004) for fin whales.

For the other species/stocks, ExxonMobil and NMFS derived density estimates by dividing each species/stock's abundance estimate by the area of the Santa Barbara channel (12,593 km<sup>2</sup>). The abundance estimates used by NMFS (in Table 5 of the *Federal Register* notice) were different from those used by ExxonMobil (in Table 3-1 of its application). Although the reason for this discrepancy is not provided, it appears to the Commission that the abundance estimates in Table 5 of the *Federal Register* notice were taken from the NMFS 2013 draft Pacific Stock Assessment Report (Carretta et al. 2013). However, NMFS's derived density estimates were incorrect for four of the species identified. Table 1 lists the four species in question, NMFS's density estimates, and the Commission's corrected densities, based on the abundance estimates provided by NMFS in Table 5 of the *Federal Register* notice.

Table 1. Proposed and corrected density estimates, in animals/km<sup>2</sup>, for four of the species/stocks proposed to be taken incidental to pile driving.

	Density estimates from Table 5 of <i>Federal Register</i> notice	Corrected density estimates, derived from abundance estimates in Table 5 of <i>Federal Register</i> notice
Gray whale	0.5067	1.519
Cuvier's beaked whale	0.17	0.523
<i>Mesoplodon</i> spp.	0.08	0.055
Common bottlenose dolphin	0.11	0.080

Therefore, the Commission recommends that NMFS revise the density estimates for blue and fin whales to reflect the density information from Redfern et al. (2013) and for gray whales, Cuvier's beaked whales, *Mesoplodon* spp., and common bottlenose dolphins to reflect the best available abundance estimates from Carretta et al. (2013); the corrected density estimates should then be used in NMFS's revised take estimates.

### **Estimation of takes based on activity duration and group size**

ExxonMobil estimated the numbers of marine mammal takes by multiplying the species-specific densities by the area of the Level B harassment zone (0.3188 km<sup>2</sup>) and the duration of the proposed pile-driving activities. ExxonMobil calculated the latter as a total of 4.125 days for all six conductor pipes, apparently by summing each period of proposed pile driving and then dividing that cumulative exposure time by 24 hours to determine number of days of exposure. Because pile-driving sessions are interspersed between periods of no pile driving, summing across only pile-driving periods underestimates the number of days of actual exposure. Instead, ExxonMobil should have summed across the entire pile-driving timeframe, which includes periods of no pile driving, to determine the number of days animals would be exposed, because each day of pile driving has the potential to expose either the same animals repeatedly or different animals. Take estimates should account for multiple days of exposure rather than aggregated hours of exposure. In this instance, ExxonMobil should have added 3.3 hours of estimated pile driving per section to 7.3 hours of downtime per section for a total of 10.6 hours per section of pipe. Multiplying that by the projected seven sections to be driven for each conductor pipe would result in a total of 74.2 hours, which when divided by 24 hours per day equates to 3.1 days of potential exposure per pipe. Using that method would yield a total of 18.6 days of potential exposure (3.1 days per conductor pipe multiplied by 6 pipes), which more accurately represents the total duration of proposed pile-driving activities for all six conductor pipes. Accordingly, the Commission recommends that NMFS revise its take estimates for all species/stocks to account for the total number of days of potential exposure (i.e., 18.6 days), ensuring a more accurate estimate of potential takes.

In addition, ExxonMobil adjusted its take estimates by a factor of at least 10 for a number of species to account for group size. NMFS based its proposed take estimates on ExxonMobil's requested takes for all species except two—sperm whales and short-beaked common dolphins. Instead NMFS proposed takes of a single sperm whale and 45 common dolphins, derived directly from density estimates with no adjustment for group size. Those two species typically occur in groups that may exceed the requested numbers of takes. Sperm whales typically occur in groups of 2 to 10 whales (Barlow et al. 2005), and common dolphins occur in groups of hundreds to thousands of animals (Reeves et al. 2002). If those species were to be observed in the vicinity of the project area, they likely would occur in numbers that exceed the requested numbers of takes. That could result in actual takes exceeding the authorized numbers of takes and/or a premature shutdown of the proposed activities. In other similar situations, NMFS has increased the requested number of takes of a particular species to reflect the mean group size of that species (e.g., Table 4 in 78 Fed. Reg. 33811). Therefore, to ensure that the requested numbers of takes reflect numbers of individuals of each species that may be observed in the project area, the Commission recommends that NMFS increase its estimated numbers of takes for sperm whales and short-beaked common dolphins to reflect the minimum typical group size for each species (i.e., at least 2 and 450 animals, respectively).

## Mitigation and monitoring measures

Accurate characterization of the sizes of the exclusion and disturbance zones is critical for implementing mitigation measures and estimating the numbers of animals taken. In the past, the Commission has recommended a rapid turnaround of the in-situ sound source verification analysis to ensure that exclusion zones are the appropriate size. However, in at least one instance, rapid turnaround has resulted in errors, as occurred with ION's measurements of source levels during its 2012 Arctic in-ice survey. In that case, the size of the exclusion zone was decreased from that modeled based on erroneous field-report results. The error was not discovered until the end of the field season, when it was determined that the in-season adjustments resulted in unauthorized Level A harassment takes of bowhead whales. Since the purpose of verification is to ensure protection of marine mammals, one way to reduce risk to marine mammals would be to allow only for expansion, but not contraction, of the exclusion and/or disturbance zones after in-situ measurements are made. Therefore, the Commission recommends that NMFS only authorize an in-season adjustment in the size of the exclusion and/or disturbance zones if the size(s) of the estimated zones are determined to be too small.

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

Sincerely,



Rebecca J. Lent, Ph.D.  
Executive Director

## References

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