

millisec (msec) pulse or “ping” per second is transmitted, with a beam-width of 2.67 degrees fore-aft and 90 degrees in beam-width. The beam-width is measured to the 3 dB point, as is usually quoted for sonars. The other two modes are deep-water modes: The Omni mode is identical to the shallow-water mode except that the source output is 220 dB rms. The Omni mode is normally used only during start up. The Rotational Directional Transmission (RDT) mode is normally used during deep-water operation and has a 237 dB rms source output. In the RDT mode, each “ping” consists of five successive transmissions, each ensonifying a beam that extends 2.67 degrees fore-aft and approximately 30 degrees in the cross-track direction. The five successive transmissions (segments) sweep from port to starboard with minor overlap, spanning an overall cross-track angular extent of about 140 degrees, with tiny (<1 μ s) gaps between the pulses for successive 30-degree segments. The total duration of the “ping”, including all 5 successive segments, varies with water depth but is 1 msec in water depths <500 m (<1640.4 ft) and 10 msec in the deepest water. Additional information on the airgun array and Atlas Hydrosweep specifications is contained in the application, which is available upon request (see **ADDRESSES**).

Comments and Responses

A notice of receipt of the L-DEO application and proposed IHA was published in the **Federal Register** on April 14, 2003 (68 FR 17909). That notice described in detail the proposed activity, including the characteristics of the Ewing’s acoustic sources, the marine mammal species that may be affected by the activity, and the anticipated effects on marine mammals. That information is not repeated here. During the 30-day public comment period, comments were received from the Marine Mammal Commission (Commission) and the Center for Biological Diversity (CBD).

Activity Concerns

Comment 1: The CBD believes that the proposed authorization is flawed because it lacks a disclosure and analysis of the impacts of the multi-beam bathymetric sonar planned for use on this voyage. The proposed authorization indicates that the dB level of this sonar is 210–220 dB rms, yet concludes without sufficient analysis that the sonar is unlikely to result in any take by harassment.

Response: A complete description of the Atlas Hydrosweep is contained in the proposed IHA document (68 FR 17916, April 14, 2003), pages 54–56 of

the L-DEO application, and pages 65–66 of the National Science Foundation (NSF) Environmental Assessment (EA). The reason for concluding that the Atlas Hydrosweep is unlikely to result in a take by harassment is contained in those documents. In summary, any given marine mammal at depth near the Ewing trackline would be in the main beam for only 1/5th or at most 2/5th of the 10 msec duration of the signal. The Atlas Hydrosweep is less powerful, has a shorter pulse duration and projects downwards as compared to standard Navy sonars that have been linked to avoidance reactions and stranding of cetaceans. Also, because the area of possible influence of the Atlas Hydrosweep is much smaller (a narrow band below the source vessel), marine mammals that encounter the Atlas Hydrosweep at close range are unlikely to be subjected to repeated pulses because of the narrow fore-aft width of the beam, and will receive only limited amounts of pulse energy because of the short pulses. This effectively eliminates a marine mammal receiving the additional acoustic stimulus needed to induce a significant behavioral response.

Marine Mammal Impact Concerns

Comment 2: The CBD notes that the proposed IHA **Federal Register** document states that approximately 8,901 marine mammals will be taken by the 10-gun and 12-gun array with peak source levels of 255 dB P-P (peak-to-peak) and 257 dB P-P (or approximately 239 rms (root-mean-squared) and 241 rms). According to the CBD, this does not constitute “small numbers” of marine mammals.

Response: Section 101(a)(5)(D) of the MMPA authorizes takings of marine mammals incidental to an applicant’s activity if, among other things, the incidental taking, by harassment, is of small numbers of marine mammals of a species or population stock. The regulations at 50 CFR 216.103 define “small numbers” to mean “a portion of a marine mammal species or stock whose taking would have a negligible impact on that species or stock.” An activity would affect “small numbers” of a species or stock when it is determined that the total taking (of the species or stock by the activity over the period of the authorization) will be small relative to the estimated population size and relevant to the behavioral, physiological, and life history characteristics of the species. In other words, NMFS considers the kind of take (e.g., mortality, injury, or harassment); an individual mammal’s hearing ability, and the affected species

hearing capability in the frequency of the subject anthropogenic sounds; and the robustness of the affected marine mammal populations when determining whether the incidental taking would be small. There is no requirement that the total cumulative taking of all species be small.

Table 7 in the application (and referenced in the proposed authorization notice) provides an estimate of the number of animals that might be exposed to a sound pressure level (SPL) of 160 dB (RMS) or greater. This does not necessarily mean that 100 percent of all marine mammals exposed to seismic sounds will have a significant disruption in a biologically important activity at 160 dB. It is likely that some lower percentage would be affected either because of the hearing ability of the affected species or an individual animal to the projected frequencies. For example, Table 7 provides estimates of the number of animals of the 13 species of Delphinidae that might be exposed to received levels \geq 160 dB. However, the Delphinidae have their best hearing in the higher frequencies and are unlikely to be as sensitive as the mysticete whales to the low frequency of the airgun array. Therefore, they are less likely to experience Level B harassment at 160 dB. A more likely threshold for Delphinidae for onset of Level B harassment in response to seismic sounds is at about 170 dB.

However, based on either sound pressure level, Level B harassment take levels for almost every species would be significantly less than 1 percent of the affected stock and one could reach a level of 2 percent. Since this activity will not result in mortality or serious injury of any marine mammals and has the potential to result in the incidental behavioral (Level B) harassment of only a small percentage of the estimated population size of affected stocks, NMFS has concluded that the takings will be small.

Comment 3: The CBD states that NMFS has not demonstrated that the level of take will have a “negligible impact.” The drafters of the MMPA’s small take provision defined “negligible impact” as an impact that is “so small or unimportant or of so little consequence as to warrant little or no attention” (H. Rept. 228, 97th Cong. 1st sess. 19 (1981)). According to the proposed IHA, animals subjected to sound levels above 160 dB may alter their behavior and distribution. The take by harassment of 8,901 marine mammals by underwater noise far exceeding the thresholds for harassment and injury is not negligible. The Ewing should not be permitted to use the 10–