

To confirm that TAMSAs made no shipments of subject merchandise to the United States during the POR, on March 4, 2004, we requested entry documents for selected months of the POR and for a sample of HTSUS numbers covered by the scope of this order for various shipments by TAMSAs and/or its affiliate. See Memorandum to Michael S. Craig from Gary Taverman: Request for U.S. Entry Documents—Certain Large Diameter Carbon and Alloy Seamless Standard, Line and Pressure Pipe from Mexico (A-201-827). Our analysis of the entry documents showed that none of the shipments was subject merchandise. Based on our shipment data query and examination of entry documents, we are treating TAMSAs as a non-shipper for the purpose of this review. Therefore, in accordance with section 351.213(d)(3) of the Department's regulations, and consistent with our practice, we preliminarily determine to rescind this review. See e.g., Stainless Steel Bar from India; Final Results of Antidumping Duty Administrative Review and New Shipper Review and Partial Rescission of Administrative Review, 65 FR 48965 (August 10, 2000) as discussed in Stainless Steel Bar from India; Preliminary Results of Antidumping Duty Administrative Review and New Shipper Review, and Partial Rescission of Administrative Review, 65 FR 12209 (March 8, 2000).

#### Public Comment

Interested parties may submit case briefs within 14 days of the date of publication of this notice. Rebuttal briefs, which must be limited to issues raised in the case briefs, may be filed not later than 19 days after the date of publication of this notice. Parties who submit case briefs or rebuttal briefs in this proceeding are requested to submit with each argument (1) a statement of the issue and (2) a brief summary of the argument with an electronic version included. Any interested party may request a hearing within 14 days of publication of this notice. Issues raised in the hearing will be limited to those raised in the case and rebuttal briefs. The Department will issue the final results of this administrative review, including the results of its analysis of issues raised in any such written briefs or hearing, within 120 days of publication of these preliminary results. We are issuing this notice in accordance with section 751(a)(1) of the Act and section 351.213(d) of the Department's regulations.

Dated: April 28, 2004.

**James J. Jochum,**

*Assistant Secretary for Import Administration.*

[FR Doc. 04-10097 Filed 5-3-04; 8:45 am]

BILLING CODE 3510-DS-P

#### DEPARTMENT OF COMMERCE

##### National Institute of Standards and Technology

##### Judges Panel of the Malcolm Baldrige National Quality Award

**AGENCY:** National Institute of Standards and Technology, Department of Commerce.

**ACTION:** Notice of closed meeting.

**SUMMARY:** Pursuant to the Federal Advisory Committee Act, 5 U.S.C. app. 2, notice is hereby given that the Judges Panel of the Malcolm Baldrige National Quality Award will meet Wednesday, June 2, 2004. The Judges Panel is composed of nine members prominent in the field of quality management and appointed by the Secretary of Commerce. The purpose of this meeting is to Review the 2004 Baldrige Award Cycle; Discussion of Senior Examiner Training for Site Visits and Final Judging Interaction; Judges' Survey of Applicants; and Judging Process Improvement Discussion for Final Judges' Meeting Preparation. The applications under review contain trade secrets and proprietary commercial information submitted to the Government in confidence.

**DATES:** The meeting will convene June 2, 2004 at 9:30 a.m. and adjourn at 4:30 p.m. on June 2, 2004. The entire meeting will be closed.

**ADDRESSES:** The meeting will be held at the National Institute of Standards and Technology, Building 222, Red Training Room, Gaithersburg, Maryland 20899.

**FOR FURTHER INFORMATION CONTACT:** Dr. Harry Hertz, Director, National Quality Program, National Institute of Standards and Technology, Gaithersburg, Maryland 20899, telephone number (301) 975-2361.

**SUPPLEMENTARY INFORMATION:** The Assistant Secretary for Administration, with the concurrence of the General Counsel, formally determined on February 7, 2004, that the meeting of the Judges Panel will be closed pursuant to section 10(d) of the Federal Advisory Committee Act, 5 U.S.C. app. 2, as amended by section 5(c) of the Government in the Sunshine Act, P.L. 94-409. The meeting, which involves examination of Award applicant data from U.S. companies and a discussion

of this data as compared to the Award criteria in order to recommend Award recipients, may be closed to the public in accordance with section 552b(c)(4) of Title 5, United States Code, because the meetings are likely to disclose trade secrets and commercial or financial information obtained from a person which is privileged or confidential.

Dated: April 25, 2004.

**Hratch G. Semerjian,**

*Acting Director.*

[FR Doc. 04-10104 Filed 5-3-04; 8:45 am]

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#### DEPARTMENT OF COMMERCE

##### National Oceanic and Atmospheric Administration

[I.D.092203D]

##### Small Takes of Marine Mammals Incidental to Specified Activities; Oceanographic Surveys in the Southeast Caribbean Sea and Adjacent Atlantic Ocean

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice of issuance of an incidental harassment authorization.

**SUMMARY:** In accordance with provisions of the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that an Incidental Harassment Authorization (IHA) to take small numbers of marine mammals by harassment incidental to conducting oceanographic surveys in the Southeast Caribbean Sea and adjacent Atlantic Ocean has been issued to Lamont-Doherty Earth Observatory (LDEO).

**DATES:** Effective from April 16, 2004, through April 15, 2005.

**ADDRESSES:** A copy of the IHA and the application are available by writing to Mr. P. Michael Payne, Chief, Marine Mammal Conservation Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20910-3225, or by telephoning the contact listed here. A copy of the application containing a list of the references used in this document may be obtained by writing to this address or by telephoning the contact listed here and is also available at:

[http://www.nmfs.noaa.gov/prot\\_res/PR2/Small\\_Take/smalltake\\_info.htm#applications](http://www.nmfs.noaa.gov/prot_res/PR2/Small_Take/smalltake_info.htm#applications)

**FOR FURTHER INFORMATION CONTACT:** Kimberly Skrupky, Office of Protected Resources, NMFS, (301) 713-2322, ext 163.

## SUPPLEMENTARY INFORMATION:

**Background**

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

Permission may be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses and that the permissible methods of taking and requirements pertaining to the monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Under section 3(18)(A), the MMPA defines "harassment" as:

any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.

The term "Level A harassment" means harassment described in subparagraph (A)(i). The term "Level B harassment" means harassment described in subparagraph (A)(ii).

Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny issuance of the authorization.

**Summary of Request**

On August 7, 2003, NMFS received an application from LDEO for the taking, by harassment, of several species of marine mammals incidental to conducting a seismic survey in the Southeast Caribbean Sea and adjacent Atlantic Ocean. The Southeast Caribbean Sea and Atlantic Ocean cruise will be off the coast of Venezuela in an area extending from 59° to 71° W and 10° to 15° N. This survey work was originally scheduled to be conducted from January 11, 2004, through February 21, 2004, but has been rescheduled for 17 April through 28 May, 2004. The operations will partly take place in the Exclusive Economic Zones (EEZ) of several nations in the Southeast Caribbean (including Venezuela, Aruba, Bonaire, Curacao, Trinidad, and Tobago) as well as in international waters.

The purpose of the project is to obtain information on island arc movements and geometry which can be used to better understand the history and mechanical processes by which island arcs accrete to continents, deeply buried rocks are exhumed, and folded belts and different types of sedimentary basins form along oblique collision zones. The interplay of the crust and subcrustal lithosphere during arc accretion and metamorphic belt exhumation and subduction polarity reverses will be examined. In addition, the flow patterns of the sublithospheric mantle beneath the plate boundary and northern South America as a whole and beneath the right lateral shear zone between them will be examined.

**Description of the Activity**

The seismic survey will involve two vessels which will conduct the seismic work. The source vessel, the *R/V Maurice Ewing*, will deploy an array of 20 airguns as an energy source, plus a 6-km (3.2 n.mi.) towed hydrophone streamer. A second vessel, the *R/V Seward Johnson*, will deploy and retrieve Ocean Bottom Seismometers (OBSs). As the airgun array is towed along the survey line, the towed hydrophone streamer or OBSs will receive the returning acoustic signals and transfer the data to the on-board processing system. Water depths within the study area range from approximately 15–6,000 m (49–19,685 ft). Most of the survey effort will take place in waters greater than 1,000 m (3,281 ft) deep. Approximately 2,031 km (1,097 n.mi.) of the survey will be surveyed in water depth ranging from 100–1,000 m (328–3,281 ft) deep, and a small portion of the survey effort will occur in shallow water less than 100 m (328 ft) deep.

The procedures to be used for the seismic study will be similar to those used during previous seismic surveys by LDEO in the equatorial Pacific Ocean (Carbotte *et al.*, 1998, 2000). The seismic surveys will use conventional seismic methodology with a towed airgun array as the energy source, and a towed hydrophone streamer and/or OBSs as the receiver system. The OBSs will be deployed by the *Seward Johnson*. The energy to the airgun array is compressed air supplied by compressors on board the source vessel. In addition to the operations of the airgun array, a multibeam bathymetric sonar will be operated from the source vessel continuously throughout the entire cruise, and a lower-energy sub-bottom profiler will also be operated during most of the survey.

The *Seward Johnson* will have four deployments of OBSs, prior to the time when the *Maurice Ewing* conducts airgun operations in that area. After each line is shot, the *Seward Johnson* will retrieve the OBSs, download the data, and refurbish the units before redeploying the OBSs along the next line that will be shot. During the Southeast Caribbean cruise, there will be four deployments of OBSs, one deployment along each of the OBS lines. OBSs will also be deployed at two other locations near each line to fill data gaps between islands.

In addition, the ocean floor will be mapped with an Atlas Hydrosweep DS-2 multibeam 15.5-kHz bathymetric sonar, and a 3.5-kHz sub-bottom profiler will also be operated along with the multibeam sonar. Both of these sound sources will be operated simultaneously with the airgun array. For more information regarding the Atlas Hydrosweep DS-2 multibeam bathymetric sonar, please refer to previous **Federal Register** Notices (68 FR 44291, July 28, 2003, and 68 FR 17773, April 11, 2003).

During the airgun operations, the vessel will travel at 7.4–9.3 km/hr (4–5 knots), and seismic pulses will be emitted at intervals of 60–90 seconds (OBS lines) and approximately 20 sec (MCS lines). The 20-second spacing corresponds to a shot interval of about 50 m (164 ft). The 60–90-second spacing along OBS lines is to minimize reverberation from previous shot noise during OBS data acquisition, and the exact spacing will depend on water depth. The 20-airgun array will include airguns ranging in chamber volume from 80 to 850 in<sup>3</sup> (0.0013 to 0.014 m<sup>3</sup>). These airguns will be spaced in an approximate rectangle of dimensions of 35 m (115 ft) across track by 9 m (30 ft) along track.

Along the selected lines, the OBSs will be positioned by the *Seward Johnson* prior to the time when the *Maurice Ewing* conducts airgun operations in that area. After each line is shot, the *Seward Johnson* will retrieve the OBSs, download the data, and refurbish the units before redeploying the OBSs along the next line that will be shot. During the Southeast Caribbean cruise, there will be four deployments of OBSs, one deployment along each of the OBS lines. OBSs will also be deployed at two other locations near each line to fill data gaps between islands.

When airgun operations with the 20-gun array commence after a period without airgun operations, the number of guns firing will be increased gradually ("ramped up," also described as a "soft start"). Operations will begin with the smallest gun in the array (80 in<sup>3</sup>) (0.0013 m<sup>3</sup>). Guns will be added in sequence such that the source level of the array will increase in steps not exceeding 6 dB per 5-min period over a total duration of approximately 25 minutes. Throughout the ramp-up procedure, the safety zone for the full 20-gun array will be maintained.

Along with the airgun operations, two additional acoustical data acquisition systems will be operated during most or all of the cruise. The ocean floor will be mapped with an Atlas Hydrosweep DS-2 multibeam 15.5-kHz bathymetric sonar, and a 3.5-kHz sub-bottom profiler will also be operated along with the multibeam sonar. These sound sources are commonly operated from the *Maurice Ewing* simultaneous with the airgun array.

The Atlas Hydrosweep is mounted on the hull of the *Maurice Ewing*, and it operates in three modes, depending on the water depth. There is one shallow water mode and there are two deep-water modes: an Omni mode and a Rotational Directional Transmission mode (RDT). When water depth is less than 400 m (1312.3 ft), the source output is 210 dB re 1  $\mu$ Pa m rms and a single 1-millisecond pulse or "ping" per second is transmitted, with a beamwidth of 2.67 degrees fore-aft and 90 degrees athwartship. The beamwidth is measured to the -3 dB point, as is usually quoted for sonars. 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 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 and overall cross-track angular extent of about 140 degrees, with small gaps between the pulses for successive 30-degree segments. The total duration of the "ping," including all five successive segments, varies with water depth, but is 1 millisecond in water depths less than 500 m (1640.5 ft) and 10 millisecond in the deepest water. For each segment, "ping" duration is 1/5th of these values or 2/5th for a receiver in the overlap area ensonified by two beam segments. The "ping" interval during RDT operations depends on water depth and varies from once per second in less than 500 m (1640.5 ft) water depth to once per 15 seconds in the deepest water.

The sub-bottom profiler is normally operated to provide information about the sedimentary features and the bottom topography that is simultaneously being mapped by the Hydrosweep. The energy from the sub-bottom profiler is directed downward by a 3.5 kHz transducer mounted in the hull of the *Maurice Ewing*. The output varies with water depth from 50 watts in shallow water to 800 watts in deep water. Pulse interval is 1 second but a common mode of operation is to broadcast five pulses at 1-second intervals followed by a 5-second pause.

Additional information of the work proposed for 2004 is contained in the proposed authorization notice (68 FR 60086, October 21, 2003), and in the application and in the Final Caribbean Environmental Assessment for oceanographic surveys in the Southeast Caribbean Sea and adjacent Atlantic Ocean (LDEO, 2003) which are available upon request (see ADDRESSES).

#### Changes From the Proposed IHA

The calibration study data from a 2003 Gulf of Mexico survey indicate that the size of the 180-dB isopleth is dependent on water depth. A safety radii of 900 m (2935 ft) from the array at water depths greater than 1000 m (3281 ft), was estimated in the application and proposed IHA. The calibration measurements have indicated that the 180-dB isopleth for water depths between 100 and 1000 m (328 and 3281 ft) is 1350 m (4429 ft) and the isopleth for water depths less than 100 m (328 ft) is 3500 m (11483 ft). These new data modify the take estimates for marine mammals. Refer to the Estimates of Take in this Notice for the updated take estimates.

In light of the new data, NMFS has imposed additional mitigation measures for this seismic survey. First, the size of the safety radius to be monitored will be

based on water depths in addition to the array size. Second, in addition to visual observers, LDEO will use passive acoustic monitoring (PAM) whenever the vessel is operating in waters deep enough for the PAM hydrophone array to be towed. Third, LDEO will increase the number of biological observers from two to at least three, and 2 to three additional biologists will monitor the PAM system. An additional one to two observers will be in the *Seward Johnson* and a land-based crew will monitor the beaches on an opportunistic basis. Finally, LDEO will use Big Eyes binoculars to enable observers to detect marine mammals at greater distances from the vessel. See Mitigation for more information.

NMFS has also determined that takes of pinnipeds are not likely to occur in the action area. Therefore, hooded seals are not included in this IHA.

#### Comments and Responses

A notice of receipt of the LDEO SE Caribbean application and proposed IHA was published in the **Federal Register** on October 21, 2003 (68 FR 60086). During the comment period, NMFS received comments from the Center for Biological Diversity (CBD) and from the Marine Mammal Commission (Commission).

#### MMPA Concerns

*Comment 1:* The CBD believes NMFS has not demonstrated that the LDEO project will take only small numbers of marine mammals.

*Response:* NMFS believes that the small numbers requirement has been satisfied. The U.S. District Court for the Northern District of California held in *NRDC v. Evans* (Civil No. C-02-3805-EDL) that NMFS' regulatory definition of "small numbers" improperly conflates it with the "negligible impact" definition. Even if that is the case, NMFS has made a separate determination that the takes of the affected marine mammal species or stocks will be small. For example, the species or stock most likely to be harassed during the seismic survey is the bottlenose dolphin, with a "best estimate" of 2491 animals out of an estimated population size of 50,092 (LDEO, 2003). Although this absolute number may arguably not be small, it represents an estimated 5.0 percent of the affected population that might be subject to a short-term disturbance and is therefore relatively small. Marine mammals not are expected to be seriously injured or killed, and no effects on reproduction and/or survival are anticipated.

*Comment 2:* The CBD takes issue with NMFS' proposed IHA **Federal Register** notice on the ground that it does not provide basic data on the estimated number and percent of all 28 species of marine mammals that are projected to be exposed to sound levels greater than 160 dB.

*Response:* The **Federal Register** Notice at 68 FR 60088 summarized the information on the take percentage estimates in LDEO's application for all the marine mammal species in the proposed study area. There is no requirement that all information in an application be provided in the **Federal Register** notice. NMFS normally provides the information it believes necessary to facilitate public review of its preliminary assessment on the impact of the activity on marine mammals. The **Federal Register** notice recommends reviewers obtain a copy of the application, which contains more detailed information on stock abundance and levels of incidental take, if the reviewer wants greater detail. In this case, NMFS summarized the information on the principal species of marine mammals that might be affected by this seismic survey. It was unnecessary to provide take estimates for species that are either not likely to be found in the area or are in such low abundance at the time of the survey that their take levels are close to zero. In any case, NMFS is reprinting the complete table on marine mammal harassment take estimates in LDEO's application in this document.

#### *Marine Mammal Impact Concerns*

*Comment 3:* Noting that the surveys will take place not only in waters greater than 1,000 m (3281 ft) deep, but also in waters ranging from 100–1,000 m (328–3281 ft) and shallow water less than 100 m (328 ft) deep, the CBD asserts that the **Federal Register** Notice for the proposed IHA does not adequately analyze the difference the depth of water has on the survey impacts to marine mammals or how a safety radii or other mitigation measures will be implemented in such waters.

*Response:* The LDEO application describes how seismic sounds can be received in the ocean. Seismic sound received at any given point will arrive via a direct path, and often indirect paths that include reflection from the sea surface and bottom, and often segments through the bottom sediments. Sound propagating via indirect paths travel longer distances and often arrive later than sounds arriving via a direct path. These variations in travel time have the effect of lengthening the duration of the received pulse. Received

levels of low-frequency underwater sounds diminish close to the surface because of pressure-release and interference phenomena that occur at and near the surface (Urlick 1983; Richardson *et al.* 1995). Paired measurements of received airgun sounds at depths of 3 m (9.8 ft) vs 9 m (29.5 ft) or 18 m (59 ft) have shown that received levels are typically several decibels lower at 3 m (9.8 ft) (Greene and Richardson 1988). This provides additional protection to marine mammals while at the surface in the vicinity of the acoustic source.

During a 2003 study in the northern Gulf of Mexico, LDEO obtained measurements of received sound levels as a function of distance from LDEO's airgun arrays for shallow water and deep water propagation. The calibration results from the 2003 Gulf of Mexico surveys were completed recently and are now available. As a result, depth-specific 180-dB distances will be used as safety radii, instead of the depth-independent predicted ones with the precautionary 1.5 times factor, used during previous surveys. For the 20-gun array, the safety radius for 180 dB for water depths greater than 1000 m (3281 ft), as derived from the conservative acoustic model, is 900 m (2953 ft). For water depths between 100 and 1000 m (328 and 3281 ft), the safety radius is 1350 m (4429 ft). For water depths less than 100 m (328 ft), the safety radius is 3500 m (11483 ft) for 180 dB. The shallow water measurements are based on empirical data from the Gulf of Mexico study, and are larger than previously predicted. This has resulted in a reanalysis of harassment take estimates, as explained later in this document.

*Comment 4:* The CBD states that there is no mention of the compounded impact of the 20-airgun array's seismic output along with the two other acoustical data acquisition systems, the sonar and sub-bottom profiler. CBD states that despite the fact that all of these sources will be operating, the **Federal Register** Notice provides no estimate of take from the sonar and profiler individually or from all three sources collectively and instead, it assumes that any marine mammals close enough to be affected by the multibeam sonar would already be affected by the airguns. Therefore, no additional allowance is included for animals that might be affected by the multibeam sonar. CBD believes that this explanation does not account for times when all three sources may not be operating simultaneously or provide any discussion of the enhanced impact of

multiple acoustic sources when operating together.

*Response:* As NMFS indicated in the **Federal Register** Notice of the proposed IHA, the multibeam has an anticipated radius of influence significantly less than that for the airgun array. NMFS further stated that marine mammals close enough to be affected by the multibeam sonar would already be affected by the airguns. Therefore, no additional allowance is included for animals that might be affected by the sonar. There is no enhanced impact of using the multibeam when operating it together with the airgun array. The sub-bottom profiler would not enhance impacts, since the radii of influence are smaller for the profiler than those of the airgun array.

It is true that there are no estimates of take for times when the multibeam sonar and/or sub-bottom profiler are operated without airguns. This is because the 160-dB and 180-dB isopleths of the sub-bottom profiler and multibeam are either small or the beams are very narrow, making the duration of the exposure and the potential for taking very small. As provided in the LDEO application, the 160-dB and 180-dB radii in the horizontal direction, for the sub-bottom profiler, are estimated to be near 20 m (66 ft) and 8 m (26 ft), respectively. In the vertical direction, the 160-dB and 180-dB radii are 160 m (525 ft) and 16 m (52 ft) directly below the hull-mounted transducer. For the Hydrosweep there is minimal horizontal propagation, as these signals project downward and obliquely to the side at angles up to approximately 70 degrees from the vertical, but not horizontally. For the deep-water mode (see LDEO application or 68 FR 17909, April 14, 2003 for description), below the ship these 160- and 180-dB zones are estimated to extend to 3200 m (10500 ft) and 610 m (2000 ft), respectively. However, the beam width of the Hydrosweep signal is only 2.67 degrees fore and aft of the moving vessel, meaning that a marine mammal diving (not on the surface) could receive at most 1 to 2 signals from the Hydrosweep. Because NMFS treats harassment or injury from pulsed sound as a function of total energy received, the actual harassment or injury threshold for Hydrosweep signals (approximately 10 millisecond in duration) would be at a much higher dB level than that for longer duration pulses such as seismic or military sonar signals. As a result, NMFS believes that marine mammals are unlikely to be harassed or injured from the multibeam sonar or the Hydrosweep sonar due to the short

duration and only 1 to 2 pulses received.

NMFS believes that other than to voluntarily ride the bow wave of the vessel (an indication that the animal is not annoyed), it is unlikely that a marine mammal would approach a moving vessel that close. If one did, the duration of exposure and of behavioral responses to these downward-directed sources would be very brief, and, NMFS believes, this brief behavioral response would not rise to the level of take.

#### *Marine Mammal Habitat Concerns*

*Comment 5:* The CBD states that NMFS has failed to mention or require any exclusion zones to avoid seismic operations in coastal areas and key habitat for feeding, mating, breeding, and migration.

*Response:* Impacts on marine mammal habitat were discussed in detail in the LDEO application and the NSF EA. During the period of the survey (April and May), marine mammals will be dispersed throughout the proposed study area in the southeast Caribbean Sea. No concentrations of marine mammals or marine mammal prey species are known to occur in the study area at that time of year. The airgun operations will not result in any permanent impact on habitats used by marine mammals or their food sources. The use of the OBS receivers may have a temporary disturbance to sediments and benthic organisms, but the area that may be disturbed is a small fraction of marine mammal habitat and the habitat of their prey species. Airguns are used as the energy source for the seismic surveys because it is believed that they do not kill fish, as occurred when explosives were used prior to the invention of the airgun. Injurious effects on fish would be limited to the area close to the seismic vessel. Presumably, ramp-up will also give fish schools an opportunity to move away from the sound source as the strength of the sound increases. Pending funding, NMFS plans to convene a panel of scientists in the near future to review the scientific information on the effects of seismic activities on fish and sea turtles.

#### *Mitigation Concerns*

*Comment 6:* The Commission states that "practicable," the word used in the MMPA, is not synonymous with the word "practical," which seems to be the standard being used by NMFS in its responses. The Commission states, however, that the issue of practicability is a relevant consideration only if NMFS first determines that any taking incidental to the proposed activities will

(a) be by harassment only, and (b) have a negligible impact on the affected species and stocks. The Commission's concerns regarding the effectiveness of the proposed monitoring programs, particularly nighttime operations, also apply to the NMFS determinations that the takings will be limited to harassment and that the impacts on affected species or stocks will be negligible.

*Response:* NMFS uses the words "practicable" and "practical" to the extent that both terms have the same meaning. In both cases, NMFS considers whether a particular mitigation is capable of being effected, done, or executed; feasible. NMFS' consideration of practicability includes (among other relevant considerations) economic and technological feasibility (see 50 CFR 216.104(a)(11)). Congress recently elaborated on the meaning of the term in the case of Military Readiness Activities when it passed the National Defense Authorization Act of 2004. In determining practicability of mitigation for military readiness activities, NMFS explicitly is directed to consider "personal safety, practicality of implementation, and the impact of the effectiveness on military readiness activities." While the LDEO activity is not a military readiness activity, it is apparent that the term "practicable" may include considerations beyond simply whether a certain mitigation measure is technically capable of being implemented.

As explained in the following responses to comments, NMFS believes that the mitigation and monitoring measures that have been imposed under the IHA are complete to the fullest extent practicable, and ensure that the takings will be limited to harassment and will result in a negligible impact on the affected species or stocks of marine mammals. The mitigation measures described in the proposed IHA notice have been enhanced subsequently by increased observer personnel and the recent addition of big-eye binoculars and passive acoustics to the ship's inventory. As mentioned in response to comment 3, the safety radii have also been re-calculated based on the results from the calibration study in the Gulf of Mexico in 2003 and will be applied to this seismic survey.

*Comment 7:* The CBD states that NMFS' analysis of mitigation measures to ensure least practicable impact is flawed because its analysis of impacts is incomplete in that the safety radii have not been verified.

*Response:* NMFS believes that the mitigation measures ensure the least practicable impacts. As discussed

elsewhere in this document, the mitigation measures in the proposed IHA notice have been enhanced. As mentioned in response to comment 3, the safety radii have been re-calculated based on the results from the calibration study in the Gulf of Mexico in 2003. These depth-specific safety radii will be applied to this seismic survey in lieu of the previously applied depth-independent 1.5 X modeled safety radii.

#### *Mitigation Concerns - Ramp-Up*

*Comment 8:* The Commission notes that, although NMFS has made several determinations based on an assumption that ramp-up of the sound source is an effective mitigation measure from protecting marine mammals from serious injury or mortality, empirical research has not been conducted to prove or disprove these assumptions with any degree of certainty. The Commission recommends that NMFS consult with LDEO regarding incorporating a marine mammal research component into future operations to develop data on the effectiveness of ramping up the sound source and on the avoidance of marine mammals once peak pressure levels have been attained.

*Response:* While scientific research built around the question on whether ramp-up is effective has not been conducted, several studies on the effects of anthropogenic noise on marine mammals indicate that many marine mammals will move away from a sound source that they find annoying (e.g. Malme, 1984, Clark *et al.*, 1999, Miller *et al.*, 1999; others reviewed in Richardson *et al.*, 1995). In particular, three species of baleen whales have been the subject of tests involving exposure to sounds from a single airgun, which is equivalent to the first stage of ramp-up. All three species were shown to move away at the onset of a single airgun operation (Malme *et al.*, 1983–1986, BBN Reports 5366, 5586, 6265; Richardson *et al.*, 1986 J. Acoust. Soc. Am.; McCauley *et al.*, 1998, 2000 APPEA J.). From this research, it can be presumed that if a marine mammal finds a noise source annoying or disturbing, it will move away from the source prior to its becoming injurious, unless some other over-riding biological activity keeps the animal from vacating the area. This is the premise supporting NMFS' and others' belief that ramp-up is effective in preventing injury to marine mammals. In addition, observers and power-down/shut-down criteria provide for the protection of non-responding mammals: e.g., those that either do not hear the sounds because of a hearing impairment or because the

sounds are outside the hearing range of the species, or those individuals that do not react to the sounds because of behavioral or other physiological factors.

A ramp-up study was first proposed to be conducted by the Minerals Management Service (MMS) in 1999 (HESS, 1999). While this study has not been funded to date, NMFS believes that a basic difficulty exists for testing ramp-up effectiveness without first establishing some mode of dose-response. As a result, prior to testing ramp-up effectiveness, this type of information is currently being obtained by the Sperm Whales Seismic Study (SWSS). NMFS believes that this information is a critical component for understanding marine mammal impacts from world-wide operating seismic activities.

In that regard, LDEO has indicated that it is committed to working with MMS and the offshore seismic industry during the Gulf of Mexico calibration research work in June 2005 to coordinate efforts to study the effects of ramp-up on marine mammals while continuing its calibration study of the airgun array onboard the *Ewing*. Additionally, LDEO is improving its efforts during all seismic research cruises to report on any behavioral observations or possible effects that are noted by the marine mammal observers specifically related to ramp-up periods.

NMFS notes, however, that few marine mammals were sighted by observers during most LDEO cruises in 2003 (compare, for example LDEO observer reports for seismic in the Beaufort Sea (LGL, 1999), versus LDEO observer reports off Norway (LGL, 2003)). The low number of sightings during LDEO's 2003 cruises was attributable to the distribution and abundance of the mammals, and the time of year when LDEO's 2003 cruises were conducted, not to any limitations of the capabilities or effort by the marine mammal observers. The results of all marine mammal observations during LDEO's 2003 projects, including species identification and behavior are detailed in the reports that were submitted to NMFS after the conclusion of each cruise for which an IHA has been issued. Monitoring reports for four *Ewing* research cruises during 2003 (GOM; Hess Deep/Eastern Pacific; Norway; Mid-Atlantic) are now available (see ADDRESSES). The limited number of sightings that occur during many LDEO cruises mean that one can expect to obtain only a limited amount of information about reactions of marine mammals during the small number of

ramp-ups that normally occur during a cruise.

*Comment 9:* The Commission understands that LDEO has committed to not initiate ramp-up at night in the event of an unanticipated powering down of the array. This should reduce the likelihood of affecting marine mammals. The Commission appreciates LDEO's taking this measure.

*Response:* LDEO agreed that it would not initiate ramp-up at night after a shut down (e.g., if LDEO had no guns firing when deploying OBS instruments). It was not LDEO's understanding or intention to expand that to preclude ramp-up after a nighttime power-down if monitoring could show that there was little likelihood that marine mammal(s) were within the safety radius. The power-down and shut-down procedures are explained in detail in the proposed IHA notice for this seismic survey (see 68 FR 60086, October 21, 2003) and again in this document. However, the LDEO safety radius has subsequently been expanded considerably for work in shallow water (see discussion on results from the 2003 LDEO calibration study in the Gulf of Mexico elsewhere in this document). Therefore, NMFS is requiring under this IHA that LDEO will not initiate a ramp-up at night from a power down of an airgun array involving greater than 6 guns if the *Ewing* is operating in shallow water ( $\leq 100$  (328 ft)). In that situation, the safety radius would extend too large from the ship to effectively monitor visually at night. However LDEO can initiate ramp-up from a power-down situation when operating in water deeper than 100 m (328 ft) at night if the 180-dB radius is visible or the passive sonar has not recorded any mammalian vocalizations during the entire period of the power-down.

#### *Mitigation- Passive Acoustics*

*Comment 10:* The Commission recommends that NMFS consider requiring the applicant to augment the proposed observer program with passive or active acoustic monitoring equipment. The Commission understands that LDEO has passive acoustic monitoring equipment onboard the *Ewing* and intends to use it on this and future cruises.

*Response:* LDEO has committed to conducting passive acoustic monitoring during the SE Caribbean seismic cruise and elsewhere. Passive acoustic equipment was first used on the *R/V Maurice Ewing* during the 2003 SWSS study conducted in the Gulf of Mexico and was being evaluated by LDEO to determine whether it was practical to incorporate it into future seismic

research cruises. The SEAMAP passive acoustic system has four hydrophones, which allow the SEAMAP system to derive the bearing toward the a vocalizing marine mammal. In order to operate the SEAMAP system, the marine mammal monitoring contingent onboard the *Ewing* will be increased to 5 biologists. An additional 2-3 observers will be onboard the *R/V Seward Johnson*. This will provide the ability to both visually monitor the ocean and to use the SEAMAP system onboard the *Ewing*. Verification of acoustic contacts can then be attempted through visual observation by the marine mammal observers. However, passive acoustic monitoring by itself usually does not determine the distance that the vocalizing mammal might be from the seismic vessel. It can be used as a cue by the visual observers as to the presence of an animal and to its approximate bearing (with some ambiguity). However, at this time it is doubtful if passive acoustic monitoring can be used as a trigger to initiate power-down of the array (but see previous response for use prior to ramp-up). Perhaps with continued studies the relationship between a signal on a passive acoustic array and distance from the array can be determined with sufficient accuracy to be used for this purpose without complementary visual observations.

#### *Mitigation-Observers*

*Comment 11:* The CBD states that the only proposed marine mammal detection method is visual surveillance by daytime observers.

*Response:* The mitigation/monitoring protocols have been amended since the proposed IHA notice was published. There will be 2 U.S. and 1 Venezuelan observer (from the Cetacean Research Center) onboard the *Ewing* (plus additional biologists for acoustic monitoring), and 2-3 biological observers onboard the *Seward Johnson*. Since the monitoring periods on the *Seward Johnson* will not be continuous (essentially concentrating on the potential beaked whale habitats), the observer(s) will be assisted at these times by science personnel from the OBS group and the bridge watch personnel.

In addition to shipboard personnel dedicated to visual and passive-acoustic monitoring, other personnel deploying the land instrumentation will monitor the beaches in the vicinity of the survey lines where possible. However, some of the beaches in western Venezuela will not be easily accessible.

*Comment 12:* The Commission notes that the effectiveness of mitigation

depends on the ability of the observers to detect all marine mammals that may be within the proposed safety zones. The Commission states that according to NMFS in a notice published on March 21, 2001 (66 FR 1538), the estimated detection rate of marine mammals inside the proposed safety radii by visual observations (including both daytime and nighttime periods) has been revised from 5 percent to 9 percent. This rate increases to 18 percent for daytime only monitoring. The Commission states that these are average estimates for all species. Detection rates for larger species, such as sperm whales, would be considerably higher than for small species, like beaked whales. However, even with these revised rates, the Commission believes it is unlikely that the planned monitoring program will be very effective in detecting marine mammals within and entering the safety zones. As such, the Commission requests NMFS to provide additional explanation of its rationale for determining that marine mammals are unlikely to be exposed to sound levels above 180 dB for cetaceans or, if they are, that such exposures will not result in taking other than by harassment and that the effects of such taking will be negligible. In light of the fairly low power of the observer program to detect marine mammals within the safety zones, it seems NMFS is relying largely on marine mammal avoidance of harmful sound pressure levels for making its proposed findings.

*Response:* The estimated effectiveness of visual observations was revised from 5 percent to 9 percent (67 FR 46712, July 16, 2002). That figure includes both daytime and nighttime periods of observation. The rate increases to 18 percent based only on daytime monitoring. The Navy based these efficacy ratings on the most difficult marine mammals to sight, such as harbor porpoise and Cuvier's beaked whales. That efficacy rating was highly conservative (see 67 FR 46712, July 16, 2002 and Navy 2001). In that regard, NMFS shipboard marine mammal assessment surveys estimate a higher rate of efficacy for most species.

There is a scientific methodology to estimate the probability of detecting marine mammals on the surface, as explained in detail in Buckland *et al.*, (1993). This includes several components, including the probability that the mammal will be at the surface and potentially sightable while within visual range of the observers, the probability that an animal at the surface will in fact be detected, and the relationship between sighting

probability and lateral distance from the trackline.

A certain proportion of the population is presumed to be submerged at any given time and is therefore unavailable for detection. However, if the ship speed is slow, many of these animals would surface at some point while within visual range of observers aboard the approaching vessel. The speed of the *Ewing* and other seismic vessels while operating airguns will generally be less than 50 percent of the speed of the NOAA vessels conducting marine mammal line transect surveys.

All LDEO estimates of potential numbers of animals take account of all these factors to the extent that available data allow. Detectability is a measure of the probability of detecting a marine mammal that is present on a vessel's trackline (i.e.,  $g(0)$ ). LDEO uses the most applicable detectability values as provided in Koski *et al.* (1998) whenever estimates of marine mammal detectability have not already been calculated. They compiled previously reported detectability information for various species and used data on surfacing/dive cycles to estimate detectability values for species or species groups of marine mammals for which there are no published detectability values. Thus the estimates of incidental take in LDEO's IHA application and the associated NSF EA are either the same (if detectability had already been taken into account) or higher than would be obtained by direct application of previously-reported density data.

Any estimate that would be made would be specific to the region and the airgun array since the estimate would depend on (1) the distance to the 180-dB radius boundary, (2) the species that occur in the area and (3) the abundance for each species. If the estimate was being made for a small array (2 GI-guns) the estimate would essentially be a weighted average of the  $g(0)$  values based on the density of the species that would be encountered since all animals on the trackline are assumed to be sighted by the Transect Theory.

However, when making the estimate for a large airgun array, one would need to consider the probability of detecting an animal at each lateral distance out to the 180-dB radius (and slightly beyond) and then averaging the probability over the whole area. One cannot assume that all animals within the estimated strip width (ESW) are seen even if they are on the surface. The number of sightings at various lateral distances (out to a truncation distance) are used to estimate the number missed within the ESW when calculating densities. The

probability detection function is different for each species, but the function is most often calculated for combined groups of similar species. The actual probability detection functions are not published for most species, but some  $f(0)$  values are available.  $F(0)$  is a measure of the rate which sightability diminishes with increasing distance from the ship's trackline. So the problem is getting the actual probabilities of spotting animals at each lateral distance out to the 180-dB radius.

The assumed 180-dB distance for LDEO's standard 20-gun array operating in intermediate and deep waters is 1350 m (4429 ft) and 900 m (2953 ft), respectively. At-sea experience shows that the probability of detection at approximately 900 m lateral distance is likely to be near 0.5 - 0.6 but will vary somewhat among species. Thus the average probability of detection at all distances out to the 180-dB radius is likely to be approximately 0.7-0.9. If this is combined with the average  $g(0)$  which is probably approximately 0.9 (but needs to be calculated as described above and depends on species and group size) then an approximation of the proportion of animals present within the 180-dB radius is about 0.6 to 0.8. This is a rough estimate and does not consider species-specific and some other inputs to the calculation but is likely a reasonable estimate of the overall average number based on doing the calculation. In addition, this may be an underestimate of the fraction detected because some animals may be detected farther away (though at a lower probability) and that is not considered in this calculation. Notwithstanding the uncertainties and variability, it should be noted that this level of detectability is significantly higher than the value cited by the Commission.

Another key factor in estimating the number of undetected mammals that might occur within the 180-dB radius is the fact that many marine mammals move away from an approaching seismic vessel (e.g., Richardson *et al.*, 1995, Stone, 2003). The conventional estimates of the proportions present but missed by visual observations, as described in previous paragraphs, will overestimate (sometimes by very large factors) the numbers of mammals that might be exposed to high levels of sound near the ship. This is an important consideration in assessing possible exposures to high-level sound, especially for the more responsive species, notably some if not all baleen whales, beaked whales, and harbor porpoises. There is also some degree of

avoidance by a variety of other odontocetes (Stone 2003). In order to derive unbiased estimates of numbers that might be exposed to greater than 180 or 190 dB, density-based estimates that include allowance for  $g(0)$  and  $f(0)$  would need further adjustment to allow for an "avoidance probability" factor. Such factors are not generally available. They would depend on species and circumstances, and for some species would, if applied, result in a large decrease the estimates of the numbers that would be exposed to high-level sound.

Finally, it must also be recalled that the 180-dB criterion for cetaceans was developed before any data were available on Temporary Threshold Shift (TTS), or its dependence on exposure duration, in any species of marine mammal. Those interim criteria were based largely on professional judgment and incorporating a substantial precautionary element. Some TTS data, including information about the relationship of TTS thresholds to exposure duration, have subsequently become available for odontocetes and pinnipeds (e.g. Kastak *et al.* 1999, 2000; Finneran *et al.* 2002, 2003; Nachtigall *et al.* 2003). Even now there are data on the potential for causing permanent hearing loss (permanent threshold shift or PTS), which is Level A harassment, for marine mammals. Richardson *et al.* (1995) noted, based on terrestrial mammal data, that the magnitude of TTS in marine mammals was expected to depend on the level and duration of noise exposure, among other considerations. Subsequent studies of TTS in marine mammals have confirmed this. For sound exposures at or somewhat above the TTS threshold, hearing sensitivity recovers rapidly after exposure to the noise ends.

For toothed whales exposed to single short pulses, the TTS threshold appears to be, to a first approximation, a function of the energy content of the pulse (Finneran *et al.* 2002). Given the available data, the received level of a single seismic pulse might need to be on the order of 210 dB re 1 microPa (rms) (approx. 221 226 dB re 1 microPa (pk pk)) in order to produce brief, mild TTS. Exposure to several seismic pulses at received levels near 200 205 dB re 1 microPa (rms) might result in slight TTS in a small odontocete, assuming the TTS threshold is (to a first approximation) a function of the total received pulse energy (see Finneran *et al.* 2002). Seismic pulses with received levels of 200 205 dB re 1 microPa or more are usually restricted to a radius of no more than 100 m (328 ft) around (or below) a seismic vessel. There are no data,

direct or indirect, on levels or properties of sound that are required to induce TTS in any baleen whale.

A marine mammal within a radius of  $\leq 100$  m ( $\leq 328$  ft) around a typical array of operating airguns might be exposed to a few seismic pulses with sounds pressure levels  $\geq 205$  dB, and possibly more pulses if the mammal moved with the seismic vessel and the mammal was not detected and the array was not powered-down. However, as noted above, most cetacean species tend to avoid operating airguns, although not all individuals do so. In addition, ramping up airgun arrays, which is standard operational protocol for LDEO, should allow cetaceans to move away from the seismic source and to avoid being exposed to the full acoustic output of the airgun array. It is unlikely that these cetaceans would be exposed to airgun pulses at a sufficiently high level for a sufficiently long period to cause more than mild TTS, given the relative movement of the vessel and the marine mammal. TTS would be more likely in any odontocetes that bow-ride or otherwise linger near the airguns. Bow-riding odontocetes would be at or above the surface, and thus not exposed to strong sound pulses given the pressure-release effect at the surface. However, bow-riding animals generally dive below the surface intermittently. If they did so while bow-riding near airguns, they would be exposed to strong sound pulses, possibly repeatedly. If some cetaceans did incur TTS through exposure to airgun sounds, this would very likely be a temporary and reversible phenomenon.

For these reasons (small impact zone, avoidance of approaching ship by many marine mammals, precautionary nature of the 180-dB criteria, mitigation/monitoring protocols), NMFS has determined that LDEO's activity is likely to have no more than a negligible impact on affected marine mammal stocks.

#### *Mitigation-Prohibition of Night-time Seismic Operations*

*Comment 13:* The CBD states that although bridge personnel will keep watch at night, night-time detection rates of marine mammals are probably very low. There is no discussion of why night-time operations are considered necessary, why experienced marine mammal observers will not be on duty during night-time hours, how effective any observation efforts are expected to be, or why alternative means of ensuring that the required monitoring program is likely to detect most marine mammals in or near the safety zones are not identified and required. The

Commission questions whether night-time seismic operations should be authorized at all.

*Response:* NMFS agrees that the effectiveness of night-time visual monitoring is limited. However, as mentioned in previous authorization notices, LDEO believes that night-time operations are necessary due to cost considerations. The daily cost to the Federal Government to operate vessels such as *Ewing* and the *Seward Johnson* is approximately \$33,000 to \$35,000/day for each vessel (Ljunggren, pers. comm. May 28, 2003). If the vessels were prohibited from operating during night-time, it is possible that each trip would require an additional 3 to 5 days to complete the work, or up to \$175,000 more per vessel per cruise, depending on average daylight at the time of work.

If a seismic survey vessel is limited to daylight seismic operations (12–13 hours during April/May at this location), efficiency would be much reduced. Without commenting specifically on how that would affect the present project, for seismic operators in general, a daylight-only requirement would be expected to result in one or more of the following outcomes: cancellation of potentially valuable seismic surveys; reduction in the total number of seismic cruises annually due to longer cruise durations; a need for additional vessels to conduct the seismic operations; or work conducted by non-U.S. operators or non-U.S. vessels when in waters not subject to U.S. law.

NMFS final IHA requires mitigation measures including the use of passive acoustic monitoring to improve the detection of marine mammals by indicating to the visual observers when an animal is potentially near and prompting a shut-down when necessary. The passive acoustic monitoring system will be deployed whenever the water depth is deep enough to effectively operate the system.

Trained marine mammal observers using night vision devices (NVDs) will be on watch during periods prior to and during ramp-up from a power-down situation at night. They will also be on watch at other periods during the night, particularly if marine mammals are sighted in the seismic area during the day. In addition, NMFS is requiring that, if marine mammals are detected during daylight hours, the passive acoustic monitoring will need to continue to be operated throughout the succeeding night. LDEO is currently developing the protocols on how best to utilize passive acoustic monitoring to protect marine mammals.



At other times during the night, observers will be available, but it is not necessary or very effective for them to be on watch constantly. For reasons discussed in the previous response, marine mammals are unlikely to be seriously injured or killed by the noise from approaching seismic arrays. Thus, limiting seismic shooting to only daylight hours is unnecessary and unlikely to result in less level B harassment to marine mammals than would conducting 24-hour survey operations.

Because of the need to keep a vessel at-speed in order to successfully tow the hydrophone streamers, the vessel would need to be underway throughout the night whether or not the airguns are fired at night. Additional down-time can be anticipated each day as the vessel maneuvers all night to come back to the shut-down location 30 minutes after daylight. This is unlikely to be successful very often and will likely result in additional time needed for surveys to be completed.

In reviewing LDEO's report for the Hess Deep (Smultea and Holst 2003), it is apparent that few marine mammals would have been exposed to sound levels  $\leq 180$ -dB (rms) even if there had been no visual observations or power-downs. In the Hess Deep study for example, only a single whale (probably a beaked whale) was sighted near the outer perimeter of the safety zone.

Recently, LDEO completed two tests of the effectiveness of using NVDs (Smultea and Holst 2003, Appendix C; Holst 2004, Appendix B). Results of those tests indicated that the Night Quest NQ220 NVD is effective at least to 150 to 200 m (492 to 656 ft) away under certain conditions. That type of NVD is not effective at the much larger 180-dB radii applicable when a large array of airguns is in use. However, as noted in response to comment 12, it is the smaller zone where the received level is well about 180 dB where detection of any marine mammals that are present would be of particular importance. The 205-dB zone, within which TTS might occur, is likely to be approximately 100 m (328 ft) in radius. That is sufficiently within the range of the NVDs to allow some chance of detecting marine mammals visually within the area of potential TTS during ramp-up. Furthermore, a substantial proportion of the marine mammals that might be within that distance would be expected to move away either during ramp-up or, if the airguns were already operating, as the vessel approaches.

Taking into consideration the additional costs of prohibiting night-time operations and the likely low

impact of the activity (given the required mitigation and monitoring), NMFS has determined that the IHA's requirements will ensure that the activity will have the least practicable impact on the affected species or stocks for the following reasons. (1) Marine mammals will have sufficient notice of a vessel approaching with operating seismic airguns (at least one hour in advance), thereby giving them an opportunity to avoid the approaching array. (2) If ramp-up is required after a power-down, at least two marine mammal observers will be required to monitor the safety radius using NVDs, when necessary to improve vision, for 30 minutes before ramp-up begins and verify that no marine mammals are in or approaching the safety radius. (3) Ramp-up may not begin unless the entire 180-dB safety radius is visible (i.e., no ramp-up can begin in heavy fog or high sea states) and ramp-up may occur at night only if one airgun with a sound pressure level of at least 160 dB has been maintained during interruption of seismic activity. Therefore, the 20-gun array will not be ramped-up from a shut-down at night.

#### Monitoring Concerns

*Comment 14:* The Commission notes that its comments on previous proposed IHAs have questioned whether monitoring beginning 30 minutes prior to the start-up of airgun operations is sufficient to detect marine mammals within or near the safety zones. NMFS has concluded that 30 minutes should be sufficient. In making this conclusion the Commission quotes NMFS as noting that "while some whale species may dive for up to 45 minutes it is unlikely that the ship's bridge watch would miss a large whale surfacing from its previous dive if it is within a mile or two of the vessel." The Commission states that given a greater than 80 percent likelihood that large and small cetaceans will not be observed within the safety zones, even under the best of conditions using experienced observers, this conclusion is not well supported.

*Response:* The 30-minute observation period does not include the ramp-up period. Under the IHA, ramp-up must not proceed faster than 6 db per 5 minutes, which would add an additional monitoring period of 25 minutes. The total observation period, therefore, would be approximately 55 minutes prior to start of seismic operations at full power of the array. This is sufficient time for an observer to ensure, to the greatest extent practicable, that no marine mammals are within the moving safety zone. At a towing speed of 4 to 5 knots (7.4 to 9.3

km/hr), the vessel would be close to 4 to 5 nm (7.4 to 9.3 km) from the location that observations began by the time seismic surveys would begin. Since the safety zone is also moving forward at the same speed as the vessel, marine mammals would also be alerted to the ship's presence long before a marine mammal came within view of the observer(s). Therefore, the period of approximately 55 to 60 minutes is judged by NMFS to be adequate to spot marine mammals prior to the seismic array reaching full operating power.

See also the response to Comment 12. During daytime, the probability of missing mammals present within the safety radius is lower than the 80 percent figure mentioned above, and the natural avoidance responses of many marine mammals are a further mitigating factor.

*Comment 15:* Using Cuvier's beaked whale as an example, the Commission states that although an experienced observer with binoculars might be able to sight such species at one mile (1.61 km) in very good weather and calm sea conditions, it is highly unlikely that bridge personnel, tasked with other duties, could do so. NMFS scientists estimate that skilled observers searching with 25X binoculars in calm seas can visually detect only 23 percent of the animals passing directly under ships and that essentially none can be detected beyond 3 km (1.6 nm). In light of these considerations, NMFS needs to provide further explanation as to why it believes that 30 minutes of monitoring, prior to activation of the airguns at night will be adequate to detect large whales and other marine mammals that will be in the vicinity of the operations.

*Response:* Please see the response to Comment 14 regarding the length of the monitoring period. The probability of detecting a Cuvier's beaked whale is 0.23. This detectability rate is calculated for vessels traveling at about 15 knots, not 5 to 6 knots of the Ewing, so it is likely to be higher for observers on the Ewing. Statements have been made in the past that little information is available on beaked whales because they avoid survey vessels. One can presume therefore, that observers onboard a vessel conducting seismic operations are unlikely to see beaked whales not only because they are cryptic but also because they would see or hear the vessel and leave the area. This avoidance behavior may be similar to that of the bowhead whales migrating in the Beaufort Sea during seismic operations. Most migrating bowheads will avoid the seismic operations area by at least 20 km (10.8 nm). We presume that beaked whales will similarly avoid

sources of anthropogenic noise, provided they are afforded sufficient notice of the activity through a gradual increase in noise levels rather than receiving a sudden, loud sound that might inflict a panic reaction or perhaps serious injury.

In regard to the Commission's statement on other duties, the night-time watch is conducted by the bridge-lookout watch which is comprised of the following personnel and schedules: (1) Mate on Watch. Other duties include weather observations, half hour navigation updates, radar monitoring and radio watch; and (2) Bridge Watch assignments; bridge watch persons are assigned only as bridge watch personnel. These individuals have no other assignments as the bridge is blacked out (except chart room). Bridge watch assignments are as follows: (1) 1600–2000 hrs: One able-bodied (AB) seaman is on watch at all times (except 30-minute meal time when watch is relieved by Master-but this is usually during daylight hours when biological observers would be working anyway); (2) 2000 to 2400 & 0000 to 0400 hrs: One able-bodied seaman and one ordinary seaman on Port and Starboard bridge watch. This is their only duty except that AB makes rounds once per watch (about 30 minutes); (3) 0400 to 0800 hrs. One AB seaman on watch. Again there is relief for breakfast but by then the daytime marine mammal observers are on watch.

Finally, NMFS notes that the monitoring methods employed on the *Ewing* are standard methods used onboard vessels for conducting marine mammal abundance surveys and under IHA's. NMFS is especially interested in exploring with the Commission the potential for alternative, practical, monitoring methodology for use in waters too far from shore-side support facilities.

*Comment 16:* The Commission continues to have concerns that, without effective monitoring to detect when marine mammals are in or may be entering the safety zones, the chances that animals will be exposed to sounds capable of causing serious injury or death increases considerably. Therefore, NMFS, before issuing the IHA, particularly for night-time operations, needs to explain the basis for determining that, even in the absence of effective measures to detect all marine mammals within the safety zones, taking will be by harassment only and will have a negligible impact on the affected species and stocks.

*Response:* Refer to responses to comments 12 and 13. Since few marine mammals are sighted in daylight hours

by trained observers within the 180-dB isopleth, NMFS believes that few marine mammals will approach a vessel at night while the seismic arrays are on. The combination of all mitigation and monitoring measures previously discussed, along with the avoidance responses of many mammals, ensure that takings, incidental to this activity, either in daylight or nighttime will result in no more than a negligible impact on affected species and stocks of marine mammals and will result in the least practicable impact on these affected species or stocks.

*Comment 17:* The Commission believes that more justification is needed for the conclusion that marine mammals are not likely to be harmed by exposure to sound during the survey than the lack of evidence that this occurred during previous operations. This is particularly important because some of the planned survey will be conducted in relatively shallow waters, near islands and channels, in habitat that shares many characteristics with areas where strandings and mortalities of beaked whales occurred coincident with other seismic operations. Even where the topography of the areas differ, the Commission does not believe that a lack of evidence of injured or dead marine mammals following other surveys necessarily means that no marine mammals have been harmed. It could also reflect the inadequacy of post-survey monitoring activities. Accordingly, the Commission again recommends that post-survey monitoring be required as part of any small-take authorization to the applicant for the proposed survey.

*Response:* NMFS concurs that some form of post-survey monitoring should be conducted when and where practicable. NMFS will require, whenever possible, additional monitoring for marine mammal impacts after a research cruise, especially when that cruise takes place in beaked whale habitat. If post-survey shipboard monitoring is not practicable, applicants may be required to conduct independent scientific research to verify that the taking is negligible and at the lowest level practicable (see Hoffman and Swartz, 1991). This was recommended by Congress when it passed the MMPA Amendments of 1981 which implemented this program.

However, during the tens of thousands of line miles run annually by the seismic industry in the Gulf of Mexico, seismic airguns were not suspected of causing any marine mammals to strand prior to the 2002 Gulf of California beaked whale stranding event while the *Ewing* was

engaged in a seismic survey there. Scientifically the link between the *Ewing* and the Gulf of California stranding is extremely tenuous (due to the distance between the stranded animals and the *Ewing*), and it is likely that no evidence will be available to determine whether impulse or acoustic trauma played a role in those strandings because the tissues were too decomposed to properly evaluate and the heads were not retrieved.

For the SE Caribbean research expedition, LDEO will conduct post-survey monitoring by sub-sampling for marine mammals along the *Ewing's* MCS/OBS seismic lines by the *R/V Seward Johnson's* conducting observations for marine mammals along various sections of the seismic lines. LDEO will use subsampling methodology because the *R/V Seward Johnson* will not be able to follow behind the *R/V Maurice Ewing* on all coincident MCS/OBS profiles (each profile takes an average of 40 hours to shoot) because of vessel commitments elsewhere. However, the LDEO vessels will be transiting each transect profile 3 times - once before shooting while they deploy instruments, once during shooting as they transit back to the start of the profile, and again after shooting as the vessels pick up the instruments. Therefore, post-survey monitoring will be achieved by observer effort along each of the profiles prior to, during, and following the seismic activity. This will provide the biological observers with several opportunities to determine marine mammal distribution and abundance along the transit lane, conduct observational and acoustical monitoring and look for injured or dead marine mammals.

In addition, LDEO has requested marine mammal volunteers from the Centro de Investigacion de la Biodiversidad Tropical Biotropica in Venezuela to assist in marine mammal observations during transects by the *R/V Seward Johnson II* along these seismic lines. Shoreside, the Venezuelan and U.S. scientists who will monitor seismic instrumentation along an approximate landward extension of the MCS/OBS lines will also monitor the beaches during each of the MCS/OBS surveys and report any marine mammal stranding or unusual offshore activity prior to, during, and after each line survey.

#### *IHA Concerns*

*Comment 18:* The Commission recommends that, because of the likelihood that not all marine mammals within or entering the safety zones will be detected, and therefore, may be

exposed to high-intensity sounds, any authorization that is issued should explicitly require that the operations be suspended immediately if a dead or seriously injured animal is found in the vicinity of the operations, pending authorization to proceed or issuance of regulations authorizing such takes under section 101(a)(5)(A) of the MMPA.

**Response:** All IHAs that are limited to taking by Level B harassment stipulate that the taking by serious injury or death of these species or the taking by harassment, injury or death of any other species of marine mammals is prohibited and may result in the modification, suspension or revocation of the IHA. Recent IHAs issued to LDEO for seismic operations onboard the Ewing contain a provision that "if observations are made or credible reports are received that one or more marine mammals of any species are within the area of this activity in an injured or mortal state, or are indicating acute distress, the seismic airgun array will be immediately shut down and the Chief of the Marine Mammal Conservation Division or a staff member contacted." This requirement is also in the IHA issued for this activity.

#### Additional Concerns

**Comment 19:** NMFS has not yet complied with its Endangered Species Act (ESA) duties, and thus may not issue a small take authorization for the LDEO project.

**Response:** NMFS has completed consultation under section 7 of the ESA. NMFS issued a biological opinion regarding the effects of this action on ESA-listed species and critical habitat. That biological opinion concluded that this action is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.

**Comment 20:** The CBD believes that in order for NMFS to comply with the National Environmental Policy Act (NEPA), it must demonstrate that it has fully analyzed the impacts of, alternatives to, and mitigation measures for the project prior to issuing an Incidental Harassment Authorization for the LDEO project. NMFS must assess the cumulative impacts of the project in conjunction with other actions on the environment.

**Response:** NMFS closely follows NEPA regulations and NOAA Administrative Order 216-6 (Environmental Review Procedures for Implementing the National Environmental Policy Act, May 20, 1999) before making a determination on whether it will adopt another federal

agency's NEPA document, or prepare its own. Critical to this determination is the quality of another agency's NEPA document, whether it fully addresses the action proposed by NMFS, and whether NMFS' proposed action is significant as defined in 40 CFR 1508.27 and NAO 216-6, section 6.01. As noted in the proposed authorization notice (68 FR 60086, October 21, 2003), an Environmental Assessment (EA) was prepared by the National Science Foundation (NSF) and released to the public by NMFS. That EA contained a complete description of the proposed action and identified alternatives to that action; a description of the affected environment; an assessment of impacts, including unavoidable impacts, indirect impacts and cumulative impacts; and the measures proposed to reduce impacts to the lowest level practicable. In accordance with NAO 216-6, NMFS has reviewed the information contained in NSF's EA and determined that, while it accurately and completely describes the proposed action alternative, reasonable additional alternatives, and the potential impacts on marine mammals, endangered species, and other marine life that could be impacted by the preferred alternative and the other alternatives, additional mitigation measures have been identified and are reflected in the final IHA and the NMFS Finding of No Significant Impact (FONSI). Therefore, preparation of an environmental impact statement on this action is not required. A copy of the NSF EA and FONSI are available upon request (see ADDRESSES).

**Comment 21:** The Commission recognizes that the assumptions made by NMFS in issuing an IHA to LDEO are central to the use of acoustic arrays during night-time observations when observers cannot be used to monitor the occurrence of marine mammals. The use of the passive acoustics and the continued use of observer data during daylight hours and evaluation of that effort to determine that marine mammals do avoid the sound source during ramping up should provide the level of monitoring necessary to ensure that any potential takings will be negligible in their effect on marine mammal species and stocks in the survey area.

**Response:** NMFS agrees with the Commission.

**Comment 22:** While the Commission appreciates the costs and inconvenience associated with implementing some recommendations, section 101(a)(5)(D) of the MMPA requires that, even when taking by harassment would have a negligible impact on marine mammal species and stocks, an authorization

(must) prescribe "means of effecting the least practicable (Commission emphasis) impact on such species or stock or its habitat..." Thus, additional justification is needed to explain why restricting operations to daylight hours, using additional monitoring techniques, such as passive acoustic devices, and requiring post-exposure surveys are not possible.

**Response:** See response to Comment 6 and others for the response to this comment.

#### Description of Habitat and Marine Mammals Affected by the Activity

A detailed description of the Southeast Caribbean Sea and its associated marine mammals can be found in a number of documents referenced in the LDEO application as well as in the LDEO application itself, and is not repeated here. In the Southeast Caribbean Sea and adjacent Atlantic Ocean, 28 marine mammal species are known to occur within the proposed study areas. Six species are listed as endangered under the U.S. Endangered Species Act (ESA): sperm, humpback, sei, fin, and blue whales, as well as West Indian manatees. The species included in this application are the sperm whale (*Physeter macrocephalus*), pygmy sperm whale (*Kogia breviceps*), dwarf sperm whale (*Kogia sima*), Cuvier's beaked whale (*Ziphius cavirostris*), Gervais' beaked whale (*Mesoplodon europaeus*), Blainville's beaked whale (*Mesoplodon densirostris*), rough-toothed dolphin (*Steno bredanensis*), tucuxi (*Sotalia uviatilis*), bottlenose dolphin (*Tursiops truncatus*), pantropical spotted dolphin (*Stenella attenuata*), Atlantic spotted dolphin (*Stenella frontalis*), spinner dolphin (*Stenella longirostris*), clymene dolphin (*Stenella clymene*), striped dolphin (*Stenella coeruleoalba*), long-beaked common dolphin (*Delphinus capensis*), Fraser's dolphin (*Lagenodelphis hosei*), Risso's dolphin (*Grampus griseus*), melon-headed whale (*Peponocephala electra*), pygmy killer whale (*Feresa attenuata*), false killer whale (*Pseudorca crassidens*), killer whale (*Orcinus orca*), short-finned pilot whale (*Globicephala macrorhynchus*), humpback whale (*Megaptera novaeangliae*), minke whale (*Balaenoptera acutorostrata*), Bryde's whale (*Balaenoptera edeni*), sei whale (*Balaenoptera borealis*), fin whale (*Balaenoptera physalus*), and blue whale (*Balaenoptera musculus*). Additional information on most of these species is available at: [http://www.nmfs.noaa.gov/prot\\_res/PR2/Stock\\_Assessment\\_Program/sars.html](http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars.html).

### Potential Effects on Marine Mammals

A discussion on potential impacts on marine mammals was provided in the **Federal Register** notice 68 FR 60086 (October 21, 2003) and in the LDEO application.

### Mitigation

The following mitigation measures are required for the subject seismic surveys, provided that they do not compromise operational safety requirements: (1) Speed and course alteration; (2) power-down and shut-down procedures; (3) ramp-up procedures; and (4) marine mammal and sea turtle monitoring in the vicinity of the arrays through observers and passive acoustic monitoring. These mitigation measures are further described here.

These mitigation measures will incorporate use of the safety radii that have been established from the 2003 calibration study in the Gulf of Mexico. LDEO has modeled the sound pressure fields for the 20-gun array in relation to distance and direction from the airguns. The safety radii for 180 dB for water depths greater than 1000 m (3281 ft) is 900 m (2953 ft). For water depths between 100 and 1000 m (328 and 3281 ft), the safety radii is 1350 m (4429 ft). For water depths less than 100 m (328 ft), the safety radii are 3500 m (11483 ft).

The directional nature of the 20-gun array to be used in this project is also an important mitigating factor. The airguns comprising these arrays will be spread out horizontally, so that the energy from the arrays will be directed mostly downward, resulting in lower sound levels at any given horizontal distance than would be expected at that distance if the source were omnidirectional with the stated nominal source level. Because the actual seismic source is a distributed sound source (20 guns) rather than a single point source, the highest sound levels measurable at any location in the water will be less than the nominal source level.

### Speed and Course Alteration

If a marine mammal or sea turtle is detected outside the appropriate safety radius and, based on its position and the relative motion, is likely to enter the safety radius, the vessel's speed and/or direct course will be changed in a manner that also minimizes the effect to the planned science objectives. The marine mammal activities and movements relative to the seismic vessel will be closely monitored to ensure that the marine mammal does not approach within the safety radius. If the mammal appears likely to enter the safety radius,

further mitigative actions will be taken, i.e., either further course alterations or shutdown of the airguns.

### Power-down and Shut-down Procedures

Airgun operations will be powered-down (or shut-down) immediately when cetaceans or pinnipeds are seen within or about to enter the appropriate safety radius, based on the water depth. If a marine mammal is detected outside the safety radius but is likely to enter the safety radius, and if the vessel's course and/or speed cannot be changed to avoid having the marine mammal enter the safety radius, the airguns will be powered-down before the mammal is within the safety radius. Likewise, if a mammal is already within the safety zone when first detected, the airguns will be powered-down immediately. If a marine mammal is seen within the appropriate safety radius of the array while the guns are powered-down, airgun operations will be shut-down. For the power-down procedure for the 20-gun array, one 80 in3 airgun will continue to be operated during the interruption of seismic survey. Airgun activity (after both power-down and shut-down procedures) will not resume until any marine mammal has cleared the safety radius. The mammal has cleared the safety radius if it is visually observed to have left the safety radius, or if it has not been seen within the zone for 15 min (small odontocetes, pinnipeds) or a minimum of 30 min (mysticetes and large odontocetes, including sperm, pygmy sperm, dwarf sperm, beaked and bottlenose whales). These mitigation measures also apply in the case of sea turtles.

### Ramp-up Procedure

When airgun operations with the 20-gun array commence after a certain period (explained below) without airgun operations, the number of guns firing will be increased gradually, or "ramped up" (also described as a "soft start"). Operations will begin with the smallest gun in the array (80 in3) (0.0013 m<sup>3</sup>). Guns will be added in sequence such that the source level of the array will increase in steps not exceeding 6 dB per 5-min period over a total duration of approximately 25 minutes. Throughout the ramp-up procedure, the safety zone for the full 20-gun array will be monitored. Given the presence of the streamer and airgun array behind the vessel, the turning rate of the vessel with trailing streamer and array is no more than five degrees per minute, limiting the maneuverability of the vessel during operations, making the

ramp-up and power-down procedures a necessary mitigation measure.

The "ramp-up" procedure will be required under the following circumstances. Under normal operational conditions (vessel speed 4 knots, or 7.4 km/hr), a ramp-up would be required after a power-down or shut-down period lasting about 8 minutes or longer if the *Ewing* was towing the 20-gun array. At 4 knots, the source vessel would travel 900 m (2953 ft) during an 8-minute period. If the towing speed is reduced to 3 knots or less, as sometimes required when maneuvering in shallow water, ramp-up will be required after a "no shooting" period lasting 10 minutes or longer. At towing speeds not exceeding 3 knots, the source vessel would travel no more than 900 m (3117 ft) in 10 minutes. Based on the same calculation, a ramp-up procedure will be required after a 6 minute period if the speed of the source vessel is 5 knots.

Ramp-up will not occur if the safety radius has not been visible for at least 30 minutes prior to the start of operations in either daylight or nighttime. If the safety radius has not been visible for that 30-minute period (e.g., during darkness or fog), ramp-up will not commence unless at least one airgun has been firing continuously during the interruption of seismic activity.

### Marine Mammal Monitoring

LDEO must have at least three visual observers and two passive acoustic monitors on board the vessels, and at least two must be experienced marine mammal observers that NMFS approves. In addition, there will be 2 to 3 observers on the *Seward Johnson*, who will be assisted by science personnel from the OBS group and the bridge watch personnel. These observers will monitor marine mammals and sea turtles near the seismic source vessel during all daytime airgun operations and during any nighttime start-ups of the airguns. During daylight, vessel-based observers will watch for marine mammals and sea turtles near the seismic vessel during periods with shooting (including ramp-ups), and for 30 minutes prior to the planned start of airgun operations after an extended shut-down.

An observer must also be on watch part of the time, including the 30-minute periods preceding startup of the airguns and during ramp-ups. Use of multiple observers will increase the likelihood that marine mammals near the source vessel are detected. LDEO bridge personnel will also assist in detecting marine mammals and implementing mitigation requirements

whenever possible (they will be given instruction on how to do so), especially during ongoing operations at night when the designated observers are not on duty.

The observers will watch for marine mammals and sea turtles from the highest practical vantage point on the vessel, which is either the bridge or the flying bridge. On the bridge of the *Maurice Ewing*, the observer's eye level will be 11 m (36 ft) above sea level, allowing for good visibility within a 210 arc. If observers are stationed on the flying bridge, the eye level will be 14.4 m (47.2 ft) above sea level. The observer(s) will systematically scan the area around the vessel with Big Eyes binoculars, reticle binoculars (e.g., 7 X 50 Fujinon) and with the naked eye during the daytime. Laser range-finding binoculars (Leica L.F. 1200 laser rangefinder or equivalent) will be available to assist with distance estimation. The observers will be used to determine when a marine mammal or sea turtle is in or near the safety radii so that the required mitigation measures, such as course alternation and power-down or shut-down, can be implemented. If the airguns are powered or shut down, observers will maintain watch to determine when the animal is outside the safety radius.

Observers will not be on duty during ongoing seismic operations at night; bridge personnel will watch for marine mammals during this time and will call

for the airguns to be powered-down if marine mammals are observed in or about to enter the safety radii. If the airguns are ramped-up at night, two marine mammal observers will monitor for marine mammals for 30 minutes prior to ramp-up and during the ramp-up using night vision equipment that will be available (ITT F500 Series Generation 3 binocular image intensifier or equivalent). All observer activity will be assisted by the passive acoustic monitoring system where its use is feasible.

Additional personnel will be on land deploying the land instrumentation and will monitor the beaches in the vicinity. Some of the beaches in western Venezuela are not easily accessible, but the observers have agreed to monitor the beaches to the best of their abilities.

#### **Reporting**

A report will be submitted to NMFS within 90 days after the end of the cruise. The end of the Caribbean cruise is predicted to occur on approximately May 28, 2004. The report will describe the operations that were conducted and the marine mammals that were detected. The report will be submitted to NMFS, providing full documentation of methods, results, and interpretation pertaining to all monitoring tasks. The 90-day report will summarize the dates and locations of seismic operations, marine mammal sightings (dates, times, locations, activities, associated seismic

survey activities), and estimates of the amount and nature of potential take of marine mammals by harassment or in other ways.

#### *Estimates of Take by Harassment for the Southeast Caribbean Sea Cruise*

All anticipated takes by harassment involve a temporary change in behavior. The mitigation measures to be applied will minimize the possibility of injurious takes. LDEO has calculated the "best estimates" for the numbers of animals that could be taken by level B harassment during the proposed seismic survey in the SE Caribbean Sea using data on marine mammal abundance from a previous survey region.

The "best" estimate of numbers of marine mammals that might be "taken" by disturbance during LDEO's proposed seismic survey with a 20-gun array in the SE Caribbean Sea is shown in the table below. Any marine mammal that is exposed to sound intensity  $\leq 160$  dB re 1 micro-pa is assumed to be "taken" due to possible changes in behavior. Not all marine mammals will change their behavior when exposed to these sound levels, particularly odontocetes, and some may alter their behavior when levels are lower. Also, the densities assumed in this table might be considerably higher or considerably lower at the time of the proposed activity than the densities recorded during past surveys.

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| Species or species group    | Density Corrected for $f(0)$ and $g(0)$ (number/1000 km <sup>2</sup> ) | Best Estimate   |         |
|-----------------------------|--|---|---------|
|                             |  | Best Estimate Number and Percent of North Atlantic Population that Might Be Exposed to Sound Levels >160 dB (>170 dB) |         |
|                             |  | Number  | Percent |
| <u>Odontocetes</u>          |  |   |         |
| <u>Physeteridae</u>         |  |   |         |
| Sperm whale                 | 0.63   | 59  | 0.4     |
| Pygmy sperm whale           | 0.02   | 0   | 0       |
| Dwarf sperm whale           | 0.02   | 0   | 0       |
| <u>Ziphiidae</u>            |  |   |         |
| Cuvier's beaked whale       | 0  | 0   | 0       |
| Gervais beaked whale        | 0  | 0   | 0       |
| Blainville's beaked whale   | 0  | 0   | 0       |
| <u>Delphinidae</u>          |  |   |         |
| Rough-toothed dolphin       | 10.52  | 972 (521)   | N.A.    |
| Tucuxi                      | 0  | 0 (0)   | 0       |
| Bottlenose dolphin          | 26.95  | 2491(1335)  | 5.0     |
| Pantropical spotted dolphin | 6.85   | 633 (339)   | 4.8     |
| Atlantic spotted dolphin    | 16.61  | 1335 (823)  | 2.9     |
| Spinner dolphin             | 0.78   | 72 (39)   | N.A.    |
| Clymene dolphin             | 0.78   | 72 (39)   | 1.3     |
| Striped dolphin             | 0.78   | 72 (39)   | 0.1     |
| Long-beaked common dolphin  | 30.04  | 2776(1488)  | 2.1     |
| Fraser's dolphin            | 0.49   | 45 (24)   | N.A.    |
| Risso's dolphin             | 0.49   | 45 (24)   | 0.2     |
| Melon-headed whale          | 0.49   | 45 (24)   | 1.1     |
| Pygmy killer whale          | 0.49   | 45 (24)   | N.A.    |
| False killer whale          | 0.49   | 45 (24)   | N.A.    |
| Killer whale                | 0.49   | 45 (24)   | 0.7     |
| Short-finned pilot whale    | 0.49   | 45 (24)   | 0       |
| <u>Mysticetes</u>           |  |   |         |
| Humpback whale              | 4.57   | 8   | 0       |
| Minke whale                 | 0.04   | 4   | 0       |
| Bryde's whale               | 1.95   | 181   | N.A.    |
| Sei whale                   | 0.04   | 4   | 0.08    |
| Fin whale                   | 0.27   | 25  | 0.1     |
| Blue whale                  | 0.04   | 4   | 1.2     |

Note: N.A. means that data are not available.

## Conclusions

### *Effects on Cetaceans*

Strong avoidance reactions by several species of mysticetes to seismic vessels have been observed at ranges up to 8 km (4.3 NM) and occasionally as far as 30 km (16.2 nm) from the source vessel. Some bowhead whales avoided waters within 30 km (16.2 nm) of the seismic operation. However, reactions at such long distances appear to be atypical of other species of mysticetes and, even for bowheads, may only apply during migration in Arctic waters.

Odontocetes reactions to seismic pulses, or at least those of dolphins, are expected to extend to lesser distances than are those of mysticetes.

Odontocetes low-frequency hearing is less sensitive than that of mysticetes, and dolphins are often seen from seismic vessels. There are documented instances of dolphins approaching active seismic vessels. However, dolphins as well as some other types of odontocetes sometimes show avoidance responses and/or other changes in behavior when near operating seismic vessels.

Taking account of the mitigation measures that are planned, effects on cetaceans are generally expected to be limited to avoidance of the area around the seismic operation and short-term changes in behavior, falling within the MMPA definition of "Level B harassment." In the cases of mysticetes, these reactions are expected to involve small numbers of individual cetaceans. The "best estimate" is that 8 humpback whales, which is slightly greater than 0 percent of the North and South Atlantic populations, will be exposed to sound levels greater than or equal to 160 dB re 1 micro-pa (RMS). Achieved and Smultea (1995) provide evidence that the North and South Atlantic populations overlap in their wintering areas. Similarly, 59 sperm whales, or approximately 0.4 percent of the North Atlantic sperm whale population, would receive seismic sounds greater than or equal to 160 dB during the proposed survey in the SE Caribbean Sea.

The numbers of odontocetes that may be harassed by the proposed activities are small relative to their respective population sizes. A maximum of 2776, 2491, 1535, 972, and 633 common, bottlenose, Atlantic spotted, rough toothed, and pantropical spotted dolphins, respectively (the most abundant delphinids in the proposed survey area) are expected to be exposed to seismic sounds greater than or equal to 160 dB. This represents 2.1 to 5.0 percent of the North Atlantic

populations of these species based on population estimates for these species. However, surveys have not been conducted for these species of dolphins for most of their range in the North Atlantic Ocean and adjacent waters. The true percentages of the populations that might be exposed to seismic sounds greater than or equal to 160 dB are much less than 2.1 to 5.0 percent. The population sizes and the 2.1 to 5.0 percent are based on a small fraction of their range and their actual population sizes are actually much larger. In light of all of these factors, the potential takings by Level B harassment are expected to have no more than a negligible impact on the affected species or stocks.

### Determinations

NMFS has determined that the impact of conducting the seismic survey in the Southeast Caribbean Sea and adjacent Atlantic Ocean, off the coast of Venezuela, will result, at worst, in a temporary modification in behavior by certain species of marine mammals. This activity is expected to result in no more than a negligible impact on the affected species or stocks.

While the numbers of potential incidental harassment takes depend on the distribution and abundance of marine mammals in the vicinity of the survey activity, the numbers are estimated to be small. In addition, no take by injury and/or death is anticipated, and the potential for temporary or permanent hearing impairment is low and will be avoided through the incorporation of the mitigation measures mentioned in this document. In addition, the proposed seismic program is not expected to interfere with any subsistence hunts, since operations in the whaling and sealing areas either do not occur or are limited in nature and scope.

### Endangered Species Act (ESA)

Under section 7 of the ESA, NMFS has completed a biological opinion on the effects of the seismic survey on ESA-listed species and critical habitat. NMFS concluded that these activities are not likely to jeopardize the continued existence of these species.

### National Environmental Policy Act (NEPA)

On September 11, 2003, the NSF made a determination, based on information contained within its EA that implementation of the subject action is not a major Federal action having significant effects on the environment within the meaning of Executive Order 12114. NSF

determined, therefore, that an environmental impact statement would not be prepared. On October 21, 2003 (68 FR 60086), NMFS noted that the NSF had prepared an EA for the SE Caribbean surveys and that this EA was available upon request. In accordance with NOAA Administrative Order 216-6 (Environmental Review Procedures for Implementing the National Environmental Policy Act, May 20, 1999), NMFS has reviewed the information contained in NSF's EA and determined that the NSF EA accurately and completely describes the proposed action alternative, reasonable additional alternatives, and the potential impacts on marine mammals, endangered species, and other marine life that could be impacted by the preferred alternative and the other alternatives. Therefore, based on this review and analysis, NMFS is adopting the NSF EA under 40 CFR 1506.3 in addition to the supplemental EA, and has issued a Finding of No Significant Impact (FONSI). The FONSI also takes into consideration additional mitigation measures in the IHA that are not in NSF's EA. A copy of the NSF EA and the NMFS FONSI for this activity are available upon request (see ADDRESSES).

### Authorization

NMFS has issued an IHA to take small numbers of marine mammals, by harassment, incidental to conducting a seismic surveys in the Southeast Caribbean Sea and adjacent Atlantic Ocean, off the coast of Venezuela to LDEO for a 1-year period, provided the mitigation, monitoring, and reporting requirements are undertaken.

Dated: April 26, 2004.

### Stephen L. Leathery,

*Acting Director, Office of Protected Resources, National Marine Fisheries Service.*

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## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

[I.D. 042604E]

### Pacific Fishery Management Council; Public Meeting

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice of a public meeting.

**SUMMARY:** The Pacific Fishery Management Council's (Council) Coastal