

refinanced and, therefore, the Department correctly used uncreditworthy benchmark rates for these loans after the refinancing date. Hynix further alleged that the Department used long-term benchmark rates in the benefit calculations for three short-term loans, which were refinanced for an additional year. Micron claimed that this allegation is methodological, not ministerial, and should be rejected. Hynix then alleged that the Department erroneously included interest payments that accrued outside of the POI in its benefit calculations. Micron argued that this does not constitute a ministerial error because it is solely related to the methodology used by the Department. Hynix also alleged that the Department attributed the wrong percentage of KDB Fast Track bonds to Hynix' creditors because of debt conversions that occurred in June and December, 2001. Micron claimed that this allegation

constitutes a methodological error allegation and, therefore, should be rejected by the Department. Finally, Hynix alleged that the Department failed to include the second of two interest payments that were made for the same bond but were reported separately. Micron stated that there is no evidence on the record linking the alleged second payment to the bonds identified by Hynix and, therefore, the Department must reject this allegation.

After analyzing the submissions, we have determined, in accordance with section 705(e) of the Act and 19 CFR 351.224, that we made the following ministerial errors in the margin calculations for Hynix: 1) For certain loans, we did not use the correct benchmark for financing obtained prior to the period during which we found Hynix to be uncreditworthy; 2) We incorrectly used a long-term benchmark interest rate for one loan that was

refinanced for one year; 3) For KDB Fast Track bonds, we incorrectly calculated the percentage of these bonds held by Hynix' creditors after June 2001, and December 2001. For a detailed discussion of the ministerial error allegations and the Department's analysis, see the July 21, 2003 memorandum from Team to Laurie Parkhill, Acting Deputy Assistant Secretary entitled *Ministerial Error Allegations for the Final Determination*, which is on file in the Department's Central Records Unit in Room B-099 of the main Department building.

Therefore, we are amending the final determination for the countervailing duty investigation of dynamic random access memory semiconductors from the Republic of Korea to reflect the corrections of the above-noted ministerial errors. The revised total estimated net subsidy rate for each company is as follows:

Producer/Exporter	Net Subsidy Rate
Samsung Electronics Co., Ltd.	0.04 percent (de minimis) (unchanged from the Final Determination)
Hynix Semiconductor Inc. (formerly, Hyundai Electronics Industries Co., Ltd.)	44.29 percent
All Others	44.29 percent

Suspension of Liquidation

In accordance with section 705(c)(1)(B) of the Act, we are directing Customs to continue suspending liquidation on all imports of subject merchandise from the Republic of Korea, except for imports of subject merchandise from Samsung Electronics Co., Ltd., that are entered, or withdrawn from warehouse, for consumption on or after the date of publication of this notice in the **Federal Register**. Customs shall require a cash deposit or the posting of a bond equal to the margin/subsidy rates indicated in the chart above. These suspension of liquidation instructions will remain in effect until further notice.

We will issue a countervailing duty order if the International Trade Commission ("ITC") issues a final affirmative injury determination. If the ITC determines that material injury, or threat of material injury, does not exist, this proceeding will be terminated and all estimated duties deposited or securities posted as a result of the suspension of liquidation will be refunded or canceled.

ITC Notification

In accordance with section 705(d) of the Act, we will notify the ITC of our amended final determination.

This determination is published pursuant to sections 705(d) and 777(i) of the Act.

Dated: July 21, 2003.

Joseph A. Spetrini,

*Acting Assistant Secretary for Grant Aldonas,
Under Secretary.*

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 052803A]

Small Takes of Marine Mammals Incidental to Specified Activities; Oceanographic Surveys at the Storegga Slide, Norwegian Sea

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

ACTION: Notice of receipt of application and proposed incidental take authorization; request for comments.

SUMMARY: NMFS has received an application from the Lamont-Doherty Earth Observatory (LDEO) for an Incidental Harassment Authorization (IHA) to take small numbers of marine mammals, by harassment, incidental to

conducting oceanographic surveys at the Storegga slide off the west coast of Norway in the Norwegian Sea. Under the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an authorization to LDEO to incidentally take, by harassment, small numbers of several species of cetaceans and pinnipeds for a limited period of time within the next year.

DATES: Comments and information must be received no later than August 27, 2003.

ADDRESSES: Comments on the application should be addressed to Chief, Marine Mammal Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 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. Comments cannot be accepted if submitted via e-mail or the Internet.

FOR FURTHER INFORMATION CONTACT: Sarah C. Hagedorn, Office of Protected Resources, NMFS, (301) 713-2322, ext 117.

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."

Subsection 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).

Subsection 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 April 21, 2003, NMFS received an application from LDEO for the taking,

by harassment, of several species of marine mammals incidental to conducting a seismic survey program within the Storegga slide area off the west coast of Norway, in the Norwegian Sea, between 8°W. and 7°E. and between 62 and 68°N. during late August and September 2003. The Storegga slide was produced by colossal slope failures on the Norwegian continental margin in the late Quaternary period. The purpose of this survey is to determine whether submarine landslides can release methane from hydrate into the oceans and/or atmosphere. More specifically, the survey of the Storegga slide seeks to discover: (1) how much hydrate and free gas is present in the Storegga region and how it is distributed, (2) if methane escaped from the slide, and if so, how much, when and by what mechanisms, and (3) if hydrate dissociation promotes and/or localizes submarine landslides. A coordinated seismic and coring study of the Storegga slide is proposed to obtain information on these subjects (the coring portion of the project will be completed in 2004). This study will help explain whether methane in gas hydrate reservoirs is mobile and can affect the earth's climate.

Description of the Activity

The seismic survey will involve a single vessel, the *R/V Maurice Ewing*, which will conduct the seismic work. The *Maurice Ewing* will deploy an array of airguns as an energy source, plus a 6-km (3.2-nm) towed streamer containing hydrophones to receive the returning acoustic signals.

All planned geophysical data acquisition activities will be conducted by LDEO scientists, with the participation of scientists from the University of Wyoming. Water depths within the Storegga slide survey area will range from approximately 100 to 5,000 m (330 to 16,405 ft). The *Maurice Ewing* will initially deploy a 2-GI gun array for several survey lines, and then a 6-airgun array will be employed for several survey lines. Whichever array produces better data will be used for the rest of the cruise. The project will consist of 3,109 km (1,678 n.mi) of survey lines, of which approximately 2,596 km (1,402 n.mi) will be conducted in water depths greater than 1,000 m (3,280 ft.), 504 km (272 n.mi) will be surveyed in depths 100–1000 m (330–3,280 ft.), and 9 km (4.9 n.mi) will be surveyed in water less than 100 m (330 ft.) deep. There will be additional operations associated with equipment testing, startup, line changes, and repeat coverage of any areas where initial data quality is sub-standard.

The procedures to be used for the 2003 seismic survey will be similar to those used during previous seismic surveys by LDEO, e.g., in the equatorial Pacific Ocean (Carbotte *et al.*, 1998, 2000). The proposed program will use conventional seismic methodology with a towed airgun array as the energy source and a towed streamer containing hydrophones as the receiver system. The energy to the airgun array is compressed air supplied by compressors on board the source vessel. In addition, a multi-beam 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. Seismic surveys will likely commence on August 28, 2003, and continue until September 25, 2003, for a total of 29 days of seismic surveying.

The *R/V Maurice Ewing* will be used as the source vessel. It will tow the airgun array (either the 2-GI gun or 6-gun array) and a streamer containing hydrophones along predetermined lines. The vessel will travel at 4–5 knots (7.4–9.3 km/hr), and seismic pulses will be emitted at intervals of approximately 20 seconds. The 20-sec spacing corresponds to a shot interval of about 50 m (164 ft). The 6-gun array will include six 2000 psi 1500C Bolt airguns ranging in chamber volume from 80 to 500 in³, with a total volume of 1,350 in³. These airguns will be spaced in an approximate rectangle with dimensions 12 m (39.4 ft)(across track) by 10 m (32.8 ft)(along track). The two 105 in³ GI guns will be towed 7.8 m (25.6 ft) apart side by side and 37 m (121.4 ft) behind the vessel, with a total volume of 210 in³.

The dominant frequency components for both airgun arrays is 0–188 Hz. The 2-airgun array will have a peak sound source level of 237 dB re 1 μ Pa or 243 dB peak-to-peak (P-P). The 6-airgun array will have a peak sound source level of 243 dB re 1 μ Pa or 250 dB P-P. These are the nominal source levels for the sound directed downward, and represent the theoretical source level close to a single point source emitting the same sound as that emitted by the array of 2 or 6 sources. Because the actual source is a distributed sound source (2 or 6 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. Also, because of the downward directional nature of the sound from these airgun arrays, the effective source level for sound propagating in near-horizontal directions will be substantially lower.

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 multi-beam 15.5-kHz bathymetric sonar, and a 3.5-kHz sub-bottom profiler will also be operated along with the multi-beam sonar. These mid-frequency sound sources are commonly operated from the *Maurice Ewing* simultaneous with the airgun array.

The Atlas Hydrosweep is mounted in the hull of the *R/V Maurice Ewing*, and it operates in three modes, depending on the water depth. The first mode is when water depth is <400 (1312.3 ft). The source output is 210 dB re 1 μ 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 in beamwidth. The beamwidth is measured to the 3 dB point, as is usually quoted for sonars. The other two modes are deep-water modes: The Omni mode is identical to the shallow-water mode except that the source output is 220 dB rms. The Omni mode is normally used only during start up. The Rotational Directional Transmission (RDT) mode is normally used during deep-water operation and has a 237 dB rms source output. In the RDT mode, each "ping" consists of five successive transmissions, each ensonifying a beam that extends 2.67 degrees fore-aft and approximately 30 degrees in the cross-track direction. The five successive transmissions (segments) sweep from port to starboard with minor overlap, spanning an overall cross-track angular extent of about 140 degrees, with tiny (<1 millisecond) gaps between the pulses for successive 30-degree segments. The total duration of the "ping", including all 5 successive segments, varies with water depth but is 1 millisecond in water depths <500 m (1640.4 ft) and 10 millisecond in the deepest water.

The sub-bottom profiler is normally operated to provide information about the sedimentary features and 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. Sounds from the sub-bottom profiler are very short pulses, occurring for 1, 2 or 4 msec once every second. Pulse interval is 1 second but a common mode of operation is to broadcast five pulses at 1-s intervals followed by a 5-s pause. Most of the energy in the sound pulses emitted by this multi-beam sonar is at mid-frequencies, centered at 3.5 kHz. The beamwidth is approximately 30° and is directed downward.

Sound levels have not been measured for the sub-bottom profiler used by the *Maurice Ewing*, but Burgess and Lawson (2000) measured the sounds propagating more or less horizontally from a similar unit with similar source output (205 dB re 1 μ Pa-m). The 160 and 180 dB re 1 μ Pa (rms) radii, in the horizontal direction, were estimated to be near 20 m (66 ft) and 8 m (26 ft), respectively, from the source, as measured in 13 m (43 ft) water depth. The corresponding distances for an animal in the beam below the transducer would be greater, on the order of 180 m (591 ft) and 18 m (59 ft), assuming spherical spreading.

The sub-bottom profiler on the *Maurice Ewing* has a maximum source level of 204 dB re 1 μ Pa-m. Thus the received level would be expected to decrease to 160 and 180 dB at about 160 m (525 ft) and 16 m (52 ft) below the transducer, respectively (assuming spherical spreading). Corresponding distances in the horizontal plane would be lower, given the directionality of this source (30° beamwidth) and the measurements of Burgess and Lawson (2000). Additional information on the airgun arrays, Atlas Hydrosweep, and sub-bottom profiler specifications is contained in the application, which is available upon request (see ADDRESSES).

Description of Habitat and Marine Mammals Affected by the Activity

A detailed description of the Norwegian Sea and its associated

marine mammals can be found in a number of documents referenced in the LDEO application and is not repeated here. Approximately 24 species of cetaceans and seven species of pinnipeds may be found within the area of the Storegga slide. These species are the sperm whale (*Physeter macrocephalus*), Cuvier's beaked whale (*Ziphius cavirostris*), northern bottlenose whale (*Hyperoodon ampullatus*), Sowerby's beaked whale (*Mesoplodon bidens*), Blainville's beaked whale (*Mesoplodon densirostris*), beluga whale (*Delphinapterus leucas*), narwhal (*Monodon monoceros*), bottlenose dolphin (*Tursiops truncatus*), striped dolphin (*Stenella coeruleoalba*), short-beaked common dolphin (*Delphinus delphis*), white-beaked dolphin (*Lagenorhynchus albirostris*), Atlantic white-sided dolphin (*Lagenorhynchus acutus*), Risso's dolphin (*Grampus griseus*), false killer whale (*Pseudorca crassidens*), killer whale (*Orcinus orca*), long-finned pilot whale (*Globicephala melas*), harbor porpoise (*Phocoena phocoena*), North Atlantic right whale (*Eubalaena glacialis*), bowhead whale (*Balaena mysticetus*), humpback whale (*Megaptera novaeangliae*), minke whale (*Balaenoptera acutorostrata*), sei whale (*Balaenoptera borealis*), fin whale (*Balaenoptera physalus*), blue whale (*Balaenoptera musculus*), walrus (*Odobenus rosmarus*), bearded seal (*Erignathus barbatus*), hooded seal (*Cystophora cristata*), harbor seal (*Phoca vitulina*), ringed seal (*Pusa hispida*), grey seal (*Halichoerus grypus*), and the harp seal (*Pagophilus groenlandicus*). Additional information on most of these species is contained in Caretta *et al.* (2001, 2002) which is available at: http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars.html.

Potential Effects on Marine Mammals

With 2-GI gun and 6-gun arrays, the distances at which seismic pulses are expected to diminish to received levels of 190, 180, 170 dB and 160 dB re 1 μ Pa, on an rms basis, are as follows:

Airgun Array	RMS Radii (m/ft)			
	190 dB	180 dB	170 dB	160 dB
2 GI guns	15/49	50/164	155/509	520/1706
6 airguns	50/164	220/722	700/2297	2700/8859

An earlier notice of a (LDEO) application and proposed IHA was published in the **Federal Register** on

April 14, 2003 (68 FR 17909). That notice described, in detail, the characteristics of the *Ewing's* acoustic

sources and, in general, the anticipated effects on marine mammals including masking, disturbance, and potential

hearing impairment and other physical effects. That information is not repeated here. However, possible effects of the sub-bottom profiler, which was not used in the project described in that notice, are described below. The LDEO application also provides information on what is known about the effects on marine mammals of the types of seismic operations planned by LDEO.

Masking by Sub-bottom Profiler Signals

There is little chance that marine mammal communications will be masked appreciably by the sub-bottom profiler signals given its relatively low power output, the low duty cycle, directionality, and the brief period when an individual mammal is likely to be within its beam. Furthermore, in the case of baleen whales, the sonar signals do not overlap with the predominant frequencies in the calls, which would avoid significant masking.

Behavioral Responses Resulting from Sub-bottom Profiler Signals

Marine mammal behavioral reactions to pulsed sound sources and responses to the sub-bottom profiler are likely to be similar to those of other pulsed sources at the same received levels. However, the pulsed signals from the sub-bottom profiler are much weaker than those from the airgun array and the multi-beam sonar. Therefore behavioral responses rising to Level B harassment are not expected unless marine mammals are very close to the source, e.g. within about 160 m (525 ft) below the vessel, or a lesser distance to the side. Because simple momentary behavioral reactions that are within normal behavioral patterns for that species are not considered to be a taking, the very brief exposure of cetaceans to small numbers of signals from the sub-bottom profiler is unlikely to result in a "take" by harassment.

Hearing Impairment and Other Physical Effects

Source levels of the sub-bottom profiler are much lower than those of the airguns and the multi-beam sonar that will be used during the planned project. Furthermore, received levels of pulsed sounds that are necessary to cause temporary or permanent hearing impairment in marine mammals appear to be higher than 180 dB. Thus, it is unlikely that the sub-bottom profiler produces pulse levels strong enough to cause hearing impairment or other physical injuries even in an animal that is briefly in a position immediately adjacent to the source.

Furthermore, the sub-bottom profiler is usually operated simultaneously with

other higher-power acoustic sources. Many marine mammals will move away in response to the approaching higher-power sources before the mammals would be close enough to be affected by the less intense sounds from the sub-bottom profiler. In the event that mammals do not avoid the approaching vessel and its various sound sources, mitigation measures that would be applied to minimize effects of the higher-power sources (discussed later in this document) would further reduce or eliminate any minor effects of the sub-bottom profiler.

Estimates of Take by Harassment for the Norwegian Sea Cruise

The estimates of takes by harassment are based on the number of marine mammals that might be found within the 160 dB isopleth radius and potentially disturbed by operations with the 6-airgun array planned for the project. If the 2-GI gun array is used for all or part of the survey, the numbers of marine mammals that might be affected by the proposed seismic survey would be lower than the estimates described below. If only the 2-GI gun array is used, the numbers of animals that would encounter airgun sounds ≥ 160 dB re 1 (rms) would be about one-fifth of the number if only the 6-gun array were used.

Based on summer marine mammal density survey data collected by Sigurjonsson and Gunnlaugsson (1989), LDEO used its best estimate of density to compute a best estimate of the number of marine mammals that may be exposed to seismic sounds ≥ 160 dB re 1 μ Pa (rms) (NMFS' current criterion for onset of Level B harassment), except for bottlenose whales. Northern bottlenose whales are migratory and most leave the proposed seismic survey area before the end of June (Benjaminsen 1972; Sigurjonsson and Gunnlaugsson 1990). Therefore, only a few, if any, bottlenose whales may be seen during the seismic survey in the study area during late August to September. For bottlenose whales, LDEO used 0.10x the observed average or maximum density to calculate the numbers that might be exposed to seismic sounds, but even this reduced number is likely a high estimate. For all other species, the average densities were multiplied by the proposed survey effort (3109 km or 1678 n.mi) and twice the 160-dB safety radius around the 6-gun array to estimate the "best estimate" of the numbers of animals that might be exposed to sound levels ≥ 160 dB re 1 μ Pa (rms) during the proposed seismic survey program.

Based on this method, Table 3 in LDEO (2003) gives the best estimates of densities for each species or species group of marine mammal that might be exposed to received levels ≥ 160 dB re 1 μ Pa (rms), and thus potentially taken by Level B harassment, during seismic surveys in the proposed study area of the Norwegian Sea. Of these, 86 animals would be endangered species, primarily fin (42), humpback (22), and sperm whales (18). Delphinidae would account for 75 percent of the overall estimate for potential taking by harassment, with white-beaked dolphins (298) believed to account for about 90 percent of all delphinids in the area of the proposed seismic survey, and with killer whales (137) and long-finned pilot whales (302) accounting for most of the remaining 10 percent. However, part or all of the survey could be conducted with 2-GI guns. The 160-dB radius for the 2-GI gun array is 520 m (1706 ft) or 19 percent of that of the 6-gun array. Thus, if all surveys were conducted with the 2 GI guns, best estimates of the numbers of animals that would be exposed to seismic sounds ≥ 160 dB would be much less.

As described previously (68 FR 17909), animals subjected to sound levels ≥ 160 dB may alter their behavior or distribution, and therefore might be considered to be taken by Level B harassment. However, the 160 dB criterion is based on studies of baleen whales. Odontocete hearing at low frequencies is relatively insensitive, and dolphins and harbor porpoises generally appear to be more tolerant of strong sounds than are most baleen whales. Delphinidae have their best hearing in the higher frequencies and are unlikely to be as sensitive as the mysticete whales to the low frequency of the airgun array. Therefore, they are less likely to experience Level B harassment at 160 dB. A more likely threshold for onset of Level B harassment in response to seismic sounds is at about 170 dB.

Conclusions-Effects on Cetaceans

Strong avoidance reactions by several species of mysticetes to seismic vessels have been observed at ranges up to 6 to 8 km (3.2 to 4.3 nm) and occasionally as far as 20–30 km (10.8–16.2 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.

Odontocete reactions to seismic pulses, or at least those of dolphins, are expected to extend to lesser distances

than are those of mysticetes. Odontocete low-frequency hearing is less sensitive than that of mysticetes, and dolphins are often seen from seismic vessels. In fact, 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 because few mysticetes occur in the area where seismic surveys are proposed. LDEO's best estimate is that 42 fin whales, or 0.5 percent of the estimated fin whale population in and adjacent to the study area, will be exposed to sound levels ≥ 160 dB re 1 μ Pa (rms) and potentially affected. Similarly, 22 humpback whales, or 0.8 percent, and 18 sperm whales, or 0.2 percent of their populations that occur in and adjacent to the proposed survey area, would receive seismic sounds ≥ 160 dB. Therefore, these potential takings by Level B harassment will have a negligible impact on their populations. Numbers and impact would be even smaller if the 2-GI gun array is used for a substantial fraction of the survey project.

Larger numbers of odontocetes may be affected by the proposed activities, but the populations sizes of the main species are large and the numbers potentially affected are small relative to the population sizes. The best estimate of the total number of odontocetes that might be exposed to ≥ 160 dB re 1 μ Pa (rms) in the proposed survey area in the Norwegian Sea is 878. Of these, 770 are Delphinidae, and of these about 200 might be exposed to ≥ 170 dB. These figures are <0.1 percent of the populations of these combined species that occur in the Northeast Atlantic, and the 200 value is believed to be a more accurate estimate of the number potentially affected.

Mitigation measures such as controlled speed, look-outs, non-pursuit, ramp-ups, avoidance of start-ups during periods of darkness when possible, and shut-down when within defined ranges (See Mitigation) should further reduce short-term reactions to disturbance, and minimize any effects on hearing sensitivity.

Conclusions-effects on Pinnipeds

Very few if any pinnipeds are expected to be encountered during the proposed seismic survey in the Norwegian Sea. A maximum of 70 pinnipeds in the Storegga slide area may be affected by the proposed seismic surveys. If pinnipeds are encountered, the proposed seismic activities would have, at most, a short-term effect on their behavior and no long-term impacts on individual seals or their populations. Responses of pinnipeds to acoustic disturbance are variable, but usually quite limited. Effects are expected to be limited to short-term and localized behavioral changes falling within the MMPA definition of Level B harassment.

Mitigation

For the proposed seismic operations in the Storegga slide area in 2003, LDEO will use 2 GI guns with a total volume of 210 in³ and/or a 6-gun array with a total volume of 1350 in³. The airguns comprising these arrays will be spread out horizontally, so that the energy from the arrays will be directed mostly downward.

Modeled results for the 2- and 6-gun arrays indicate received levels to the 180-dB re 1 μ Pa (rms) isopleth (the level for the potential for Level A harassment applicable to cetaceans) were estimated as 50 and 220 m (164 and 722 ft), respectively. The radii around the 2- and 6-gun arrays where the received level would be 190 dB re 1 μ Pa (rms), (the level for the potential for Level A harassment applicable to pinnipeds), were estimated as 15 and 50 m (49 and 164 ft), respectively. Results from a calibration study that occurred in late the spring of 2003 in the Gulf of Mexico will determine the actual radii corresponding to each sound level. If the modeled radii have not been verified by the time of the Storegga slide surveys, LDEO proposes to use 1.5 times the 180- (cetaceans) and 190- (pinnipeds) dB radii predicted by the model as the safety radii until the radii have been verified. Thus, during the Storegga slide cruise the proposed safety radii for cetaceans are 75 and 330 m (246 and 1,083 ft), respectively, for the 2-GI gun and 6-gun arrays, and the proposed safety radii for pinnipeds are 23 and 75 m (75 and 246 ft), respectively.

Vessel-based observers will monitor marine mammals in the vicinity of the arrays. LDEO proposes to shut down the seismic source if marine mammals are observed within the proposed safety radii. Also, LDEO proposes to use a ramp-up procedure when commencing

operations using the 6-gun array. Ramp-up will begin with the smallest gun in the array (80 in³), and guns will be added in a sequence such that the source level of the array will increase at a rate no greater than 6 dB per 5-minute period over a total duration of about 14 minutes. Ramp-up will not occur for the 2-GI gun array because the total air discharge volume is small (210 in³). Please refer to LDEO's application for more detailed information about the mitigation measures that are an integral part of the planned activity.

Operational Mitigation

The directional nature of the 6-airgun array to be used in this project is an important mitigating factor, 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 (2 or 6 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.

Marine Mammal Monitoring

Up to three vessel-based observers will be stationed on the *R/V Maurice Ewing* during seismic operations in the Storegga slide area. Vessel-based observers will monitor for marine mammals near the seismic source vessel for at least 30 minutes prior to and during all daylight ramp-up and airgun operations, and during any nighttime startups of the airguns. Airgun operations will be suspended when marine mammals are observed within, or about to enter, designated safety zones, where there is a possibility of Level A harassment. Observers will not be on duty during ongoing seismic operations at night; bridge personnel will watch for marine mammals during this period and will call for the airguns to be shut down if marine mammals are observed in or about to enter the safety radii. A marine mammal observer will be on "standby" at night, in case bridge personnel see a marine mammal. An image-intensifier night-vision device (NVD) will be available for use at night, although past experience has shown that NVDs are of limited value for this purpose. If the airguns are started up at night, two marine mammal observers will monitor for marine mammals near the source vessel for 30 minutes prior to start up using night-vision devices. The 30-minute observation period is only required prior to commencing seismic operations following an extended shut down period.

The *R/V Maurice Ewing* is a suitable platform for marine mammal observations. The observer's eye level will be approximately 11 m (36 ft) above sea level when stationed on the bridge (the highest practical vantage point on the vessel), allowing for good visibility within a 210° arc for each observer. The proposed monitoring plan is summarized later in this document.

Proposed Safety Radii

Received sound levels have been modeled for the 2-GI guns and the 6-airgun arrays. Based on the modeling, estimates of the 190-, 180-, 170-, and 160-dB re 1 μ Pa (rms) distances (safety radii) for these arrays have been provided previously in this document.

Airgun operations will be suspended immediately when cetaceans are seen within or about to enter the appropriate 180-dB (rms) radius, or if pinnipeds are seen within or about to enter the 190-dB (rms) radius. These 180- and 190-dB criteria are consistent with guidelines listed for cetaceans and pinnipeds by NMFS (2000) and other guidance by NMFS.

Mitigation During Operations

The following mitigation measures, as well as marine mammal monitoring, will be adopted during the proposed Storegga slide seismic survey program and the acoustic verification program, provided that doing so will not compromise operational safety requirements: (1) Course alteration; and (2) Shut-down procedures; and (3) Ramp-up procedures.

Course Alteration

If a marine mammal is detected outside the safety radius and, based on its position and the relative motion, is likely to enter the safety radius, alternative ship tracks will be plotted against anticipated mammal locations. The vessel's direct course and/or speed 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.

Shutdown Procedures

Vessel-based observers will monitor marine mammals near the seismic vessel during daylight and for at least 30 minutes prior to start up during darkness throughout the program. Airgun operations will be suspended

immediately when marine mammals are observed within, or about to enter, designated safety zones. The shutdown procedure should be accomplished within several seconds or one shot period of the determination that a marine mammal is within or about to enter the safety zone. Airgun operations will not resume until the marine mammal is outside the safety radius. Once the safety zone is clear of marine mammals, the observer will advise that seismic surveys can re-commence. The "ramp-up" procedure will then be followed.

Ramp-up Procedure

A "ramp-up" procedure will be followed when the airgun arrays begin operating after a specified-duration period without airgun operations. Under normal operational conditions (vessel speed 4–5 knots), a ramp-up would be required after a "no shooting" period lasting 2 minutes or longer. At 4 knots, the source vessel would travel 247 m (810 ft) during a 2-minute period. If the towing speed is reduced to 3 knots or less, as sometimes required when maneuvering in shallow water, it is proposed that a ramp-up would be required after a "no shooting" period lasting 3 minutes or longer. At towing speeds not exceeding 3 knots, the source vessel would travel no more than 277 m (909 ft) in 3 minutes. These guidelines would require modification if the normal shot interval were more than 2 or 3 min, but that is not expected to occur during the Storegga slide cruise.

Ramp-up will begin with the smallest gun in the 6-gun array (80 in³). Guns will be added in a sequence such that the source level of the array will increase in steps not exceeding 6 dB per 5-minute period over a total duration of approximately 14 min. During the ramp-up procedures, the safety zone for the full gun array will be maintained. Ramp-up will not occur for the 2-GI gun array, since the total air discharge volume for this array is small (210 in³).

Monitoring and Reporting

LDEO proposes to conduct marine mammal monitoring of its 2003 Storegga slide seismic program in the Norwegian Sea and acoustical verification of safety radii, in order to satisfy the anticipated requirements of the IHA.

Vessel-based Visual Monitoring

The observer(s) will systematically scan the area around the vessel with 7 X 50 Fujinon reticle binoculars or with the naked eye during the daytime. At night, night vision equipment will be available (ITT F500 Series Generation 3 binocular image intensifier or

equivalent). Laser rangefinding binoculars (Bushnell Lytespeed 800 laser rangefinder with 4 optics or equivalent) will be available to assist with distance estimation. If a marine mammal is seen well outside the safety radius, the vessel may be maneuvered to avoid having the mammal come within the safety radius (see Mitigation). When mammals are detected within or about to enter the designated safety radii, the airguns will be shut down immediately. The observer(s) will continue to maintain watch to determine when the animal is outside the safety radius. Airgun operations will not resume until the animal is outside the safety radius.

At least one experienced marine mammal observer will be on duty aboard the seismic vessel, as well as a fishery expert (as likely required by the Norwegian Petroleum Directorate (2003)) and possibly one qualified contract biologist. Observers (appointed by LDEO) will complete a one-day training/refresher course on marine mammal monitoring procedures, given by a contract employee experienced in vessel-based seismic monitoring projects.

Observers will be on duty in shifts of duration no longer than 4 hours. Use of two simultaneous observers will increase the proportion of the marine mammals present near the source vessel that are detected. Bridge personnel additional to the dedicated marine mammal observers will also assist in detecting marine mammals and implementing mitigation requirements, and before the start of the seismic survey will be given instruction in how to do so.

Reporting

The vessel-based monitoring will provide data required to estimate the numbers of marine mammals exposed to various received sound levels, to document any apparent disturbance reactions, and thus to estimate the numbers of mammals potentially taken by Level B harassment. It will also provide the information needed in order to shut down the airguns at times when mammals are present in or near the safety zones. When a mammal sighting is made, the following information about the sighting will be recorded: (1) Species, group size, age/size/sex categories (if determinable), behavior when first sighted and after initial sighting, heading (if consistent), bearing and distance from seismic vessel, sighting cue, apparent reaction to seismic vessel (e.g., none, avoidance, approach, paralleling, etc.), and behavioral pace; and (2) time, location, heading, speed, activity of the vessel

(shooting or not), sea state, visibility, cloud cover, and sun glare. The data listed under (2) will also be recorded at the start and end of each observation watch and during a watch, whenever there is a change in one or more of the variables.

All mammal observations and airgun shutdowns will be recorded in a standardized format. Data will be entered into a custom database using a laptop computer when observers are off-duty. The accuracy of the data entry will be verified by computerized validity data checks as the data are entered and by subsequent manual checking of the database. These procedures will allow initial summaries of data to be prepared during and shortly after the field program, and will facilitate transfer of the data to statistical, graphical or other programs for further processing and archiving.

Results from the vessel-based observations will provide (1) the basis for real-time mitigation (airgun shutdown); (2) information needed to estimate the number of marine mammals potentially taken by harassment, which must be reported to NMFS; (3) data on the occurrence, distribution, and activities of marine mammals in the area where the seismic study is conducted; (4) information to compare the distance and distribution of marine mammals relative to the source vessel at times with and without seismic activity; and (5) data on the behavior and movement patterns of marine mammals seen at times with and without seismic activity.

A report will be submitted to NMFS within 90 days after the end of the seismic program in the Storegga slide area. The end of the Storegga slide program is predicted to occur on or about September 25, 2003. The report will cover the seismic surveys in the Storegga slide area and 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, sound measurement data, 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.

Endangered Species Act (ESA)

Under section 7 of the ESA, NMFS has begun consultation on the proposed issuance of an IHA under section 101(a)(5)(D) of the MMPA for this

activity. Consultation will be concluded prior to the issuance of an IHA.

National Environmental Policy Act (NEPA)

The NSF has prepared an EA for the Storegga slide survey. NMFS is reviewing this EA and will either adopt it or prepare its own NEPA document before making a determination on the issuance of an IHA. A copy of the NSF EA for this activity is available upon request (see ADDRESSES).

Preliminary Conclusions

NMFS has preliminarily determined that the impact of conducting a seismic survey program in the Storegga slide portion of the southern Norwegian Sea 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.

While the number of potential incidental harassment takes will depend on the distribution and abundance of marine mammals in the vicinity of the survey activity, the number of potential harassment takings is 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 will be limited.

Proposed Authorization

NMFS proposes to issue an IHA to LDEO for conducting a seismic survey program in the Storegga slide portion of the southern Norwegian Sea, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. NMFS has preliminarily determined that the proposed activity would result in the harassment of small numbers of marine mammals; would have no more than a negligible impact on the affected marine mammal stocks; and would not have an unmitigable adverse impact on the availability of stocks for subsistence uses.

Information Solicited

NMFS requests interested persons to submit comments and information concerning this request (see ADDRESSES).

Dated: July 21, 2003.

Laurie K. Allen,

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

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 011503A]

Endangered Species; File No. 1409

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

ACTION: Issuance of permit.

SUMMARY: Notice is hereby given that Karen G. Holloway-Adkins, East Coast Biologists, Inc., P.O. Box 33715, Indialantic, FL 32903, has been issued a permit to take green (*Chelonia mydas*) and loggerhead (*Caretta caretta*) turtles for purposes of scientific research.

ADDRESSES: The permit and related documents are available for review upon written request or by appointment in the following office(s):

Permits, Conservation and Education Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Room 13705, Silver Spring, MD 20910; phone (301)713-2289; fax (301)713-0376;

Southeast Region, NMFS, 9721 Executive Center Drive North, St. Petersburg, FL 33702-2432; phone (727)570-5301; fax (727)570-5320.

FOR FURTHER INFORMATION CONTACT: Sarah Wilkin (301)713-2289 or Patrick Opay (301)713-1401.

SUPPLEMENTARY INFORMATION: On January 28, 2003, notice was published in the **Federal Register** (68 FR 4178) that a request for a scientific research permit to take loggerhead and green sea turtles had been submitted by the above-named individual. The requested permit has been issued under the authority of the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531 *et seq.*) and the regulations governing the taking, importing, and exporting of endangered and threatened species (50 CFR parts 222-226).

The purpose of the research is to characterize marine turtle aggregations (including their size class and foraging habits) that use the nearshore reefs of central Brevard County, FL as developmental habitat, and to gather information about sea turtle movements among similar study areas that exist on the east coast of Florida.