

comment. The notice of availability of this FMEP was published on August 29, 2003 (68 FR 51995). The comment period closed on September 29, 2003.

NEPA requires Federal agencies to conduct an environmental analysis of their proposed actions to determine if the actions may affect the human environment. The proposed action is to approve the FMEP submitted by the ODFW. The proposed coho salmon fishery would occur in Siltcoos and Tahkenitch Lakes in years when returns are high and expected to exceed specified spawning escapement guidelines. In the draft EA currently available for public comment, NMFS considered the effects of this action on the physical, biological, and socioeconomic environments. NMFS is seeking public input on the scope of the required NEPA analysis, including the range of reasonable alternatives and associated impacts of any alternatives.

Dated: October 20, 2003.

Phil Williams,

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

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 073003D]

Taking Marine Mammals Incidental to Specified Activities; Oceanographic Surveys in the Eastern Tropical Pacific 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 Eastern Tropical Pacific Ocean (ETP), has been issued to the Scripps Institution of Oceanography (SIO).

DATES: Effective from September 27, 2003, through September 26, 2004.

ADDRESSES: The application, a list of references used in this document, and the IHA are available by writing to the Acting 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.

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 small numbers 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 June 16, 2003, NMFS received an application from SIO for the taking, by harassment, of several species of marine mammals incidental to conducting a seismic survey program in international waters of the ETP and in the Exclusive Economic Zones (EEZ) of several coastal states (Mexico, Costa Rica, Panama, Columbia, Ecuador, and Peru), from which permission to conduct this type of scientific research has been requested. SIO's *R/V Roger Revelle* is scheduled to undertake a multidisciplinary research cruise, including some seismic reflection profiling and echo-sounding studies, in the ETP from September 2003 to February 2004, primarily 100-400 nautical miles (nm) (185 - 741 km) west of northern Peru and 200-1000 nm (370 - 1852 km) west of the Galapagos Islands. None of these operations would be in U.S. territorial waters or in the U.S. EEZ. A low-energy seismic reflection profiler with a small airgun sound source will be used on 3 of the 8 legs of the cruise. The purpose of this survey is to study the shape and structure of the sediment-buried oceanic crust in this part of the ETP.

Description of the Activity

SIO's seismic surveys will involve one vessel, the *R/V Roger Revelle* (under a cooperative agreement with the U.S. Navy, owner of the vessel). The *Roger Revelle* will deploy two airguns as an energy source, plus a single short (300 m or 984 ft) towed streamer of hydrophones to receive the returning acoustic signals, that can be retrieved and deployed in less than 20 minutes.

The bubble-generating chambers of the two small General-Injector (GI) airguns have a combined volume of 90 cubic inches (1475 cubic centimeters (cc)), contrasting with 3000-9000 cubic inches (49,161-147,484 cc) of the large gun arrays typical of academic and commercial seismic surveys. The primary seismic pulse is produced by a 45-in³ (737 cc) generator chamber, while compressed air from a 105-in³ (1721 cc) injector chamber is used to maintain the shape of the bubble and reduce its sound-making oscillation. The pair of simultaneously fired airguns would have a peak-to-peak (p-p) amplitude of 236 dB re 1 microPa. In addition, a hull-mounted mid-frequency

multibeam echo-sounder sonar for seafloor mapping will be routinely operated whenever the *Revelle* is underway. The Kongsberg-Simard EM-120 sonar images the seafloor over a 120–140 degree-wide swath (about 10–20 km, or 5–10 nm wide), using very short (15 msec) transmit pulses with a 10–20 second repetition rate and a 11.25–12.60 kHz frequency sweep. Source level in deep water is 240 dB root-mean-squared (rms), but the brevity, directivity, and narrow beam-width (1 degree fore-and-aft) of the transmit pulses make it unlikely that operation of this depth sonar will affect marine mammals.

None of the 3 research legs for which an IHA is requested will be a dedicated seismic reflection survey of the sort typically conducted by a specialized seismic vessel. The seismic reflection profiler will be used as just one tool in integrated marine geology and geophysical studies that also employ bathymetric echo-sounders, passive geophysical sensors (such as a gravimeter and magnetometer), and geologic sampling tools (like rock dredges and cores). Typical operating procedure during these three legs of the cruise will be to conduct seismic profiling, at a ship speed of 9–11 knots for periods of 8–12 hours, interspersed with episodes of geologic sampling and periods of faster steaming with no profiling system deployed. In a few instances (1–3 per leg), longer profiles will need to be collected, requiring up to 36 hours of continuous airgun operation. The objective is not to image deep crustal structure or the stratigraphy of thick sedimentary units (the typical goals of seismic surveys); instead the purpose is to measure the varying thickness of the 100–400 m-thick (328–1312 ft) cover of pelagic sediment that buries and obscures the igneous oceanic crust in the study areas, because establishing the relief of the buried crust is essential for interpreting the bathymetric, magnetic and gravity data. For this limited objective, the large powerful sound sources and hydrophone streamers several kilometers long that typify dedicated seismic surveys are not required. Nor will any broad ocean volume be ensonified by profiling on closely-spaced seismic lines.

Leg 1 of the cruise, from San Diego to Puerto Caldera, Costa Rica, is planned for September 27 - October 9, 2003. This will be primarily a staging and instrument testing and calibration leg, but with 2 days of seismic reflection profiling and rock-dredging 40–80 nm (74–148 km) off the coast of Costa Rica. In addition to the approximately 24

hours of seismic profiling, SIO also plans to test and calibrate new components of the system, and train shipboard technicians in their use, with 2 or 3 12–18 hour test runs along parts of the transit track. Because these test profiles may obtain scientifically useful data, specific sites that are of interest to Mexican researchers have been targeted, in partial fulfillment of SIO's foreign-clearance obligation to collect data of value to coastal states.

Leg 2, from Puerto Caldera, Costa Rica, to Manta, Ecuador, is planned for October 10 - November 6, 2003. The plan for this leg is to (i) conduct a 2-day seismic reflection plus rock dredging survey of Cobia Ridge, south of Panama, (ii) collect a north-south seismic reflection plus magnetics profile across the eastern Panama Basin, and (iii) conduct a 14-day seismic reflection plus bathymetry plus rock dredging survey off northern Peru. A total of 200–250 hours of seismic reflection profiling is anticipated for this leg of the cruise.

Leg 5, from Callao, Peru, to Puerto Caldera, Costa Rica, is planned to take place from December 28, 2003 - February 23, 2004. Primary survey tools will be a multibeam echo-sounder and a new magnetometer system. Seismic reflection profiling will have a subsidiary role, imaging the relief of the igneous crust in the approximately 20 percent of the survey area that has a significant cover of structure-obscuring sediment. A total of 150–200 hours of profiling is anticipated for this leg of the cruise. All three legs will use the same bathymetric sonar and seismic profiling system, described above.

All planned geophysical data acquisition activities are funded by the National Science Foundation (NSF) and will be conducted by SIO scientists, with a specific Principal Investigator aboard the vessel. Additional information on the airgun array and bathymetric multibeam sonar is contained in the application, which is available upon request (see **ADDRESSES**).

Comments and Responses

A notice of receipt of the Scripps' application and proposed IHA was published in the **Federal Register** on August 25, 2003 (68 FR 51240). During the 30-day public comment period, comments were received from the Marine Mammal Commission (Commission) and the Center for Biological Diversity (CBD).

Comment 1: The Marine Mammal Commission (the Commission) believes that NMFS' preliminary determinations are reasonable, provided NMFS is satisfied that the proposed mitigation and monitoring activities are adequate

to detect marine mammals in the vicinity of the proposed operations and ensure that marine mammals are not being taken in unanticipated ways or numbers. In this regard, NMFS' **Federal Register** notice states that "[b]ecause of the ineffectiveness of mammal observers during darkness (even though the vessel is equipped with night-vision binoculars), seismic reflection profiling will be concentrated during daylight hours [but that on] 1–3 occasions...limited night profiling is needed to allow completion of the marine geophysical research." However, it remains unclear that, for nighttime activities, the monitoring effort will be sufficient to determine that no marine mammals are within or about to enter the safety zone.

Response: Because the SIO's scientific research cruise is multi-disciplinary, and because the seismic research is fairly short-term, SIO does not propose to use the 2-GI airgun array during nighttime. If a seismic trackline has not been completed, that work will continue provided observers are able to see the entire safety zone. However, because the size of the airgun array to be used is small, and because the safety zones are relatively small, it is unlikely that mammals will be within the appropriate safety zones whenever the airguns are on, either in daylight or nighttime.

Comment 2: The NMFS' **Federal Register** notice states that "[o]perations would not resume until the animal is observed outside the safety radius or until a minimum of 15 minutes has elapsed since the last sighting." The Commission notes, however, that beaked and sperm whales can dive for much longer than 15 minutes and, thus, could be directly below the sound source when it is reactivated.

Response: The NMFS concurs with the Commission on this point. SIO will not proceed with powering up the 2 GI-airgun array unless the entire safety radius is visible and no marine mammals are detected within the appropriate safety zones; or until 15 minutes (for small odontocetes and pinnipeds) or 30 minutes (for mysticetes/large odontocetes) after there has been no further visual detection of the mammal(s) within the safety zone and the trained marine mammal observer on duty is confident that no marine mammals or sea turtles remain within the appropriate safety zone. As added mitigation, SIO will follow standard ramp-up procedures (see Mitigation below). Also, while some whale species may dive for up to 45 minutes, it is unlikely that the ship's bridge personnel (who are always on watch) would miss a large whale

surfacing from its previous dive if it is within a mile or two of the vessel.

Comment 3: The Commission notes that it is unclear whether vessel-based passive acoustic monitoring will be conducted as an adjunct to visual monitoring during daytime and particularly during nighttime operations to detect, locate, and identify marine mammals, and, if not, why not.

Response: Passive acoustical monitoring equipment similar to that onboard the *R/V Maurice Ewing* during the 2003 Gulf of Mexico (GOM) Sperm Whale Seismic Study (SWSS), is not the property of SIO or the *Revelle*, and therefore is not available for the ETP cruise. In addition, the expense and logistics involved in operating passive acoustical monitoring as a mitigation measure (requiring triangulation on the vocalization), the fact that the zone where Level A harassment could occur is small (738 ft, 225 m), and no nighttime acoustics are planned during this cruise, indicate that use of passive acoustical monitoring is neither warranted nor practical. The Lamont-Doherty Earth Observatory (LDEO) is presently evaluating the scientific results of the passive sonar from the SWSS trip to determine whether it is practical to incorporate it into future seismic research cruises using large airgun arrays. NMFS expects a report on this analysis shortly.

Comment 4: With respect to pinnipeds, the CBD states that NMFS neglects to state the number that the SIO project will take. Instead, the proposed authorization notes that SIO "did not estimate numbers of pinnipeds potentially vulnerable to harassment due to insufficient data on distribution, abundance, and pinniped response," and nonetheless concludes that the *Revelle* is unlikely to encounter significant numbers of pinnipeds (68 FR 51242). Practical considerations or unavailability of information is no excuse for failing to make the required MMPA findings. The proper course of action in the absence of sufficient data to make the required MMPA findings and ensure compliance with the MMPA is to deny authorization of the project.

Response: The application contains references of known studies on pinniped abundances in the ETP. Insufficient data on distribution, abundance, and pinniped response makes it impossible to estimate an actual number of pinnipeds potentially vulnerable to harassment. However, based on data from these studies, general information exists on locations and seasons in which these pinniped species have been observed in the past. Because of these estimated species

ranges and the near-shore nature of many species of pinnipeds, very few, if any, pinnipeds are expected to be encountered along the well-offshore seismic lines proposed by Scripps. Mitigation measures, the downwards directional nature of the low-volume airguns, the brevity of seismic profiling in certain habitats, and the fact that many pinnipeds have been shown to be highly tolerant of high levels of airgun noise, make it even less likely that any pinnipeds encountered will experience harassment.

Comment 5: With respect to cetaceans, the proposed authorization does not provide actual numbers taken, but rather states that the total estimated take by harassment will be less than 1 percent of most cetaceans (including the endangered sperm and blue whales), 1.8 percent of pygmy sperm whales, 6.2 percent of dwarf sperm whales, and 1.8 percent of the endangered humpback whales in the area (68 FR 51243). By dismissing the number of cetaceans affected by the proposed activity with this reasoning, NMFS has improperly conflated its two, distinct statutory obligations to only authorize take of (1) of small numbers; and (2) with no more than a negligible impact.

Response: The SIO application, available by request (see **ADDRESSES**), contains both numbers and percentages of estimated takes. Based on the analysis found in this document and in SIO's application, which NMFS believes is based on the best scientific information available, the notice of proposed authorization (68 FR 51240) used percentages to show that even in cases where the absolute numbers may not seem "small", they are small relative to the size of the affected species or stocks. As the SIO application indicates, the absolute numbers of takes by species ranges from 1 animal to 21,450.

Comment 6: While the proposed authorization does outline several monitoring, mitigation, and reporting measures, these measures do not insure the "least practicable adverse impact" as required by the MMPA. In addition, NMFS provides no explanation for why seismic profiling cannot be limited to daylight hours when observers are on surveillance duty and marine mammals are far more detectable. Furthermore, under the proposed authorization's shut-down procedures, it is unclear why NMFS only addressed measures necessary to avoid Level A and not Level B harassment when both are prohibited by the MMPA. Also, NMFS 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: NMFS is requiring SIO to incorporate the mitigation measures that are standard for significantly larger seismic arrays. SIO may need to continue its operations into night-time hours. Limiting activities to daylight hours only would require the *Roger Revelle* to return to the site during daylight, approach the area for which data is lacking, and begin seismic activities once again. Since this area could not be located exactly, additional seismic operations would need to be conducted. This would result in additional noise in the environment and is not cost-effective (ship operations are approximately \$35,000/day). Therefore, the IHA authorizes Scripps to continue seismic into night-time hours. However, if the array is shut-down at night, seismic operations may not begin again until daylight allows the safety zone to be observed for the time period noted in this document.

For similar reasons, shutting down seismic operations to protect marine mammals from Level B disturbance, if protracted, would also require the *Roger Revelle* to return to the site again to re-shoot the seismic lines. It should be understood that ramp-up and the ship's forward speed both allow marine mammals to be exposed to sounds at low levels and thereby move out of the area of annoyance, further limiting Level B harassment. For those reasons, NMFS prefers to limit the amount of noise projected into the water and believes that this suggested mitigation measures are not practicable.

Comment 7: The CBD believes that NMFS determining that a Categorical Exclusion is not appropriate for this action and that use of another Environmental Assessment (EA) for this action is not sufficient.

Response: NMFS followed NOAA Administrative Order (NAO) 216-6 before making a determination that this action qualifies for a Categorical Exclusion. As noted in the proposed authorization notice and this document, an Environmental Assessment (EA) on a similar (i.e., oceanographic research) seismic survey action for this area of the Pacific Ocean was prepared and released to the public on July 11, 2003 (68 FR 41314) for a 30-day public comment period. The seismic airgun array used in that survey and addressed in the EA was for an array of up to 12-airguns with a total volume of 3,721 in³. No comments were received during that period on the subject EA, and NMFS' analysis of that action resulted in a Finding of No Significant Impact (FONSI)(see 68 FR 41314, July

11, 2003). One of the alternatives addressed in that EA was for alternative seasons of the year, which would include the time of the subject SIO survey. In addition, the acoustic survey described in this document by SIO will use acoustic instruments that are significantly less intense (total volume of 90 in³) and will therefore have a significantly lower impact on the marine environment than acoustic sources used by the *R/V Maurice Ewing* addressed in the EA. Furthermore, under NAO 216-6, this is an action of limited size or magnitude. Therefore, based on that EA, and a review of the information contained in the IHA application from Scripps, NMFS determined that this action will not have a significant effect, individually or cumulatively, on the human environment. Accordingly, the action is categorically excluded from the need to prepare another EA or environmental impact statement. A copy of the categorical exclusion documentation has been sent to the CBD as requested.

Comment 8: Direct impacts of SIO's project on the environment include but are not limited to its effects on marine mammals, fish species, and other sea creatures, such as the giant squid, an important food source for sperm whales that has recently suffered injury linked to acoustic testing. NMFS has failed to assess the cumulative impacts of SIO's project in conjunction with other actions on the environment. A proper cumulative impacts analysis in this case should include past, present, and reasonably foreseeable seismic and other actions in the area.

Response: The EA relied upon here describes impacts, both individual and cumulative on marine mammals, sea turtles, and other marine life. Scientific information providing a link between low frequency seismic research and squid is limited (see McCauley *et al.*, 2000). A recent news-wire article noting the possible linkage between Spanish naval exercises and a stranding of several large squid does not establish a causal link until (or if) necropsies can be conducted on those animals.

Mitigation

For the proposed seismic operations in the ETP, SIO will use 2-GI guns with a total volume of 90 in³ (1475 cc). These airguns will be spread out horizontally, so that the energy from the array will be directed mostly downward. The following mitigation measures, as well as marine mammal monitoring, will be adopted during the proposed ETP seismic survey program.

Safety Radii

SIO has adopted conservative methods in defining safety zone calculations using (i) a 9-dB difference between peak-to-peak (p-p) and rms, and (ii) spherical spreading of the sound, even though it is clear that at the low acoustic frequencies which dominate SIO's airgun output, the generated sound pulses have considerable directivity, favoring downward propagation over horizontal propagation. This is because in the near-horizontal direction the direct gun pulse is closely followed by the opposite-phased bounce off the sea surface, if the source is within an acoustic wavelength of the surface. This effect can reduce the effective near-horizontal output by as much as 10 dB. Because the actual seismic source is a distributed sound source 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.

The pair of simultaneously fired airguns would have a p-p amplitude of 236 dB re 1 μ Pa. Converting to rms using the 9 dB difference between p-p and rms for a sine wave yields an output level of 227 dB rms. Therefore, SIO's modeled results for the 2-gun array indicate that, assuming spherical spreading, the paired guns would produce sound levels of 180 dB re 1 μ Pa (rms) at a range of about 225 m (738 ft); i.e., the radius around the 2-gun array where the received level would be 180 dB re 1 μ Pa (rms), is estimated to be 225 m (738 ft). The effect of using a conservative calculation, which yields this safety zone for 180 dB rms sound, is to build a safety factor into the airgun shut-down radius; this is desirable because mammals may not be observed while submerged, and might move towards the acoustic sources during dives.

Shutdown Procedures

SIO proposes to shut down seismic sources whenever marine mammals are observed close enough to the vessel that they are at risk of exposure to sound levels greater than 180 dB (rms), where there is a possibility of Level A harassment. Airgun operations will be suspended immediately when marine mammals are observed within, or about to enter, this designated safety zone.

Ramp-up Procedures

SIO will not proceed with powering up the seismic airgun array unless the safety zone is visible and no marine mammals are detected within the appropriate safety zones or until 15 minutes (for small odontocetes and

pinnipeds) or 30 minutes (for mysticetes/large odontocetes) after there has been no further visual detection of the mammal(s) within the safety zone and the trained marine mammal observer on duty is confident that no marine mammals or sea turtles remain within the appropriate safety zone. Once the safety zone is clear of marine mammals, the observer will advise that seismic surveys can re-commence.

A standard "ramp-up" (soft start) procedure will be followed when the airgun array begins operating after a period without any airgun operations as specified in this paragraph. From shut-down, ramp-up will commence such that the source level of the array will increase in steps not exceeding approximately 6 dB per 5-minute period. Prior to ramp-up, SIO will conduct a 30-minute period of observation by at least one trained marine mammal observer at the commencement of seismic operations and at any time electrical power to the airgun array is discontinued for a period of 1 hour or more. SIO will not commence with ramping-up of the airguns unless the complete safety radii are visible for at least 30 minutes prior in either daylight or nighttime. SIO will not initiate seismic profiling during darkness.

Course Alteration

If a marine mammal is detected at any range beyond the 225 m (738 ft) safety radius but, based on its position and the relative motion, appears to be on a converging course with the ship while profiling is underway, the vessel will be maneuvered in an attempt to maintain a range greater than the shut-down radius. 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.

Because of the relative ineffectiveness of mammal observers during darkness (even though the vessel is equipped with night-vision binoculars), seismic reflection profiling will be concentrated during daylight hours.

Monitoring and Reporting

Effective implementation of these procedures requires surveillance by appropriately equipped skilled observers, who will monitor for marine mammals in the vicinity of the array. Each leg of the cruise will be staffed with two observers who have previously worked for the Southwest Fisheries

Science Center of NMFS, and who are recommended by the Center. These observers will share surveillance duties during daylight hours, and be responsible for computer entry of their observations while off watch. They will be equipped with binoculars and have access to the 50X "big-eye" binoculars mounted on the *Revelle's* bridge. For estimating the range of marine mammals that are sighted, the observers will use the optical fixed-interval range-finder described by Heinemann (1981); this instrument relies on measuring the angle between the mammal and the visual horizon, by an observer at known height above sea-level. The observers will be in wireless communication with ship officers on the bridge and scientists in the vessel's operations laboratory, so they can advise promptly of the need for avoidance maneuvers or G.I. gun shut-down.

Monitoring of marine mammals by experienced observers will occur during all daylight hours of the 3 legs of the cruise on the *Revelle*, whether or not G.I. guns are in operation. Except in bad weather, when they will occupy the bridge, observers will be stationed outside, forward on the 03 upper deck at a height of 9 m (30 ft) above the waterline; this has proved to be an effective station for marine mammal surveillance during previous mammal and seabird monitoring exercises from the *Revelle*.

Reporting

Observers will record their observations and range measurements on tape, for subsequent transcription into NMFS format. When a marine mammal or sea turtle 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 (seismic activity or not), sea state, visibility, cloud cover, and sun glare. The data listed under (2) above will also be recorded at the start and end of each observation watch and during a watch, and whenever there is a change in one or more of the variables.

Results from the vessel-based observations of marine mammals and sea turtles will provide: (1) the basis for real-time mitigation (airgun shutdown); (2) information needed to estimate the number of animals potentially taken by harassment, which must be reported to

NMFS; (3) data on the occurrence, distribution, and activities of marine mammals and sea turtles in the area where the seismic study is conducted; (4) information to compare the distance and distribution of animals relative to the source vessel at times with and without seismic activity; and (5) data on the behavior and movement patterns of marine mammals and sea turtles seen at times with and without seismic activity.

SIO will submit a report to NMFS within 90 days after the end of the seismic profiling program (June 2004). The report will be submitted to NMFS, providing full documentation of methods, results, and interpretation pertaining to most all monitoring tasks. The 90-day report will summarize the dates and locations of seismic operations, sound measurement data, marine mammal and sea turtle 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. The draft report will be considered the final report unless comments and suggestions are provided by NMFS within 60 days of its receipt of the draft report.

Estimates of Take by Harassment for the ETP Cruise

As described previously (see 68 FR 17909, April 14, 2003), animals subjected to sound levels ≤ 160 dB may experience disruption in their behavioral patterns and therefore might be taken by Level B harassment.

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 2 GI-guns planned for the project. Based on summer/fall marine mammal density calculations by Ferguson and Barlow (2001), SIO used their average marine mammal densities from the ETP to compute a "best estimate" of the number of marine mammals that may be exposed to seismic sounds ≥ 160 dB re $1\mu\text{Pa}$ (rms) (NMFS' current criterion for onset of Level B harassment). The average densities were then converted to per-km abundances and multiplied (for the appropriate region) by the area that is planned to be ensounded at levels ≥ 160 dB re $1\mu\text{Pa}$ (rms) during the proposed seismic survey program. Where abundance estimates for certain species (pacific white-sided dolphins, pygmy sperm whales, minke whales, and humpback whales) were not readily available for stocks found within the proposed survey areas, minimum population estimates were taken from individual Marine Mammal Stock

Assessment Reports, which are available online as mentioned previously.

SIO did not estimate numbers of pinnipeds potentially vulnerable to harassment due to insufficient data on distribution, seasonal abundance, and pinniped response. However, NMFS agrees with SIO's determination that it is unlikely to encounter significant numbers of any of the pinniped species that live, at least part of the year, in the area of the proposed activity.

Based on this method, Table 3 in the application gives the best estimates of numbers for each species of cetacean that might be exposed to received levels ≥ 160 dB re $1\mu\text{Pa}$ (rms), and thus potentially taken by Level B harassment, during seismic surveys in the proposed study areas of the ETP.

Eight species of delphinidae would account for 95 percent of the overall estimate for potential taking by harassment. Common dolphins are the most abundant delphinid in the proposed seismic survey areas, representing 71 percent of the total estimate for potential taking by harassment. Most of the remaining 5 percent of the overall estimate for potential taking by harassment consists of pilot whales, dwarf sperm whales, and five species of beaked whales.

Conclusions-effects on Cetaceans

Baleen whales have been seen to avoid operating airguns with avoidance radii that are quite variable, while some baleen whales show considerable tolerance of seismic pulses. Whales are often reported to show no overt reactions to airgun pulses at distances beyond a few kilometers, even though the pulses remain well above ambient noise levels out to much longer distances. However, recent studies of humpback and especially bowhead whales in the arctic show that reactions, including avoidance, sometimes extend to greater distances than documented earlier, possibly even exceeding the distances at which boat-based observers can see whales. However, reactions at such long distances appear to be atypical of other species of mysticetes, and even for bowheads may only apply during migration. Moreover, few mysticetes occur in the area where seismic surveys are proposed.

Odontocete reactions to seismic pulses, or at least those of dolphins, are expected to extend to lesser distances than those of mysticetes. Odontocete low-frequency hearing is less sensitive than that of mysticetes, and dolphins are often seen from seismic vessels, occasionally even at close distances. 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.

For most species, including endangered sperm and blue whales, the total estimated "take by harassment" by species presented in Table 3 of the application (Scripps 2003) represents less than 1.0 percent of the eastern tropical Pacific population of any of these species. For the remaining three cetacean species, the total estimated "take by harassment" is 1.8 percent of the estimated pygmy sperm whale population in and adjacent to the study area, 6.2 percent of the dwarf sperm whale population, and 1.8 percent of endangered humpback whales. Although the absolute numbers of odontocetes that may be harassed by the proposed activities may be large, the population sizes of the main species are also large; therefore, the numbers potentially affected are small relative to the population sizes.

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." Based on the relatively low numbers of marine mammals that will be exposed at levels ≤ 160 dB and the expected impacts at these levels, NMFS has determined that this action will have a negligible impact on the affected species or stocks of cetaceans.

Conclusions-effects on Pinnipeds

Responses of pinnipeds to acoustic disturbance are variable, but usually quite limited. Early observations provided considerable evidence that pinnipeds are often quite tolerant of strong pulsed sounds. Visual monitoring from seismic vessels has shown only slight (if any) avoidance of airguns by pinnipeds, and only slight (if any) changes in behavior. These studies show that pinnipeds frequently do not avoid the area within a few hundred meters of an operating airgun array. Even so, results from initial telemetry studies suggest that avoidance and other behavioral reactions may be stronger than has been evident from visual studies.

Very few, if any, pinnipeds are expected to be encountered during the proposed seismic survey by Scripps in the ETP.

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. Effects are expected to be limited to short-term and localized behavioral changes falling within the MMPA definition of Level B harassment. These effects would have no more than a negligible impact on the affected species or stocks of pinnipeds.

Determinations

Based on the information contained in the SIO application, the EA referenced herein, and the August 26, 2003 (68 FR 51245) **Federal Register** notice and this document, NMFS has determined that conducting a seismic survey program in the ETP by the *Revelle* 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. This activity will result, at worst, in a temporary modification in behavior by certain species of marine mammals. While behavioral modifications may be made by these species as a result of seismic survey activities, this behavioral change 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 and required under the IHA. For these reasons therefore, NMFS has determined that the requirements of section 101(a)(5)(D) of the MMPA have been met and the authorization can be issued.

Endangered Species Act (ESA)

NMFS has concluded consultation under section 7 of the ESA on NMFS' issuance of an IHA to take small numbers of marine mammals, by harassment, incidental to conducting an oceanographic seismic survey in the ETP by SIO. The consultation concluded with a biological opinion that this action is not likely to jeopardize the continued existence of marine species listed as threatened or endangered under the ESA. No critical habitat has been designated for these species in the ETP; therefore, none will be affected. The Biological Opinion concluded that 1 fin whale may be harassed during the seismic surveys, and that Guadalupefur seals are not

likely to be adversely affected by the proposed research activities. Therefore, NMFS has removed the Guadalupe fur seal from, and added the fin whale to, the proposed list of species authorized to be taken by Level B harassment under the IHA. A copy of the Biological Opinion is available upon request (see **ADDRESSES**).

National Environmental Policy Act (NEPA)

An Environmental Assessment (EA) on a similar action for this area of the Pacific Ocean was prepared and released to the public on July 11, 2003 (68 FR 41314). NMFS' analysis resulted in a Finding of No Significant Impact (FONSI). The SIO acoustic survey described in this document will use acoustic instruments that are significantly less intense and will therefore have a significantly lower impact on the marine environment than acoustic sources addressed in the EA. Therefore, based on that EA, and review of the information contained in the IHA application from Scripps, NMFS has made a finding that this action will not have a significant effect, individually or cumulatively, on the human environment. Further, this is an action of limited size or magnitude. Accordingly, under NAO 216-6, the action is categorically excluded from the need to prepare another environmental assessment or environmental impact statement. A copy of the relevant EA and FONSI is available (see **ADDRESSES**).

Authorization

NMFS has issued an IHA to take small numbers of marine mammals, by harassment, incidental to conducting a seismic survey by the *Revelle* in the ETP to Scripps for a 1-year period, provided the proposed mitigation, monitoring, and reporting requirements described in this document and the IHA are incorporated.

Dated: October 17, 2003.

Donna Wieting,

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

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