



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

Woody C. Sutherland
Shipboard Technical Support
Scripps Institution of Oceanography
8602 La Jolla Shores Drive
La Jolla, California 92037

JUL 17 2009

Dear Mr. Sutherland:

On July 15, 2009, Scripps Institution of Oceanography (SIO) requested a modification to the Incidental Harassment Authorization issued on July 13, 2009, under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*), to harass small numbers of marine mammals incidental to the R/V *Wecoma's* low-energy marine seismic survey in the Northeast Pacific Ocean Southeast Asia during March-July, 2009. SIO requested 60 additional authorized takes of Pacific white-sided dolphins for the remainder of the cruise.

The National Marine Fisheries Service (NMFS) has reviewed SIO's request and has granted additional authorized takes of Pacific white-sided dolphins for SIO's low-energy seismic survey in the Northeast Pacific Ocean. Accordingly, Table 2 "Authorized Take Numbers for Each Marine Mammal Species in the Northeast Pacific Ocean" of the IHA has been amended to include the 60 additional (66 total) authorized takes of Pacific white-sided dolphins requested by SIO.

A copy of this modification letter must be attached to the IHA and must be in the possession of the operator of the vessel and marine mammal monitors operating under the authority of this Authorization.

If you have any questions concerning the IHA or its requirements, please contact Howard Goldstein or Jolie Harrison, Office of Protected Resources, NMFS, at 301-713-2289.

Sincerely,

James H. Lecky
Director
Office of Protected Resources

Enclosures





UNITED STATES DEPARTMENT OF COMMERCE
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DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL MARINE FISHERIES SERVICE

Incidental Harassment Authorization

Amended on July 17, 2009

Scripps Institution of Oceanography (SIO), 8602 La Jolla Shores Drive, La Jolla, California 92037, is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1371(a)(5)(D)) and 50 CFR 216.107, to harass small numbers of marine mammals incidental to a low-energy marine seismic survey conducted by the R/V *Wecoma* (*Wecoma*) in the Northeast Pacific Ocean, July, 2009:

1. This Authorization is valid from July 14, 2009 through August 14, 2009.
2. This Authorization is valid only for the *Wecoma*'s activities associated with low-energy seismic survey operations that will occur in the area 44° and 45° N, and 124.5° and 126° W within the Exclusive Economic Zone of the United States, as specified in SIO's Incidental Harassment Authorization application and Environmental Assessment.

3. Species Authorized and Level of Takes

(a) The incidental taking of marine mammals, by Level B harassment only, is limited to the following species in the waters off of Oregon:

(i) Mysticetes – see Table 2 (attached) for authorized species and take numbers.

(ii) Odontocetes – see Table 2 for authorized species and take numbers.

(iii) Pinnipeds – see Table 2 for authorized species and take numbers.

(iv) If any marine mammal species are encountered during seismic activities that are not listed in Table 2 (attached) for authorized taking and are likely to be exposed to SPLs greater than or equal to 160 dB re 1 μ Pa (rms), then the Holder of this Authorization must shut-down the airgun.

(b) The taking by Level A harassment (injury), serious injury or death, of any of the species listed in 3(a) above or the taking of any kind of any other species of marine



mammal is prohibited and may result in the modification, suspension or revocation of this Authorization.

4. The taking of any marine mammal in a manner prohibited under this Authorization must be reported immediately to the Office of Protected Resources, National Marine Fisheries Service (NMFS), at 301-713-2289.

5. The Authorization for taking by Level B harassment is limited to the following acoustic sources without an amendment to this Authorization:

- (i) a single GI airgun array with a total capacity of 45 in³;
- (ii) a sub-bottom profiler; and
- (iii) an acoustic release transponder used to communicate with ocean bottom seismometers (OBS).

6. The Holder of this Authorization is required to cooperate with NMFS and any other Federal, state or local agency monitoring the impacts of the activity on marine mammals.

7. Mitigation and Monitoring Requirements

The Holder of this Authorization is required to:

(a) Utilize a NMFS-qualified, vessel-based marine mammal visual observer (MMVO) to watch for and monitor marine mammals near the seismic source vessel during daytime airgun operations (from civil twilight-dawn to civil twilight-dusk) and before and during start-ups of airguns day or night. The *Wecoma*'s vessel crew will also assist in detecting marine mammals, when practicable. MMVOs will have access to reticle binoculars (7x50 Fujinon), big-eye binoculars (25x150), and night vision devices. MMVO shifts will last no longer than 4 hours at a time. MMVOs will also make observations during daytime periods when the seismic system is not operating for comparison of animal abundance and behavior, when feasible.

(b) MMVOs will conduct monitoring while the airgun array and streamers are being deployed or recovered from the water.

(c) Record the following information when a marine mammal is sighted:

- (i) 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 the airguns or vessel (e.g., none, avoidance, approach, paralleling, etc., and including responses to ramp-up), and behavioral pace; and

(ii) time, location, heading, speed, activity of the vessel (including number of airguns operating and whether in state of ramp-up or power-down), sea state, visibility, cloud cover, and sun glare; and

(iii) the data listed under 7(c)(ii) 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.

(d) Visually observe the entire extent of the safety zone (190 dB for pinnipeds, 180 dB for cetaceans; see Table 1 [attached] for radii distances) using NMFS-qualified MMVOs, for at least 30 minutes prior to starting the airgun (day or night). If the MMVO finds a marine mammal within the safety zone, SIO must delay the seismic survey until the marine mammal(s) has left the area. If the MMVO sees a marine mammal that surfaces, then dives below the surface, the observer shall wait 30 minutes. If the MMVO see no marine mammals during that time, they should assume that the animal has moved beyond the safety zone. If for any reason the entire radius cannot be seen for the entire 30 minutes (min) (i.e., rough seas, fog, darkness), or if marine mammals are near, approaching, or in the safety radius, the airguns may not be started up.

(e) Establish 180 dB and 190 dB safety zones for cetaceans and pinnipeds, respectively, before the GI airgun array (45 in³) is in operation. See Table 1 (attached) for distances and safety radii.

(f) Implement the “start-up” procedure at the beginning of seismic operations or anytime after the entire array has been shut-down for more than 15 min. During start-ups the MMVOs will monitor the safety radius, and if marine mammals are sighted, a course/speed alteration or shut-down will be implemented if necessary. Therefore, initiation of start-up procedures from a shut-down requires that the MMVOs be able to view the full safety zone as described in 7(d).

(g) Alter speed or course during seismic operations if a marine mammal, based on its position and relative motion, appears likely to enter the relevant safety zone. If speed or course alteration is not safe or practicable, or if after alteration the marine mammal still appears likely to enter the safety zone, further mitigation measures, such as a shut-down, will be taken.

(h) Shut-down the airguns if a marine mammal is detected within, approaches, or enters the relevant safety zone (as defined in Table 1, attached). A shut-down means the operating airgun is turned off.

(i) Following a shut-down, the airgun activity shall not resume until the marine mammal has cleared the safety zone, which means it was visually observed to have left the safety zone, or has not been seen within the safety zone for 15 min for species with shorter dive durations (small odontocetes and pinnipeds) or 30 min for species with longer dive

durations (mysticetes and large odontocetes, including sperm, pygmy sperm, dwarf sperm, killer, and beaked whales).

(j) Following a shut-down and subsequent animal departure, airgun operations may resume following start-up procedures described in 7(d).

(k) Low-energy marine seismic surveys may continue into night and low-light hours if such segment(s) of the survey is initiated when the entire relevant safety zones are visible and can be effectively monitored.

(l) No initiation of airgun array operations is permitted from a shut-down position at night or during low-light hours (such as in dense fog or heavy rain) when the entire relevant safety zone cannot be effectively monitored by the MMVOs on duty.

(m) When operating the sound source(s), minimize approaches to slopes, submarine canyons, seamounts, and other underwater geologic features, if possible, to avoid possible beaked whale habitat.

(n) If concentrations or groups of beaked whales are visually observed at a site such as on the continental slope, submarine canyon, seamount, or other underwater geologic feature just prior to or during the airgun operations, those operations will be shut-down and/or moved to another location along the site, if possible, based on recommendations by the on-duty MMO aboard the *Wecoma*.

(o) If a North Pacific right whale (*Eubalaena japonica*) is visually sighted, the airgun array will be shut-down regardless of the distance of the animal(s) to the sound source. The array will not resume firing until 30 min after the last documented whale visual sighting.

(p) To the maximum extent practicable, schedule seismic operations in inshore and shallow waters during daylight hours and OBS operations during nighttime hours.

8. Reporting Requirements

The Holder of this Authorization is required to:

(a) Submit a draft report on all activities and monitoring results to the Office of Protected Resources, NMFS, within 90 days of the completion of the *Wecoma*'s cruise. This report must contain and summarize the following information:

(i) Dates, times, locations, heading, speed, weather during, sea conditions (including Beaufort Sea State and Wind Force), and associated activities during all seismic operations and marine mammal sightings;

(ii) Species, number, location, distance from the vessel, and behavior of any marine mammals, as well as associated seismic activity (number of shut-downs), observed throughout all monitoring activities.

(iii) An estimate of the number (by species) of marine mammals that: (A) are known to have been exposed to the seismic activity (based on visual observation) at received levels greater than or equal to 160 dB re 1 μ Pa (rms) and/or 180 dB re 1 μ Pa (rms) with a discussion of any specific behaviors those individuals exhibited; and (B) may have been exposed (based on modeling results) to the seismic activity at received levels greater than or equal to 160 dB re 1 μ Pa (rms) and/or 180 dB re 1 μ Pa (rms) with a discussion of the nature of the probable consequences of that exposure on the individuals that have been exposed.

(iv) A description of the implementation and effectiveness of the: (A) terms and conditions of the Biological Opinion's Incidental Take Statement (ITS) (attached); and (B) mitigation measures of the Incidental Harassment Authorization. For the Biological Opinion, the report will confirm the implementation of each term and condition, as well as any conservation recommendations, and describe their effectiveness, for minimizing the adverse effects of the action on listed marine mammals.

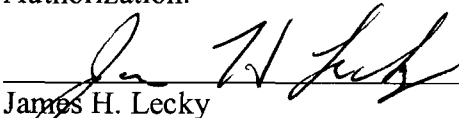
(b) Submit a final report to the Chief, Permits, Conservation, and Education Division, Office of Protected Resources, NMFS, within 30 days after receiving comments from NMFS on the draft report. If NMFS decides that the draft report needs no comments, the draft report will be considered to be the final report.

9. In the unanticipated event that any taking of a marine mammal in a manner prohibited by this Authorization occurs, such as an injury, serious injury, or mortality, and is judged to result from these activities, SIO will immediately report the incident to the Chief of the Permits, Conservation, and Education Division, Office of Protected Resources, NMFS, at 301-713-2289. SIO will postpone the research activities until NMFS is able to review the circumstances of the take. NMFS will work with SIO to determine whether modifications in the activities are appropriate and necessary, and notified the permit holder that they may resume sound source operations.

In the event that SIO discovers an injured or dead marine mammal that is judged to not have resulted from these activities, SIO will contact and report the incident to the Chief of the Permits, Conservation, and Education Division, Office of Protected Resources, NMFS, at 301-713-2289 within 24 hours of the discovery.

10. SIO is required to comply with the Terms and Conditions of the ITS corresponding to NMFS' Biological Opinion issued to both NSF and NMFS' Office of Protected Resources (attached).

11. A copy of this Authorization and the ITS must be in the possession of all contractors and marine mammal monitors operating under the authority of this Incidental Harassment Authorization.



James H. Lecky
Director
Office of Protected Resources
National Marine Fisheries Service

JUL 17 2009

Date

Attachments

Attachment

Table 1. Safety Radii for Triggering Mitigation.

Source and Volume	Water Depth	Predicted RMS Distances (m)		
		Shut-down Zone for Pinnipeds 190 dB	Shut-down Zone for Cetaceans 180 dB	Level-B Harassment Zone 160 dB
Single GI airgun 45 in ³	Deep (>1,000 m)	8	23	220
	Intermediate (100-1,000 m)	12	35	330
	Shallow (<100 m)	95	150	570

Table 2. Authorized Take Numbers for Each Marine Mammal Species in the Northeast Pacific Ocean.

Species	Authorized Take in Northeast Pacific Ocean
Mysticetes	
North Pacific right whale (<i>Eubalaena japonica</i>)	0
Eastern Pacific gray whale (<i>Eschrichtius robustus</i>)	0
Humpback whale (<i>Megaptera novaeangliae</i>)	1
Minke whale (<i>Balaenoptera acutorostrata</i>)	0
Sei whale (<i>Balaenoptera physalus</i>)	1
Fin whale (<i>Balaenoptera borealis</i>)	1
Blue whale (<i>Balaenoptera musculus</i>)	1
Odontocetes	
Sperm whale (<i>Physeter macrocephalus</i>)	1
Pygmy sperm whale (<i>Kogia breviceps</i>)	0
Dwarf sperm whale (<i>Kogia sima</i>)	0
Unidentified <i>Kogia</i> sp. whale (pygmy and dwarf sperm whale)	0
Cuvier's beaked whale (<i>Ziphius cavirostris</i>)	0
Baird's beaked whale (<i>Barardius bairdii</i>)	0
Blainville's beaked whale (<i>Mesoplodon densirostris</i>)	0
Hubb's beaked whale (<i>Mesoplodon carlhubbsi</i>)	0
Stejneger's beaked whale (<i>Mesoplodon stejnegeri</i>)	0
Unidentified <i>Mesoplodon</i> sp. beaked whale (Blainville's, Hubb's, Stejneger's beaked whales)	0

Offshore Bottlenose dolphin (<i>Tursiops truncatus</i>)	0
Northern right-whale dolphin (<i>Lissodelphis borealis</i>)	5
Pacific white-sided dolphin (<i>Lagenorhynchus obliquidens</i>)	66
Striped dolphin (<i>Stenella coeruleoalba</i>)	0
Short-beaked common dolphin (<i>Delphinus delphis</i>)	4
Risso's dolphin (<i>Grampus griseus</i>)	3
False killer whale (<i>Pseudorca crassidens</i>)	0
Killer whale (<i>Orcinus orca</i>)	0
Short-finned pilot whale (<i>Globicephala macrorhynchus</i>)	0
Harbor porpoise (<i>Phocoena phocoena</i>)	0
Dall's porpoise (<i>Phocaenoides dalli</i>)	39
Pinnipeds	
Northern fur seal (<i>Callorhinus ursinus</i>)	3
Steller sea lion (<i>Eumetopias jubatus</i>)	1
California sea lion (<i>Phocaenoides dalli</i>)	2
Harbor seal (<i>Phoca vitulina richardsi</i>)	1
Northern elephant seal (<i>Mirounga angustirostris</i>)	5