



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

JUL 10 2019

Sean Higgins
Director, Office of Marine Operations
Lamont-Doherty Earth Observatory
61 Rt. 9W
Palisades, NY 10964

Dear Mr. Higgins:

Enclosed is an Incidental Harassment Authorization (IHA) issued to Lamont-Doherty Earth Observatory, under the authority of Section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*) to take, by Level A harassment and Level B harassment only, small numbers of marine mammals incidental to a marine geophysical survey in the northeast Pacific Ocean, 2019.

You are required to comply with the conditions contained in the IHA, including all mitigation, monitoring and reporting requirements. Along with mitigation measures, the IHA requires monitoring for the presence and behavior of marine mammals during all activities associated with the project.

If you have any questions concerning the IHA or its requirements, please contact Amy Fowler, Office of Protected Resources, National Marine Fisheries Service, at (301) 427-8401.

Sincerely,

Donna S. Wieting, Director
Office of Protected Resources

Enclosure





INCIDENTAL HARASSMENT AUTHORIZATION

The Lamont-Doherty Earth Observatory of Columbia University (L-DEO) and is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to harass marine mammals incidental to a marine geophysical survey in the Northeast Pacific Ocean, when adhering to the following terms and conditions.

1. This Incidental Harassment Authorization (IHA) is valid for a period of one year from the date of issuance.
2. This IHA is valid only for marine geophysical activity as specified in L-DEO's IHA application and using an array aboard the R/V *Langseth* with characteristics specified in the IHA application, in the Northeast Pacific Ocean near the Axial volcano and seamount.
3. General Conditions
 - (a) A copy of this IHA must be in the possession of L-DEO, the vessel operator, the lead protected species observer (PSO) and any other relevant designees of L-DEO operating under the authority of this IHA.
 - (b) The species and numbers authorized for taking are listed in Table 1 (attached).
 - (c) The taking by serious injury, or death of any of the species listed in condition 3(b) of the Authorization or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA.
 - (d) L-DEO or the vessel operator must conduct briefings between PSOs and vessel crew prior to the start of all seismic operations, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

4. Mitigation Measures

The holder of this Authorization is required to implement the following mitigation measures:

- (a) L-DEO must use at least five dedicated, trained, NMFS-approved Protected Species Observers (PSOs). The PSOs must have no tasks other than to conduct observational effort, record observational data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements.



- (b) At least one of the visual and two of the acoustic PSOs aboard the vessel must have a minimum of 90 days at-sea experience working in those roles, respectively, during a deep penetration seismic survey, with no more than 18 months elapsed since the conclusion of the at-sea experience
- (c) Visual Observation
 - (i) During survey operations (*e.g.*, any day on which use of the acoustic source is planned to occur, and whenever the acoustic source is in the water, whether activated or not), a minimum of two visual PSOs must be on duty and conducting visual observations at all times during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset) and 30 minutes prior to and during ramp-up, including nighttime ramp-ups, of the airgun array. Visual monitoring of the exclusion and buffer zones must begin no less than 30 minutes prior to ramp-up and must continue until one hour after use of the acoustic source ceases or until 30 minutes past sunset.
 - (ii) Visual PSOs must coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts, and must conduct visual observations using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.
 - (iii) Visual PSOs must immediately communicate all observations to the acoustic PSO(s) on duty, including any determination by the PSO regarding species identification, distance, and bearing and the degree of confidence in the determination.
 - (iv) During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), visual PSOs must conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the acoustic source and between acquisition periods, to the maximum extent practicable.
 - (v) Visual PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least one hour between watches and may conduct a maximum of 12 hours of observation per 24-hour period. Combined observational duties (visual and acoustic but not at same time) may not exceed 12 hours per 24-hour period for any individual PSO
- (d) Acoustic Monitoring
 - (i) The source vessel must use a towed passive acoustic monitoring system (PAM) which must be monitored by, at a minimum, one on duty acoustic PSO beginning at least 30 minutes prior to ramp-up and at all times during use of the acoustic source.

- (ii) Acoustic PSOs must immediately communicate all detections to visual PSOs, when visual PSOs are on duty, including any determination by the PSO regarding species identification, distance, and bearing and the degree of confidence in the determination.
- (iii) Acoustic PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least one hour between watches and may conduct a maximum of 12 hours of observation per 24-hour period. Combined observational duties may not exceed 12 hours per 24-hour period for any individual PSO.
- (iv) Survey activity may continue for 30 minutes when the PAM system malfunctions or is damaged, while the PAM operator diagnoses the issue. If the diagnosis indicates that the PAM system must be repaired to solve the problem, operations may continue for an additional five hours without acoustic monitoring during daylight hours only under the following conditions:
 - a. Sea state is less than or equal to BSS 4;
 - b. With the exception of delphinids, no marine mammals detected solely by PAM in the applicable exclusion zone in the previous two hours;
 - c. NMFS is notified via email as soon as practicable with the time and location in which operations began occurring without an active PAM system; and
 - d. Operations with an active acoustic source, but without an operating PAM system, do not exceed a cumulative total of five hours in any 24-hour period.
- (e) Exclusion zone and buffer zone
 - (i) PSOs must establish and monitor a 500-m exclusion zone and 1,000-m buffer zone. The exclusion zone encompasses the area at and below the sea surface out to a radius of 500 m from the edges of the airgun array (0–500 m). The buffer zone encompasses the area at and below the sea surface from the edge of the 0–500 m exclusion zone, out to a radius of 1,000 m from the edges of the airgun array (500–1,000 meters). PSOs must monitor beyond 1,000 m and enumerate any takes that occur beyond the buffer zone.
 - (ii) An extended 1,500-m exclusion zone must be established for all beaked whales, and dwarf and pygmy sperm whales.

- (f) Pre-clearance and Ramp-up
- (i) A ramp-up procedure must be followed at all times as part of the activation of the acoustic source, except as described under 4(f)(vi).
 - (ii) Ramp-up must not be initiated if any marine mammal is within the exclusion or buffer zone. If a marine mammal is observed within the exclusion zone or the buffer zone during the 30 minute pre-clearance period, ramp-up may not begin until the animal(s) has been observed exiting the zone or until an additional time period has elapsed with no further sightings (15 minutes for small odontocetes and pinnipeds, and 30 minutes for mysticetes and all other odontocetes, including sperm whales, pygmy sperm whales, dwarf sperm whales, beaked whales, pilot whales, and Risso's dolphins).
 - (iii) Ramp-up must begin by activating a single airgun of the smallest volume in the array and must continue in stages by doubling the number of active elements at the commencement of each stage, with each stage of approximately the same duration. Duration must not be less than 20 minutes.
 - (iv) PSOs must monitor the exclusion and buffer zones during ramp-up, and ramp-up must cease and the source must be shut down upon observation of a marine mammal within the exclusion zone. Once ramp-up has begun, observations of marine mammals within the buffer zone do not require shutdown or powerdown, but such observation must be communicated to the operator to prepare for the potential shutdown or powerdown.
 - (v) Ramp-up may occur at times of poor visibility, including nighttime, if appropriate acoustic monitoring has occurred with no detections in the 30 minutes prior to beginning ramp-up.
 - (vi) If the acoustic source is shut down for brief periods (i.e., less than 30 minutes) for reasons other than that described for shutdown and powerdown (e.g., mechanical difficulty), it may be activated again without ramp-up if PSOs have maintained constant visual and/or acoustic observation and no visual or acoustic detections of marine mammals have occurred within the applicable exclusion zone. For any longer shutdown, pre-clearance observation and ramp-up are required. For any shutdown at night or in periods of poor visibility (e.g., BSS 4 or greater), ramp-up is required, but if the shutdown period was brief and constant observation was maintained, pre-clearance watch of 30 min is not required.
 - (vii) Testing of the acoustic source involving all elements requires ramp-up. Testing limited to individual source elements or strings does not require ramp-up but does require pre-clearance of 30 min.

(g) Shutdown and Powerdown

- (i) Any PSO on duty has the authority to delay the start of survey operations or to call for shutdown or powerdown of the acoustic source if a marine mammal is detected within the 500-m exclusion zone (100 m when shutdown has been waived as described in 4(g)(viii)).
- (ii) The operator must establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown and powerdown commands are conveyed swiftly while allowing PSOs to maintain watch.
- (iii) When the airgun array is active (i.e., anytime one or more airguns is active, including during ramp-up and powerdown) and (1) a marine mammal (excluding delphinids) appears within or enters the exclusion zone and/or (2) a marine mammal is detected acoustically and localized within the exclusion zone, the acoustic source must be shut down. When shutdown is called for by a PSO, the airgun array must be immediately deactivated. Any questions regarding a PSO shutdown must be resolved after deactivation.
- (iv) Shutdown must occur whenever PAM alone (without visual sighting), confirms presence of marine mammal(s) (other than delphinids) in the 500-m exclusion zone. During daylight hours, if the acoustic PSO cannot confirm presence within exclusion zone, visual PSOs must be notified but shutdown is not required.
- (v) The airgun array must be shut down if a marine mammal species for which take was not authorized, or a species for which authorization was granted but the takes have been met, approaches the Level A or Level B harassment zones.
- (vi) The airgun array must be shut down if a North Pacific right whale is observed at any distance.
- (vii) The airgun array must be shut down if any large whale (defined as a sperm whale or any mysticete species) with a calf (defined as an animal less than two-thirds the body size of an adult observed to be in close association with an adult) or an aggregation of six or more large whales is observed at any distance.
- (viii) The shutdown requirement shall be waived for small dolphins of the following genera: *Tursiops*, *Delphinus*, *Stenella*, *Lagenorhynchus*, and *Lissodelphis*.

- a. The acoustic source must be powered down to 40-in³ airgun if an individual belonging to these genera is visually detected within the 500-m exclusion zone.
 - b. When the acoustic source is powered down to the 40-in³ airgun due to the presence of dolphins specified in 4(g)(v), an exclusion zone of 100 m and Level B harassment zone of 430 m will be in effect for species other than specified dolphin genera that may approach the survey vessel.
 - c. Powerdown conditions must be maintained until delphinids, for which shutdown is waived, are no longer observed within the 500-m exclusion zone, following which full-power operations may be resumed without ramp-up. Visual PSOs may elect to waive the powerdown requirement if delphinids for which shutdown is waived appear to be voluntarily approaching the vessel for the purpose of interacting with the vessel or towed gear, and must use best professional judgment in making this decision.
 - d. If PSOs observe any behaviors in delphinids for which shutdown is waived that indicate an adverse reaction, then powerdown must be initiated.
 - e. Visual PSOs must use best professional judgment in making the decision to call for a shutdown if there is uncertainty regarding identification (i.e., whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived).
- (ix) Upon implementation of shutdown, the source may be reactivated after the marine mammal(s) has been observed exiting the applicable exclusion zone (i.e., animal is not required to fully exit the buffer zone where applicable) or following a clearance period (15 minutes for small odontocetes and pinnipeds, and 30 minutes for mysticetes and all other odontocetes, including sperm whales, pygmy sperm whales, dwarf sperm whales, beaked whales, pilot whales, and Risso's dolphins) with no further observation of the marine mammal(s).
- (h) Vessel operators and crews must maintain a vigilant watch for all marine mammals and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any marine mammal. A visual observer aboard the vessel must monitor a vessel strike avoidance zone around the vessel (specific distances detailed below), to ensure the potential for strike is minimized.
- (i) Vessel speeds must be reduced to 10 knots or less when mother/calf pairs, pods, or large assemblages of any marine mammal are observed near a vessel.

- (ii) Vessels must maintain a minimum separation distance of 100 m from large whales (i.e., sperm whales and all baleen whales).
 - (iii) Vessels must attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an exception made for those animals that approach the vessel.
 - (iv) When marine mammals are sighted while a vessel is underway, the vessel must take action as necessary to avoid violating the relevant separation distance. If marine mammals are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not engaging the engines until animals are clear of the area. This recommendation does not apply to any vessel towing gear.
- (i) Actions to Minimize Additional Harm to Live Stranded (or Milling) Marine Mammals – In the event of a live stranding (or near-shore atypical milling) event within 50 km of the survey operations, where the NMFS stranding network is engaged in herding or other interventions to return animals to the water, the Director of OPR, NMFS (or designee) will advise L-DEO of the need to implement shutdown procedures for all active acoustic sources operating within 50 km of the stranding. Shutdown procedures for live stranding or milling marine mammals include the following:
- (i) If at any time, the marine mammal(s) die or are euthanized, or if herding/intervention efforts are stopped, the Director of OPR, NMFS (or designee) will advise the IHA-holder that the shutdown around the animals' location is no longer needed.
 - (ii) Otherwise, shutdown procedures will remain in effect until the Director of OPR, NMFS (or designee) determines and advises the IHA-holder that all live animals involved have left the area (either of their own volition or following an intervention).
 - (iii) If further observations of the marine mammals indicate the potential for re-stranding, additional coordination with the IHA-holder will be required to determine what measures are necessary to minimize that likelihood (e.g., extending the shutdown or moving operations farther away) and to implement those measures as appropriate.

5. Monitoring Requirements

The holder of this Authorization is required to conduct marine mammal monitoring during survey activity. Monitoring must be conducted in accordance with the following requirements:

- (a) The operator must provide PSOs with bigeye binoculars (e.g., 25 x 150; 2.7 view angle; individual ocular focus; height control) of appropriate quality (i.e., Fujinon

or equivalent) solely for PSO use. These must be pedestal-mounted on the deck at the most appropriate vantage point that provides for optimal sea surface observation, PSO safety, and safe operation of the vessel.

- (b) The operator must work with the selected third-party observer provider to ensure PSOs have all equipment (including backup equipment) needed to adequately perform necessary tasks, including accurate determination of distance and bearing to observed marine mammals. Such equipment, at a minimum, must include:
 - (i) PAM must include a system that has been verified and tested by the acoustic PSO that will be using it during the trip for which monitoring is required.
 - (ii) At least one night-vision device suited for the marine environment for use during nighttime pre-clearance and ramp-up that features automatic brightness and gain control, bright light protection, infrared illumination, and/or optics suited for low-light situations (e.g., Exelis PVS-7 night vision goggles; Night Optics D-300 night vision monocular; FLIR M324XP thermal imaging camera or equivalents).
 - (iii) Reticle binoculars (e.g., 7 x 50) of appropriate quality (i.e., Fujinon or equivalent) (at least one per PSO, plus backups).
 - (iv) Global Positioning Units (GPS) (at least one per PSO, plus backups).
 - (v) Digital single-lens reflex cameras of appropriate quality that capture photographs and video (i.e., Canon or equivalent) (at least one per PSO, plus backups).
 - (vi) Compasses (at least one per PSO, plus backups).
 - (vii) Radios for communication among vessel crew and PSOs (at least one per PSO, plus backups).
 - (viii) Any other tools necessary to adequately perform necessary PSO tasks.
- (c) Protected Species Observers (PSOs, Visual and Acoustic) Qualifications
 - (i) PSOs must be independent, dedicated, trained visual and acoustic PSOs and must be employed by a third-party observer provider.
 - (ii) PSOs must have no tasks other than to conduct observational effort (visual or acoustic), collect data, and communicate with and instruct relevant vessel crew with regard to the presence of protected species and mitigation requirements (including brief alerts regarding maritime hazards), and

- (iii) PSOs must have successfully completed an approved PSO training course appropriate for their designated task (visual or acoustic). Acoustic PSOs are required to complete specialized training for operating PAM systems and are encouraged to have familiarity with the vessel with which they will be working.
 - (iv) PSOs can act as acoustic or visual observers (but not at the same time) as long as they demonstrate that their training and experience are sufficient to perform the task at hand.
 - (v) NMFS must review and approve PSO resumes.
 - (vi) NMFS shall have one week to approve PSOs from the time that the necessary information is submitted, after which PSOs meeting the minimum requirements shall automatically be considered approved.
 - (vii) One visual PSO with experience as shown in 4(b) shall be designated as the lead for the entire protected species observation team. The lead must coordinate duty schedules and roles for the PSO team and serve as primary point of contact for the vessel operator. To the maximum extent practicable, the lead PSO must devise the duty schedule such that experienced PSOs are on duty with those PSOs with appropriate training but who have not yet gained relevant experience.
 - (viii) PSOs must successfully complete relevant training, including completion of all required coursework and passing (80 percent or greater) a written and/or oral examination developed for the training program.
 - (ix) PSOs must have successfully attained a bachelor's degree from an accredited college or university with a major in one of the natural sciences, a minimum of 30 semester hours or equivalent in the biological sciences, and at least one undergraduate course in math or statistics.
 - (x) The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver must be submitted to NMFS and must include written justification. Requests must be granted or denied (with justification) by NMFS within one week of receipt of submitted information. Alternate experience that may be considered includes, but is not limited to (1) secondary education and/or experience comparable to PSO duties; (2) previous work experience conducting academic, commercial, or government-sponsored protected species surveys; or (3) previous work experience as a PSO; the PSO should demonstrate good standing and consistently good performance of PSO duties.
- (d) Data Collection

- (i) PSOs must use standardized data collection forms, whether hard copy or electronic. PSOs must record detailed information about any implementation of mitigation requirements, including the distance of animals to the acoustic source and description of specific actions that ensued, the behavior of the animal(s), any observed changes in behavior before and after implementation of mitigation, and if shutdown was implemented, the length of time before any subsequent ramp-up of the acoustic source. If required mitigation was not implemented, PSOs should record a description of the circumstances.

- (ii) At a minimum, the following information must be recorded:
 - a. Vessel names (source vessel and other vessels associated with survey) and call signs;
 - b. PSO names and affiliations;
 - c. Date and participants of PSO briefings (as discussed in General Requirement);
 - d. Dates of departures and returns to port with port name;
 - e. Dates and times (Greenwich Mean Time) of survey effort and times corresponding with PSO effort;
 - f. Vessel location (latitude/longitude) when survey effort began and ended and vessel location at beginning and end of visual PSO duty shifts;
 - g. Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change;
 - h. Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions changed significantly), including BSS and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon;
 - i. Factors that may have contributed to impaired observations during each PSO shift change or as needed as environmental conditions changed (e.g., vessel traffic, equipment malfunctions); and
 - j. Survey activity information, such as acoustic source power output while in operation, number and volume of airguns operating in the array, tow depth of the array, and any other notes of significance (i.e., pre-clearance, ramp-up, shutdown, testing, shooting, ramp-up completion, end of operations, streamers, etc.).

- (iii) Upon visual observation of any protected species, the following information must be recorded:
- a. Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
 - b. PSO who sighted the animal;
 - c. Time of sighting;
 - d. Vessel location at time of sighting;
 - e. Water depth;
 - f. Direction of vessel's travel (compass direction);
 - g. Direction of animal's travel relative to the vessel;
 - h. Pace of the animal;
 - i. Estimated distance to the animal and its heading relative to vessel at initial sighting;
 - j. Identification of the animal (e.g., genus/species, lowest possible taxonomic level, or unidentified) and the composition of the group if there is a mix of species;
 - k. Estimated number of animals (high/low/best);
 - l. Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
 - m. Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
 - n. Detailed behavior observations (e.g., number of blows/breaths, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);
 - o. Animal's closest point of approach (CPA) and/or closest distance from any element of the acoustic source;
 - p. Platform activity at time of sighting (e.g., deploying, recovering, testing, shooting, data acquisition, other); and

- q. Description of any actions implemented in response to the sighting (e.g., delays, shutdown, ramp-up) and time and location of the action.
- (iv) If a marine mammal is detected while using the PAM system, the following information should be recorded:
 - a. An acoustic encounter identification number, and whether the detection was linked with a visual sighting;
 - b. Date and time when first and last heard;
 - c. Types and nature of sounds heard (e.g., clicks, whistles, creaks, burst pulses, continuous, sporadic, strength of signal);
 - d. Any additional information recorded such as water depth of the hydrophone array, bearing of the animal to the vessel (if determinable), species or taxonomic group (if determinable), spectrogram screenshot, and any other notable information.

6. Reporting

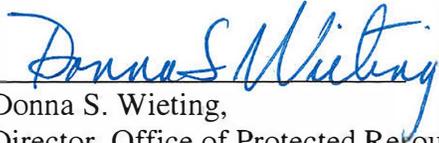
- (a) L-DEO must submit a draft comprehensive report to NMFS on all activities and monitoring results within 90 days of the completion of the survey or expiration of the IHA, whichever comes sooner. The draft report must include the following:
 - (i) Summary of all activities conducted and sightings of protected species near the activities;
 - (ii) Full documentation of methods, results, and interpretation pertaining to all monitoring;
 - (iii) Summary of dates and locations of survey operations and all protected species sightings (dates, times, locations, activities, associated survey activities);
 - (iv) Geo-referenced time-stamped vessel tracklines for all time periods during which airguns were operating. Tracklines should include points recording any change in airgun status (e.g., when the airguns began operating, when they were turned off, or when they changed from full array to single gun or vice versa);
 - (v) GIS files in ESRI shapefile format and UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates must be referenced to the WGS84 geographic coordinate system;

- (vi) Raw observational data;
 - (vii) Summary of the information submitted in interim monthly reports as well as additional data collected as described above in Data Collection and the IHA;
 - (viii) Estimates of the number and nature of exposures that occurred above the harassment threshold based on PSO observations, including an estimate of those that were not detected in consideration of both the characteristics and behaviors of the species of marine mammals that affect detectability, as well as the environmental factors that affect detectability;
 - (ix) Certification from the lead PSO as to the accuracy of the report
 - a. The lead PSO may submit statement directly to NMFS concerning implementation and effectiveness of the required mitigation and monitoring.
 - (x) A final report must be submitted within 30 days following resolution of any comments on the draft report.
- (b) Reporting Injured or Dead Marine Mammals
- (i) Discovery of Injured or Dead Marine Mammal – In the event that personnel involved in the survey activities covered by the authorization discover an injured or dead marine mammal, L-DEO must report the incident to the Office of Protected Resources (OPR) (301-427-8401), NMFS and the NMFS West Coast Regional Stranding Coordinator (866-767-6114) as soon as feasible. The report must include the following information:
 - a. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
 - b. Species identification (if known) or description of the animal(s) involved;
 - c. Condition of the animal(s) (including carcass condition if the animal is dead);
 - d. Observed behaviors of the animal(s), if alive;
 - e. If available, photographs or video footage of the animal(s); and
 - f. General circumstances under which the animal was discovered.

- (ii) Vessel Strike – In the event of a ship strike of a marine mammal by any vessel involved in the activities covered by the authorization, L-DEO must report the incident to OPR, NMFS and to regional stranding coordinators as soon as feasible. The report must include the following information:
- a. Time, date, and location (latitude/longitude) of the incident;
 - b. Species identification (if known) or description of the animal(s) involved;
 - c. Vessel's speed during and leading up to the incident;
 - d. Vessel's course/heading and what operations were being conducted (if applicable);
 - e. Status of all sound sources in use;
 - f. Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
 - g. Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
 - h. Estimated size and length of animal that was struck;
 - i. Description of the behavior of the marine mammal immediately preceding and following the strike;
 - j. If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
 - k. Estimated fate of the animal (e.g., dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
 - l. To the extent practicable, photographs or video footage of the animal(s).
- (iii) Additional Information Requests – If NMFS determines that the circumstances of any marine mammal stranding found in the vicinity of the activity suggest investigation of the association with survey activities is warranted (example circumstances noted below), and an investigation into the stranding is being pursued, NMFS will submit a written request to the IHA-holder indicating that the following initial available information must be provided as soon as possible, but no later than 7 business days after the request for information.

- a. Status of all sound source use in the 48 hours preceding the estimated time of stranding and within 50 km of the discovery/notification of the stranding by NMFS; and
 - b. If available, description of the behavior of any marine mammal(s) observed preceding (i.e., within 48 hours and 50 km) and immediately after the discovery of the stranding.
 - c. In the event that the investigation is still inconclusive, the investigation of the association of the survey activities is still warranted, and the investigation is still being pursued, NMFS may provide additional information requests, in writing, regarding the nature and location of survey operations prior to the time period above.
7. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein, or if NMFS determines the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.
8. Renewals - On a case-by-case basis, NMFS may issue a one-year IHA renewal with an expedited public comment period (15 days) when 1) another year of identical or nearly identical activities as described in the Specified Activities section is planned or 2) the activities would not be completed by the time the IHA expires and a second IHA would allow for completion of the activities beyond that described in the Dates and Duration section, provided all of the following conditions are met:
 - (a) A request for renewal is received no later than 60 days prior to expiration of the current IHA.
 - (b) The request for renewal must include the following:
 - (i) An explanation that the activities to be conducted beyond the initial dates either are identical to the previously analyzed activities or include changes so minor (e.g., reduction in pile size) that the changes do not affect the previous analyses, take estimates, or mitigation and monitoring requirements.
 - (ii) A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.
 - (iii) Upon review of the request for renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and

monitoring measures remain the same and appropriate, and the original findings remain valid.



Donna S. Wieting,
Director, Office of Protected Resources,
National Marine Fisheries Service.

JUL 10 2019

Date

Table 1. Numbers of Incidental Take of Marine Mammals Authorized.

Species	Level B	Level A	Total Authorized Take
Humpback whale	32	3	35
Minke whale	23	2	25
Sei whale	6	2	8
Fin whale	74	7	81
Blue whale	19	2	21
Sperm whale	48	0	48
Cuvier's and <i>Mesoplodon</i> beaked whales	138	0	138
Baird's beaked whale	15	0	15
Bottlenose dolphin	13	0	13
Striped dolphin	176	0	176
Short-beaked common dolphin	2,356	0	2,356
Pacific white-sided dolphin	329	0	329
Northern right-whale dolphin	749	0	754
Risso's dolphin	132	0	132
False killer whale	5	0	5
Killer whale	17	0	17
Short-finned pilot whale	18	0	18
<i>Kogia</i> spp.	29	2	31
Dall's porpoise	786	43	829
Northern fur seal	201	0	201
Guadalupe fur seal	65	0	65
Northern elephant seal	629	0	629