



United States Department of the Interior

FISH AND WILDLIFE SERVICE
911 NE 11th Avenue
Portland, Oregon 97232-4181



In Reply Refer to:
FWS/IR09/IR12/IHA-21-01

INCIDENTAL HARASSMENT AUTHORIZATION (IHA-21-01)

The National Science Foundation and Lamont-Doherty Earth Observatory (NSF/L–DEO) are hereby authorized by the U.S. Fish and Wildlife Service (Service) under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371 (a)(5)(D)) to harass northern sea otters incidental to a marine geophysical survey along the coasts of Washington and Oregon, 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 survey activity as specified in NSF/L–DEO’s IHA application and draft environmental assessment, as subsequently modified in the Service’s Federal Register notice (86 FR 12019, March 1, 2021) and the Service’s final environmental assessment and Finding of No Significant Impact (FONSI); specifically using an airgun array towed behind the R/V *Langseth* and other sound emitting equipment aboard the R/V *Langseth* and R/V *Oceanus* with characteristics specified in the IHA application along the Cascadia Subduction Zone off the coasts of Washington and Oregon.
3. General Conditions
 - (a) A copy of this IHA shall be in the possession of NSF/L–DEO, the vessel operator, the lead Protected Species Observer (PSO) and any other relevant designees of NSF/L–DEO operating under the authority of this IHA. These personnel shall understand, be fully aware of, and be capable of full implementation of the terms and conditions of the IHA at all times during project work.
 - (b) Operators shall allow Service personnel or the Service’s designated representative to visit project work sites to monitor impacts to sea otters at any time throughout project activities so long as it is safe to do so. “Operators” are all personnel operating under the applicant’s authority, including all contractors and subcontractors.

INTERIOR REGION 9
COLUMBIA–PACIFIC NORTHWEST

IDAHO, MONTANA*, OREGON*, WASHINGTON

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MARIANA ISLANDS

- (c) Authorized incidental take is limited to a total of 13 northern sea otters. Take may be Level A harassment, Level B harassment, or combination. Authorized take shall be limited to significant injury associated with permanent threshold shifts and disruption of behavioral patterns that may be caused by geophysical surveys and support activities conducted by NSF/L–DEO in Washington and Oregon, from approximately May 20 to July 31, 2021. It is possible the proposed project timeframe could be delayed. However, as noted below, the authorization is valid for up to one year from the signature date.
- (d) The taking by death of northern sea otter is prohibited and may result in the modification, suspension, or revocation of this IHA.
- (e) The taking of sea otters whenever the required conditions, mitigation, monitoring, and reporting measures have not been fully implemented, as required by this IHA, is prohibited. Failure to follow measures specified herein may result in the modification, suspension, or revocation of this IHA.
- (f) NSF/L–DEO or the vessel operator shall 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, northern sea otter monitoring protocol, and operational procedures.

4. Mitigation Measures

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

- (a) Within the waters offshore of Washington between Tatoosh Island and the Quillayute River mouth, survey transects shall remain 21 km (13 mi) from shore or seaward of 100-m (328-ft) depth contour, whichever is greater. Survey transects shall remain seaward of the 100-m (328-ft) depth contour between the mouths of the Quillayute River and Grays Harbor. Waters less than 100-m depth contour offshore of Washington between Tatoosh Island and Grays Harbor constitute the area of highest sea otter densities within the proposed action.
- (b) While the R/V *Langseth* is surveying in waters 200 m (656 ft) deep or less off the coast of Washington, survey operations shall occur in daylight hours only (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset) to ensure that observers are able to visually observe the entire 500-m (1,640-ft) Exclusion Zone (EZ) and beyond to implement shutdown procedures.
- (c) If possible, while the R/V *Langseth* is surveying in waters 1,000 m (3,280 ft) deep or less off the coast of Washington, survey operations shall occur in daylight hours only (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following

sunset) to ensure that PSOs are able to visually observe the entire 500-m (1,640-ft) EZ and beyond to implement shutdown procedures.

(d) Vessel-Based Visual Observation

- (i) NSF/L-DEO shall use at least five dedicated, trained, Service-approved PSOs. The PSOs shall 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 northern sea otters and mitigation requirements.
- (ii) At least one of the visual PSOs aboard the vessel shall have a minimum of 90 days at-sea experience working in those roles, respectively, during a deep-penetration (*i.e.*, “high energy”) seismic survey, with no more than 18 months elapsed since the conclusion of the at-sea experience. One visual PSO with such experience shall be designated as the lead for the entire protected species observation team. The lead PSO shall serve as primary point of contact for the vessel operator and ensure all PSO requirements per the IHA are met. To the maximum extent practicable, the experienced PSOs shall be scheduled to be on duty with those PSOs with appropriate training but who have not yet gained relevant experience.
- (iii) 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 shall 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). Visual monitoring of the exclusion and buffer zones shall begin no less than 30 minutes prior to ramp-up and shall continue until 1 hour after use of the acoustic source ceases or until 30 minutes past sunset. Visual PSOs shall coordinate to ensure 360° visual coverage around the vessel from the most appropriate observation posts and shall conduct visual observations using binoculars and the naked eye while free from distractions and in a consistent, systematic, and diligent manner.
- (iv) During use of the airgun (*i.e.*, anytime the acoustic source is active, including ramp-up), occurrences of northern sea otters within the buffer zone (but outside the exclusion zone) shall be communicated to the operator to prepare for the potential shutdown of the acoustic source. Visual PSOs shall immediately communicate all observations to the on-duty acoustic PSO(s), including any determination by the PSO regarding species identification, distance, and bearing and the degree of confidence in the determination. Any observations of northern sea otters by crew members shall be relayed to the PSO team. During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), visual PSOs shall 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 4 consecutive hours followed by a break of at least 1 hour between watches and may conduct a maximum of 12 hours of observation per 24-hour period.
- (e) Exclusion zone and buffer zone
- (i) PSOs shall establish and monitor a 500-m (1,640-ft) exclusion zone and 1,000-m (3,280-ft) 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 acoustic source (rather than being based on the center of the array or around the vessel itself). The buffer zone encompasses the area at and below the sea surface from the edge of the 0–500-m (1,640-ft) exclusion zone, out to a radius of 1,000 m (3,280 ft) from the edges of the airgun array (500–1,000 m [1,640–3,280 ft]). PSOs shall monitor up to 1,000 m and enumerate any incidental take that occurs.
- (f) Pre-clearance and Ramp-up
- (i) A ramp-up procedure shall be followed at all times as part of the activation of the acoustic source, except as described under 4(f)(ix).
 - (ii) The operator shall notify a designated PSO of the planned start of ramp-up as agreed upon with the lead PSO; the notification time should not be less than 60 minutes prior to the planned ramp-up in order to allow the PSOs time to monitor the exclusion and buffer zones for 30 minutes prior to the initiation of ramp-up (pre-clearance).
 - (iii) Ramp-ups shall be scheduled so as to minimize the time spent with the source activated prior to reaching the designated run-in.
 - (iv) One of the PSOs conducting pre-clearance observations shall be notified again immediately prior to initiating ramp-up procedures and the operator shall receive confirmation from the PSO to proceed.
 - (v) Ramp-up shall not be initiated if any northern sea otter is within the exclusion or buffer zone. If a sea otter 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 15-minute time period has elapsed with no further sightings.

- (vi) Ramp-up shall begin by activating a single airgun of the smallest volume in the array and shall 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 shall not be less than 20 minutes. The operator shall provide information to the PSO documenting that appropriate procedures were followed.
 - (vii) Visual PSOs shall monitor the exclusion and buffer zones during ramp-up, and ramp-up shall cease and the source shall be shut down upon observation of a northern sea otter within the exclusion zone. Once ramp-up has begun, observations of northern sea otters within the buffer zone do not require shutdown, but such observation shall be communicated to the operator to prepare for the potential shutdown.
 - (viii) Ramp-up may occur at times of poor visibility if appropriate visual monitoring has occurred with no detections in the 30 minutes prior to beginning ramp-up. Acoustic source activation may occur only at times of poor visibility where operational planning cannot reasonably avoid such circumstances.
 - (ix) If the acoustic source is shut down for brief periods (*i.e.*, less than 30 minutes) for reasons other than that described for shutdown (*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 northern sea otters 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 visual observation was maintained, pre-clearance watch of 30 minutes is not required.
 - (x) 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 minutes.
- (g) Shutdown
- (i) Any PSO on duty has the authority, and shall be required, to delay the start of survey operations or to call for shutdown of the acoustic source if a northern sea otter is detected within the 500-m exclusion zone.
 - (ii) The operator shall also establish and maintain clear lines of communication directly between PSOs on duty and crew controlling the acoustic source to ensure that shutdown 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 a northern sea otter appears within or enters the 500-m exclusion zone, the acoustic source shall be shut down. When shutdown is called for by a PSO, the acoustic source shall be immediately deactivated.
- (iv) Following a shutdown, airgun activity shall not resume until the northern sea otter(s) has been visually observed exiting the 500-m (1,640-ft) exclusion zone or it has not been seen within the 500-m (1,640-ft) exclusion zone for 15 minutes.
- (v) L-DEO shall implement shutdown if a sea otter approaches the Level A or Level B harassment zones if the level of authorized incidental take has been met.

5. Monitoring Requirements

The holder of this Authorization is required to conduct northern sea otter monitoring during survey activity. Monitoring shall be conducted in accordance with the following requirements:

- (a) The operator shall provide PSOs with bigeye binoculars (*e.g.*, 25×150; 2.7-view angle; individual ocular focus; height control) of appropriate quality (*i.e.*, Fujinon or equivalent) solely for PSO use. These shall 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 shall 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 sea otters.
- (c) Visual Protected Species Observer (PSO) Qualifications
 - (i) PSOs shall be independent, dedicated, trained visual PSOs and shall be employed by a third-party observer provider.
 - (ii) PSOs shall have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of protected species (northern sea otters and those under the jurisdiction of NMFS) and mitigation requirements (including brief alerts regarding maritime hazards).

- (iii) NSF and L-DEO are responsible for providing appropriate training to PSOs to ensure ability to observe and identify a sea otter.
 - (iv) NSF/L-DEO shall submit to the Service for review and approval PSO resumes including relevant training course information that identifies the name and qualifications (*i.e.*, experience, training completed, or educational background) of the instructor(s), the course outline or syllabus, and course reference material as well as a document stating successful completion of the course (passing a written and/or oral examination with 80 percent or greater).
 - (v) PSOs shall 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.
 - (vi) The educational requirements may be waived if the PSO has acquired the relevant skills through alternate experience. Requests for such a waiver shall be submitted to the Service and shall include written justification. Requests shall be granted or denied (with justification) by the Service within 1 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 shall use consistent data collection forms, whether hard copy or electronic. PSOs shall record detailed information about any implementation of mitigation requirements, including the distance of sea otters 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 shall be recorded:
- a. Vessel names (source vessel and other vessels associated with survey) and call signs.
 - b. PSO names and affiliations.
 - c. Dates of departures and returns to port with port name.
 - d. Date and participants of PSO briefings.
 - 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).
 - 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 northern sea otter, the following information shall 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 and estimated distance of northern sea otter relative to the vessel at initial sighting.
- h. Estimated number of animals (high/low/best).
- i. Detailed behavior observations (*e.g.*, grooming; actively moving away from vessel; diving; note any observed changes in behavior).
- j. Animal's closest point of approach and/or closest distance from any element of the acoustic source.
- k. Platform activity at time of sighting (*e.g.*, deploying, recovering, testing, shooting, data acquisition, other).
- l. Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up) and time and location of the action.

6. Reporting

- (a) NSF/L-DEO shall submit a final report to the Service within 90 after completion of work or expiration of the IHA, whichever comes sooner. The final report shall include the following:
 - (i) Summary of the operations conducted and sightings of sea otters near the operations.
 - (ii) Full documentation of methods, results, and interpretation pertaining to all monitoring, including factors influencing visibility and detectability of sea otters.
 - (iii) Summary of dates and locations of seismic operations and all northern sea otter sightings (dates, times, locations, activities, associated seismic survey activities).

- (iv) Estimates of the number and nature of northern sea otter exposures that occurred above the harassment threshold based on PSO observations.
 - (v) Geo-referenced time-stamped vessel transect lines for all time periods during which airguns were operating. Transect lines 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).
 - (vi) GIS files shall be provided in ESRI shapefile format and include the UTC date and time, latitude in decimal degrees, and longitude in decimal degrees. All coordinates shall be referenced to the GCS_North_American_1983 geographic coordinate system.
 - (vii) All raw observational data.
 - (viii) Certification from the lead PSO as to the accuracy of the report.
 - a. The lead PSO may submit statement directly to the Service concerning implementation and effectiveness of the required mitigation and monitoring.
- (b) Reporting Injured or Dead Northern Sea Otters
- (i) Reporting of Injured or Dead Northern Sea Otter - In the event that personnel involved in survey activities covered by the authorization discover an injured or dead northern sea otter, the NSF/L-DEO shall report the incident to the Washington Fish and Wildlife Office's sea otter stranding coordinator (1-877-326-8837) as soon as feasible, but no later than within 48 hours. The report shall include the following information:
 - a. Time, date, and location (latitude/longitude) of the discovery.
 - b. Condition of the animal(s) (including carcass condition if the animal is dead).
 - c. Observed behaviors of the animal(s), if alive.
 - d. If available, photographs or video footage of the animal(s).
 - e. General circumstances under which the animal was discovered.

- (ii) Vessel Strike - In the event of a ship strike of a northern sea otter by any vessel involved in the activities covered by the authorization, NSF/L-DEO shall report the incident to Washington Fish and Wildlife Office's sea otter stranding coordinator (contact information above) as soon as feasible. The report shall include the following information:
- a. Time, date, and location (latitude/longitude) of the incident.
 - b. Vessel's speed during and leading up to the incident.
 - c. Vessel's course/heading and what operations were being conducted (if applicable).
 - d. Status of all sound sources in use.
 - e. 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.
 - f. Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike.
 - g. Description of the behavior of the northern sea otter immediately preceding and following the strike.
 - h. Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared).
 - i. To the extent practicable, photographs or video footage of the animal(s).
- (iii) *Additional Information Requests*—If the Service determines that the circumstances of any northern sea otter 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, the Service shall submit a written request to the IHA-holder indicating that the following initial available information shall 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 (31 mi) of the discovery/notification of the stranding by the Service.
 - b. If available, description of the behavior of any sea otters(s) observed preceding (*i.e.*, within 48 hours and 50 km [31 mi]) and immediately after the discovery of the stranding.
 - c. Examples of circumstances that could trigger the additional information request include, but are not limited to, the following:
 1. Necropsies with findings of pathologies that are unusual for northern sea otters.
 2. Stranded animals with findings consistent with blast trauma.
 - d. 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, the Service 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 the Service determines the authorized taking is having more than a negligible impact on the northern sea otter stock in Washington and Oregon.
8. Renewals - On a case-by-case basis, the Service 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 shall 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 transects) that the changes do not affect the previous analyses, incidental 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 northern sea otter, and any other pertinent information, the Service 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.
9. All reports or inquiries shall be submitted to “Attention: Washington Fish and Wildlife Office’s Sea Otter Stranding Coordinator” at WashingtonFWO_Admin@fws.gov.

Acting

Hugh Morrison

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Date: 2021.04.20 16:56:39 -07'00'

Regional Director, Interior Regions 9 and 12
U.S. Fish and Wildlife Service

April 20, 2021

Date