



## INCIDENTAL HARASSMENT AUTHORIZATION

The Seattle Department of Transportation (DOT) and/or its designees (holders of the Authorization) are hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1371(a)(5)(D)) to harass small numbers of marine mammals incidental to pile driving and removal activities as part of Seattle DOT's Pier 62 Project.

1. This Authorization is valid from October 4, 2017, through February 28, 2018.
2. This Authorization is valid only for activities associated with in-water construction work for the Seattle DOT Pier 62 Project in Elliot Bay, Seattle, Washington.
3. General Conditions

- (a) The species authorized for taking, by Level A harassment and Level B harassment, and in the numbers shown in Table 1 are: Pacific harbor seal (*Phoca vitulina*), northern elephant seal (*Mirounga angustirostris*), California sea lion (*Zalophus californianus*), Steller sea lion (*Eumetopias jubatus*), harbor porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), long-beaked common dolphin (*Delphinus capensis*), both southern resident killer whale (SRKW) and transient killer whale (*Orcinus orca*), humpback whale (*Megaptera novaengliae*), gray whale (*Eschrichtius robustus*), and minke whale (*Balaenoptera acutorostrata*).

Table 1. Summary of Authorized Incidental Take by Level A and Level B Harassment

Species	Authorized Level A Take	Authorized Level B Take	Authorized Total Take
Pacific harbor seal	4	1,465	1,469
Northern elephant seal	0	1	1
California sea lion	0	1,695	1,695
Steller sea lion	0	188	188
Southern resident killer whale	0	24 (single occurrence of one pod)	24 (single occurrence of one pod)
Transient killer whale	0	42	42
Long-beaked common dolphin	0	20	20
Harbor porpoise	32	3,480	3,512
Dall's porpoise	2	199	201
Humpback whale	0	5	5

Species	Authorized Level A Take	Authorized Level B Take	Authorized Total Take
Gray whale	0	3	3
Minke whale	0	2	2

(b) The authorization for taking by harassment is limited to the following acoustic sources and from the following activities:

- Impact pile driving;
- Vibratory pile driving; and
- Vibratory pile removal

#### 4. Prohibitions

(a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 1 of this Authorization. The taking by serious injury or death of these species or the taking by harassment, injury or death of any other species of marine mammal is prohibited unless separately authorized or exempted under the MMPA and may result in the modification, suspension, or revocation of this Authorization.

(b) The taking of any marine mammal is prohibited whenever the required protected species observers (PSOs), required by condition 6(b), are not present in conformance with condition 6(b) of this Authorization.

#### 5. Mitigation Measures

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

(a) Time Restriction

In-water construction work shall occur only during daylight hours.

(b) Bubble Curtain

A bubble curtain shall be used during pile driving activities with an impact hammer.

(c) Level B Harassment Zones

Seattle DOT shall monitor the Level B harassment zones as described in Table 2 below.

**Table 2. Level B Harassment Zone Descriptions and Duration of Activity**

Activity	Construction Method	Level B Threshold (m)	Level B ZOI (km <sup>2</sup> )
Removal of 14-in Timber Piles	Vibratory	1,865	4.9
Installation of 30-in Steel Piles	Vibratory	54,117	91
Installation of 30-in Steel Piles	Impact	1,201	2.3

(d) Exclusion Zones

Seattle DOT shall implement shutdown measures if a marine mammal is detected within or approaching the Exclusion Zones as outlined in Table 3.

**Table 3. Exclusion zones for various pile driving activities for marine mammal hearing groups.**

Sound Source Type	Exclusion Zone (meters)				
	Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	Otariid Pinnipeds
1 - Vibratory (pile removal)	17.4	10	25.7	10.6	10
2 - Vibratory (installation)	504.8	44.7	746.4	306.8	21.5
3 - Impact (installation)	88.6	10	105.6	47.4	10

- (i) Seattle DOT shall implement a minimum shutdown zone of a 10 m radius around each pile for all construction methods for all marine mammals.
- (ii) If a marine mammal is observed at or within the Exclusion Zone, work shall stop until the individual has been observed outside of the zone, or has not been observed for at least 15 minutes for pinnipeds and small cetaceans and 30 minutes for large whales.

(e) Additional Shutdown Measures

Seattle DOT shall implement shutdown measures if the cumulative total of individuals observed within the ZOI for any particular species exceeds the number authorized under the IHA and if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B harassment zone during in-water construction activities.

(f) Soft-Start for Impact Pile Driving

Each day at the beginning of impact pile driving or any time there has been cessation or downtime of 30 minutes or more without pile driving, contractors shall initiate soft-start for impact hammers by providing an initial set of three strikes from the impact hammer at 40 percent energy, followed by a one-minute waiting period, then two subsequent three-strike sets.

(g) Additional Coordination

Seattle DOT shall monitor and coordinate with the local marine mammal networks (*i.e.*, the Orca Network and/or the Center for Whale Research) on a daily basis for sightings data and acoustic detection data to gather information on the location of whales prior to pile removal or pile driving activities. The project team shall also coordinate with Washington State Ferries to discuss marine mammal sightings on days when pile driving and removal activities are occurring on their nearby projects. In addition, reports shall be made available to interested parties upon request. With this level of coordination in the region of activity, Seattle DOT shall obtain real-time information on the presence or absence of whales before starting any pile driving or removal activities.

6. Monitoring:

The holder of this Authorization is required to conduct marine mammal monitoring during pile driving and removal activities and to conduct acoustic monitoring of background sound and project activities. Monitoring and reporting shall be conducted in accordance with the Monitoring Plan as described below.

(a) Protected Species Observers (PSOs)

Seattle DOT shall employ NMFS-approved PSOs to conduct marine mammal monitoring for its construction project. NMFS-approved PSOs shall meet the following qualifications.

- (i) Independent observers (*i.e.*, not construction personnel) are required.
- (ii) At least one observer must have prior experience working as an observer.
- (iii) Other observers may substitute education (undergraduate degree in biological science or related field) or training for experience.
- (iv) Where a team of three or more observers are required, one observer shall be designated as lead observer or monitoring coordinator. The lead observer must have prior experience working as an observer.
- (v) NMFS shall require submission and approval of observer CVs.

(b) Monitoring Protocols: PSOs shall be present on site at all times during pile removal and driving. Marine mammal visual monitoring shall be conducted for the Level B Harassment Zones as outlined in Table 2 based on different sizes of piles being driven or removed.

- (i) A 30-minute pre-construction marine mammal monitoring shall be required before the first pile driving or pile removal of the day. A 30-minute post-construction marine mammal monitoring shall be required after the last pile driving or pile removal of the day. If the constructors take a break between subsequent pile driving or pile removal for more than 30 minutes, then additional 30-minute pre-construction marine mammal monitoring shall be required before the next start-up of pile driving or pile removal.
- (ii) During pile removal or installation with a vibratory hammer, three to four monitors shall be used, positioned such that each monitor has a distinct view-shed and the monitors collectively have overlapping view-sheds.
- (iii) During pile driving activities with an impact hammer, one monitor, based at or near the construction site, shall conduct the monitoring.
- (iv) Where visibility becomes limited, additional land-based monitors and/or boat-based monitors shall be deployed.
- (v) Monitors shall record take when marine mammals enter their relevant Level B Harassment Zones based on type of construction activity as outlined in Table 2.
- (vi) If a marine mammal approaches an Exclusion Zone as outlined in Table 3, the observation shall be reported to the Construction Manager and the individual shall be watched closely. If the marine mammal crosses into an Exclusion Zone, a stop-work order shall be issued. In the event that a stop-work order is triggered, the observed marine mammal(s) shall be closely monitored while it remains in or near the Exclusion Zone, and only when it moves well outside of the Exclusion Zone or has not been observed for at least 15 minutes for pinnipeds and small cetaceans and 30 minutes for large whales shall the lead monitor allow work to recommence.
- (vii) PSOs shall monitor marine mammals around the construction site using high-quality binoculars (*e.g.*, Zeiss, 10 x 42 power) and/or spotting scopes.
- (viii) If marine mammals are observed, the following information shall be documented:
  - (A) Date and time that monitored activity begins or ends;
  - (B) Construction activities occurring during each observation period;

- (C) Weather parameters (e.g., percent cover, visibility);
  - (D) Water conditions (e.g., sea state, tide state);
  - (E) Species, numbers, and, if possible, sex and age class of marine mammals;
  - (F) Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;
  - (G) Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
  - (H) Locations of all marine mammal observations; and
  - (I) Other human activity in the area.
- (ix) Acoustic Monitoring - Seattle DOT shall conduct acoustic monitoring up to six days per in-water work season to evaluate, in real time, sound production from construction activities and shall capture all hammering scenarios that may occur under the planned project. Background noise recordings (in the absence of pile-related work) shall also be made during the study to provide a baseline background noise profile. Acoustic monitoring shall follow NMFS's 2012 Guidance Documents: *Sound Propagation Modeling to Characterize Pile Driving Sounds Relevant to Marine Mammals and Data Collection Methods to Characterize Underwater Background Sound Relevant to Marine Mammals in Coastal Nearshore Waters and Rivers of Washington and Oregon*.

## 7. Reporting:

The holder of this Authorization is required to:

### (a) Marine Mammal Monitoring

- (i) Seattle DOT shall submit a draft marine mammal monitoring report within 90 days after completion of the in-water construction work or the expiration of the IHA, whichever comes earlier. The report shall include data from marine mammal sightings as described in 6(b)(viii). The marine mammal monitoring report shall also include total takes, takes by day, and stop-work orders for each species.
- (ii) If no comments are received from NMFS within 30 days, the draft report will be considered final. Any comments received during that time shall be addressed in full prior to finalization of the report.

(iii) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA, such as an injury (Level A harassment) of unauthorized species, or serious injury or mortality of any species, Seattle DOT shall immediately cease the specified activities and immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS' West Coast Stranding Coordinator. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hrs. preceding the incident;
- Water depth;
- Environmental conditions (*e.g.*, wind speed and direction, sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hrs. preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with Seattle DOT to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. Seattle DOT shall not resume their activities until notified by NMFS via letter, email, or telephone.

(b) Reporting of Injured or Dead Marine Mammals

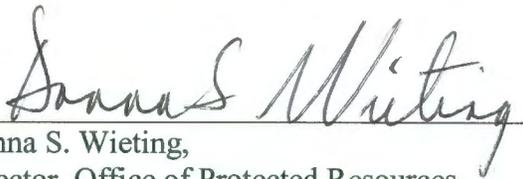
- (i) In the event that Seattle DOT discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (*i.e.*, in less than a moderate state of decomposition as described in the next paragraph), Seattle DOT shall immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS' West Coast Stranding Coordinator. The report must include the same information identified in 7(a)(iii). Activities may continue while NMFS reviews the circumstances of the incident. NMFS shall work with Seattle DOT to determine whether modifications in the activities are appropriate.
- (ii) In the event that Seattle DOT discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in the IHA (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger

damage), Seattle DOT shall report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS and the NMFS Stranding Hotline and/or by email to the NMFS' West Coast Stranding Coordinator within 24 hrs. of the discovery. Seattle DOT shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS. Activities may continue while NMFS reviews the circumstances of the incident.

- (c) Acoustic Monitoring Report - Seattle DOT will submit an Acoustic Monitoring Report within 90 days after completion of the in-water construction work or the expiration of the IHA (if issued), whichever comes earlier. The report will provide details on the monitored piles, method of installation, monitoring equipment, and sound levels documented during both the sound source measurements and the background monitoring. NMFS will have an opportunity to provide comments on the report or changes in monitoring for the second season, and if NMFS has comments, Seattle DOT will address the comments and submit a final report to NMFS within 30 days. If no comments are received from NMFS within 30 days, the draft report will be considered final. Any comments received during that time will be addressed in full prior to finalization of the report.

8. 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.

9. A copy of this Authorization must be in the possession of each contractor who performs the construction work for the Pier 62 Project.



Donna S. Wieting,  
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National Marine Fisheries Service.

OCT 04 2017

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Date