



INCIDENTAL HARASSMENT AUTHORIZATION

The Port of Alaska (POA) and their designees are hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to incidentally harass marine mammals, under the following conditions:

1. This incidental harassment authorization (IHA) is valid for one year from the date of issuance.
2. This IHA authorizes take incidental to pile driving, as specified in the POA's March 5, 2021 IHA application, associated with relocation of the South Floating Dock (SFD) in Anchorage, Alaska. Hereafter (unless otherwise specified) the term "pile driving" is used to refer to both pile installation and pile removal.
3. General Conditions
 - (a) A copy of this IHA must be in the possession of the Holder of the Authorization (Holder), supervisory construction personnel, lead protected species observers (PSOs), and any other relevant designees of the Holder operating under the authority of this IHA at all times that activities subject to this IHA are being conducted.
 - (b) The species and/or stocks authorized for taking are listed in Table 1. Authorized take, by Level A and Level B harassment only, is limited to the species and numbers listed in Table 1.
 - (c) The taking by serious injury or death of any of the species listed in Table 1 or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA. Any taking exceeding the authorized amounts listed in Table 1 is prohibited and may result in the modification, suspension, or revocation of this IHA.
 - (d) The Holder must ensure that construction supervisors and crews, the monitoring team, and relevant POA staff are trained prior to the start of pile driving subject to this IHA, so that responsibilities, communication procedures, monitoring

protocols, and operational procedures are clearly understood. New personnel joining during the project must be trained prior to commencing work.

- (e) Pile driving may occur during daylight hours only.
- (f) Unattenuated battered piles must not be driven in August or September.

4. Mitigation Requirements

- (a) The Holder must employ PSOs and establish monitoring locations as described in section 5 of this IHA and the Marine Mammal Monitoring Plan (see Appendix A in the POA's application). The Holder must monitor the project area to the maximum extent possible based on the required number of PSOs, required monitoring locations, and environmental conditions.
- (b) Monitoring must take place from 30 minutes prior to initiation of pile driving activity (i.e., pre-start clearance monitoring) through 30 minutes post-completion of pile driving activity.
- (c) Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in Table 2 are clear of marine mammals. Pile driving may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals.
- (d) The Holder must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.
- (e) Two vibratory hammers must not be used at the same time.
- (f) The Holder must use a bubble curtain during impact and vibratory pile driving for all plumb (i.e., vertical) piles installed in > 3 m of water. The bubble curtain must be operated as necessary to achieve optimal performance. At a minimum, the Holder must adhere to the following performance standards:
 - (i) The bubble curtain must distribute air bubbles around 100 percent of the piling circumference for the full depth of the water column.

- (ii) The lowest bubble ring must be in contact with the substrate for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent substrate contact. No parts of the ring or other objects shall prevent full substrate contact.
- (iii) Air flow to the bubblers must be balanced around the circumference of the pile.
- (iv) The aeration pipe system will consist of multiple layers of perforated pipe rings, stacked vertically in accordance with the following depths: two layers for water depths < 5 m; four layers for water depths 5 m to < 10 m; seven layers for water depths 10 m to < 15 m; ten layers for water depths 15 m to < 20 m; and thirteen layers for water depths 20 m to < 25 m.
- (v) The pipes in all layers will be arranged in a geometric pattern that will allow for the pile being driven to be completely enclosed by bubbles for the full depth of the water column and with a radial dimension such that the rings are no more than 0.5 meter from the outside surface of the pile.
- (vi) The lowest layer of perforated aeration pipe will be designed to ensure contact with the substrate without burial and will accommodate sloped conditions.
- (vii) Air holes will be 1.6 millimeters (1/16 inch) in diameter and will be spaced approximately 20 millimeters (3/4 inch) apart. Air holes with this size and spacing will be placed in four adjacent rows along the pipe to provide uniform bubble flux.
- (viii) The system will provide a bubble flux of 3 cubic meters per minute per linear meter of pipe in each layer (32.91 cubic feet per minute per linear foot of pipe in each layer). The total volume of air per layer is the product of the bubble flux and the circumference of the ring using the formula:

$$V_t = 3.0 \text{ m}^3/\text{min}/\text{m} * \text{Circumference of the aeration ring in meters}$$
or
$$V_t = 32.91 \text{ ft}^3/\text{min}/\text{ft} * \text{Circumference of the aeration ring in feet}.$$
- (ix) Meters must be provided as follows:
 - A. Pressure meters must be installed at all inlets to aeration pipelines and at points of lowest pressure in each branch of the aeration pipeline.

- B. Flow meters must be installed in the main line at each compressor and at each branch of the aeration pipelines at each inlet. In applications where the feed line from the compressor is continuous from the compressor to the aeration pipe inlet, the flow meter at the compressor can be eliminated.
 - C. Flow meters must be installed according to the manufacturer's recommendation based on either laminar flow or non-laminar flow.
- (g) Piles that are driven at a location that is de-watered will not use a bubble curtain, and marine mammal harassment zones will not be monitored. When piles are installed or removed in water without a bubble curtain because the pile orientation is battered, or if water is too shallow (≤ 3 m) to deploy the bubble curtain, the unattenuated Level A and Level B harassment zones (Tables 2 and 3) for that hammer type and pile size will be implemented.
 - (h) The Holder, construction supervisors and crews, PSOs, and relevant POA staff must avoid direct physical interaction with marine mammals during construction activity. If a marine mammal comes within 10 meters of such activity, operations must cease and vessels must reduce speed to the minimum level required to maintain steerage and safe working conditions, as necessary to avoid direct physical interaction.
 - (i) For in-water construction, heavy machinery activities other than pile driving (e.g., use of barge-mounted excavators, or dredging), if a marine mammal comes within 10 meters, POA must cease operations and reduce vessel speed to the minimum level required to maintain steerage and safe working conditions.
 - (j) POA is required to conduct briefings for construction supervisors and crews, the monitoring team, and POA staff prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, the marine mammal monitoring protocol, and operational procedures.
 - (k) POA is required to employ PSOs per the Marine Mammal Monitoring Plan and Monitoring Measures described in section 5 of this IHA.
 - (l) Marine mammal monitoring must take place from 30 minutes prior to initiation of pile installation and removal through 30 minutes post-completion of pile driving. Pile driving may commence when observers have declared the shutdown zone clear of marine mammals or the beluga whale mitigation measures in 4(p) are

satisfied. In the event of a delay or shutdown of activity, marine mammal behavior must be monitored and documented until they leave of their own volition, at which point the pile driving may begin.

- (m) On a given day, if PSO monitoring ceases for more than 30 minutes within a day, but pile driving is scheduled to resume, PSOs must follow the pre-pile driving monitoring protocol as described in condition 4(1) above and complete another 30-minute pre-pile driving observation period before pile driving may commence.
- (n) If a marine mammal for which take is authorized is entering or is observed within an established shutdown zone (Table 2), pile driving must be halted or delayed. Pile driving may not commence or resume until either the animal has voluntarily left and been visually confirmed 100 m beyond the shutdown zone (Table 2) and on a path away from such zone or 15 minutes (non-beluga whales) or 30 minutes (beluga whales) have passed without subsequent detections. NMFS may adjust the shutdown zones pending review and approval of an acoustic monitoring report (see Reporting section).
- (o) If a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized takes are met, is observed approaching or within the Level B harassment zone, pile installation and removal will shut down immediately. Pile driving will not resume until the animal has been confirmed to have left the area or the 30-minute observation period has elapsed.
- (p) POA must implement the following Pile Driving and Removal Delay/Shutdown Protocol for Cook Inlet beluga whales:
 - (i) Prior to the onset of pile driving or removal, should a beluga whale(s) be observed within the Level B harassment zone (Table 2) or within the in-bound or out-bound clearance zone (if larger than the Level B harassment zone (Figure 1), pile driving or removal must be delayed. Pile driving may not commence until the animal has voluntarily traveled at least 100 m beyond the Level B harassment zone (Table 2) and is on a path away from such zone, or the whale has not been re-sighted within 30 minutes.
 - (ii) If pile driving or removal has commenced, and a beluga whale(s) is observed within or likely to enter the Level B harassment zone, pile installation or removal must be delayed. Pile driving may not commence until the animal has voluntarily traveled at least 100 m beyond the Level B harassment zone (Table 2) and is on a path away from such zone, or the whale has not been re-sighted within 30 minutes.

- (iii) If during driving and removal of 24 -, 36 -inch, PSOs can no longer effectively monitor the entirety of the Cook Inlet beluga whale Level B shutdown zone (Table 3) due to environmental conditions (e.g., fog, rain, wind), pile driving may continue only until the current segment of pile is driven; no additional sections of pile or additional piles may be driven until conditions improve such that the monitoring zone can be effectively monitored. If the Level B harassment zone cannot be monitored for more than 15 minutes, the entire Level B harassment zone must be cleared again for 30 minutes prior to pile driving.

5. Monitoring Requirements

- (a) Marine mammal monitoring must be conducted in accordance with the conditions in this section and the Monitoring Plan (see Appendix A of the POA's application) and this IHA.
- (b) Monitoring must be conducted by qualified, NMFS-approved PSOs, in accordance with the following conditions:
 - (i) PSOs must be independent (i.e., not construction personnel) and have no other assigned tasks during monitoring periods.
 - (ii) At least one PSO must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.
 - (iii) Other PSOs may substitute other relevant experience, education (degree in biological science or related field), or training for prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.
 - (iv) Where a team of three or more PSOs is required, a lead observer or monitoring coordinator must be designated. The lead observer must have prior experience performing the duties of a PSO during construction activity pursuant to a NMFS-issued incidental take authorization.
 - (v) PSOs must be approved by NMFS prior to beginning any activity subject to this IHA. PSO resumes should be submitted for review by NMFS no later than 30 days prior to the start of pile driving.
 - (vi) PSOs must have the following additional qualifications:

- A. Ability to conduct field observations and collect data according to assigned protocols.
 - B. Experience or training in the field identification of marine mammals, including the identification of behaviors.
 - C. Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations.
 - D. Ability to observe and record environmental and marine mammal sighting data including, but not limited to, the number and species of marine mammals observed; dates and times when in-water construction activities were conducted; dates, times and reason for implementation of mitigation (or why mitigation was not implemented when required); and marine mammal behavior.
 - E. Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the areas as necessary.
- (c) The Holder must establish monitoring locations at Point Woronzof, Ship Creek, the SFD Project site, and the north end of POA property for all pile driving to maximize marine mammal detection. The Ship Creek location must be located near the end of the promontory to enhance visibility to the north.
 - (d) PSOs will work in three- to four-person teams at each outer (northern and southern) observation station. The station at the SFD site will have at least two PSOs. At least two PSOs will be on watch at any given time at each station. A third PSO will be available to record data at the southern and northern stations.
 - (e) Large-aperture binoculars (25X or better) must be at each outer (southern and northern) station, as well as Ship Creek. Hand-held binoculars (7X) with built in range finders or reticles must be at each station. If binoculars do not include range finders, then range finders must be available at the central and outer stations. A theodolite must be available at one station.
 - (f) PSOs must record all observations of marine mammals, regardless of distance from the pile being driven, as well as the additional data indicated in section 6 of this IHA.

- (g) PSOs must be in constant real-time communication with each other and with construction crews to convey information about marine mammal sightings, locations, directions of movement, and communicate calls for pile driving shutdowns or delays.
- (h) If POA is conducting non-SFD-related in-water work that includes PSOs, the SFD PSOs must be in real-time contact with those PSOs, and both sets of PSOs must share all information regarding marine mammal sightings with each other.
- (i) A PSO must observe for no more than 4 hours at a time and no more than 12 hours per day.

6. Reporting

- (a) The Holder must submit its draft report(s) on all monitoring conducted under this IHA within 90 calendar days of the completion of monitoring or 60 calendar days prior to the requested issuance of any subsequent IHA for construction activity at the same location, whichever comes first. A final report must be prepared and submitted within 30 calendar days following receipt of any NMFS comments on the draft report. If no comments are received from NMFS within 30 calendar days of receipt of the draft report, the report shall be considered final.
- (b) All draft and final monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *ITP.tyson.moore@noaa.gov*.
- (c) The marine mammal report must contain the informational elements described in the Monitoring Plan and, at minimum, must include:
 - (i) Dates and times (begin and end) of all marine mammal monitoring;
 - (ii) Pile driving activities occurring during each daily observation period, including:
 - A. The number and type of piles that were driven and the method (e.g., impact, vibratory);
 - B. Total duration of driving time for each pile (vibratory driving) and number of strikes for each pile (impact driving); and
 - (iii) PSO locations during marine mammal monitoring;

- (iv) Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance;
- (v) Upon observation of a marine mammal, the following information:
 - A. Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting;
 - B. Time of sighting;
 - C. Identification of the animal(s) (e.g., genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species;
 - D. Distance and bearing of each marine mammal observed relative to the pile being driven for each sighting and the position of the animal(s) if a theodolite was used (if pile driving was occurring at time of sighting);
 - E. Estimated number of animals (min/max/best estimate);
 - F. Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.);
 - G. Animal's closest point of approach and estimated time spent within the harassment zone;
 - H. Description of any marine mammal behavioral observations (e.g., observed behaviors such as feeding or traveling), including direction of travel and an assessment of behavioral responses thought to have resulted from the activity (e.g., no response or changes in behavioral state such as ceasing feeding, changing direction, flushing, or breaching);
- (vi) Number of marine mammals detected within the harassment zones, by species; and

- (vii) Detailed information about implementation of any mitigation (e.g., shutdowns and delays), a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.
- (d) The Holder must submit all PSO datasheets and/or raw sighting data with the draft report, as specified in condition 6(b) of this IHA.
- (e) The Holder must alert the Office of Protected Resources (OPR), NMFS (ITP.tyson.moore@noaa.gov) when the number of Cook Inlet Beluga Whale takes reaches 19 of the 24 authorized.
- (f) Reporting injured or dead marine mammals:

In the event that personnel involved in the construction activities discover an injured or dead marine mammal, the Holder must report the incident to OPR, NMFS (PR.ITP.MonitoringReports@noaa.gov and ITP.tyson.moore@noaa.gov) and to the Alaska regional Stranding Hotline (1-877-925-7773) as soon as feasible. If the death or injury was clearly caused by the specified activity, the Holder must immediately cease the activities until NMFS OPR is able to review the circumstances of the incident and determine what, if any, additional measures are appropriate to ensure compliance with the terms of this IHA. The Holder must not resume their activities until notified by NMFS.

The report must include the following information:

- (i) Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
 - (ii) Species identification (if known) or description of the animal(s) involved;
 - (iii) Condition of the animal(s) (including carcass condition if the animal is dead);
 - (iv) Observed behaviors of the animal(s), if alive;
 - (v) If available, photographs or video footage of the animal(s); and
 - (vi) General circumstances under which the animal was discovered.
7. This Authorization may be modified, suspended or revoked if the holder fails to abide by the conditions prescribed herein (including, but not limited to, failure to comply with

monitoring or reporting requirements), or if NMFS determines: (1) the authorized taking is likely to have or is having more than a negligible impact on the species or stocks of affected marine mammals, (2) the authorized taking is likely to have or is having an unmitigable adverse impact on the availability of the affected species or stocks for subsistence uses, or (3) the prescribed measures are likely not or are not effecting the least practicable adverse impact on the affected species or stocks and their habitat.

8. Renewals

On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical, or nearly identical, activities (or a subset of those activities) are planned or (2) the specified activities will not be completed by the time the IHA expires and a Renewal would allow for completion of the activities, provided all of the following conditions are met:

- (a) A request for renewal is received no later than 60 days prior to the needed Renewal IHA effective date (note a Renewal IHA expiration date cannot extend beyond one year from expiration of this IHA).
- (b) The request for renewal must include the following:
 - (i) An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed for this IHA, are a subset of the activities, or include changes so minor (e.g., reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).
 - (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.
- (c) Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, if NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings made in support of this IHA will remain valid.

Catherine Marzin
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Table 1. Authorized Incidental Take.

Common name	Scientific name	Stock	Level A Harassment	Level B Harassment
Humpback whale	<i>Megaptera novaeangliae</i>	Western N. Pacific	0	2
Beluga whale	<i>Delphinapterus leucas</i>	Cook Inlet	0	24
Killer whale	<i>Orcinus orca</i>	Transient/Alaska Resident	0	6
Harbor porpoise	<i>Phocoena</i>	Gulf of Alaska	0	12
Steller sea lion	<i>Eumetopias jubatus</i>	Western	2	2
Harbor seal	<i>Phoca vitulina</i>	Cook Inlet/Shelikof	2	19

Table 2. Level B Harassment Zones and Shutdown Zones by Pile Size and Driving Method

Pile size	Attenuation	Hammer Type	Level B Harassment Zone (m)	Shutdown Zone for LF Cetaceans (m)	Shutdown Zone for HF Cetaceans (m)	Shutdown Zone for Phocids (m)	Shutdown Zone for Non-Beluga MF Cetaceans, and Otariids (m)	Beluga Whale Shutdown Zone (m)
24-inch	Bubble Curtain	Vibratory	2,631	100	100	100	100	2,631
		Impact	542	251	299	135		542
	Unattenuated	Vibratory	3,861	100	100	100		3,861
		Impact	1,585	735	876	394		1,585
36-inch	Bubble Curtain	Vibratory	4,106	100	100	100		4,106
		Impact	631	541	644	290		631
	Unattenuated	Vibratory	8,318	100	100	100		8,318
		Impact	1,585	1,165	1,387	624		1,585

Table 3. Level A Harassment Zones

Pile Size	Attenuation	Hammer Type (Installation/Removal)	Piles per day	Level A Harassment (m)				
				LF	MF	HF	PW	OW
24-inch	Bubble Curtain	Vibratory (Installation)	1	4	1	6	3	1
			2	7	1	9	4	1
		Vibratory (Removal)	1	6	1	8	4	1
			3	12	1	17	7	1
	Unattenuated	Impact (Installation)	1	251	9	299	135	10
		Vibratory (Installation)	1	6	1	9	4	1
		Vibratory (Removal)	1	8	1	12	5	1
36-inch	Bubble Curtain	Vibratory (Installation)	1	6	1	9	4	1
			2	10	1	15	6	1
			3	13	2	19	8	1
		Vibratory (Removal)	1	9	1	13	6	1
			3	18	2	26	11	1
	Unattenuated	Impact (Installation)	1	541	20	644	290	22
		Vibratory (Installation)	1	13	2	18	8	1
		Vibratory (Removal)	1	18	2	26	11	1
		Impact (Installation)	1	1,165	42	1,387	624	46

Figure 1. In-bound (white line) and Out-bound (green line) Pre-pile Driving Clearance Demarcation Lines.

