



INCIDENTAL HARASSMENT AUTHORIZATION

The Port of Alaska 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 construction of the Petroleum and Cement Terminal (PCT) at the Port of Alaska, Anchorage, Alaska, when adhering to the following terms and conditions.

1. This Incidental Harassment Authorization (IHA) is valid from April 1, 2020, through March 31, 2021.
2. This IHA is valid only for pile installation and removal associated with Phase 1 of the PCT Project, Anchorage, Alaska.
3. General Conditions
 - (a) A copy of this IHA must be in the possession of the POA, its designees, work crew personnel, and Protected Species Observers (PSOs) operating under the authority of this IHA.
 - (b) The taking, by Level A harassment and Level B harassment¹, is limited to the species and stocks listed in Table 1. Table 1 provides the authorized manner and number of takes per species and stock.
 - (c) The taking by serious injury or death of any of species listed in Table 1, as a result of project activities described in section 2 of this IHA, is prohibited.
 - (d) The taking, by Level A harassment, Level B harassment, serious injury, or death, of marine mammal species not identified in Table 1 is prohibited.

¹ “Take” means to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal. “Harassment” is statutorily defined as, any act of pursuit, torment, or annoyance which:

- has the potential to injure a marine mammal or marine mammal stock in the wild (*Level A Harassment*) or,
- has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild (*Level B Harassment*).



- (e) Pile driving may occur during daylight hours only.

4. Mitigation Measures

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

- (a) 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 m, POA must cease operations and reduce vessel speed to the minimum level required to maintain steerage and safe working conditions.
- (b) 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.
- (c) POA is required to employ PSOs per the Marine Mammal Monitoring Plan and Monitoring Measures described in section 5 of this IHA.
- (d) 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(g) 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 activity may begin.
- (e) On a given day, if PSO monitoring ceases but pile driving is scheduled to resume, PSOs must follow the pre-pile driving monitoring protocol as described in condition 4(d) above.
- (f) If a marine mammal is entering or is observed within an established shutdown zone (Table 3), 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 and on a path away from such zone or 15 minutes (non-beluga 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).
- (g) 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 in-bound or out-bound clearance 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 3) 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 3) 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 -, and 48-in piles, 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.
- (h) POA must use soft start techniques when impact pile driving. Soft start requires contractors to provide an initial set of strikes at reduced energy, followed by a thirty-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, any time pile driving has been shutdown or delayed due the presence of a marine mammal, or at any time following cessation of impact pile driving for a period of thirty minutes or longer.
- (i) POA must employ a confined bubble curtain in Phase 1 during all impact and vibratory driving and removal and operate it in a manner consistent with the following performance standards:
- i. The confinement (i.e., a solid, steel casing pile) must extend from the substrate to a sufficient elevation above the maximum water level expected during pile installation such that when the air delivery system is adjusted properly, the bubble curtain does not act as a water pump (i.e., little or no water should be pumped out of the top of the confinement system).
 - ii. The confinement must contain resilient pile guides that prevent the pile and the confinement from coming into contact with each other and do not transmit

vibrations to the confinement sleeve and into the water column (e.g. rubber spacers, air filled cushions).

- iii. In water less than 15 meters deep, the system must have a single aeration ring at the substrate level. In waters greater than 15 meters deep, the system must have at least two rings, one at the substrate level and the other at mid-depth.
- iv. The lowest layer of perforated aeration pipe shall be designed to ensure contact with the substrate without sinking into the substrate and shall accommodate for sloped conditions.
- v. Air holes must be 1.6 mm (1/16-inch) in diameter and shall be spaced approximately 20 mm (3/4 inch) apart. Air holes with this size and spacing shall be placed in four adjacent rows along the pipe to provide uniform bubble flux.
- vi. The system must provide a bubble flux of 3.0 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 where $V1 = 3.0 \text{ m}^3/\text{min}/\text{m} * \text{Circ of the aeration ring in m}$ or $V1 = 32.91 \text{ ft}^3/\text{min}/\text{ft} * \text{Circ of the aeration ring in ft}$.
- vii. Meters must be provided as follows:
 - 1. Pressure meters must be installed at all inlets to aeration pipelines and at points of lowest pressure in each branch of the aeration pipeline.
 - 2. 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.
 - 3. Flow meters must be installed according to the manufactures recommendation based on either laminar flow or non-laminar flow.
- (j) If a barge is used to house the pile-driver, it must be isolated from the noise-producing operations. This isolation must be such that noise from the pile driving operation is not transmitted through the barge to the water column.
- (k) POA must not operate two vibratory hammers concurrently.
- (l) 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 monitoring zone (Table 2), pile driving and removal must shut down immediately using shut-down procedures. Pile driving must not

resume until the animal has been confirmed to have left the area or the observation time period, as indicated in condition 4(f) above, has elapsed.

5. Monitoring Measures

The holder of this IHA is required to abide by the following marine mammal and acoustic monitoring measures:

(a) Marine mammal monitoring must be conducted in accordance with the Marine Mammal Monitoring Plan and the following measures:

- i. PSOs will be positioned at four stations during all pile driving to maximize marine mammal detection: one station will be at the PCT site, one at Ship Creek, one at Point Woronzof or nearby location, and one location north of the PCT site (e.g., northern end of POA, Port MacKenzie).
- ii. PSOs will work in three- to four-person teams at each outer (northern and southern) observation station. The station at the PCT 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.
- iii. Each outer (southern and northern) station must be equipped with large-aperture binoculars (25X), hand-held binoculars (7X), and range finders. A theodolite must be available at one station. The central station must be equipped with hand-held binoculars (7X) and range finders.

(b) Marine mammal monitoring during pile driving and removal must be conducted by NMFS-approved PSOs in a manner consistent with the Marine Mammal Monitoring Plan and the following:

- i. Independent PSOs (*i.e.*, not construction personnel) who have no other assigned tasks during monitoring periods must be used.
- ii. A lead observer or monitoring coordinator must be designated. The lead observer must have prior experience working as a marine mammal observer during construction.
- iii. POA must submit PSO CVs for approval by NMFS prior to the onset of pile driving.

- iv. 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.
 - v. If POA is conducting non-PCT-related in-water work that includes PSOs, the PCT 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.
 - vi. A PSO must observe for no more than 4 hours at a time and no more than 12 hours per day.
- (c) PSOs must have the following additional qualifications:
- i. Ability to conduct field observations and collect data according to assigned protocols.
 - ii. Experience or training in the field identification of marine mammals, including the identification of behaviors.
 - iii. Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations.
 - iv. 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.
 - v. Ability to communicate orally, by radio or in person, with project personnel to provide real-time information on marine mammals observed in the area as necessary.
- (d) Acoustic monitoring must be conducted in accordance with the POA's Hydroacoustic Acoustic Monitoring Plan.
- i. Measurements must be taken in a manner to confirm near-field (e.g., sound source verification) and far-field (e.g., 1-3 kms and ideally, on the western side of Knik Arm opposite the POA) sound levels.

- ii. During PCT hydroacoustic monitoring, all in-water work occurring in the area (e.g., dredging, other in-water work at the POA, vessel transit) must be documented (e.g., type of activity, location relative to recordings, date/time) and reported in the acoustic monitoring report described in section 6(e).

6. Reporting

The holder of this IHA is required to:

- (a) Submit interim weekly and monthly marine mammal monitoring reports, including data sheets, during the PCT construction season. These reports must include a summary of marine mammal species and behavioral observations, pile driving shutdowns or delays, and pile work completed.
- (b) Alert NMFS when the number of CIBW takes reaches 80 percent of those authorized per year. Weekly marine mammal monitoring reports will assist with the tracking of take numbers.
- (c) Submit an interim sound source verification report within 10 calendar days of each acoustic monitoring session (acoustic monitoring will occur intermittently throughout the season). This interim reports must, at minimum, include:
 - i. Hydrophone equipment and methods: recording device, sampling rate, distance from the pile where recordings were made; depth of recording device(s).
 - ii. Type of pile being driven and method of driving during recordings.
 - iii. Mean, median, and peak sound source levels (dB re: 1 μ Pa): cumulative sound exposure level (SEL_{cum}), peak sound pressure level (SPL_{peak}), root mean square sound pressure level (SPL_{rms}), and single-strike sound exposure level (SEL_s).
 - iv. Number of strikes per pile or vibratory hammer duration measured, pulse duration, and one-third octave band spectrum and/or power spectral density.
 - v. Estimated distances to the Level A harassment and Level B harassment isopleths for each type of pile measured.
- (d) Submit a draft final report on all marine mammal monitoring conducted under the IHA within ninety calendar days of the completion of monitoring. A final report shall be prepared and submitted within thirty days following resolution of comments on the draft report from NMFS. This report must contain the informational elements described in the Marine Mammal Monitoring Plan, including, but not limited to:

- i. Dates and times (begin and end) of all marine mammal monitoring.
 - ii. Construction activities occurring during each daily observation period, including how many and what type of piles were driven or removed and by what method (*i.e.*, impact or vibratory).
 - iii. Weather parameters and water conditions during each monitoring period (*e.g.*, wind speed, percent cover, visibility, sea state).
 - iv. The number of marine mammals observed, by species, relative to the pile location and if pile driving or removal was occurring at time of sighting.
 - v. Age and sex class, if possible, of all marine mammals observed.
 - vi. PSO locations during marine mammal monitoring.
 - vii. Distances and bearings of each marine mammal observed to the pile being driven or removed for each sighting (if pile driving or removal was occurring at time of sighting).
 - viii. Description of any marine mammal behavior patterns during observation, including direction of travel.
 - ix. Number of individuals of each species (differentiated by month as appropriate) detected within the monitoring zone, and estimates of number of marine mammals taken, by species (a correction factor may be applied to total take numbers, as appropriate).
 - x. Detailed information about any implementation of any mitigation triggered (*e.g.*, shutdowns and delays), a description of specific actions that ensued, and resulting behavior of the animal, if any.
 - xi. Description of attempts to distinguish between the number of individual animals taken and the number of incidences of take, such as ability to track groups or individuals.
 - xii. An extrapolation of the estimated takes by Level B harassment based on the number of observed exposures within the Level B harassment zone and the percentage of the Level B harassment zone that was not visible.
 - xiii. Submit all PSO datasheets and/or raw sighting data (in a separate file from the Final Report referenced immediately above).
- (e) Submit a draft report on all acoustic monitoring conducted under the IHA within 90 days following the last acoustic monitoring effort of the season. A final report shall be prepared and submitted within thirty days following resolution of comments on the draft report from NMFS. Both the draft and final report must, at minimum, include:

- i. Hydrophone equipment and methods: recording device, sampling rate, distance from the pile where recordings were made; depth of recording device(s).
 - ii. Type of pile being driven and method of driving during recordings.
 - iii. Mean, median, and peak sound source levels (dB re: 1 μ Pa): cumulative sound exposure level (SEL_{cum}), peak sound pressure level (SPL_{peak}), root mean square sound pressure level (SPL_{rms}), and single-strike sound exposure level (SEL_s).
 - iv. Number of strikes per pile measured, pulse duration, and one-third octave band spectrum and/or power spectral density.
 - v. Estimated distances to the Level A harassment and Level B harassment isopleths for each type of pile measured.
 - vi. All in-water work occurring in the area during PCT hydroacoustic monitoring (e.g., dredging, other in-water work at the POA, vessel transit) must be documented (e.g., type of activity, location relative to recordings, date/time).
- (f) Reporting injured or dead marine mammals:
- i. In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this IHA, such as serious injury, or mortality, POA must immediately cease the specified activities and report the incident to the NMFS Office of Protected Resources (301-427-8401) and Alaska Region Stranding Hotline ([1-877-925-7773](tel:1-877-925-7773)). The report must include the following information:
 1. Time and date of the incident;
 2. Description of the incident;
 3. Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
 4. Description of all marine mammal observations and active sound source use in the 24 hours preceding the incident;
 5. Species identification or description of the animal(s) involved;
 6. Fate of the animal(s); and
 7. Photographs or video footage of the animal(s).

Activities must not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with POA to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. POA may not resume their activities until notified by NMFS.’

- ii. In the event POA discovers an injured or dead marine mammal, and the lead observer determines that the cause of the injury or death is unknown and the death is relatively recent (*e.g.*, in less than a moderate state of decomposition), POA must immediately report the incident to the Office of Protected Resources, NMFS, and the Alaska Region Stranding Coordinator, NMFS. The report must include the same information identified in section 6(f)(i) of this IHA. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with POA to determine whether additional mitigation measures or modifications to the activities are appropriate.
 - iii. In the event that POA discovers an injured or dead marine mammal, and the lead observer determines that the injury or death is not associated with or related to the specified activities (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), POA must report the incident to the Office of Protected Resources, NMFS, and the Alaska Region Stranding Coordinator, NMFS, within 24 hours of the discovery.
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 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, or nearly identical, activities as described in the Specified Activities section of this notice is planned or (2) the activities as described in the Specified Activities section of this notice would not be completed by the time the IHA expires and a Renewal would allow for completion of the activities beyond that described in the Dates and Duration section of this notice, 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 (recognizing that the Renewal IHA expiration date cannot extend beyond one year from expiration of the initial 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 under the initial 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, 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 in the initial IHA remain valid.

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

Date

Table 1. Authorized Amount of Taking, by Level A harassment and Level B harassment, by species and stock.

Species	Stock	Phase 1	
		Level A	Level B
Humpback whale	Western or Central N. Pacific	2	6
Beluga whale	Cook Inlet	0	55
Killer whale	Transient/Alaska Resident	0	12
Harbor porpoise	Gulf of Alaska	21	43
Steller sea lion	Western	0	13
Harbor seal	Cook Inlet/Shelikof	305	711

Table 2. Level B Harassment Monitoring Zones.

Pile Size	Hammer Type	Attenuation	Level B Zone (m)	
48-in	Impact	Bubble Curtain	824	
	Vibratory		2,247	
36-in	Impact		296	
	Vibratory		1,699	
24-in	Impact		Unattenuated	261
	Vibratory			846
	Impact	629		
	Vibratory	2,247		

Table 3. Shutdown Zones by Pile Size and Pile Driving Method.

Pile Size	Hammer Type	Attenuation	Non-Beluga Whales Shutdown Zone(m)	Beluga Whales Shutdown Zone (m)		
48-in	Impact	Bubble Curtain	100 m	824		
	Vibratory			2,247		
36-in	Impact			296		
	Vibratory			1,699		
24-in	Impact			Unattenuated	100 m	261
	Vibratory					846
	Impact	629				
	Vibratory	2,247				

Table 4. Level A Harassment Zones

Pile Size	Hammer Type	Attenuation	Piles installed/day	Level A harassment (m)				
				LF	MF	HF	PW	OW
48-in (2,300 strikes per pile)	Impact	Bubble Curtain	1	655	34	766	376	36
			2	989	51	1156	567	55
			3	1258	65	1470	721	70
48-in (3,000 strikes per pile)	Impact	Bubble Curtain	1	767	39	897	440	43
			2	1158	59	1353	664	64
			3	1473	76	1721	844	82
48-in	Vibratory	Bubble Curtain	1	5	1	7	3	0
36-in	Vibratory	Bubble Curtain	3	12	1	17	8	1
			4	14	2	20	9	1
	Impact	Bubble Curtain	1	509	26	595	292	28
			2	768	39	898	440	43
			3	978	50	1142	560	54
24-in	Vibratory	Bubble Curtain	3	3	0	5	2	0
			4	7	1	10	4	0
		Unattenuated (6 battered piles in Phase 2)	3	16	2	22	10	1
			4	19	2	27	12	1
	Impact (50 re-strikes per pile) ²	Bubble Curtain	1	30	2	35	17	2
			4	68	4	79	39	4
		Unattenuated (6 battered piles in Phase 2)	1	78	4	91	44	4
			4	176	9	206	101	9

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



