

INCIDENTAL HARASSMENT AUTHORIZATION

The United States Navy (Navy) and its 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 impact and vibratory pile driving and removal, and drilling activities associated with the Pier 3 Replacement project at Naval Station Norfolk in Norfolk, Virginia. 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 humpback whales, bottlenose dolphins, harbor porpoises, harbor seals, and gray seals (see 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 Navy staff are trained prior to the start of activities 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.

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 (Monitoring Plan; attached). 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 or drilling activity (i.e., pre-start clearance monitoring) through 30 minutes post-completion of pile driving and/or drilling activity.
- (c) If a marine mammal is observed entering or within the shutdown zones indicated in Tables 2 and 3, pile driving and drilling activity must be delayed or halted. Pile driving must be commenced or resumed as described in condition 4(e) of this IHA.
- (d) Pre-start clearance monitoring must be conducted during periods of visibility sufficient for the lead PSO to determine that the shutdown zones indicated in Tables 2 and 3 are clear of marine mammals. Pile driving and drilling may commence following 30 minutes of observation when the determination is made that the shutdown zones are clear of marine mammals.
- (e) If pile driving and/or drilling is delayed or halted due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily exited and been visually confirmed beyond the shutdown zone indicated in Tables 2 and 3 or 15 minutes have passed without re-detection of the animal.
- (f) 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.

- (g) Pile driving and drilling activities must be halted (as described in condition 4(c) of this IHA) upon observation of either a species for which incidental take is not authorized or a species for which incidental take has been authorized but the authorized number of takes has been met, entering or within the harassment zone (as shown in Tables 2 and 3).
- (h) The Holder, construction supervisors and crews, PSOs, and relevant Navy 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.

5. Monitoring Requirements

- (a) Marine mammal monitoring must be conducted in accordance with the conditions in this section and the Monitoring Plan (attached) and this IHA.
- (b) Monitoring must be conducted by qualified, NMFS-approved PSOs, in accordance with the following conditions:
 - (i) PSOs must be independent of the activity contractor (for example, employed by a subcontractor) 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.

- (c) The Holder must establish monitoring locations as described in the Monitoring Plan (attached). For all pile driving and drilling activities, a minimum of one PSO must be assigned to each active pile driving and drilling location to monitor the shutdown zones. Monitoring must be conducted by a minimum of two PSOs for impact driving, and a minimum of three PSOs for vibratory and drilling activities. PSOs must be located at the best vantage point(s) practicable to monitor marine mammals and implement shutdown/delay procedures. These locations include: the Northernmost Jetty, Pier 14, Pier 8, Existing Pier 3, Pier 2, and Pier 1.
- (d) 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.
- (e) Acoustic monitoring must be conducted in accordance with the Acoustic Monitoring Plan (attached).
 - (i) The purpose of acoustic monitoring, or sound source verification (SSV), for this project is to characterize underwater noise from pile driving and drilling activities during various types of pile driving, extraction, and drilling associated with this project.
 - (ii) Monitoring must include two underwater positions. One underwater location must be at the standard 10 meters from the sound source, while the other positions must be located at a distance of at least 20 times water depth at the pile. If the contractor determines that this distance interferes with shipping lanes or vessel traffic, or if there are other reasons why these criteria cannot be achieved, the Acoustic Monitoring Plan must offer an alternate site as close to the criteria as possible for NMFS' approval.
 - (iii) Measurements and acoustic monitoring must be conducted for 10 percent of each pile type identified in Table 4 during the entire pile-driving/extraction/drilling event. However, during data analysis, only periods of maximum hammer energy must be characterized.
 - (iv) Environmental data must be collected, including but not limited to, the following: wind speed and direction, air temperature, humidity, surface water temperature, water depth, wave height, weather conditions, and other factors that could be contributed to influencing the airborne and underwater sound levels (e.g., aircraft, boats, etc.).

- (f) The harassment and/or shutdown zones (Tables 2 and 3) may be modified with NMFS' approval following NMFS' acceptance of an acoustic monitoring report.

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.taylor@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) Construction 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 location of each observed marine mammal relative to the pile being driven for each 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 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 acoustic monitoring report must contain the informational elements described in the Acoustic Monitoring Plan and, at minimum, must include:

- (i) Hydrophone equipment and methods: recording device, sampling rate, distance (m) from the pile where recordings were made; depth of water and recording device(s);
 - (ii) Type and size of pile being driven, substrate type, method of driving during recordings (e.g., hammer model and energy), and total pile driving duration;
 - (iii) For impact pile driving (per pile): Number of strikes and strike rate; depth of substrate to penetrate; pulse duration and mean, median, and maximum sound levels (dB re: 1 μ Pa): root mean square sound pressure level (SPL_{rms}); cumulative sound exposure level (SEL_{cum}), peak sound pressure level (SPL_{peak}), and single-strike sound exposure level (SEL_{s-s});
 - (iv) For vibratory driving/removal and/or drilling (per pile): Duration of driving per pile; mean, median, and maximum sound levels (dB re: 1 μ Pa): root mean square sound pressure level (SPL_{rms}), cumulative sound exposure level (SEL_{cum}) (and timeframe over which the sound is averaged);
 - (v) One-third octave band spectrum and power spectral density plot; and
 - (vi) Environmental data and conditions as listed in 5(e)(iv) and project specific information as listed in 5(e)(iii) on this IHA.
- (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 the Office of Protected Resources (OPR), NMFS (*PR.ITP.MonitoringReports@noaa.gov* and *itp.taylor@noaa.gov*) and to the Northeast regional stranding network (866-755-6622) 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 or (2) the prescribed measures are likely not or are not effecting the least practicable adverse impact on the affected species or stocks and their habitat.

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Table 1. Authorized Incidental Take.

Common name	Scientific name	Stock	Individual Activities		Concurrent Activities	
			Level A harassment	Level B harassment	Level A harassment	Level B harassment
Bottlenose dolphin	<i>Tursiops truncatus</i>	Western North Atlantic Coastal, Northern Migratory Stock	0	1,382	0	486
		Western North Atlantic Coastal, Southern Migratory Stock		1,382		485
		Northern North Carolina Estuarine Stock		200		200
Harbor seal	<i>Phoca vitulina</i>	Western North Atlantic	57	759	53	478
Gray seal	<i>Halichoerus grypus</i>	Western North Atlantic	0	1	0	1
Harbor porpoise	<i>Phocoena phocoena</i>	Gulf of Maine/Bay of Fundy	2	2	0	2
Humpback whale	<i>Megaptera novaeangliae</i>	Gulf of Maine	0	4	0	2

Table 2. Shutdown and Harassment Zones for Individual Pile Driving Activities.

Pile size, type, and method	Minimum shutdown zone (m)			Harassment zone (m) ¹
	Humpback whale	Porpoises	All Other Species	
Impact Driving, 42-inch Steel Pipe Pile	1,005	500	200	1000
Vibratory Driving, 42-inch Steel Pipe Pile	50	120	50	15,850
Impact Driving, 28-inch Steel Sheet Piles	775	500	200	2,520
Vibratory Driving, 28-inch Steel Sheet Piles	65	65	65	13,600
Impact Driving, 13-inch	30	30	30	10

Polymeric Piles				
Vibratory Driving, 13-inch Polymeric Piles	30	30	30	6,310
Impact Driving, 24-inch Concrete Piles	160	500	200	120
Vibratory Driving, 24-inch Concrete Piles	10	10	10	1,850

¹ Rounded to the nearest 10 m

Table 3. Shutdown and Harassment Zone for Concurrent Pile Driving Activities ¹

Pile sizes, type, and method	Minimum shutdown zone (m)			Harassment zone (m)
	Humpback whale	Porpoises	All Other Species	
Vibratory removal 18-inch concrete piles and vibratory installation 42-inch steel pipe piles	200	200	50	18,480
Vibratory removal 18-inch concrete piles and pre-drilling for preparation of 24-in concrete pile install	45	45	30	7,360

¹ Rounded to the nearest 10 m

Table 4. Acoustic Monitoring Summary ¹

Pile Type	Count	Method of Install/Removal	Number Monitored
13-inch polymeric	9	Vibratory	5
13-inch polymeric	9	Impact	5
13-inch polymeric	9	Drilling	5
24-inch concrete	11	Impact	10
42-inch steel pipe	103	Impact	10
42-inch steel pipe	103	Vibratory	10
28-inch steel sheet	221	Impact	10
28-inch steel sheet	221	Vibratory	10

¹ Acoustic monitoring will be conducted for activities for which measurements are needed.