

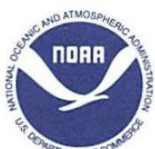


## INCIDENTAL HARASSMENT AUTHORIZATION

The Chesapeake Tunnel Joint Venture (CTJV) 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 the Parallel Thimble Shoals Tunnel Project near Virginia Beach, Virginia, 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 in-water construction activities associated with Parallel Thimble Shoals Tunnel Project (PTST) near Virginia Beach, Virginia.
3. General Conditions
  - (a) A copy of this IHA must be in the possession of CTJV, its designees, work crew personnel, and Protected Species Observers (PSOs) operating under the authority of this IHA.
  - (b) The species authorized for taking are harbor seal (*Phoca vitulina*), gray seal (*Halichoerus grypus*), bottlenose dolphin (*Tursiops truncatus*), harbor porpoise (*Phocoena phocoena*) and humpback whale (*Megaptera novaeangliae*).
  - (c) The taking, by Level A harassment and Level B harassment, is limited to the species listed in condition 3(b) and the numbers listed in Table 1.
  - (d) The taking by serious injury or death of any of the species listed in condition 3(b) 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.
  - (e) Work must only occur during daylight hours.
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, CTJV must cease operations and reduce vessel speed to the minimum level required to maintain steerage and safe working conditions.
- (b) CTJV is required to conduct briefings for construction supervisors and crews, the monitoring team, and CTJV 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) CTJV is required to employ between two and four protected species observers (PSOs) per the Monitoring Measures described in section 5 of this IHA.
- (d) Marine mammal monitoring must take place from 30 minutes prior to initiation of pile driving activity through 30 minutes post-completion of pile driving activity. Pre-activity monitoring must be conducted for 30 minutes to ensure that the shutdown zone is clear of marine mammals, and pile driving may commence when observers have declared the shutdown zone clear of marine mammals. In the event of a delay or shutdown of activity resulting from marine mammals in the shutdown zone, animals shall be allowed to remain in the shutdown zone (*i.e.*, must leave of their own volition) and their behavior shall be monitored and documented.
- (e) CTJV must establish shutdown zones at the following distances:
  - i. 100 meters for harbor porpoise and bottlenose dolphin.
  - ii. 15 meters for harbor seal and gray seal.
  - iii. For humpback whales isopleths shown in Table 2 under low-frequency cetaceans depending on activity type.
- (f) If a marine mammal enters or is observed within an established shutdown zone 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 beyond the shutdown zone or 15 minutes have passed without subsequent detections of the animal.
- (g) Should environmental conditions deteriorate such that marine mammals within the entire shutdown zone would not be visible (*e.g.*, fog, heavy rain), pile driving and removal must be delayed until the PSO(s) is confident marine mammals within the shutdown zone could be detected.

- (h) CTJV 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 and at any time following cessation of impact pile driving for a period of thirty minutes or longer.
- (i) CTJV must use an air bubble curtain system during impact pile driving of steel pipe piles. Bubble curtains must meet the following requirements:
  - i. The bubble curtain must distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column.
  - ii. The lowest bubble ring must be in contact with the mudline and/or rock bottom for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent mudline and/or rock bottom contact. No parts of the ring or other objects shall prevent full mudline and/or rock bottom contact.
  - iii. The bubble curtain must be operated such that there is proper (equal) balancing of air flow to all bubblers.
  - iv. CTJV must employ the bubble curtain during impact pile driving of all steel piles in water depths greater than 3 m (10 ft).
- (j) CTJV must establish Level A and B harassment monitoring zones as shown in Table 2.
- (k) 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 entering or within the monitoring zones (Table 2), pile driving activities must shut down immediately using delay and shutdown procedures. Activities must not resume until the animal has been confirmed to have left the area or the 15 minute observation time period has elapsed.

## 5. Monitoring Measures

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

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

- i. Independent PSOs (*i.e.*, not construction personnel) who have no other assigned tasks during monitoring periods must be used.
  - ii. At least one observer must have prior experience working as an observer.
  - iii. Other PSOs may substitute education (degree in biological science or related field) or training for experience.
  - iv. CTJV must submit PSO CVs for approval by NMFS prior to the onset of pile driving and drilling.
- (b) CTJV is required to station between two and four PSOs at locations offering the best available views of the shutdown and monitoring zones. At least one PSO must be located on a Portal Island if any type of in-water pile driving is occurring on that Island. At least one additional PSO is required at each active driving rig or other location providing best possible views of the shutdown and monitoring zones.
- (c) If the entire Level B monitoring zone is not visible, pile driving activities may continue, and the number of individual animals within the Level B zone will be estimated and recorded. Estimated numbers of individuals will be extrapolated by dividing the number of observed individuals by the percentage of the monitoring zone that was visible.

## 6. Reporting

The holder of this IHA is required to:

- (a) Submit a draft report on all monitoring conducted under the IHA within ninety calendar days of the completion of marine mammal monitoring or sixty days prior to the issuance of any subsequent IHA for this project, whichever comes first. A final report must be prepared and submitted within thirty days following resolution of comments on the draft report from NMFS. This report must contain the following:
- 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. Level A and Level B harassment exposures recorded by PSOs must be extrapolated based upon the number of observed takes and the percentage of respective harassment zones that are not visible.
- xiii. Marine mammal PSO observational datasheets or raw data.

(b) Reporting injured or dead marine mammals:

- i. In the event that personnel involved in the construction activities discover an injured or dead marine mammal, CTJV shall report the incident to the Office of Protected Resources (OPR), NMFS and to the Greater Atlantic Region New England/Mid-Atlantic Regional Stranding Coordinator as soon as feasible. The report must include the following information:
  - 1. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
  - 2. Species identification (if known) or description of the animal(s) involved;

3. Condition of the animal(s) (including carcass condition if the animal is dead);
  4. Observed behaviors of the animal(s), if alive;
  5. If available, photographs or video footage of the animal(s); and
  6. General circumstances under which the animal was discovered.
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.

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

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Date

**Table 1— Authorized Amount of Taking, by Level A Harassment and Level B Harassment, by species and stock.**

<b>Species</b>	<b>Stock</b>	<b>Level A Takes</b>	<b>Level B Takes</b>
Humpback whale	Gulf of Maine	--	12
Harbor porpoise	Gulf of Maine/Bay of Fundy	5	7
Bottlenose dolphin	WNA Coastal, Northern Migratory	142	14,095
	WNA Coastal, Southern Migratory	142	14,095
	NNCES	2	198
Harbor seal	Western North Atlantic	1,296	2,124
Gray seal	Western North Atlantic	1	3

**Table 2—Level A Harassment and Level B Harassment Monitoring Zones During Project Activities (meters)**

Scenario		Level A Harassment Zones				Level B Monitoring Zones
		Low-Frequency Cetaceans	Mid-Frequency Cetaceans	High-Frequency Cetaceans	Phocid Pinnipeds	
Driving Type	Pile Type	Island 1 & 2	Island 1 & 2	Island 1 & 2	Island 1 & 2	Island 1 & 2
Impact	12-in. Timber	90	--	105	--	25
	36-in. Steel	2,920	105	3,480	1,565	1,585
Impact with Bubble Curtain	36-in. Steel	1,000	--	1,190	535	545
DTH – Impulsive	42-in. Steel	970	--	1,155	520	215
DTH Simultaneous at same island	42-in. Steel	1,535	--	1,830	825	215
DTH & Impact Hammer with bubble curtain: Simultaneous at the same island	36- and 42-in. Steel	1,970	--	2,400	1,055	545
DTH at PI 1. And Impact with Bubble Curtain Hammer at PI 2	36- and 42-in. Steel	970	--	1,155	520	215 from PI 1 545 from PI 2
Continuous (Vibratory)	12-in. Timber	--	--	--	--	1,360
	36-in. Steel	20	--	--	--	21,545



	42- in.** Steel	20	--	--	--	21,545
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-- indicates that shutdown zone is larger than calculated harassment zone.

\*\*Activity only planned at Portal Island 1 as part of project pile driving plan.