DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XG107

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Parallel Thimble Shoal Tunnel Project in Virginia Beach, Virginia

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the regulations implementing the Marine Mammal Protection Act (MMPA), as amended, notification is hereby given that NMFS has issued an incidental harassment authorization (IHA) to Chesapeake Tunnel Joint Venture (CTJV) to incidentally take, by Level A and/or Level B harassment, four species of marine mammals during the Parallel Thimble Shoal Tunnel Project (PTST) in Virginia Beach, Virginia.

DATES: This Authorization is effective from August 1, 2018, through July 31, 2019.

FOR FURTHER INFORMATION CONTACT: Rob Pauline, Office of Protected Resources, NMFS, (301) 427–8401. Electronic copies of the application and supporting documents, as well as a list of the references cited in this document, may be obtained online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities.* In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by United States citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

An authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

NMFS has defined ''negligible impact'' in 50 CFR 216.103 as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

The MMPA states that the term ''take'' means to harass, hunt, capture, kill or attempt to harass, hunt, capture, or kill any marine mammal.

Except with respect to certain activities not pertinent here, the MMPA defines ''harassment'' as any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) 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 (Level B harassment).

Summary of Request

On January 11, 2018, NMFS received a request from the CTJV for an IHA to take marine mammals incidental to pile driving at the Chesapeake Bay Bridge and Tunnel (CBBT) near Virginia Beach, Virginia. CTJV's request is for take of small numbers of harbor seal (*Phoca vitulina*), gray seal (*Halichoerus grypus*), bottlenose dolphin (*Tursiops* spp.), harbor porpoise (*Phocoena phocoena*), and humpback whale (*Megaptera novaeangliae*) by Level A and Level B harassment. Neither the CTJV nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS has issued an IHA to CTJV authorizing the take of five species by Level A and Level B harassment. Pile driving and removal will take up to 202 days. The IHA is effective from August 1, 2018 through July 31, 2019.

Description of Planned Activity

The PTST project consists of the construction of a two-lane parallel tunnel to the west of the existing Thimble Shoal Tunnel, connecting Portal Island Nos. 1 and 2 (Figure 1 in application). Upon completion, the new tunnel will carry two lanes of southbound traffic and the existing tunnel will remain in operation and carry two lanes of northbound traffic. The PTST project will address existing constraints to regional mobility based on current traffic volume along the Chesapeake Bay Bridge-Tunnel (CBBT) facility; improve safety by minimizing one lane, two-way traffic in the tunnel; improve the ability to conduct necessary maintenance with minimal impact to traffic flow; and ensure a reliable southwest hurricane evacuation route for residents of the eastern shore and/or a northern evacuation route for residents of the eastern shore, Norfolk, and Virginia Beach. The CBBT is a 23 mile fixed link crossing the mouth of the Chesapeake Bay which connects Northampton County on the Delmarva Peninsula with Virginia Beach, which is part of the Hampton Roads metropolitan area.

The new parallel tunnel will be bored under the Thimble Shoal Channel. The 6,525 linear feet (ft) of new tunnel will be constructed with a top of tunnel depth/elevation of 100 ft below Mean Low Water (MLW) within the width of the 1,000-ft-wide navigation channel. Impact pile driving will be used to install steel piles and vibratory pile driving will be utilized to install sheet piles. This issued IHA would cover one year of a larger project for which will run through 2022. The larger project, which does not employ pile driving and does not require additional IHAs, involves tunnel excavation with a tunnel boring machine and construction of a roadway within the tunnel. The type and numbers of piles to be installed, as well as those that will be removed during the effective period are summarized in Table 1.

TABLE 1—ANTICIPATED PILE INSTALLATION SCHEDULE

Pile location	Pile function	Pile type	Number of piles (upland/ In-water)	Anticipated installation date
Portal Island Nos. 1 and 2	Mooring dolphins (in-water)	36-inch diameter hollow steel	30	15 July to 15 August 2018.

TABLE 1—ANTICIPATED PILE INSTALLATION SCHEDULE—Continued

Pile location	Pile function	Pile type	Number of piles (upland/ In-water)	Anticipated installation date
West of Portal Island No. 1	Berm construction trestle (in-water)	36-inch diameter hollow steel	80	15 July 2018 through 1 January 2019.
West of Portal Island No. 2	Berm construction trestle (in-water)	36-inch diameter hollow steel	80	15 July 2018 through 1 January 2019.
Portal Island No. 1	Temporary docks (upland)	36-inch diameter hollow steel	50	1 May 2018 through 30 June 2018.
Portal Island No. 1	Temporary docks (in- water)	36-inch diameter hollow steel	82	15 July 2018 to 30 August 2018.
Portal Island No. 2 (above MHW)	Temporary roadway trestle (upland).	36-inch diameter hollow steel	12	1 May to 31 May 2018.
Portal Island No. 1 (above MHW)	Excavated TBM material containment holding (muck) bin (upland).	28 and 18-inch steel sheet	1,110	1 May 2018 to 30 September 2018.
Portal Island Nos. 1 and 2 (above and below MHW).	Settlement mitigation and flowable fill containment.	28-inch steel sheet	2,554	1 August 2018 to 30 March 2019.
Portal Island Nos. 1 and 2 (above MHW).	Portal excavation	Steel sheet	1,401	1 June 2018 to 30 September 2018, 1 January to 30 March 2019.
Portal Island Nos. 1 and 2 (above MHW).	Excavation Support	Steel sheet	240	1 April 2018 to 30 August 2019 to 1 January 2019 to 30 March 2019.
Total (above and below water)			5,305 Sheet Piles 334 Round Piles	

CTJV will install up to 272 in-water 36-in steel pipe piles by impact driving and 1,936 in-water sheet piles by vibratory installation and expects activities to take up to 202 days. These actions could produce underwater sound at levels that could result in the injury or behavioral harassment of marine mammal species. A detailed description of CTJV's planned project is provided in the **Federal Register** notice for the proposed IHA (83 FR 18777; April 30, 2018). Since that time, the project start date has been delayed by approximately one month. No additional changes have been made to the planned project activities. Therefore, a detailed description is not provided here. Please refer to that **Federal Register** notice for the description of the specific activity.

Comments and Responses

A notice of NMFS's proposal to issue an IHA to CTJV was published in the **Federal Register** on April 30, 2018 (83 FR 18777). That notice described, in detail, CTJV's activity, the marine mammal species that may be affected by the activity, the anticipated effects on marine mammals and their habitat, proposed amount and manner of take, and proposed mitigation, monitoring and reporting measures. During the 30-day public comment period, NMFS received one comment letter from the Marine Mammal Commission (Commission); the Commission's recommendations and our responses are provided here, and the comments have been posted online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities.*

Comment 1: The Commission recommended that NMFS review more thoroughly both the applications prior to deeming them complete and its notices prior to submitting them for publication in the **Federal Register** and that NMFS better evaluate the proposed exclusion/shut-down zones that are to be implemented for each proposed incidental take authorization. Further, the Commission references several specific minor errors that were in the proposed notice (for example, incorrect numbers in Tables).

Response: NMFS thanks the Commission for its recommendation. NMFS makes every effort to read the notices thoroughly prior to publication and will continue this effort to publish the best possible product for public comment. NMFS will be diligent when considering the appropriateness of proposed exclusion and shutdown zones for future IHAs. Further, NMFS has corrected the errors the Commission noted.

Comment 2: The Commission noted that NMFS used the lower reported source level for estimating the various Level A and B harassment zones during vibratory pile driving, which resulted in underestimating the Level A and B harassment zones, associated ensonified areas, and number of takes of bottlenose dolphins.

Response: Note that in the **Federal Register** notice of proposed IHA (83 FR 18777; April 30, 2018) a source value of 154 dB RMS SPL was applied for vibratory installation of 28-inch sheet. NMFS used a higher source level of 155 dB RMS SPL in this notice. The vibratory source levels based on root-mean-square sound pressure levels (SPLrms) and sound exposure levels metrics were not the same value according to NAVFAC 2017 which was cited as the reference for these values. Furthermore, the source levels based on 1-sec averages (155 dB RMS SPL) and 10-sec averages (154 dB RMS SPL) were not identical when they should be represented by the same value. When a difference is reported, it likely is due to the operator averaging decibels rather than taking the linear average of the pressures/intensities and then converting to dB. Therefore, the higher source level (155 dB RMS SPL) has been adopted in this notice.

Comment 3: The Commission noted that NMFS used incorrect assumptions for estimating the various Level A and B harassment zones when multiple hammers are used.

Response: NMFS used a source value of 186 dB RMS SPL to estimate the extent of the Level A harassment zone during simultaneous impact driving of two piles. NMFS incorrectly added 3 dB to the source levels after employing the rules for decibal addition as described in WSDOT 2017. However, the rules of decibal addition do not apply to simultaneous impact driving scenarios since hammer strikes will not be synchronized. Therefore, NMFS has reverted to using the original proxy source level of 183 dB when estimating the extent of the Level A harassment zone during simultaneous impact

driving of two piles with bubble curtains.

Comment 4: The Commission commented that NMFS did not not account for the possibility that the proposed in-water activities would not be finished by March 31 which is the deadline established by CTJV. Therefore, the numbers of harbor seal Level A and B harassment takes is underestimated.

Response: Even with the delay in project schedule, CTJV is confident that in-water activities will be concluded by March 31, 2019. To minimize the risk that the number of harbor seal takes may be exceeded, for this notice NMFS used the maximum haul-out count from on-site surveys (40) multiplied by the number of days of proposed activities (202) to estimate the number of harbor seal takes. In the **Federal Register** notice of proposed IHA (83 FR 18777; April 30, 2018), NMFS had multiplied monthly sighting rates by months of activities with an end date of March 31.

Comment 5: The Commission noted NMFS used inconsistent assumptions regarding estimating Level A harassment takes. NMFS assumed that 40 percent of the total number of harbor porpoise takes would equate to total Level A harassment takes based on the large size of the Level A harassment zones. However, NMFS did not make this assumption when estimated Level A jarassment take of harbor and gray seals.

Response: In this notice, NMFS has assumed that Level A harassment takes of harbor seals and gray seals represent 40 percent of total takes for each species.

Comment 6: The Commission noted that NMFS was requiring two protected species observers (PSOs) only during simultaneous pile driving. The Commission felt that two PSOs should be employed during all pile driving activities.

Response: NMFS had proposed that only a single PSO would be required during non-simultaneous pile driving. The PSO would be stationed on the portal island where non-simultaneous pile driving was underway. However, given the large sizes of the monitoring zones, NMFS will require two PSO's during all pile driving operations to ensure adequate visual coverage of the monitoring zones.

Comment 7: The Commission felt that the proposed 50-m exclusion zone for phocids was unnecessarily large for vibratory pile driving which could put CTJV in a situation in which it is implementing numerous unnecessary delays or shut downs for pinnipeds.

Response: NMFS agrees with this assessment and has reduced the size of the exclusion zone for phocids from 50 m to 15 m during vibratory pile driving.

Comment 8: The Commission feels there are some shortcomings that need to be addressed regarding the methodology for determining the extent of the Level A harassment zones based on the associated PTS cumulative sound exposure level (SEL_{cum}) thresholds for the various types of sound sources. Specifically, the Commission believes that the Level A and B harassment zones do not make sense biologically or acoustically in the context of one another (when the Level A harassment zone is larger than the Level B harassment zone) due to NMFS's unrealistic assumption that the animals remain stationary throughout the entire day of the activity. The Commission believes that it would be prudent for NMFS to consult with scientists and acousticians to determine the appropriate accumulation time that action proponents should use to determine the extent of the Level A harassment zones based on the associated PTS SEL_{cum} thresholds in such situations.

Response: During the 2016 Technical Guidance's recent review, in accordance with E.O. 13795, NMFS received comments from multiple Federal agencies, including the Commission, recommending the establishment of a working group to investigate more realistic means of approximating the accumulation period associated with sound exposure beyond the default 24-h accumulation period. Based on these comments, NMFS will be convening a working group to re-evaluate implementation of the default 24-h accumulation period and investigate means for deriving more realistic accumulation periods. Nonetheless, although NMFS Level A harassment zones include conservative assumptions and may overestimate the likelihood of injury somewhat, the take estimates are appropriate given the available information and support a robust negligible impact analysis and support the small numbers finding.

Comment 9: The Commission noted that NMFS has been inconsistently applying presumed source level reductions when bubble curtains are used during impact pile driving. The Commission recommended that NMFS refrain from using a source level reduction factor for sound attenuation device implementation (*i.e.,* bubble curtains) during impact pile driving for all relevant incidental take authorizations. If and when NMFS determines the appropriate accumulation time associated with its SELcum thresholds, it could consider using a source level reduction to estimate the ranges to Level A harassment. NMFS should then review the related literature on bubble curtain efficacy in concert with estimated ranges to the SEL_{cum} thresholds based on the revised accumulation time to determine what, if any, source level reduction would be appropriate. The Commission further recommended that NMFS refrain from using a source level reduction factor for sound attenuation device implementation during impact pile driving for all relevant incidental take authorizations and that source levels should not be reduced when determining the range to Level B harassment.

Response: NMFS believes it reasonable to use a source level reduction factor for sound attenuation device implementation during impact pile driving. NMFS understands that previous study results have been inconsistent and that noise level reductions measured at different received ranges may vary, given that both Level A and Level B estimation using geometric modeling is based on noise levels measured at near-source distances (~10 m). NMFS is working on guidance to increase consistency in the application of source level deductions from bubble curtain use, but in the meanwhile continues to evaluate proposals on a case by case basis. In this case we used a 10-dB reduction factor based on data from Caltrans 2015. We understand that there are other reported reduction levels that also could have been selected. However, we were unable to identify studies of bubble curtain efficacy that would have been any more applicable to the CTJV project than Caltrans 2015.

The Commission is opposed to the use of noise reduction factors during impact driving as well as application of reductions to Level B harassment. The Commission feels that bubble curtains have not consistently achieved reduced sound levels in the far field because sound resonates through the ground into the far field. Bubble curtains are not designed to, nor can they, attenuate ground-borne sound. While NMFS agrees that some energy is transmitted through the ground into the farfield, it is also likely that most of the energy is transmitted through the water column. Given that most studies of bubble curtain effectiveness have demonstrated at least some decrease in energy transmitted through the water column, NMFS will continue to permit appropriate source level reductions during impact driving for both Level A

and Level B harassment. Furthermore, if there are no reductions permitted when using bubble curtains, applicants would have less incentive to employ them at all. Without bubble curtains, more energy will likely be transmitted into both the near field and far field, potentially increasing the risk of animal's exposure to sound at Level A and Level B harassment levels.

Comment 10: The Commission commented that the method NMFS used to estimate the numbers of takes during the proposed activities, which summed fractions of takes for each species across project days, does not account for and negates the intent of NMFS' 24-hour reset policy. The Commission also recommends that NMFS develop and share guidance on this issue.

Response: NMFS has shared our internal guidance on rounding and the consideration of qualitative factors in take estimation with the Commission and further, as noted, disagrees with the assertion that the method described is at odds with what the Commission terms NMFS' ''24-hour reset policy.''

Comment 11: The Commission requested clarification of certain issues associated with NMFS's notice that one-year renewals could be issued in certain limited circumstances and expressed concern that the renewal process, as proposed, would bypass the public notice and comment requirements. The Commission recommended that instead of bypassing comment, NMFS utilize abbreviated **Federal Register** notices, as have been used recently to solicit comment on actions that meet the renewal criteria. The Commission also suggested that NMFS should discuss the possibility of renewals through a more general route, such as a rulemaking, instead of notice in a specific authorization. The Commission further recommended that if NMFS did not pursue a more general route, that the agency provide the Commission and the public with a legal analysis supporting our conclusion that this process is consistent with the requirements of section 101(a)(5)(D) of the MMPA.

Response: The proposed process of issuing a renewal IHA does not bypass the public notice and comment requirements of the MMPA. The notice of the proposed IHA expressly notifies the public that under certain, limited conditions an applicant could seek a renewal IHA for an additional year. The notice describes the conditions under which such a renewal request could be considered and expressly seeks public comment in the event such a renewal is sought. Additional reference to this solicitation of public comment has recently been added at the beginning of FR notices that consider renewals. NMFS appreciates the streamlining achieved by the use of abbreviated FR notices and intends to continue using them for proposed IHAs that include minor changes from previously issued IHAs, but which do not satisfy the renewal requirements. However, we believe our proposed method for issuing renewals meets statutory requirements and maximizes efficiency. Note that such renewals would be limited to where the activities are identical or nearly identical to those analyzed in the proposed IHA, monitoring does not indicate impacts that were not previously analyzed and authorized, and the mitigation and monitoring requirements remain the same, all of which allow the public to comment on the appropriateness and effects of a renewal at the same time the public provides comments on the initial IHA. NMFS has, however, modified the language for future proposed IHAs to clarify that all IHAs, including renewal IHAs, are valid for no more than one year and that the agency would consider only one renewal for a project at this time. In addition, notice of issuance or denial of a renewal IHA would be published in the **Federal Register**, as are all IHAs. Last, NMFS will publish on our website a description of the renewal process before any renewal is issued utilizing the new process.

Description of Marine Mammals in the Area of Specified Activities

Sections 3 and 4 of the application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SAR; *www.nmfs.noaa.gov/pr/sars/*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS's website (*www.nmfs.noaa.gov/pr/species/mammals/*).

Table 2 lists all species with expected potential for occurrence near the PTST project location and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2016). PBR is defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population (as described in NMFS's SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS's stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond United States waters. All managed stocks in this region are assessed in NMFS's United States Atlantic and Gulf of Mexico Marine Mammal Stock Assessments (Hayes *et al.,* 2017a,b). All values presented in Table 2 are the most recent available at the time of publication and are available in the 2016 Stock Assessment Report (Hayes *et al.,* 2017a) and draft 2017 stock assessment report (Hayes *et al.* 2017b) (available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*).

TABLE 2—MARINE MAMMAL SPECIES LIKELY TO OCCUR NEAR THE PROJECT AREA

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]
Order Cetartiodactyla—Cetacea—Superfamily Mysticeti (baleen whales)						
Family Balaenidae:						
North Atlantic Right whale ..	*Eubalaena glacialis*	Western North Atlantic (WNA) ..	E/D; Y	458 (0; 455; 2017)	1.4	36

TABLE 2—MARINE MAMMAL SPECIES LIKELY TO OCCUR NEAR THE PROJECT AREA—Continued

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]
Family Balaenopteridae (rorquals):						
Humpback whale	*Megaptera novaeangliae*	Gulf of Maine	–; N	335 (0.42; 239; 2012)	3.7	8.5
Fin whale	*Balaenoptera physalus*	WNA	E/D; Y	1,618 (0.33; 1,234; 2011)	2.5	2.65
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae:						
Bottlenose dolphin	*Tursiops spp.*	WNA Coastal, Northern Migratory.	D; Y	11,548 (0.36; 8,620; 2010–11).	86	1.0–7.5
		WNA Coastal, Southern Migratory.	D; Y	9,173 (0.46; 6,326; 2010–11).	63	0–12
		Northern North Carolina Estuarine System.	D; S	823 (0.06; 782; 2013)	7.8	1.0–16.7
Family Phocoenidae (porpoises):						
Harbor porpoise	*Phocoena phocoena*	Gulf of Maine/Bay of Fundy	-; N	79,833 (0.32; 61,415; 2011).	706	307 (0.16)
Order Carnivora—Superfamily Pinnipedia						
Family Phocidae (earless seals):						
Harbor seal	*Phoca vitulina*	WNA	-; N	75,834 (0.1; 66,884, 2012).	2,006	368
Gray seal	*Halichoerus grypus*	WNA	–; N	27,131 (.1, 25,908, 2016)	1,554	5,207

[1] Endangered Species Act (ESA) status: Endangered (E), Threatened (T)/MMPA status: Depleted (D). A dash (-) indicates that the species is not listed under the ESA or designated as depleted under the MMPA. Under the MMPA, a strategic stock is one for which the level of direct human-caused mortality exceeds PBR or which is determined to be declining and likely to be listed under the ESA within the foreseeable future. Any species or stock listed under the ESA is automatically designated under the MMPA as depleted and as a strategic stock.

[2] NMFS marine mammal stock assessment reports online at: *www.nmfs.noaa.gov/pr/sars/.* CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance.

[3] These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

Note: Italicized species are not expected to be taken or authorized for take.

All species that could potentially occur in the planned project areas are included in Table 2. However, the occurrence of endangered North Atlantic right whales and endangered fin whales is such that take is not expected to occur, and they are not discussed further beyond the explanation provided here. Between 1998 and 2013, there were no reports of North Atlantic right whale strandings within the Chesapeake Bay and only four reported standings along the coast of Virginia. During this same period, only six fin whale strandings were recorded within the Chesapeake Bay (Barco and Swingle 2014). In 2016, there were no reports of fin whale strandings (Barco *et al.,* 2017). Due to the low occurrence of North Atlantic right whales and fin whales, NMFS is not authorizing take of these species.

A detailed description of the of the species likely to be affected by the planned project, including brief introductions to the species and relevant stocks as well as available information regarding population trends and threats, and information regarding local occurrence, were provided in the **Federal Register** notice for the proposed IHA (83 FR 18777; April 30, 2018); since that time, we are not aware of any changes in the status of these species and stocks; therefore, detailed descriptions are not provided here. Please refer to that **Federal Register** notice for these descriptions. Please also refer to NMFS' website (*www.nmfs.noaa.gov/pr/species/mammals/*) for generalized species accounts.

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

The effects of underwater noise from pile driving and removal activities for the planned project have the potential to result in behavioral harassment of marine mammals in the vicinity of the action area. The **Federal Register** notice for the proposed IHA (83 FR 18777; April 30, 2018) included a discussion of the effects of anthropogenic noise on marine mammals. The project would not result in permanent impacts to habitats used directly by marine mammals, such as haulout sites, but may have potential short-term impacts to food sources such as forage fish and minor impacts to the immediate substrate during installation and removal of piles. These potential effects are discussed in detail in the **Federal Register** notice for the proposed IHA (83 FR 18777; April 30, 2018) therefore that information is not repeated here; please refer to that **Federal Register** notice for that information.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which informs both NMFS' consideration of small numbers and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines harassment as any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) 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 (Level B harassment).

Authorized takes would be by Level B harassment, in the form of disruption of behavioral patterns for individual

marine mammals resulting from exposure to acoustic sources including impact and vibratory pile driving equipment. There is also potential for auditory injury (Level A harassment) to result, due to larger predicted auditory injury zones. The mitigation and monitoring measures are expected to minimize the severity of such taking to the extent practicable.

As described previously, no mortality is anticipated or authorized for this activity. Below we describe how the take is estimated.

Described in the most basic way, we estimate take by considering: (1) Acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and (4) and the number of days of activities. Below, we describe these components in more detail and present the take estimate.

Acoustic Thresholds

Using the best available science, NMFS has developed acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur PTS of some degree (equated to Level A harassment).

Level B Harassment for non-explosive sources—Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.,* frequency, predictability, duty cycle), the environment (*e.g.,* bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to predict (Southall *et al.,* 2007, Ellison *et al.,* 2011). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner we consider Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 µPa (rms) for continuous (*e.g.,* vibratory pile-driving, drilling) and above 160 dB re 1 µPa (rms) for non-explosive impulsive (*e.g.,* impact pile driving, seismic airguns) or intermittent (*e.g.,* scientific sonar) sources.

CTJV's planned activity includes the use of continuous (vibratory pile driving) and impulsive (impact pile driving) sources, and therefore the 120 and 160 dB re 1 µPa (rms) are applicable.

Level A harassment for non-explosive sources—NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Technical Guidance, 2016) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). CTJV's tunnel project includes the use of impulsive (impact hammer) and non-impulsive (vibratory hammer) sources.

These thresholds are provided in Table 3 below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2016 Technical Guidance, which may be accessed at: *http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm.*

TABLE 3—THRESHOLDS IDENTIFYING THE ONSET OF PERMANENT THRESHOLD SHIFT

Hearing group	PTS onset acoustic thresholds * (received level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	*Cell 1:* $L_{pk,flat}$: 219 dB;$L_{E,LF,24h}$: 183 dB	*Cell 2:* $L_{E,LF,24h}$: 199 dB.
Mid-Frequency (MF) Cetaceans	*Cell 3:* $L_{pk,flat}$: 230 dB; $L_{E,MF,24h}$: 185 dB	*Cell 4:* $L_{E,MF,24h}$: 198 dB.
High-Frequency (HF) Cetaceans	*Cell 5:* $L_{pk,flat}$: 202 dB; $L_{E,HF,24h}$: 155 dB	*Cell 6:* $L_{E,HF,24h}$: 173 dB.
Phocid Pinnipeds (PW) (Underwater)	*Cell 7:* $L_{pk,flat}$: 218 dB; $L_{E,PW,24h}$: 185 dB	*Cell 8:* $L_{E,PW,24h}$: 201 dB.
Otariid Pinnipeds (OW) (Underwater)	*Cell 9:* $L_{pk,flat}$: 232 dB; $L_{E,OW,24h}$: 203 dB	*Cell 10:* $L_{E,OW,24h}$: 219 dB.

* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.

Note: Peak sound pressure (L_{pk}) has a reference value of 1 µPa, and cumulative sound exposure level (L_E) has a reference value of 1µPa^{2}s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript ''flat'' is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (*i.e.,* varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.

Ensonified Area

Here, we describe operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds.

Pile driving will generate underwater noise that potentially could result in disturbance to marine mammals swimming by the project area. Transmission loss (TL) underwater is the decrease in acoustic intensity as an acoustic pressure wave propagates out from a source until the source becomes indistinguishable from ambient sound. TL parameters vary with frequency, temperature, sea conditions, current, source and receiver depth, water depth, water chemistry, and bottom composition and topography. A standard sound propagation model, the Practical Spreading Loss model, was used to estimate the range from pile driving activity to various expected SPLs at potential project structures. This model follows a geometric propagation loss based on the distance from the driven pile, resulting in a 4.5 dB reduction in level for each doubling of distance from the source. In this model, the SPL at some distance away from the source (*e.g.,* driven pile) is governed by a measured source level, minus the TL of the energy as it dissipates with distance. The TL equation is:

$TL = 15\log10(R_1/R_2)$

Where:

TL is the transmission loss in dB,

R_1 is the distance of the modeled SPL from the driven pile, and

R_2 is the distance from the driven pile of the initial measurement.

The degree to which underwater noise propagates away from a noise source is dependent on a variety of factors, most notably by the water bathymetry and presence or absence of reflective or absorptive conditions including the sea surface and sediment type. The TL model described above was used to calculate the expected noise propagation from both impact and vibratory pile driving, using representative source levels to estimate the harassment zone or area exceeding specified noise criteria.

Sound source levels from the PTST project site were not available. Therefore, literature values published for projects similar to the PTST project were used to estimate the amount of sound (RMS SPL) that could potentially be produced. The PTST Project will use round, 36-inch-diameter, hollow steel piles and 28-inch wide sheet piles. Data reported in the Compendium of Pile Driving Sound Data (Caltrans 2015) for similar piles size and types are shown in Table 4. The use of an encased bubble curtain is expected to reduce sound levels by 10 decibels (dB) (NAVFAC 2014, ICF Jones and Stokes 2009). Using data from previous projects (Caltrans 2015) and the amount of sound reduction expected from each of the sound mitigation methods, we estimated the peak noise level (SPLpeak), the root mean squared sound pressure level (RMS SPL), and the single strike sound exposure level (sSEL) for each pile driving scenario of the PTST project (Table 4).

TABLE 4—THE SOUND LEVELS (dB PEAK, dB RMS, AND dB SSEL) EXPECTED TO BE GENERATED BY EACH HAMMER TYPE/MITIGATION

Type of pile	Hammer type	Estimated peak noise level (dB peak)	Estimated cumulative sound exposure level (dB cSEL)	Estimated pressure level (dB RMS)	Estimated single strike sound exposure level (dB sSEL)	Relevant piles at the PTST project	Pile function
36-inch Steel Pipe	Impact [a]	210	NA	193	183	Battered	Mooring dolphins.
36-inch Steel Pipe	Impact with Bubble Curtain [b].	200	NA	183	173	Plumb	Mooring dolphins and Temporary Pier.
24-inch AZ Sheet	Vibratory [c]	182	NA	155	155	Sheet	Containment Structure.
36-inch Steel Pipe and 36-inch Steel Pipe.	Impact w/Bubble Curtain at PI 1 and PI 2.	200	NA	183	183	Plumb	Mooring Dolphins, Temporary Pier.
36-inch Steel Pipe and 24-inch AZ Sheet Pile.	Impact w/Bubble Curtain at PI 1 and Vibratory at PI 2.	200	NA	183	183	Plumb and Sheet.	Mooring Dolphins, Containment Structure.
36-inch Steel Pipe and 24-inch AZ Sheet Pile.	Vibratory at PI 1 and Impact w/Bubble Curtain at PI 2.	200	NA	183	183	Plumb and Sheet.	Mooring Dolphins and Containment Structure.

[a] Examples from Caltrans 2015. These examples were the loudest provided in the Caltrans 2015 compendium for 36-inch-diameter hollow steel piles and in the Proxy Source Sound Levels and Potential Bubble Curtain Attenuation for Acoustic Modeling of nearshore marine Pile Driving at Navy Installations in Puget Sound (NAVFAC 2014).

[b] Estimates of sound produced from impact that use sound mitigation measures were developed by subtracting 10 dB for an encased bubble curtain (ICF Jones and Stokes 2009, NAVFAC 2014). A 10-dB reduction in sound for this sound mitigation method is the minimum that may be expected and, therefore, represents a conservative estimate in sound reduction.

[c] Example from NAVFAC 2017. Average 1-second and 10-second Broadband RMS SPL (dB re 1 μPa) for Vibratory Pile-Driving normalized to 10 meters at JEB Little Creek.

When NMFS's Technical Guidance (2016) was published, in recognition of the fact that ensonified area/volume could be more technically challenging to predict because of the duration component in the new thresholds, we developed a User Spreadsheet that includes tools to help predict a simple isopleth that can be used in conjunction with marine mammal density or occurrence to help predict takes. We note that because of some of the assumptions included in the methods used for these tools, we anticipate that isopleths produced are typically going to be overestimates of some degree, which will result in some degree of overestimate of Level A take. However, these tools offer the best way to predict appropriate isopleths when more sophisticated 3D modeling methods are not available, and NMFS continues to develop ways to quantitatively refine these tools, and will qualitatively address the output where appropriate. For stationary sources, NMFS's User Spreadsheet predicts the closest distance at which, if a marine mammal remained at that distance the whole duration of the activity, it would not incur PTS. Inputs used in the User Spreadsheet, and the resulting isopleths are reported below.

The Impact Pile Driving (Stationary Source: Impulsive, Intermittent) (Sheet E.1) spreadsheet provided by NOAA Fisheries requires inputs for assorted variables which are shown in Table 4. RMS SPL's for simultaneous pile driving were determined using the rules for decibel addition (WSDOT 2017). The expected number of steel piles driven during a 24-hour period would be a maximum of eight for plumb piles and three for battered piles for each portal island. Practical spreading was assumed (15logR) and a pulse duration of 0.1 seconds utilized. The distance from the source where the literature based RMS SPL was 10 meters while the number of strikes per pile was 1,000. Model outputs delineating PTS isopleths are provided in Table 6 assuming impact installation of three battered round steel piles per day and eight plumb round steel piles per day as well as vibratory installation of up to eight sheets per day over eight hours.

The Optional User Spreadsheet for vibratory pile driving (non-impulsive, stationary, continuous) (Sheet A) requires inputs for the sound pressure level of the source (dB RMS SPL), the expected activity duration in hours during per 24-hour period, the propagation of the sound and the distance from the source at which the sound pressure level was measured. Calculations also assumed that the expected activity level duration would be eight hours per Portal Island per 24-hour period. Practical spreading was assumed and the measured distance from the sound source was 10 meters.

The inputs from Table 5 determined isopleths where PTS from underwater sound during impact and vibratory driving as shown in Table 6. Note that

in the **Federal Register** notice of proposed IHA (83 FR 18777; April 30, 2018) a source value of 154 dB RMS SPL was used for vibratory installation of 28-inch sheet piles and a value of 186 dB RMS SPL was used for simultaneous impact installation of 36-inch steel piles employing bubble curtains. NMFS opted to use a higher source level of 155 dB RMS SPL. Since the vibratory source levels based on root-mean-square sound pressure levels (SPLrms) and sound exposure levels metrics were not the same value in NAVFAC 2017, neither were the source levels based on 1-sec and 10-sec averages. These metrics should be represented by the same value. When a difference is reported, it likely is due to the operator averaging decibels rather than taking the linear average of the pressures/intensities and then converting to dB. Therefore, the higher source level has been adopted in this notice.

A source value of 186 dB RMS SPL was used to estimate the extents of the Level A harassment zone during simultaneous impact driving of two piles. NMFS incorrectly added 3 dB to the impact driving source levels rather than assuming the proxy source level (186 vs. 183 dB). NMFS has reverted to using a proxy source level of 183 dB re 1 µPa when estimating the extent of the Level A harassment zone during simultaneous impact driving of two piles with bubble curtains. These revisions have been included in Table 4 and Table 5. Table 6 shows user spreadsheet outputs of the radial distance from piles driven from Portal Island 1 and Portal Island 2 to PTS isopleths.

TABLE 5—USER SPREADSHEET INPUTS

Spreadsheet tab used	E.1: Impact pile driving (stationary source: impulsive, intermittent)	A: Stationary source: non-impulsive, continuous	E.1: Impact pile driving (stationary source: impulsive, intermittent)	E.1: Impact pile driving (stationary source: impulsive, intermittent)
Pile Type and Hammer Type	36-in steel impact (battered pile).	28-in sheet vibratory	36-in steel impact w/bubble curtain at P1 and P2 (plumb piles).	36-in steel impact w/bubble curtain at P1 (plumb pile) and sheet pile vibratory at P2.
Source Level (RMS SPL)	193	155	183	183.
Weighting Factor Adjustment (kHz)	2	2.5	2	2.
Number of strikes in 1 h OR number of strikes per pile.	1,000	NA	1,000	1,000.
Activity Duration (h) within 24-h period OR number of piles per day.	3 steel piles	8 hours/8 sheets	8 steel piles per portal island (16 total).	8 steel piles.
Propagation (xLogR)	15	15	15	15.
Distance of source level measurement (meters).	10	10	10	10.
Pulse Duration (seconds)	0.1	NA	0.1	0.1.

TABLE 6—RADIAL DISTANCE (METERS) FROM PILE DRIVEN FROM PORTAL ISLAND 1 (PI 1) AND PORTAL ISLAND 2 (PI 2) TO PTS ISOPLETHS *

Hammer type	Low-frequency cetaceans		Mid-frequency cetaceans		High-frequency cetaceans		Phocid pinnipeds		Applicable piles in the PTST project
	Island 1	Island 2	Island 1	Island 2	Island 1	Island 2	Island 1	Island 2	
Impact (battered) at PI 1 OR PI 2.	2,077.2	2,077.2	73.9	73.9	2,474.3	2,474.3	1,111.6	1,111.6	Battered Piles for Mooring Dolphins.
Vibratory	10.9	10.9	1.0	1.0	16.1	16.1	6.6	6.6	Sheet Piles for Containment.
Impact w/Bubble Curtain (plumb) simultaneous at PI 1 and PI 2.	1,366.1	1,366.1	48.6	48.6	1,627.2	1,627.2	731.1	731.1	Plumb Piles for temporary pier.
Impact w/Bubble Curtain (plumb) simultaneous at PI 1 and Vibratory at PI 2.	860.6	10.9	30.6	1.0	1,025.1	16.1	460.5	6.6	Plumb Piles for Temporary Pier and Mooring Dolphins; Sheet Pile for Containment.
Vibratory at PI 1 and Impact w/Bubble Curtain (plumb) at PI 2 Simultaneous.	10.9	860.6	1.0	30.6	16.18	1,025.1	6.6	460.5	Plumb Piles for temporary pier and Mooring Dolphins; Sheet Pile for Containment.

* Distances based on up to 3 battered round steel piles per day, 8 plumb round steel piles per day, and up to 8 sheets per day over 8 hours.

Table 7 shows the radial distance to Level B isopleths and Table 8 shows the areas of ensonified Level B zones associated with each of the planned driving scenarios.

TABLE 7—RADIAL DISTANCE (METERS) FROM DRIVEN PILE(S) TO LEVEL B ISOPLETHS [1] FOR CETACEANS AND PINNIPEDS

Hammer type driving scenario	Radial distance (m)		Applicable piles in the PTST project
	Island 1	Island 2	
Impact (battered)	1,584.9	1,584.9	Battered Piles for Mooring Dolphins.
Vibratory	2,154.4	2,154.4	Sheet Piles for Containment.
Impact w/Bubble Curtain (plumb) at PI 1 and PI 2 simultaneous.	341.5	341.5	Plumb Piles for temporary pier.

TABLE 7—RADIAL DISTANCE (METERS) FROM DRIVEN PILE(S) TO LEVEL B ISOPLETHS [1] FOR CETACEANS AND PINNIPEDS—Continued

Hammer type driving scenario	Radial distance (m)		Applicable piles in the PTST project
	Island 1	Island 2	
Impact w/Bubble Curtain (plumb) at PI 1 and Vibratory at PI 2 simultaneous.	341.5	2,154.4	Plumb Piles for Temporary Pier and Mooring Dolphins; Sheet Pile for Containment.
Vibratory at PI 1 and Impact w/Bubble Curtain (plumb) at PI 2 simultaneous.	2,154.4	341.5	Plumb Piles for temporary pier and Mooring Dolphins; Sheet Pile for Containment.

[1] Level B harassment thresholds—160 dB for impact driving/120 dB for vibratory driving.

TABLE 8—LEVEL B AREAS (km^2) FOR ALL PILE DRIVING SCENARIOS PLANNED FOR USE DURING PTST PROJECT

Scenario	Zone size (km^2)
Impact Simultaneous Plumb	0.88
Impact Battered	8.27
Vibratory Sheet	[1] 16.49
Simultaneous Vibratory Sheet and Impact Plumb	16.49

[1] Level B ensonified area at Portal Island 1 = 16.37 km^2 and at Portal Island 2 = 16.49 km^2. For the purposes of this IHA, NMFS will conservatively assume that the ensonified area at both Portal Islands = 16.49 km^2.

To calculate level B disturbance zones for airborne noise from pile driving, the spherical spreading loss equation (20LogR) was used to determine the Level B zones. The airborne noise threshold for behavioral harassment for all pinnipeds, except harbor seals, is 100 dB RMS re 20 µPa (unweighted) and for harbor seals is 90 dB RMS re 20 µPa (unweighted).

Literature estimates were used to estimate the amount of in-air sound produced from driving a pile above the MHW line (Laughlin 2010a,b). Hollow steel piles that were 30 inches in diameter were used as a close proxy to the 36-inch-diameter hollow steel piles that will be driven at the PTST project. AZ 24-inch sheet pile was used as a proxy for the sheet pile to be driven during the PTST Project (Table 9). Using the spherical spreading loss model with these estimates, Level B isopleths were estimated as shown below in Table 9. Note that the take estimates for pinnipeds were based on surveys which included counts of hauled out animals. Therefore, to avoid double counting, airborne exposures are not evaluated further for purposes of estimating take under the issued IHA. During any upland pile driving before issuance of the IHA, however, shutdown will occur whenever pinnipeds enter into the Level B zones as depicted below to avoid unauthorized take.

TABLE 9—RADIAL DISTANCE (METERS) from PILE DRIVEN ABOVE MHW TO LEVEL B SOUND THRESHOLDS FOR HARBOR SEALS AND GRAY SEALS

Source	Sound level	Level A harassment zone (m)	Level B harassment zone (m)	
			Harbor seals	Gray seals
Impact Hammer 36- inch Pile	110 dB_{L5SEQ} at 15m[a]	N/A	150	47
Vibratory Hammer Assumed equivalent to 24-in sheet.	92 dB_{L5SEQ} at 15m	N/A	19	6

[a] Laughlin 2010a,b as cited in City of Unalaska 2016 IHA for Unalaska Marine Center.

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations.

Humpback whales are relatively rare in the Chesapeake Bay but may be found within or near the Chesapeake Bay at any time of the year. Between 1998 and 2014, 11 humpback whale strandings were reported within the Chesapeake Bay (Barco and Swingle 2014). Strandings occurred in all seasons, but were most common in the spring. There is no existing density data for this species within or near the Chesapeake Bay. Populations in the mid-Atlantic have been estimated for humpback whales off the coast of New Jersey with a density of 0.00013 per square kilometer (Whitt *et al.,* 2015). A similar density may be expected off the coast of Virginia.

Bottlenose dolphins are abundant along the Virginia coast and within the Chesapeake Bay and can be seen seen annually in Virginia from May through October. Approximately 65 strandings are reported each year (Barco and Swingle 2014). Stranded bottlenose dolphins have been recorded as far north as the Potomac River in the Chesapeake Bay (Blaylock 1985). A 2016 Navy report on the occurrence, distribution, and density of marine mammals near Naval Station Norfolk and Virginia Beach, Virginia provides seasonal densities of bottlenose dolphins for inshore areas in the vicinity of the project area (Engelhaupt *et al.,* 2016) (Table 10).

There is little data on the occurrence of harbor porpoises in the Chesapeake Bay. Harbor porpoises are the second most common marine mammal to strand in Virginia waters with 58 reported strandings between 2007 through 2016. Unlike bottlenose dolphins, harbor porpoises are found in Virginia in the cooler months, primarily late winter and early spring, and they strand primarily on ocean facing beaches (Barco *et al.,* 2017). Given the lack of abundance data, NMFS assumed that a limited number of harbor porpoises (2) would be taken during each month of planned construction in order to generate a take estimate for this species.

Harbor seals are the most common seal in Virginia (Barco and Swingle 2014). They can be seen resting on the rocks around the portal islands of the CBBT from December through April. They are unlikely to occur in the project area in the summer and early fall.

Survey data for in-water and hauled out harbor seals was collected by the United States Navy at the CBBT portal islands from 2014 through 2016 (Rees *et al.,* 2016) (Table 12). Surveys reported 112 harbor seals in the 2014/2015 season, 185 harbor seals during the 2015/2016 season, and 307 during the 2016/2017 season. (Rees *et al.,* 2016; Rees *et al.* 2017).

Gray seals are uncommon in Virginia and the Chesapeake Bay with only 15 gray seal strandings documented in Virginia from 1988–2013 (Barco and Swingle 2014). They are rarely found resting on the rocks around the portal islands of the CBBT from December through April alongside harbor seals. Observation surveys conducted by the Navy at the CBBT portal islands recorded one gray seal in the 2014/2015, two gray seals in 2015/2016, and two gray seals in 2016/2017 seasons (Rees *et al.,* 2016; Rees *et al.* 2017).

Take Calculation and Estimation

Here we describe how the information provided above is brought together to produce a quantitative take estimate.

The following assumptions are made when estimating potential incidences of take:

- All marine mammal individuals potentially available are assumed to be present within the relevant area, and thus incidentally taken;
- An individual can only be taken once during a 24-h period;
- Exposures to sound levels at or above the relevant thresholds equate to take, as defined by the MMPA.

Humpback Whale

As noted previously, humpback whales are rare in the Chesapeake Bay, although they do occur. Density off of the coast of New Jersey, and presumably Virginia and Maryland, is extremely low (0.00013 animals/km^2). Because density is extremely low, CTJV has requested and NMFS is authorizing one Level B take every two months for the duration of in-water pile driving activities. Pile driving activities are expected to occur over a 10-month period. Therefore, a total of 5 Level B takes of humpback whales is authorized by NMFS.

Bottlenose Dolphin

Total number of takes for bottlenose dolphin were calculated using the seasonal density described above (individuals/km^2/day) of animals within the inshore study area at the mouth of the Chesapeake Bay (Englehaupt *et al.,* 2016). Project specific dolphin densities were calculated within the respective Level B harassment zone and season. Densities were then used to calculate the seasonal takes based on the number and type of pile driving days per season. For example, the density of dolphins in summer months is assumed to be 3.55 dolphins/km^2 * 0.88 km^2 (harassment zone for Simultaneous Plumb Pile driving as shown in Table 8) = 3.12 dolphins/km^2 per day in summer as shown in Table 11. This density was then multiplied by number of simultaneous plumb pile driving days to provide takes for that season (*e.g.* 3.12 dolphins/km^2 * 24 days = 74.88 estimated summer exposures from simultaneous plumb pile driving). The sum of the anticipated number of seasonal takes resulted in 4,740 estimated exposures as shown in Table 10 split among three stocks. There is insufficient information to apportion the takes precisely to the three stocks present in the area. Given that members of the NNCES stock are thought to occur in or near the Bay in very small numbers, and only during July and August, we will conservatively assume that no more than 100 of the takes will be from this stock. Most animals from this stock spend the summer months in Pamlico Sound and the range of species extends as far south as Beaufort, NC. In colder months, animals are thought to go no farther north than Pamlico Sound. Since members of the southern migratory coastal and northern migratory coastal stocks are known to occur in or near the Bay in greater numbers, we will conservatively assume that no more than half of the remaining animals (2,320) will accrue to either of these stocks. The largest level B zone for mid-frequency cetaceans occurs during vibratory driving and extends out 2,154.4 meters. The largest Level A isopleth is 73.9 meters and would occur during installation of three battered piles on a single day. NMFS proposes a shutdown zone that extends 200 m, so no Level A take is authorized.

TABLE 10—SUMMARY OF INFORMATION USED TO CALCULATE BOTTLENOSE DOLPHIN EXPOSURES

Season	Density (individuals per km^2)	Estimated number of pile driving days	Total number of requested takes
Summer 2018	3.55	45	866.37
Fall 2018	3.88	77	2745.94
Winter 2019	0.63	70	962.62
Spring 2019	1.00	10	194.9
Total	.....	.....	4,740

TABLE 11—SEASONAL DAILY TAKE BY DRIVING SCENARIO (SEASONAL DENSITY * SCENARIO ZONE SIZE) AND ESTIMATED NUMBER OF DRIVING DAYS PER SEASON

Season	Impact simultaneous plumb daily take (days/season)	Impact batter daily take (days/season)	Vibratory sheet daily take (days/season)	Simultaneous vibratory sheet and impact plumb daily take (days/season)	Number of pile driving days
Summer	3.12 (24)	29.35 (15)	58.54 (6)	58.54 (0)	45
Fall	3.41 (36)	32.10 (0)	63.98 (41)	63.98 (0)	77
Winter	0.55 (12)	5.21 (0)	10.39 (34)	10.39 (24)	70
Spring	0.88 (0)	8.27 (0)	16.49 (9)	16.49 (1)	10

Harbor Porpoise

Little is known about the abundance of harbor porpoises in the Chesapeake Bay. A recent survey of the Maryland Wind Energy Area found that porpoises occur frequently offshore January to May (Wingfield *et al.,* 2017). This finding reflects the pattern of winter and spring strandings in the mid-Atlantic. NMFS will assume that there is a porpoise sighting once during every two months of operations. That would equate to five sightings over ten months. Assuming an average group size of two results in a total estimated take of 10 porpoises. Harbor porpoises are members of the high-frequency hearing group which would have Level A isopleths as large of 2,474 meters during impact installation of three battered piles per day. Given the relatively large Level A zones during impact driving, NMFS will assume that 40 precent of porpoises are taken by Level A harassment. Therefore, NMFS authorizes the take of 4 porpoises by Level A take and 6 porpoises by Level B take.

Harbor Seal

The number of harbor seals expected to be present in the PTST project area was estimated using survey data for in-water and hauled out seals collected by the United States Navy at the portal islands in 2016 and 2017 (Rees *et al.,* 2017). The survey data revealed a maximum of 40 animals observed per day. The maximum number of seals per day (40) was multiplied by the total number of driving days (202) resulting in an estimated 8,080 harbor seal takes. The largest level B zone would occur during vibratory driving and extends out 2,154.4 meters from the sound source. The largest Level A isopleth is 1,111.6 meters which would occur during impact installation of three battered piles. The smallest Level A zone during impact driving is 6.6 meters meters which would occur when a single steel pile is impact driven at the same time that vibratory driving of sheet piles is occurring. NMFS authorized a shutdown zone for harbor seals of 15 meters since seals are common in the project area and are known to approach the shoreline. A larger shutdown zone would likely result in multiple shutdowns and impede the project schedule. NMFS will assume that 40 percent of the exposed seals will occur within the Level A zone specified for a given scenario. Therefore, NMFS authorizes the Level A take of 3,232 and Level B take of 4,848 harbor seals.

Gray Seals

The number of gray seals potentially exposed to Level B harassment in the project area was calculated using survey data recording gray seal observations was collected by the U.S. Navy at the portal islands from 2014 through 2016 (Rees *et al.,* 2016). Potential gray seal exposures were calculated as the number of potential seals per pile driving day (8 hours) multiplied by the number of pile driving days per month. The anticipated numbers of monthly exposures as shown in Table 13 were summed. Therefore, NMFS has authorized the take of 67 gray seals by Level B harassment. The Level A isopleths for gray seals are identical to those for harbor seals. With a shutdown zone of 15 meters, NMFS recommended the Level A take of 40 percent of gray seals. Therefore, NMFS authorizes the Level A take of 27 and Level B take of 40 gray seals.

TABLE 13—CALCULATION FOR THE NUMBER OF GRAY SEAL EXPOSURES

Month	Estimated seals per work day	Total pile driving days per month (includes up-land driving)	Gray seal takes
June 2018	Seals not expected to be present.		
July 2018	Seals not expected to be present.		
August 2018	Seals not expected to be present.		
September 2018	Seals not expected to be present.		
October 2018	Seals not expected to be present.		
November 2018	0	27	0
December 2018	0	24	0
January 2019	0	42	0
February 2019	1.6	42	67
March 2019	0	11	0

Table 14 provides a summary of authorized Level B takes as well as the percentage of a stock or population authorized for take.

TABLE 14—AUTHORIZED TAKE AND PERCENTAGE OF STOCK OR POPULATION

Species	Stock	Authorized Level A takes	Authorized Level B takes	Percent population
Humpback whale	Gulf of Maine	.....	5	1.5
Bottlenose dolphin	WNA Coastal, Northern Migratory	.....	2,320	20.1
	WNA Coastal, Southern Migratory	.....	2,320	25.2
	NNCES	.....	100	12.1
Harbor porpoise	Gulf of Maine/Bay of Fundy	4	6	<0.01
Harbor seal	Western North Atlantic	3,232	4,848	10.6
Gray seal	Western North Atlantic	27	40	0.25

Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses (latter not applicable for this action). NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks and their habitat (50 CFR 216.104(a)(11).

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned); and

(2) the practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

The following mitigation measures are contained in the IHA:

- *Pile Driving Delay/Shutdown Zone*—For in-water heavy machinery work (using, *e.g.,* standard barges, tug boats, barge-mounted excavators, or clamshell equipment used to place or remove material), a minimum 10 meters shutdown zone shall be implemented. If a marine mammal comes within 10 meters of such operations, operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions. This type of work could include (but is not limited to) the following activities: (1) Vibratory pile driving; (2) movement of the barge to the pile location; (3) positioning of the pile on the substrate via a crane (*i.e.,* stabbing the pile); or (4) removal of the pile from the water column/substrate via a crane (*i.e.,* deadpull).
- *Non-authorized Take Prohibited*—If a species for which authorization has not been granted (*e.g.,* North Atlantic right whale, fin whale) or a species for which authorization has been granted but the authorized takes are met, is observed approaching or within the Level B Isopleth, pile driving and removal activities must shut down immediately using delay and shut-down procedures. Activities must not resume until the animal has been confirmed to have left the area or an observation time period of 15 minutes has elapsed.
- *Use of Impact Installation*—During pile installation of hollow steel piles, an impact hammer rather than a vibratory hammer will be used to reduce the duration of pile driving decrease the ZOI for marine mammals.
- *Cushion Blocks*—Use of cushion blocks will be required during impact installation. Cushion blocks reduce source levels and, by association, received levels, although exact decreases in sound levels are unknown.
- *Use of Bubble Curtain*—An encased bubble curtain will be used for impact installation of plumb round piles at water depths greater than 3 m (10 ft). Bubble curtains will not function effectively in shallower depths. shall employ a bubble curtain during impact pile driving of steel piles. CTJV shall implement the following performance standards: (1) The bubble curtain must distribute air bubbles around 100 percent of the piling perimeter for the full depth of the water column; (2) the lowest bubble ring shall be in contact with the mudline for the full circumference of the ring, and the weights attached to the bottom ring shall ensure 100 percent mudline contact. No parts of the ring or other objects shall prevent full mudline contact; and (3) CTJV will require that construction contractors train personnel in the proper balancing of air flow to the bubblers, and shall require that construction contractors submit an inspection/performance report for approval by the CTJV within 72 hours following the performance test. Corrections to the attenuation device to meet the performance standards shall occur prior to impact driving.
- *Soft-Start*—The use of a soft start procedure is believed to provide additional protection to marine mammals by warning or providing a chance to leave the area prior to the hammer operating at full capacity, and typically involves a requirement to initiate sound from the hammer at reduced energy followed by a waiting period. A soft-start procedure will be used for impact pile driving at the beginning of each day's in-water pile driving or any time impact pile driving has ceased for more than 30 minutes. The CTJV will start the bubble curtain prior to the initiation of impact pile driving. The contractor will provide an initial set of strikes from the impact hammer at reduced energy, followed by a 30-second waiting period, then two subsequent sets.
- *Establishment of Additional Shutdown Zones and Monitoring Zones*—For all impact and vibratory pile driving shutdown and monitoring zones will be established and monitored.
- CTJV will establish a shutdown zone of 200 meters for common dolphins and harbor porpoises and 15 meters for harbor and gray seals. The shutdown zones for humpback whales are depicted in Table 16.
- For all impact and vibratory pile driving shutdown and monitoring zones will be established and monitored. Level B zones are shown in Table 15.

TABLE 15—RADIAL DISTANCE (METERS) FROM PILE DRIVEN TO LEVEL B ISOPLETHS FOR CETACEANS AND PINNIPEDS

Hammer type driving scenario	Radial distance (m)	
	Island 1	Island 2
Impact (battered)	1,585	1,585
Vibratory	2,155	2,155
Impact w/Bubble Curtain (plumb) at PI 1 and PI 2 simultaneous	345	345
Impact w/Bubble Curtain (plumb) at PI 1 and Vibratory at PI 2 simultaneous	345	2,155

TABLE 15—RADIAL DISTANCE (METERS) FROM PILE DRIVEN TO LEVEL B ISOPLETHS FOR CETACEANS AND PINNIPEDS—Continued

Hammer type driving scenario	Radial distance (m)	
	Island 1	Island 2
Vibratory at PI 1 and Impact w/Bubble Curtain (plumb) at PI 2 simultaneous	2,155	345

• The Level A zones will depend on the number of piles driven and the presence of marine mammals per 24-hour period. Up to 3 battered piles or 8 plumb steel piles will be driven per 24-hour period using the following adaptive monitoring approach. Monitoring will begin each day using the three-pile Level A zone for battered piles (or eight-pile zone for plumb piles). If after the first pile is driven, no marine mammals have been observed in the Level A zone, then the Level A zone will reduce to the two-pile zone. If no marine mammals are observed within the two-pile shutdown zone during the driving of the second pile, then the Level A zone will reduce to the one-pile zone. However, if a mammal is observed approaching or entering the three-pile Level A zone during the driving of the first pile, then the three-pile Level A zone will be monitored for the remainder of pile driving activities for that day. Likewise, if a marine mammal is observed within the two-pile but not the three-pile Level A zone, then the two-pile Level A zone will be monitored for the remainder of pile driving activities for that day. The same protocol will be followed for installation of up to 8 plumb piles per day.

The Level A isopleths for all authorized species are shown in Table 16. Isopeths associated with low-frequency cetaceans will signify shutdown zones for humpback whales.

TABLE 16—RADIAL DISTANCE (METERS) FROM DRIVEN PILE TO PTS ZONES FOR CETACEANS AND PHOCID PINNIPEDS FOR SCENARIOS INVOLVING IMPACT HAMMER

Class of marine mammals	Piles per day	Impact hammer (battered pile)	Impact hammer with bubble curtain simultaneous (plumb pile) **	Simultaneous Driving—Vibratory hammer and impact hammer with bubble curtain (plumb pile)
Low-Frequency Cetaceans *	8	N/A	1,366	860.6
	7	N.A	1,249.1	787.3
	6	N/A	1,127.7	710.4
	5	N/A	998.6	629.1
	4	N/A	860.6	542.1
	3	2,077.2	710.4	447.5
	2	1,585.2	542.1	341.5
	1	998.6	341.5	215.1
Mid-Frequency Cetaceans	8	N/A	48	30.6
	7	N/A	44.4	28.0
	6	N/A	40.1	25.3
	5	N/A	35.5	22.4
	4	N/A	30.6	19.3
	3	73.9	25.3	15.9
	2	56.4	19.3	12.1
	1	35.5	12.1	7.7
High Frequency Cetaceans	8	N/A	1,627	1,025.1
	7	N/A	1,488.6	937.8
	6	N/A	1,343.3	846.2
	5	N/A	1,189.5	749.4
	4	N/A	1,025.1	645.8
	3	2,474.3	846.2	533.1
	2	1,888.3	645.8	406.8
	1	1,189.5	406.8	256.3
Phocid Pinnipeds	8	N/A	731	460.5
	7	N/A	68.8	412.3
	6	N/A	603.5	380.2
	5	N/A	534.4	336.7
	4	N/A	460.5	290.1
	3	1,111.6	380.2	239.5
	2	848.3	290.1	182.8
	1	534.4	182.8	115.1

* These isopleths serve as shutdown zones for all large whales, including humpback and fin whales.
** Assumes 1 pile installed at each island per day ranging from maximum of 16 piles to minimum of 2 piles.

Based on our evaluation of the applicant's suggested measures, as well as other measures considered by NMFS, NMFS has determined that the mitigation measures provide the means effecting the least practicable impact on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the planned action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.,* presence, abundance, distribution, density).
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) Action or environment (*e.g.,* source characterization, propagation, ambient noise); (2) affected species (*e.g.,* life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.,* age, calving or feeding areas).
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors.
- How anticipated responses to stressors impact either: (1) Long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks.
- Effects on marine mammal habitat (*e.g.,* marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat).
- Mitigation and monitoring effectiveness.

Visual Monitoring

The following visual monitoring measures are contained in the IHA:

- Pre-activity monitoring shall take place from 30 minutes prior to initiation of pile driving activity and post-activity monitoring shall continue through 30 minutes post-completion of pile driving activity. Pile driving may commence at the end of the 30-minute pre-activity monitoring period, provided observers have determined that the shutdown zone is clear of marine mammals, which includes delaying start of pile driving activities if a marine mammal is sighted in the zone.
- If a marine mammal approaches or enters the shutdown zone during activities or pre-activity monitoring, all pile driving activities at that location shall be halted or delayed, respectively. If pile driving is halted or delayed due to the presence of a marine mammal, the activity may not resume or commence until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone and 15 minutes have passed without re-detection of the animal. Pile driving activities include the time to install or remove a single pile or series of piles, as long as the time elapsed between uses of the pile driving equipment is no more than thirty minutes.
- Monitoring distances, in accordance with the identified shutdown zones, Level A zones and Level B zones, will be determined by using a range finder, scope, hand-held global positioning system (GPS) device or landmarks with known distances from the monitoring positions.
- A minimum of two PSOs will be required during all pile driving activities. Monitoring locations shall be based on land both at Portal Island No. 1 and Portal Island No. 2 during simultaneous driving or on the Portal Island with active driving during non-simultaneous driving.
- Monitoring will be continuous unless the contractor takes a break longer than 2 hours from active pile and sheet pile driving, in which case, monitoring will be required 30 minutes prior to restarting pile installation.
- If marine mammals are observed, their location within the zones, and their reaction (if any) to pile activities will be documented.
- If weather or sea conditions restrict the observer's ability to observe, or become unsafe, pile installation will be suspended until conditions allow for monitoring to resume.
- For in-water pile driving, under conditions of fog or poor visibility that might obscure the presence of a marine mammal within the shutdown zone, the pile in progress will be completed and then pile driving suspended until visibility conditions improve.
- Monitoring of pile driving shall be conducted by qualified PSOs (see below), who shall have no other assigned tasks during monitoring periods. CVTJV shall adhere to the following conditions when selecting observers:

(1) Independent PSOs shall be used (*i.e.,* not construction personnel).

(2) At least one PSO must have prior experience working as a marine mammal observer during construction activities.

(3) Other PSOs may substitute education (degree in biological science or related field) or training for experience.

(4) CTJV shall submit PSO CVs for approval by NMFS.

- CTJV will ensure that observers have the following additional qualifications:

(1) Ability to conduct field observations and collect data according to assigned protocols.

(2) Experience or training in the field identification of marine mammals, including the identification of behaviors.

(3) Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations.

(4) Writing skills sufficient to prepare a report of observations 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.

(5) 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.

A draft marine mammal monitoring report would be submitted to NMFS within 90 days after the completion of pile driving and removal activities. It will include an overall description of work completed, a narrative regarding marine mammal sightings, and associated marine mammal observation data sheets. Specifically, the report must include:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;

- Deviation from initial proposal in pile numbers, pile types, average driving times, etc.;
- Weather parameters (*e.g.,* percent cover, visibility); and
- Water conditions (*e.g.,* sea state, tide state).
- For each marine mammal sighting:

(1) Species, numbers, and, if possible, sex and age class of marine mammals;

(2) Description of any observable marine mammal behavior patterns, including bearing and direction of travel and distance from pile driving activity;

(3) Location and distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;

(4) Estimated amount of time that the animals remained in the Level A Level B zone;

- Description of implementation of mitigation measures within each monitoring period (*e.g.,* shutdown or delay); and
- Other human activity in the area.
- A summary of the following:

(1) Total number of individuals of each species detected within the Level A and Level B Zone, and estimated as taken if correction factor is applied.

(2) Daily average number of individuals of each species (differentiated by month as appropriate) detected within the Level A and Level B Zone, and estimated as taken, if correction factor is applied.

If no comments are received from NMFS within 30 days, the draft final report will constitute the final report. If comments are received, a final report addressing NMFS comments must be submitted within 30 days after receipt of comments.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury, serious injury or mortality, CTJV would immediately cease the specified activities and report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Greater Atlantic Region New England/Mid-Atlantic Regional Stranding Coordinator. The report would include the following information:

- Description of the incident;
- Environmental conditions (*e.g.,* Beaufort sea state, visibility);
- Description of all marine mammal observations in the 24 hours 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 would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS would work with CTJV to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. CTJV would not be able to resume their activities until notified by NMFS via letter, email, or telephone.

In the event that CTJV 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 (*e.g.,* in less than a moderate state of decomposition as described in the next paragraph), CTJV would immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Greater Atlantic Region New England/Mid-Atlantic Regional Stranding Coordinator. The report would include the same information identified in the paragraph above. Activities would be able to continue while NMFS reviews the circumstances of the incident. NMFS would work with CTJV to determine whether modifications in the activities are appropriate.

In the event that CTJV 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), CTJV would report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Greater Atlantic Region New England/Mid-Atlantic Regional Stranding Coordinator, within 24 hours of the discovery. CTJV would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network.

Negligible Impact Analysis and Determination

NMFS has defined negligible impact as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (*i.e.,* population-level effects). An estimate of the number of takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be ''taken'' through harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.,* intensity, duration), the context of any responses (*e.g.,* critical reproductive time or location, migration), as well as effects on habitat, and the likely effectiveness of the mitigation. We also assess the number, intensity, and context of estimated takes by evaluating this information relative to population status. Consistent with the 1989 preamble for NMFS's implementing regulations (54 FR 40338; September 29, 1989), the impacts from other past and ongoing anthropogenic activities are incorporated into this analysis via their impacts on the environmental baseline (*e.g.,* as reflected in the regulatory status of the species, population size and growth rate where known, ongoing sources of human-caused mortality, or ambient noise levels).

CTJV's planned pile driving activities are highly localized. Only a relatively small portion of the Chesapeake Bay may be affected. The project is not expected to have significant adverse effects on marine mammal habitat. No important feeding and/or reproductive areas for marine mammals are known to be near the project area. Project-related activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of their foraging range, but because of the relatively small impacted area of the habitat range utilized by each species that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

A limited number of animals could experience Level A harassment in the form of PTS if they remain within the Level A harassment zone during certain impact driving scenarios. The sizes of the Level A zones are dependent on the number of steel piles driven in a 24-hour period. Up to 8 steel plumb piles or 3 steel battered piles could be driven in a single day, which would result in a relatively large Level A zones. (If fewer piles are driven per day then the Level A zones would be smaller). However, an animal would have to be within the Level A zones during the driving of all 8 plumb or 3 battered piles. This is unlikely, as marine mammals tend to move away from sound sources. Furthermore, the degree of injury is expected to be mild and is not likely to affect the reproduction or survival of the individual animals. It is expected that, if hearing impairments occurs, most likely the affected animal

would lose a few dB in its hearing sensitivity, which in most cases is not likely to affect its survival and recruitment.

Exposures to elevated sound levels produced during pile driving activities may cause behavioral responses by an animal, but they are expected to be mild and temporary. Effects on individuals that are taken by Level B harassment, on the basis of reports in the literature as well as monitoring from other similar activities, will likely be limited to reactions such as increased swimming speeds, increased surfacing time, or decreased foraging (if such activity were occurring) (*e.g.,* Thorson and Reyff, 2006; Lerma, 2014). Most likely, individuals will simply move away from the sound source and be temporarily displaced from the areas of pile driving, although even this reaction has been observed primarily only in association with impact pile driving. These reactions and behavioral changes are expected to subside quickly when the exposures cease. The pile driving activities analyzed here are similar to, or less impactful than, numerous construction activities conducted in numerous other locations on the east coast, which have taken place with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in permanent hearing impairment or to significantly disrupt foraging behavior. Furthermore, Level B harassment will be reduced through use of mitigation measures described herein.

CTJV will employ noise attenuating devices (*i.e.,* bubble curtains, pile caps) during impact driving of plumb steel piles. During impact driving of both plumb and battered piles, implementation of soft start procedures and monitoring of established shutdown zones will be required, significantly reduces any possibility of injury. Given sufficient notice through use of soft start (for impact driving), marine mammals are expected to move away from a sound source. PSOs will be stationed on a portal island whenever pile driving operations are underway at that island. The portal island locations provide a relatively clear view of the shutdown zones as well as monitoring zones. These factors will limit exposure of animals to noise levels that could result in injury.

In summary and as described above, the following factors primarily support our determination that the impacts resulting from this activity are not expected to adversely affect the species or stock through effects on annual rates of recruitment or survival:

- No serious injury or mortality is anticipated;
- The area of potential impacts is highly localized;
- No adverse impacts to marine mammal habitat;
- The absence of any significant habitat within the project area, including rookeries, or known areas or features of special significance for foraging or reproduction;
- Anticipated incidents of Level A harassment would likely be mild;
- Anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior; and
- The anticipated efficacy of the required mitigation measures in reducing the effects of the specified activity.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the monitoring and mitigation measures, NMFS finds that the total marine mammal take from the activity will have a negligible impact on all affected marine mammal species or stocks.

Small Numbers

As noted above, only small numbers of incidental take may be authorized under section 101(a)(5)(D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

NMFS has determined that the estimated Level B take of humpback whale is 1.5 percent of the Gulf of Maine stock; take of harbor seals is 10.6 percent of the Western North Atlantic stock; take of gray seals is 0.25 percent of the Western North Atlantic stock; and take of harbor porpoise is <0.01 percent of the Gulf of Maine/Bay of Fundy stock. Total estimated take of bottlenose dolphins is 4,740. NMFS assumes 100 takes accruing to the NNCES stock and no more than half (2,300) of the remaining takes accruing to either of two migratory coastal stocks. This stock division represents 12.1 percent of the NCCES stock, 20.1 percent of the Western North Atlantic northern migratory coastal stock and 25.2 percent of the Western North Atlantic southern migratory coastal stock. Additionally, some number of the anticipated takes are likely to be repeat sightings of the same individual, lowering the number of *individuals* taken.

Based on the analysis contained herein of the planned activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

Unmitigable Adverse Impact Analysis and Determination

There are no relevant subsistence uses of the affected marine mammal stocks or species implicated by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

National Environmental Policy Act

To comply with the National Environmental Policy Act of 1969 (NEPA; 42 U.S.C. 4321 *et seq.*) and NOAA Administrative Order (NAO) 216–6A, NMFS must review our proposed action (*i.e.,* the issuance of an incidental harassment authorization) with respect to potential impacts on the human environment.

This action is consistent with categories of activities identified in Categorical Exclusion B4 (incidental harassment authorizations with no anticipated serious injury or mortality) of the Companion Manual for NOAA Administrative Order 216–6A, which do not individually or cumulatively have the potential for significant impacts on the quality of the human environment and for which we have not identified any extraordinary circumstances that would preclude this categorical exclusion. Accordingly, NMFS has determined that the issuance of the IHA qualifies to be categorically excluded from further NEPA review.

Endangered Species Act (ESA)

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat.

No incidental take of ESA-listed species is authorized or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Authorization

NMFS has issued an IHA to CTJV for conducting pile driving and removal activities as part of the PTST project between August 1, 2018 through July 31, 2019, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: July 25, 2018.

Donna S. Wieting,

Director, Office of Protected Resources, National Marine Fisheries Service.

[FR Doc. 2018–16204 Filed 7–27–18; 8:45 am]

BILLING CODE 3510–22–P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XG373

Mid-Atlantic Fishery Management Council (MAFMC); Public Meetings

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of public meetings.

SUMMARY: The Mid-Atlantic Fishery Management Council (Council) will hold public meetings of the Council and its Committees.

DATES: The meetings will be held Monday, August 13, 2018 through Thursday, August 16, 2018. For agenda details, see **SUPPLEMENTARY INFORMATION**.

ADDRESSES: The meeting will be held at the Hilton Virginia Beach Oceanfront, 3001 Atlantic Avenue, Virginia Beach, VA 23451, telephone: (757) 213–3000.

Council address: Mid-Atlantic Fishery Management Council, 800 N. State St., Suite 201, Dover, DE 19901; telephone: (302) 674–2331.

FOR FURTHER INFORMATION CONTACT: Christopher M. Moore, Ph.D., Executive Director, Mid-Atlantic Fishery Management Council; telephone: (302) 526–5255. The Council's website, *www.mafmc.org* also has details on the meeting location, proposed agenda, webinar listen-in access, and briefing materials.

SUPPLEMENTARY INFORMATION: The following items are on the agenda, though agenda items may be addressed out of order (changes will be noted on the Council's website when possible).

Monday, August 13, 2018

Swearing in of New and Reappointed Council Members

Election of Officers

Illex Control Date and 2018 and 2019 Fishery

Consider a new or existing (August 2, 2013) control date and review and consider adjustment to 2018 and 2019 *Illex* specifications.

Atlantic Mackerel Framework and Specifications

Approve rebuilding plan and associated 2019–2021 specifications including river herring and shad cap.

Tuesday, August 14, 2018

Council Meeting With the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass and Bluefish Boards

MRIP Presentation on New Estimates

Summer Flounder, Scup, and Black Sea Bass Framework and Addendum on Conservation Equivalency, Block Island Sound Transit, and Slot Limits

Framework meeting 1—review draft alternatives and review and approve draft addendum.

Black Sea Bass Specifications

Review SSC, Monitoring Committee, Advisory Panel, and staff recommendations and adopt 2019 specifications.

Black Sea Bass Wave 1 Fishery and Letter of Authorization (LOA)

Consider a potential February 2019 opening of the recreational Wave 1 fishery and discuss the continued development of the LOA Framework.

Wednesday, August 15, 2018

Council Meeting With the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass and Bluefish Boards

Summer Flounder Specifications

Review SSC, Monitoring Committee, Advisory Panel, and staff recommendations and adopt 2019 specifications.

Scup Specifications

Review SSC, Monitoring Committee, Advisory Panel, and staff recommendations regarding previously implemented 2019 specifications and recommend changes to 2019 specifications if necessary.

Bluefish Specifications

Review SSC, Monitoring Committee, Advisory Panel, and staff recommendations and adopt 2019 specifications.

Bluefish Allocation Amendment

Review scoping comments and discuss next steps and determine issues to be included in public hearing document.

ASMFC Bluefish FMP Review

Thursday, August 16, 2018

Responsible Offshore Development Alliance

Draft Amendment 11 to the 2006 Consolidated Atlantic HMS FMP for Management of Shortfin Mako Sharks

Business Session

Committee Reports (SSC); Executive Director's Report; Organization Reports; and, Liaison Reports.

Continuing and New Business

Although non-emergency issues not contained in this agenda may come before this group for discussion, in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), those issues may not be the subject of formal action during these meetings. Actions will be restricted to those issues specifically identified in this notice and any issues arising after publication of this notice that require emergency action under Section 305(c) of the Magnuson-Stevens Act, provided the public has been notified of the Council's intent to take final action to address the emergency.

Special Accommodations

These meetings are physically accessible to people with disabilities. Requests for sign language interpretation or other auxiliary aid should be directed to M. Jan Saunders, (302) 526–5251, at least 5 days prior to the meeting date.

Dated: July 25, 2018.

Tracey L. Thompson,

Acting Deputy Director, Office of Sustainable Fisheries, National Marine Fisheries Service.

[FR Doc. 2018–16221 Filed 7–27–18; 8:45 am]

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