BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XG956

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the South Quay Wall Recapitalization Project, Mayport, Florida

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

ACTION: Notice; issuance of 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 the Naval Facilities Engineering Command Southeast and Naval Facilities Engineering Command Atlantic (the Navy) to incidentally harass, by Level B harassment only, marine mammals during construction activities associated with the South Quay Wall Recapitalization Project at Naval Station Mayport (NAVSTA), Jacksonville, Florida.

DATES: This Authorization is effective from February 15, 2020, through February 14, 2021.

FOR FURTHER INFORMATION CONTACT: Jaclyn Daly, 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/permit/incidental-take-authorizations-under-marine-mammal-protection-act*. In case of problems accessing these documents, please call the contact listed above.

SUPPLEMENTARY INFORMATION:

Background

The MMPA prohibits the "take" of marine mammals, with certain exceptions. 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 U.S. 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 incidental take authorization may be provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for taking for subsistence uses (where relevant). Further, NMFS must prescribe the permissible methods of taking and other "means of effecting the least practicable adverse impact" on the affected species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stocks for taking for certain subsistence uses (referred to in shorthand as "mitigation"); and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth.

The NDAA (Pub. L. 108–136) removed the "small numbers" and "specified geographical region" limitations indicated above and amended the definition of "harassment" as it applies to a "military readiness activity." The definitions of all applicable MMPA statutory terms cited above are included in the relevant sections below.

Summary of Request

On December 4, 2018, NMFS received a request from the Navy for an IHA to take marine mammals incidental to pile driving at the South Quay wall, NAVSTA Mayport, Florida. The application was deemed adequate and complete on April 16, 2019. The Navy's request is for take of a small number of bottlenose dolphins, by Level B harassment only. Neither the Navy nor NMFS expect serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS previously issued several IHAs to the Navy for similar work at NAVSTA Mayport, specifically at Bravo Wharf (81 FR 52637, August 9, 2018; 83 FR 9287, March 5, 2019) and Wharf C-2 (78 FR 71566, November 29, 2013; 80 FR 55598, September 16, 2015). The Navy complied with all the requirements (*e.g.*, mitigation, monitoring, and reporting) of the previous IHAs and information regarding their monitoring results may be found at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*.

Description of the Activity

The Navy proposes to install 240 24-inch (in) steel sheet piles within 5 feet (ft) of the existing South Quay bulkhead located at the end of a channel within the NAVSTA Mayport turning basin along the St. Johns River, Florida. The purpose of the project is to support the existing bulkhead wall that has been weakened by the formation of voids within the wall. To construct the new wall, the Navy will install 240 individual sheet piles over the course of 35 days, averaging 7 to 10 sheet piles installed per day, with a maximum of 15 individual piles installed per day. Of the 35 total days of installation, 30 days were reserved for vibratory driving and the remaining 5 days were reserved for contingency impact driving. The Navy estimates each pile will require three minutes of active driving per pile (maximum of 45 minutes per day).

When impact driving, the Navy estimates they will install one pile per day, with each pile requiring 20 hammer strikes. The use of impact driving would be restricted to when vibratory driving is insufficient. The Navy anticipates the entire project will take up to one year; however, in-water pile driving work would be limited to 35 days. The IHA is valid from February 15, 2020, to February 14, 2021.

A detailed description of the South Quay Wall Recapitalization Project is provided in the **Federal Register** notice for the proposed IHA (84 FR 23024; 21 May 2019). Since that time, no changes have been made to the planned activities reflected in the proposed IHA. Therefore, we refer the reader to the aforementioned **Federal Register** notice for a detailed description of the project.

Comments and Responses

We published a notice of receipt of the Navy's application and proposed IHA in the **Federal Register** on May 21, 2019 (84 FR 23024). We received one comment letter from the Marine Mammal Commission (Commission).

Comment 1: The Commission concurs with NMFS's preliminary finding and recommends that NMFS issue the incidental harassment authorization, subject to the inclusion of the proposed mitigation, monitoring, and reporting measures. However, they recommended we increased the number of takes to 140 based on previous monitoring reports.

NMFS Response: The Navy requested 58 takes of bottlenose dolphins based on the same method and densities used for two other pile driving projects at NAVSTA Mayport: Bravo Wharf and Wharf-C. The Navy did not reach or exceed take for any of those projects which are now completed. However, in an abundance of caution NMFS has increased the number of takes authorized to 70 based on previous monitoring reports (see Estimated Take section) and believes

the Commission's 140 recommended takes is a gross overestimate based on the fact the harassment zones are confined to the limited portion of the Mayport basin due to the location of the South Quay wall and that pile driving would occur for a limited amount of time per day, minimizing potential exposure.

Comment 2: The Commission questioned whether the public notice provisions for IHA renewals fully satisfy the public notice and comment provision in the MMPA and discussed the potential burden on reviewers of reviewing key documents and developing comments quickly. Additionally, the Commission recommended that NMFS use the IHA Renewal process sparingly and selectively for activities expected to have the lowest levels of impacts to marine mammals and that require less complex analysis.

NMFS Response: The Commission has raised this concern before and NMFS refers readers to our full response, which may be found in the notice of issuance of an IHA to Avangrid Renewables (84 FR 31035, June 28, 2019).

Description of Marine Mammals in the Area of Specified Activities

There are four marine mammal species which may inhabit or transit near NAVSTA Mayport at the mouth of the St. Johns River and in nearby nearshore Atlantic Ocean. These include the bottlenose dolphin, Atlantic spotted dolphin (*Stenella frontalis*), North Atlantic right whale (*Eubalaena glacialis*), and humpback whale (*Megaptera novaeangliae*). Please refer to NMFS' website (*https://www.fisheries.noaa.gov/find-species*) for generalized species accounts and to the Navy's Marine Resource Assessment for the Charleston/Jacksonville Operating Area, which documents and describes the marine resources that occur in Navy operating areas of the Southeast (Navy, 2008; available at *www.navfac.navy.mil/products_and_services/ev/products_and_services/marine_resources/marin*

e_resource_assessments.html). All species other than the bottlenose dolphin are not included for further analysis due to extreme rarity within close proximity to NAVSTA Mayport and lack of sightings within NAVSTA Mayport. Unlike previous pile driving projects at NAVSTA Mayport where harassment thresholds extended into the mouth of the St. Johns River and nearby coastal ocean waters, the South Quay wall is positioned such that pile driving noise is not anticipated to propagate outside the turning basin. Therefore, we limit our discussion to bottlenose dolphins.

A detailed description of the species and stocks likely to be affected by pile driving at Bravo Wharf, 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 (84 FR 55990; 21 May 2019). Since that time, no new information has been made available; therefore, our account of the species and stocks have not changed.

Table 1 lists bottlenose dolphin stocks with expected potential for occurrence at NAVSTA Mayport 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 U.S. waters. All managed stocks in this region are assessed in NMFS's U.S. 2018 Draft SARs (Hayes *et al.*, 2018). All values presented in Table 1 are the most recent available at the time of publication.

Table 1. Bottlenose Dolphin Stocks Potentially Present at NAVSTA Mayport.

Species	**Stock**	**ESA/MMPA status; Strategic (Y/N)[1]**	**Stock abundance (CV, N_{min}, most recent abundance survey)[2]**	**PBR[3]**	**Annual M/SI[4]**	**Relative occurrence; season of occurrence**
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Bottlenose dolphin	Western North Atlantic, southern migratory coastal	-/D; Y	9,173 (0.46; 6,326; 2010-11)	63	0-12	Possibly common[8]; Jan-Mar
	Western North Atlantic, northern Florida coastal	-/D; Y	1,219 (0.67; 730; 2010-11)	7	0.4	Possibly common[8]; year-round
	Jacksonville Estuarine System[6]	-; Y	412[7] (0.06; unk; 1994-97)	undet.	1.2	Possibly common[8]; year-round

[1]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 (see footnote 3) 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]CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable.. For certain stocks, abundance estimates are actual counts of animals and there is no associated CV. The most recent abundance survey that is reflected in the abundance estimate is presented; there may be more recent surveys that have not yet been incorporated into the estimate.

[3]Potential biological removal, 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 size (OSP).

[4]These values, found in NMFS' SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.*, commercial fisheries, subsistence hunting, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value. All values presented here are from the draft 2015 SARs (*www.nmfs.noaa.gov/pr/sars/draft.htm*).

[5]Abundance estimates (and resulting PBR values) for these stocks are new values presented in the draft 2015 SARs. This information was made available for public comment and is currently under review and therefore may be revised prior to finalizing the 2015 SARs. However, we consider this information to be the best available for use in this document.

[6]Abundance estimates for this stock are greater than eight years old and are therefore not considered current. PBR is considered undetermined for these stocks, as there is no current minimum abundance estimate for use in calculation. We nevertheless present the most recent abundance estimates and PBR values, as these represent the best available information for use in this document.

[7]This abundance estimate is considered an overestimate because it includes non- and seasonally-resident animals.

[8]Bottlenose dolphins in general are common in the project area, but it is not possible to readily identify them to stock. Therefore, these three stocks are listed as possibly common as we have no information about which stock commonly only occurs.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.*, Richardson *et al.*, 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007, 2019) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.*, low-frequency cetaceans). NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 decibel (dB) threshold

from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. Marine mammal hearing groups and their associated hearing ranges are provided in Table 2.

Table 2. Marine Mammal Hearing Groups (NMFS, 2018).

Hearing Group	Generalized Hearing Range*
Low-frequency (LF) cetaceans (baleen whales)	7 Hz to 35 kHz
Mid-frequency (MF) cetaceans (dolphins, toothed whales, beaked whales, bottlenose whales)	150 Hz to 160 kHz
High-frequency (HF) cetaceans (true porpoises, *Kogia*, river dolphins, cephalorhynchid, *Lagenorhynchus cruciger* & *L. australis*)	275 Hz to 160 kHz
Phocid pinnipeds (PW) (underwater) (true seals)	50 Hz to 86 kHz
Otariid pinnipeds (OW) (underwater) (sea lions and fur seals)	60 Hz to 39 kHz
***** Represents the generalized hearing range for the entire group as a composite (*i.e.*, all species within the group), where individual species' hearing ranges are typically not as broad. Generalized hearing range chosen based on ~65 dB threshold from normalized composite audiogram, with the exception for lower limits for LF cetaceans (Southall *et al.* 2007) and PW pinniped (approximation).	

The pinniped functional hearing group was modified from Southall *et al.* (2007) on the basis of data indicating that phocid species have consistently demonstrated an extended frequency range of hearing compared to otariids, especially in the higher frequency range (Hemilä *et al.*, 2006; Kastelein *et al.*, 2009). For more detail concerning these groups and associated frequency ranges, please see NMFS (2018) for a review of available information. One cetacean species is expected to potentially be affected by the specified activity. Bottlenose dolphins are classified as mid-frequency cetaceans.

Potential Effects of Specified Activities on Marine Mammals and their Habitat

This section includes a summary and discussion of the ways that components of the specified activity may impact marine mammals and their habitat. The *Estimated Take by*

Incidental Harassment section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The *Negligible Impact Analysis and Determination* section considers the content of this section, the *Estimated Take by Incidental Harassment* section, and the *Mitigation* section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

The effects of sounds from pile driving might result in one or more of the following: temporary or permanent hearing impairment, non-auditory physical or physiological effects, behavioral disturbance, and masking (Richardson *et al.*, 1995; Gordon *et al.*, 2003; Nowacek *et al.*, 2007; Southall *et al.*, 2007). The effects of pile driving on marine mammals are dependent on several factors, including the size, type, and depth of the animal; the depth, intensity, and duration of the pile driving sound; the depth of the water column; the substrate of the habitat; the standoff distance between the pile and the animal; and the sound propagation properties of the environment. Impacts to marine mammals from pile driving activities are expected to result primarily from acoustic pathways. As such, the degree of effect is intrinsically related to the received level and duration of the sound exposure, which are in turn influenced by the distance between the animal and the source. The further away from the source, the less intense the exposure should be. The substrate and depth of the habitat affect the sound propagation properties of the environment. Shallow environments, such as that at NAVSTA Mayport, are typically more structurally complex, which leads to rapid sound attenuation. In addition, substrates that are soft (*e.g.*, sand and mud like at NAVSTA Mayport) would absorb or attenuate the sound more readily than hard substrates (*e.g.*, rock) which may reflect the acoustic wave.

Soft porous substrates would also likely require less time to drive the pile, and possibly less forceful equipment, which would ultimately decrease the intensity of the acoustic source.

In general, the effects of sounds from pile driving might result in one or more of the following: temporary or permanent threshold shift (TTS and PTS, respectively), non-auditory physical or physiological effects, behavioral disturbance, and masking (Richardson *et al.*, 1995; Gordon *et al.*, 2003; Nowacek *et al.*, 2007; Southall *et al.*, 2007). PTS and TTS is not anticipated in this case due to the fact all noise would be limited to the Mayport basin and the mitigation and monitoring measures. Any harassment would likely be behavioral in nature. Exposure to pile driving noise can result in dolphin behavioral changes such as avoidance, changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding), and visible startle response or aggressive behavior (such as tail/fluke slapping). As reviewed in Southall *et al.* (2007, 2019), the severity of these reactions can range from mild to severe and the longevity of reactions can be temporary or long-term. Based on marine mammal monitoring data collected by the Navy during previous recapitalization projects involving pile driving (Navy 2016, 2018a, 2018b), dolphins behavior within and around the turning basin include foraging, traveling, and social behavior during and in absence of pile driving. No reactions attributed to pile driving noise are documented in those reports.

Masking may occur during the short periods of pile driving; however, this is unlikely to become biologically significant. Masking occurs when the receipt of a sound is interfered with by another coincident sound at similar frequencies and at similar or higher levels. Chronic exposure to excessive, though not high-intensity, sound could cause masking at particular

frequencies for marine mammals, which utilize sound for vital biological functions. Masking can interfere with detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired from maximizing their performance fitness in survival and reproduction. If the coincident (masking) sound were man-made, it could be potentially harassing if it disrupted hearing-related behavior. It is possible that vibratory pile driving resulting from the project may mask acoustic signals important to bottlenose dolphins, but the short-term duration and limited affected area would result in insignificant impacts from masking. In this case, pile driving durations are relatively short and no significant habitat is located within NAVSTA Mayport. Any masking event that could possibly rise to Level B harassment under the MMPA would occur concurrently within the zones of behavioral harassment already estimated for vibratory and impact pile driving, and which have already been taken into account in the exposure analysis.

Anticipated Effects on Habitat

The specified activities at NAVSTA Mayport would not result in permanent impacts to habitats used directly by marine mammals as the new wall would be built within five ft of the existing wall, but may have potential short-term impacts to food sources such as forage fish and may affect acoustic habitat (see masking discussion above). There are no known foraging hotspots or other ocean bottom structure of significant biological importance to marine mammals present in the marine waters of the project area; however the surrounding areas may be foraging habitat for the dolphins. Therefore, the main impact issue associated with the project would be temporarily elevated sound levels and the associated direct effects on marine mammals, as

discussed previously in this document. The most likely impact to marine mammal habitat occurs from pile driving effects on likely marine mammal prey (*i.e.*, fish) and minor impacts to the immediate substrate and water column (*e.g.*, elevated turbidity) during installation and removal of piles during the wharf construction project. The Mayport turning basin itself is a man-made basin with significant levels of industrial activity and regular dredging, and is unlikely to harbor significant amounts of forage fish. Thus, any impacts to marine mammal habitat are not expected to cause significant or long-term consequences for individual marine mammals or their populations.

Estimated Take

This section provides an estimate of the number of incidental takes authorized through this IHA, which will inform 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 only, in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to pile driving. Based on the nature of the activity and the anticipated effectiveness of the mitigation measures

(*i.e.*, shutdown– discussed in detail below in Mitigation section, Level A harassment is neither anticipated nor authorized.

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

Generally speaking, 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. We note that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, we describe the factors considered here in more detail and present the authorized amount of take.

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., 2012). 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 decibels re 1 micoPascal root mean square (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.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources.

The Navy's specified 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 (Version 2.0) (Technical Guidance, 2018) 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). The Navy's specified activity includes the use of impulsive (impact pile driving) and non-impulsive (vibratory pile driving) sources.

These thresholds are provided in the Table 3 below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance*.

Table 3. Thresholds identifying the onset of Permanent Threshold Shift.

	PTS Onset Acoustic Thresholds* (Received Level)	
Hearing Group	**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, which include source levels and transmission loss coefficient.

The Navy used results from previous sound source verification tests at NAVSTA Mayport to estimate vibratory pile driving source levels. Vibratory driving of steel sheet piles was monitored during the first year of construction at the nearby C-2 Wharf at NAVSTA

Mayport during 2015. Measurements were conducted from a small boat in the turning basin and from the construction barge itself. Driving periods ranged from approximately 17 seconds to a little over one minute. Sound levels were recorded at a 10-m distance and the measured dB levels were converted to pressure values to generate 10-second averages of the levels before converting the values back to dB levels. The average and median of the levels resulted in a source level of 156 dB re 1µPa rms (Navy 2017).

No impact driving was conducted during this acoustic monitoring; therefore, the Navy relied on Caltrans (2015) to estimate source levels during impact pile driving of the 24-in sheet piles. The selected sound pressure levels used for modeling impact driving steel piles are 180 dB single-strike sound exposure level (SEL), 190 dB rms, and 205 dB peak. These values were also used in previous Navy Mayport IHAs without concern or public comment.

When the NMFS 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 may result in some degree of overestimate of Level A harassment 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 (such as pile driving), NMFS 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 (Table 4).

Vibratory pile driving, in general, does have the potential to cause injury to marine mammals if the duration of activity and source level are such that the threshold for injury in mid-frequency cetaceans (198 dB SEL_{cum}) is exceeded. In this case, the duration is short enough and source level low enough to where a dolphin must be within less than 1m of the pile for the entire duration of activity (45 minutes per day); therefore, the potential for injury is discountable. Impact pile driving also has the potential to result in PTS; impact driving produces short, sharp pulses with higher peak levels than vibratory driving as well as sharp rise time to reach those peaks. However, the Navy is proposing to install only one pile per day with an impact hammer (at 20 strikes per pile) resulting in very small isopleths within which received level would exceed the Level A harassment threshold (we note the peak threshold resulted in smaller isopleth than the SEL threshold). As evident by the very small isopleths in Table 4, the potential for Level A harassment is discountable. As a result of this analysis, the Navy did not request, nor did NMFS authorize, take by Level A harassment; therefore, it will not be discussed further.

Table 4. User Spreadsheet Input Values.

USER SPREADSHEET INPUT	**Impact Pile Driving**	**Vibratory Pile Driving**
Spreadsheet Tab Used	E.1) Impact pile driving	A) Non-Impulse-Stat-Cont
Source Level	180 dB SEL/205 dB peak	156 dBrms
Weighting Factor Adjustment (kHz)	2	2.5
b) Number of strikes per pile	20	N/A
b) Number of piles per day	1	0.75 (15 piles x 3 minutes per pile)
Propagation (xLogR)	15	15
Distance of source level measurement (meters)+	10	10
Level A Harassment Isopleth (mid-frequency cetaceans)	1.7 m	0.2 m

To calculate the Level B harassment ensonified area, the Navy identified distances to the Level B harassment thresholds for impact and vibratory pile driving (160 dB rms and 120 dB rms, respectively) using a practical spreading loss model. Resulting isopleth distances and ensonified areas (corrected in ArcView GIS to eliminate land; see the Navy's application for more details) are presented in Table 5.

Table 5. Calculated Level A Harassment and Level B Harassment Isopleths and Ensonfied Areas.

Pile Type	Driving Method (source level)	Harassment Type	Distance (m)	Area (km^2)
24" Steel sheet piles	Vibratory (156 dB rms)	Level A	0.2	0.0002
		Level B	2,512	0.4104
	impact (190 dB rms)	Level A	1.7	0.0006
		Level B	1,000	0.3540

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.

Bottlenose dolphin density used for this analysis was based on surveys conducted to support wharf recapitalization projects within the Mayport turning basin (Navy, 2015). Those surveys demonstrated dolphin presence and abundance is not uniform throughout the year. Because it is unknown exactly when pile driving will commence and be completed within the effective period of the IHA, the Navy applied the highest seasonal density of 4.15366 dolphins per km^2 to the estimated take analysis. This density has been used in previous IHAs issued to the

Navy for wharf recapitalization projects within the Mayport turning basin without public comment or concern.

Take Calculation and Estimation

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

Bottlenose dolphin density was multiplied by the size of the relevant zone of influence and number of piles driven to determine the estimated number of Level B harassment exposures per day. Resulting vibratory and impact hammering exposures were summed across days to produce a total exposure estimate:

Exposure = (density x vibratory driving area ensonfied above the behavioral harassment threshold x number of vibratory pile driving days) + (density x impact driving area ensonfied above the behavioral harassment threshold x number of impact pile driving days).

The same methodology was used to estimate takes for work at Wharf Bravo, completed in 2017-18. During that project, two to three marine mammal observers were stationed strategically to cover the entire Level B harassment area. The number of detected observations of marine mammals within the Level B harassment zone for that project was only 30 percent of the number authorized; therefore, this method is considered reliable.

Using the formula above, NMFS proposed authorizing 58 takes by Level B harassment incidental to vibratory and impact driving at the South Quay wall. However, the Commission recommended this total be increased based on previous NAVSTA Mayport monitoring reports. NMFS considered previous daily sighting rates and the Level B harassment zone size of those previous projects to the Level B harassment zone for the South Quay wall project. Average sighting rates within the NAVSTA Mayport was 1.7 dolphins/day while observations made both

within and outside the turning basin ranged from approximately 2-4 dolphins/day. On average, group size was 2 animals. Based on these data, NMFS increased the amount of take authorized from 58 in the proposed IHA to 70 in the final IHA (considering 2 animals/day for 35 days). The stocks from which these takes could occur are provided in Table 1. Because it is not possible to distinguish stocks in the field, we assume all 70 takes could occur to any single stock. As described above, no Level A harassment take is anticipated or authorized.

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 Navy proposed identical mitigation to that required in previous IHAs for work at NAVSTA Mayport, as described in detail in the IHA posted on NMFS' website at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities*. Pile driving will only be conducted during daylight hours. For all pile driving, the Navy will implement a minimum shutdown zone of 15-m radius around the pile and around any other in-water construction equipment. If a marine mammal approaches or enters the shutdown zone, all pile driving activities will be halted. If pile driving is halted or delayed due to the presence of a marine mammal, the activity may not commence or resume until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or fifteen minutes have passed without re-detection of the animal.

For all pile driving activities, a minimum of two protected species observers (PSOs) will be on watch, with one positioned to achieve optimal monitoring of the shutdown zone and the second positioned to achieve optimal monitoring of monitoring (Level B harassment) zone. Observers may be stationed in a tall building at NAVSTA Mayport, the construction barge, small vessels, or on the wharf at a location that will provide adequate visual coverage for the marine mammal shutdown zone.

The Navy will use soft start techniques for impact pile driving. Soft start requires contractors to provide an initial set of strikes at reduced energy, followed by a thirty-second waiting period, then two subsequent reduced energy strike sets. Soft start shall be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of thirty minutes or longer.

If a species for which authorization has not been granted, or a species for which authorization has been granted but the authorized takes are met, is observed approaching or within the monitoring zone, 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 fifteen minutes have passed without re-detection of the animal.

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 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); and
- Mitigation and monitoring effectiveness.

The Navy will conduct marine mammal monitoring using two NMFS-approved PSOs stationed at strategic locations at NAVSTA Mayport, per their Marine Mammal Monitoring Plan, dated April 2019. Monitoring will take place from 30 minutes prior to initiation of pile driving activity through thirty minutes post-completion of pile driving activity. In the event of a delay or shutdown of activity resulting from marine mammals in the shutdown zone, their behavior will be monitored and documented. No techniques (*e.g.*, pingers, boats) will be used to entice animals to leave the area. Monitoring shall occur throughout the time required to drive a pile and continue 30 minutes after pile driving ceases. The shutdown zone must be determined to be clear during periods of good visibility (*i.e.,* the entire shutdown zone and surrounding waters must be visible to the naked eye).

PSOs will be equipped with binoculars (7 x 50 power or greater) to ensure sufficient visual acuity and magnification while investigating sightings, portable radios or cellular phone(s) to rapidly communicate with the appropriate construction personnel to initiate shutdown of pile driving activity if required, a digital camera for photographing any marine species sighted, data collection forms, and a compass or GPS.

The Navy will collect sighting data for marine mammal species observed in the region of activity during the period of activity. All observers shall be trained in marine mammal identification and behaviors, and shall have no other construction-related tasks while conducting monitoring.

PSOs will use approved data forms. Among other pieces of information, the Navy will record detailed information about any implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal(s), if any. In addition, the Navy will attempt to distinguish between the number of individual animals taken and the number of incidences of take.

Data such as group size, age class, behavior in absence of pile driving (if observed when no pile driving is occurring), and any detectable observed behavioral responses to pile driving will also be recorded. These data will assist in the Navy and NMFS' better understanding of the impacts of the activities on bottlenose dolphin stocks potentially affected by the activity.

Reporting

A draft report will be submitted to NMFS within 90 days of the completion of marine mammal monitoring, or sixty days prior to the requested date of issuance of any future IHA for projects at the same location, whichever comes first. The report will include information on marine mammal monitoring effort and construction activities, marine mammal observations pre-

activity, during-activity, and post-activity during pile driving days, descriptions of sightings and any behavioral responses to construction activities by marine mammals, and a complete description of all mitigation shutdowns and the results of those actions and an extrapolated total take estimate based on the number of marine mammals observed during the course of construction. A final report must be submitted within thirty days following resolution of comments on the draft report. Should the Navy encounter a dead or injured marine mammal, additional reporting procedures would be taken.

All specific monitoring and reporting requirements are available for review in the IHA (*https://www.fisheries.noaa.gov/national/marine-mammal-protection/incidental-take-authorizations-construction-activities*).

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).

Pile driving activities associated with the South Quay Wall Recapitalization Project, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment (behavioral disturbance) only, from underwater sounds generated from pile driving. Potential takes could occur if individuals of these species are present in the area ensonified above behavioral harassment thresholds when pile driving is happening.

No injury, serious injury, or mortality is anticipated given the nature of the activities and measures designed to minimize the possibility of injury to marine mammals. The potential for these outcomes is avoided through the construction methods and the implementation of the planned mitigation measures such that take by Level A harassment (injury), serious injury and mortality is not authorized.

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; HDR Inc. 2012). 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. The pile driving activities analyzed here are identical to previous NAVSTA Mayport recapilization projects, which have taken place with no reported injuries or mortality to

marine mammals, and no known long-term adverse consequences on bottlenose dolphins from behavioral harassment. In fact, marine mammal reports from previous projects requiring incidental harassment authorizations have found that the dolphins observed did not exhibit notable reactions attributed to pile driving noise at NAVSTA Mayport. In those reports (*e.g.*, Navy 2016, 2018a, 2018b), traveling and foraging behaviors were most common with no overt changes in behavior observed during pile driving.

Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. A very limited amount of pile driving would occur each day, making extended durations of exposure necessary to cause hearing impairment unlikely. Further, as described above, marine mammal monitoring reports indicate foraging behavior continues despite projects requiring the installation of several hundred piles. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in decrease in fitness for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment severity will also be reduced to the level of least practicable impact through use of mitigation measures described herein and, if sound produced by project activities is sufficiently disturbing, animals are likely to simply avoid the turning basin while the activity is occurring. Finally, NAVSTA Mayport is a small, man-made military basin that does not include any significant marine mammal habitat or biologically important area.

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 mortality or injury is anticipated or authorized;

- Behavioral disturbance is possible, but expected to be minimal due to the limited duration of activities (no more than 35 days of pile driving during the authorized year, the time required to drive each pile is brief (less than one hour of vibratory driving per day and no more than 20 impact strikes per day), and the mitigation measures (*e.g.* shut-downs and soft start) would reduce the severity of acoustic impacts to species in the area of activities; and
- The absence of any significant habitat within the project area, including known areas or features of special significance for foraging or reproduction.

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 Sections 101(a)(5)(A) and (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.

Of the 70 incidents of behavioral harassment authorized for bottlenose dolphins, we have no information allowing us to parse the predicted incidents amongst the three stocks that may occur in the project area. Therefore, we assessed the total number of predicted incidents of take against the best abundance estimate for each stock, as though the total would occur for the stock

in question. For the Florida Coastal and Southern Migratory Coastal stocks, total predicted number of incidents of take authorized would be considered small at less than six percent and one percent, respectively.

The total number of authorized takes for bottlenose dolphins of the Jacksonville Estuarine stock, if assumed to accrue solely to new individuals, is higher relative to current stock abundance compared to these two stocks at 17 percent. This assumes all 70 exposures occur to 70 distinct individuals. This percentage is still relatively low and it is unlikely that all takes would occur to new individuals within this stock and this estimate all takes would occur to this one stock. Bottlenose dolphins belonging to estuarine stocks exhibit high site fidelity, resulting in higher likelihood of repeated exposure.

Based on the analysis contained herein of the activity (including the 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 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. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally, in this case with the Southeast Regional Protected Resources Division, whenever we propose to authorize take for endangered or threatened species.

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 the Navy for the harassment of small numbers of bottlenose dolphins incidental to the South Quay Wall Recapitalization Project at NAVSTA Mayport,

Jacksonville, FL, provided the previously mentioned mitigation, monitoring, and reporting requirements. A copy of the IHA can be found at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act*.

Dated: July 29, 2019.

Donna S. Wieting,

Director, Office of Protected Resources,

National Marine Fisheries Service.

[FR Doc. 2019-16486 Filed: 8/1/2019 8:45 am; Publication Date: 8/2/2019]