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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XE271

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to the Bravo Wharf Recapitalization Project

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 we have issued an incidental harassment authorization (IHA) to the U.S. Navy (Navy) to incidentally harass marine mammals during construction activities associated with the bravo wharf recapitalization project at Naval Station Mayport, FL.

DATES: This authorization is effective from December 1, 2016, through November 30, 2017.

FOR FURTHER INFORMATION CONTACT: Laura McCue, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Availability

An electronic copy of the Navy's application and supporting documents, as well as a list of the references cited in this document, may be obtained by visiting the Internet at:

www.nmfs.noaa.gov/pr/permits/incidental/construction.htm. A memorandum describing our

adoption of the Navy's Environmental Assessment (2016) and our associated Finding of No Significant Impact, prepared pursuant to the National Environmental Policy Act, are also available at the same site. In case of problems accessing these documents, please call the contact listed above (see **FOR FURTHER INFORMATION CONTACT**).

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce to allow, upon request by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified area, the incidental, but not intentional, taking of small numbers of marine mammals, providing that certain findings are made and the necessary prescriptions are established.

The incidental taking of small numbers of marine mammals may be allowed only if NMFS (through authority delegated by the Secretary) finds that the total taking by the specified activity during the specified time period will (i) have a negligible impact on the species or stock(s) and (ii) not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant). Further, the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such taking must be set forth, either in specific regulations or in an authorization.

The allowance of such incidental taking under section 101(a)(5)(A), by harassment, serious injury, death, or a combination thereof, requires that regulations be established. Subsequently, a Letter of Authorization may be issued pursuant to the prescriptions established in such regulations, providing that the level of taking will be consistent with the findings made for the total taking allowable under the specific regulations. Under section 101(a)(5)(D), NMFS

may authorize such incidental taking by harassment only, for periods of not more than one year, pursuant to requirements and conditions contained within an IHA. The establishment of prescriptions through either specific regulations or an authorization requires notice and opportunity for public comment.

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.” 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].”

Summary of Request

On July 21, 2015, we received a request from the Navy for authorization of the taking, by Level B harassment only, of marine mammals, incidental to pile driving in association with the Bravo Wharf recapitalization project at Naval Station Mayport (NSM), Florida. That request was modified on November 4 and November 10, and a final version, which we deemed adequate and complete, was submitted on November 17. In-water work associated with the project is expected to be completed within the one-year timeframe of the IHA (December 1, 2016 through November 30, 2017).

The use of both vibratory and impact pile driving is expected to produce underwater sound at levels that have the potential to result in behavioral harassment of marine mammals. One species of marine mammal has the potential to be affected by the specified activities: bottlenose dolphin (*Tursiops truncatus truncatus*). This species may occur year-round in the action area.

Similar wharf construction and pile driving activities in Naval Station Mayport have been authorized by NMFS in the past for a different construction project at Wharf C. The first authorization was effective between September 1, 2014 through August 31, 2015 (79 FR 27863; May 5, 2014), and the second authorization, which is currently ongoing, is effective from September 8, 2015 through September 7, 2016 (80 FR 55598; September 16, 2015).

Description of the Specified Activity

Overview

Bravo Wharf is a medium draft, general purpose berthing wharf that was constructed in 1970 and lies at the western edge of the NSM turning basin. Bravo Wharf is approximately 2,000 ft long, 125 ft wide, and has a berthing depth of 50 ft mean lower low water. The wharf is one of two primary deep draft berths at the basin and is capable of berthing ships up to and including large amphibious ships; it is one of three primary ordnance handling berths at the basin. The wharf is a diaphragm steel sheet pile cell structure with a concrete apron, partial concrete encasement of the piling and asphalt paved deck. The wharf is currently in poor condition due to advanced deterioration of the steel sheeting and lack of corrosion protection. This structural deterioration has resulted in the institution of load restrictions within 60 ft of the wharf face. The

purpose of this project is to complete necessary repairs to Bravo Wharf. Please refer to the Navy's application for a schematic of the project plan.

Dates and Duration

The total project is expected to require a maximum of 130 days of in-water pile driving. The project may require up to 24 months for completion; in-water activities are limited to a maximum of 130 days, separated into two phases. If in-water work will extend beyond the effective dates of the IHA, a second IHA application will be submitted by the Navy. There will be a maximum of 110 days for vibratory pile driving (73 days in phase I and 37 days in phase II), and a contingent 20 days of impact pile driving. The specified activities are expected to occur between December 1, 2016 and November 30, 2017.

Specific Geographic Region

NSM is located in northeastern Florida, at the mouth of the St. Johns River and adjacent to the Atlantic Ocean (see Figures 2-1 and 2-2 of the Navy's application). The St. Johns River is the longest river in Florida, with the final 35 mi flowing through the city of Jacksonville. This portion of the river is significant for commercial shipping and military use. At the mouth of the river, near the action area, the Atlantic Ocean is the dominant influence and typical salinities are above 30 ppm. Outside the river mouth, in nearshore waters, moderate oceanic currents tend to flow southward parallel to the coast. Sea surface temperatures range from around 16°C in winter to 28°C in summer.

The specific action area consists of the NSM turning basin, an area of approximately 2,000 by 3,000 ft containing ship berthing facilities at 16 locations along wharves around the basin perimeter. The basin was constructed during the early 1940s by dredging the eastern part of

Ribault Bay (at the mouth of the St. Johns River), with dredge material from the basin used to fill parts of the bay and other low-lying areas in order to elevate the land surface. The basin is currently maintained through regular dredging at a depth of 50 ft, with depths at the berths ranging from 30-50 ft. The turning basin, connected to the St. Johns River by a 500-ft-wide entrance channel, will largely contain sound produced by project activities, with the exception of sound propagating east into nearshore Atlantic waters through the entrance channel (see Figure 2-2 of the Navy's application). Bravo Wharf is located in the western corner of the Mayport turning basin.

Detailed Description of Activities

In order to rehabilitate Bravo Wharf, the Navy proposes to install a new steel sheet pile bulkhead at Bravo Wharf. The project consists of installing a total of approximately 880 single sheet piles (Phase I – berths B-2 and B-3: 590; Phase II – berth B-1: 290). The wall will be anchored at the top and fill consisting of clean gravel and flowable concrete fill will be placed behind the wall. A concrete cap will be formed along the top and outside face of the wall to tie the entire structure together and provide a berthing surface for vessels. The new bulkhead will be designed for a fifty-year service life.

All piles will be driven by vibratory hammer, although impact pile driving may be used as a contingency in cases when vibratory driving is not sufficient to reach the necessary depth. In the unlikely event that impact driving is required, either impact or vibratory driving could occur on a given day, but concurrent use of vibratory and impact drivers will not occur. The Navy estimates that a total of 130 in-water work days may be required to complete pile driving activity, which includes 20 days for contingency impact driving, if necessary.

Comments and Responses

We published a notice of receipt of the Navy's application and proposed IHA in the **Federal Register** on December 7, 2015 (80 FR 75978). We received one comment, a letter from the Marine Mammal Commission concurring with NMFS's preliminary findings.

Comment: The Commission recommends the issuance of the IHA, subject to the inclusion of the proposed mitigation, monitoring, and reporting measures.

Response: We value the Commission's input and support and appreciate their concurrence with our findings. We look forward to working with them on similar issues in the future.

Description of Marine Mammals in the Area of the Specified Activity

There are four marine mammal species which may inhabit or transit through the waters nearby NSM at the mouth of the St. Johns River and in nearby nearshore Atlantic waters. These include the bottlenose dolphin, Atlantic spotted dolphin (*Stenella frontalis*), North Atlantic right whale (*Eubalaena glacialis*), and humpback whale (*Megaptera novaeangliae*). Multiple additional cetacean species occur in South Atlantic waters but would not be expected to occur in shallow nearshore waters of the action area. Table 1 lists the marine mammal species with expected potential for occurrence in the vicinity of NSM during the project timeframe and summarizes key information regarding stock status and abundance. Taxonomically, we follow Committee on Taxonomy (2014). Please see NMFS' Stock Assessment Reports (SAR), available at www.nmfs.noaa.gov/pr/sars, for more detailed accounts of these stocks' status and abundance. Please also refer to NMFS' website (www.nmfs.noaa.gov/pr/species/mammals) 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 (DoN, 2008). The document is publicly available at [www.navfac.navy.mil/products_and_services/ev/products_and_services/marine_resource_assessments.html](http://www.navfac.navy.mil/products_and_services/ev/products_and_services/marine_resources/marine_resource_assessments.html) (accessed November 2, 2015). We provided additional information for marine mammals with potential for occurrence in the area of the specified activity in our **Federal Register** notice of proposed authorization (December 7, 2015; 80 FR 75978). For reasons discussed in detail in the notice of proposed authorization, right whales, humpback whales, and spotted dolphins are unlikely to occur in the project area and are not considered further.

Table 1. Marine Mammals Potentially Present in the Vicinity of NSM

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
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Balaenidae						
North Atlantic right whale	Western North Atlantic ⁵	E/D; Y	476 (0; 476; 2013)	1	4.3	Rare inshore, regular near/offshore; Nov-Apr
Humpback whale	Gulf of Maine	E/D; Y	823 (0;823; 2008)	2.7	7.6	Rare; Fall-Spring
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Delphinidae						
Atlantic spotted dolphin	Western North Atlantic	-; N	44,715 (0.43; 31,610; 2011)	316	0	Rare; year-round
Common bottlenose dolphin	Western North Atlantic Offshore	-; N	77,532 (0.4; 56,053; 2011)	561	43.9	Rare; year-round
	Western North Atlantic Coastal, Southern Migratory	-/D; Y	9,173 (0.46; 6,326; 2010-11)	63	0-12	Possibly common ⁸ ; Jan-Mar
	Western North Atlantic Coastal, Northern Florida	-/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

¹ESA 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.

²CV 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.

³Potential 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.

⁴These 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).

⁵Abundance 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.

⁶Abundance estimates for these stocks 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.

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

⁸Bottlenose 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.

Potential Effects of the Specified Activity on Marine Mammals and their Habitat

Our **Federal Register** notice of proposed authorization (December 7, 2015; 80 FR 75978) provides a general background on sound relevant to the specified activity as well as a detailed description of marine mammal hearing and of the potential effects of these construction activities on marine mammals and their habitat.

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.

Measurements from similar pile driving events were coupled with practical spreading loss to estimate zones of influence (ZOI; see Estimated Take by Incidental Harassment); these values were used to develop mitigation measures for pile driving activities at NSM. The ZOIs effectively represent the mitigation zone that will be established around each pile to prevent Level A harassment to marine mammals, while providing estimates of the areas within which Level B harassment might occur. In addition to the specific measures described later in this section, the Navy will conduct briefings between construction supervisors and crews, marine mammal monitoring team, and Navy staff prior to the start of all pile driving activity, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

Monitoring and Shutdown for Pile Driving

The following measures will apply to the Navy's mitigation through shutdown and disturbance zones:

Shutdown Zone – For all pile driving activities, the Navy will establish a shutdown zone intended to contain the area in which sound pressure levels (SPLs) equal or exceed the 180 dB rms acoustic injury criteria. The purpose of a shutdown zone is to define an area within which shutdown of activity will occur upon sighting of a marine mammal (or in anticipation of an animal entering the defined area), thus preventing injury of marine mammals (as described in our notice of proposed authorization, serious injury or death are unlikely outcomes even in the absence of mitigation measures). Modeled radial distances for shutdown zones are shown in

Table 2. However, a minimum shutdown zone of 15 m (which is larger than the maximum predicted injury zone) will be established during all pile driving activities, regardless of the estimated zone. Vibratory pile driving activities are not predicted to produce sound exceeding the 180-dB Level A harassment threshold, but these precautionary measures are intended to prevent the already unlikely possibility of physical interaction with construction equipment and to further reduce any possibility of acoustic injury. For impact driving of steel piles, if necessary, the radial distance of the shutdown will be established at 40 m.

Disturbance Zone – Disturbance zones are the areas in which SPLs equal or exceed 160 and 120 dB rms (for impulse and continuous sound, respectively). Disturbance zones provide utility for monitoring conducted for mitigation purposes (*i.e.*, shutdown zone monitoring) by establishing monitoring protocols for areas adjacent to the shutdown zones. Monitoring of disturbance zones enables observers to be aware of and communicate the presence of marine mammals in the project area but outside the shutdown zone and thus prepare for potential shutdowns of activity. However, the primary purpose of disturbance zone monitoring is for documenting incidents of Level B harassment; disturbance zone monitoring is discussed in greater detail later (see Proposed Monitoring and Reporting). Nominal radial distances for disturbance zones are shown in Table 2. Given the size of the disturbance zone for vibratory pile driving, it is impossible to guarantee that all animals would be observed or to make comprehensive observations of fine-scale behavioral reactions to sound, and only a portion of the zone (*e.g.*, what may be reasonably observed by visual observers stationed within the turning basin) will be observed.

In order to document observed incidents of harassment, monitors record all marine mammal observations, regardless of location. The observer's location, as well as the location of the pile being driven, is known from a GPS. The location of the animal is estimated as a distance from the observer, which is then compared to the location from the pile. It may then be estimated whether the animal was exposed to sound levels constituting incidental harassment on the basis of predicted distances to relevant thresholds in post-processing of observational and acoustic data, and a precise accounting of observed incidences of harassment created. This information may then be used to extrapolate observed takes to reach an approximate understanding of actual total takes.

Monitoring Protocols – Monitoring will be conducted before, during, and after pile driving activities. In addition, observers shall record all incidents of marine mammal occurrence, regardless of distance from activity, and shall document any behavioral reactions in concert with distance from piles being driven. Observations made outside the shutdown zone will not result in shutdown; that pile segment will be completed without cessation, unless the animal approaches or enters the shutdown zone, at which point all pile driving activities will be halted. Monitoring will take place from 15 minutes prior to initiation through 30 minutes post-completion of pile driving activities. 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 30 minutes. Please see the Monitoring Plan (www.nmfs.noaa.gov/pr/permits/incidental/construction.htm), developed by the Navy in agreement with NMFS, for full details of the monitoring protocols.

The following additional measures apply to visual monitoring:

(1) Monitoring will be conducted by qualified observers, who will be placed at the best vantage point(s) practicable to monitor for marine mammals and implement shutdown/delay procedures when applicable by calling for the shutdown to the hammer operator. Qualified observers are typically trained biologists, with the following minimum qualifications:

- Visual acuity in both eyes (correction is permissible) sufficient for discernment of moving targets at the water's surface with ability to estimate target size and distance; use of binoculars may be necessary to correctly identify the target;
- Experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience);
- Experience or training in the field identification of marine mammals, including the identification of behaviors;
- Sufficient training, orientation, or experience with the construction operation to provide for personal safety during observations;
- 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 and times when in-water construction activities were suspended to avoid potential incidental injury from construction sound of marine mammals observed within a defined shutdown zone; and marine mammal behavior; and
- 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.

(2) Prior to the start of pile driving activity, the shutdown zone will be monitored for 15 minutes to ensure that it is clear of marine mammals. Pile driving will only commence once

observers have declared the shutdown zone clear of marine mammals; animals will be allowed to remain in the shutdown zone (*i.e.*, must leave of their own volition) and their behavior will be monitored and documented. The shutdown zone may only be declared clear, and pile driving started, when the entire shutdown zone is visible (*i.e.*, when not obscured by dark, rain, fog, *etc.*). In addition, if such conditions should arise during impact pile driving that is already underway, the activity will be halted.

(3) If a marine mammal approaches or enters the shutdown zone during the course of pile driving operations, activity will be halted and delayed until either the animal has voluntarily left and been visually confirmed beyond the shutdown zone or 15 minutes have passed without re-detection of the animal. Monitoring will be conducted throughout the time required to drive a pile.

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. This procedure is repeated two additional times. It is difficult to specify the reduction in energy for any given hammer because of variation across drivers and, for impact hammers, the actual number of strikes at reduced energy will vary because operating the hammer at less than full power results in “bouncing” of the hammer as it strikes the pile, resulting in multiple “strikes.” For impact driving, we require an initial set of three strikes from the impact hammer at reduced energy, followed by a thirty-second waiting period, then two subsequent three strike sets. Soft start will be required at the beginning of each

day's impact pile driving work and at any time following a cessation of impact pile driving of 30 minutes or longer.

We have carefully evaluated the Navy's proposed mitigation measures and considered their effectiveness in past implementation to determine whether they are likely to effect the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another: (1) the manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals, (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and (3) the practicability of the measure for applicant implementation.

Any mitigation measure(s) we prescribe should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

- (1) Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).
- (2) A reduction in the number (total number or number at biologically important time or location) of individual marine mammals exposed to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only).
- (3) A reduction in the number (total number or number at biologically important time or location) of times any individual marine mammal would be exposed to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing takes by behavioral harassment only).

(4) A reduction in the intensity of exposure to stimuli expected to result in incidental take (this goal may contribute to 1, above, or to reducing the severity of behavioral harassment only).

(5) Avoidance or minimization of adverse effects to marine mammal habitat, paying particular attention to the prey base, blockage or limitation of passage to or from biologically important areas, permanent destruction of habitat, or temporary disturbance of habitat during a biologically important time.

(6) For monitoring directly related to mitigation, an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of the Navy's proposed measures, as well as any other potential measures that may be relevant to the specified activity, we have determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammal 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 incidental take 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 proposed action area.

Any monitoring requirement we prescribe should improve our understanding of one or more of the following:

- Occurrence of marine mammal species in action area (*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 responses to acute stressors, or impacts of chronic exposures (behavioral or physiological).
- How anticipated responses to stressors impact either: (1) Long-term fitness and survival of an individual; or (2) Population, species, or stock.
- Effects on marine mammal habitat and resultant impacts to marine mammals.
- Mitigation and monitoring effectiveness.

The Navy's planned monitoring and reporting is also described in their Marine Mammal Monitoring Plan, on the Internet at www.nmfs.noaa.gov/pr/permits/incidental/construction.htm.

Visual Marine Mammal Observations

The Navy will collect sighting data and behavioral responses to construction for marine mammal species observed in the region of activity during the period of activity. All observers (MMOs) will be trained in marine mammal identification and behaviors and are required to have

no other construction-related tasks while conducting monitoring. The Navy will monitor the shutdown zone and disturbance zone before, during, and after pile driving, with observers located at the best practicable vantage points. Based on our requirements, the Navy will implement the following procedures for pile driving:

- MMOs will be located at the best vantage point(s) in order to properly see the entire shutdown zone and as much of the disturbance zone as possible.
- During all observation periods, observers will use binoculars and the naked eye to search continuously for marine mammals.
- If the shutdown zones are obscured by fog or poor lighting conditions, pile driving at that location will not be initiated until that zone is visible. Should such conditions arise while impact driving is underway, the activity will be halted.
- The shutdown and disturbance zones around the pile will be monitored for the presence of marine mammals before, during, and after any pile driving or removal activity.

Individuals implementing the monitoring protocol will assess its effectiveness using an adaptive approach. The monitoring biologists will use their best professional judgment throughout implementation and seek improvements to these methods when deemed appropriate. Any modifications to protocol will be coordinated between NMFS and the Navy.

Data Collection

We require that observers 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, if any. In addition, the Navy will attempt to distinguish between the

number of individual animals taken and the number of incidences of take. We require that, at a minimum, the following information be collected on the sighting forms:

- Date and time that monitored activity begins or ends;
- Construction activities occurring during each observation period;
- Weather parameters (*e.g.*, percent cover, visibility);
- Water conditions (*e.g.*, sea state, tide state);
- Species, numbers, and, if possible, sex and age class of marine mammals;
- Description of any observable marine mammal behavior patterns, including bearing and direction of travel, and if possible, the correlation to SPLs;
- Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
- Description of implementation of mitigation measures (*e.g.*, shutdown or delay);
- Locations of all marine mammal observations; and
- Other human activity in the area.

Reporting

A draft report will be submitted to NMFS within 90 days of the completion of marine mammal monitoring, or 60 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 marine mammal observations pre-activity, during-activity, and post-activity during pile driving days, and will also provide descriptions of 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 30 days following resolution of comments on the draft report.

Estimated Take by Incidental Harassment

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].”

All anticipated takes would be by Level B harassment resulting from vibratory and impact pile driving and involving temporary changes in behavior. The planned mitigation and monitoring measures are expected to minimize the possibility of injurious or lethal takes such that take by Level A harassment, serious injury, or mortality is considered discountable. However, it is unlikely that injurious or lethal takes would occur even in the absence of the planned mitigation and monitoring measures.

If a marine mammal responds to a stimulus by changing its behavior (*e.g.*, through relatively minor changes in locomotion direction/speed or vocalization behavior), the response may or may not constitute taking at the individual level, and is unlikely to affect the stock or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on animals or on the stock or species could potentially be significant (*e.g.*, Lusseau and Bejder, 2007; Weilgart, 2007). Given the many uncertainties in predicting the quantity and types of impacts of sound on marine mammals,

it is common practice to estimate how many animals are likely to be present within a particular distance of a given activity, or exposed to a particular level of sound. In practice, depending on the amount of information available to characterize daily and seasonal movement and distribution of affected marine mammals, it can be difficult to distinguish between the number of individuals harassed and the instances of harassment and, when duration of the activity is considered, it can result in a take estimate that overestimates the number of individuals harassed. In particular, for stationary activities, it is more likely that some smaller number of individuals may accrue a number of incidences of harassment per individual than for each incidence to accrue to a new individual, especially if those individuals display some degree of residency or site fidelity and the impetus to use the site (*e.g.*, because of foraging opportunities) is stronger than the deterrence presented by the harassing activity.

The turning basin is not considered important habitat for marine mammals, as it is a man-made, semi-enclosed basin with frequent industrial activity and regular maintenance dredging. The surrounding waters may be an important foraging habitat for the dolphins; however the small area of ensonification does not extend outside of the turning basin and into this foraging habitat (see Figure 6-1 in the Navy's application). Therefore, behavioral disturbances that could result from anthropogenic sound associated with these activities are expected to affect only a relatively small number of individual marine mammals that may venture near the turning basin, although those effects could be recurring over the life of the project if the same individuals remain in the project vicinity. The Navy has requested authorization for the incidental taking of small numbers of bottlenose dolphins in the Mayport turning basin that may result from pile

driving during construction activities associated with the project described previously in this document.

In order to estimate the potential incidents of take that may occur incidental to the specified activity, we must first estimate the extent of the sound field that may be produced by the activity and then consider in combination with information about marine mammal density or abundance in the project area. We described applicable sound thresholds for determining effects to marine mammals before describing the information used in estimating the sound fields, the available marine mammal density or abundance information, and the method of estimating potential incidents of take in detail in our **Federal Register** notice of proposed authorization (August 5, 2015; 80 FR 46545). All calculated distances to and the total area encompassed by the marine mammal sound thresholds are provided in Table 2.

Table 2. Distances to Relevant Underwater Sound Thresholds and Areas of Ensonification

Pile type	Method	Threshold	Distance (m) ¹	Area (km ²)
Steel sheet piles	Vibratory	Level A harassment (180 dB)	0	0
		Level B harassment (120 dB)	1,166	0.614439
	Impact	Level A harassment (180 dB)	40	0.002
		Level B harassment (160 dB)	858	0.51

¹ Areas presented take into account attenuation and/or shadowing by land. Calculated distances to relevant thresholds cannot be reached in most directions from source piles. Please see Figures 6-1 and 6-2 in the Navy’s application.

The Mayport turning basin does not represent open water, or free field, conditions. Therefore, sounds would attenuate as per the confines of the basin, and may only reach the full estimated distances to the harassment thresholds via the narrow, east-facing entrance channel. Distances shown in Table 2 are estimated for free-field conditions, but areas are calculated per the actual conditions of the action area. See Figures 6-1 and 6-2 of the Navy’s application for a

depiction of areas in which each underwater sound threshold is predicted to occur at the project area due to pile driving.

Marine Mammal Densities

For all species, the best scientific information available was considered for use in the marine mammal take assessment calculations. Density for bottlenose dolphins is derived from site-specific surveys conducted by the Navy (see Appendix C of the Navy's application for more information); it is not currently possible to identify observed individuals to stock.

The following assumptions are made when estimating potential incidents 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; and,
- There will be 110 total days of vibratory driving (73 days in phase I and 37 days in phase II) and 20 days of impact pile driving.
- Exposures to sound levels at or above the relevant thresholds equate to take, as defined by the MMPA.

The estimation of marine mammal takes typically uses the following calculation:

Exposure estimate = (n * ZOI) * days of total activity

where:

n = density estimate used for each species/season

ZOI = sound threshold ZOI area; the area encompassed by all locations where the SPLs equal or exceed the threshold being evaluated

$n * ZOI$ produces an estimate of the abundance of animals that could be present in the area for exposure, and is rounded to the nearest whole number before multiplying by days of total activity.

The ZOI impact area is estimated using the relevant distances in Table 2, taking into consideration the possible affected area with attenuation due to the constraints of the basin. Because the basin restricts sound from propagating outward, with the exception of the east-facing entrance channel, the radial distances to thresholds are not generally reached.

There are a number of reasons why estimates of potential incidents of take may be conservative, assuming that available density or abundance estimates and estimated ZOI areas are accurate. We assume, in the absence of information supporting a more refined conclusion, that the output of the calculation represents the number of individuals that may be taken by the specified activity. In fact, in the context of stationary activities such as pile driving and in areas where resident animals may be present, this number more realistically represents the number of incidents of take that may accrue to a smaller number of individuals. While pile driving can occur any day throughout the in-water work window, and the analysis is conducted on a per day basis, only a fraction of that time (typically a matter of hours on any given day) is actually spent pile driving. The potential effectiveness of mitigation measures in reducing the number of takes is typically not quantified in the take estimation process. For these reasons, these take estimates may be conservative.

The quantitative exercise described above indicates that no incidents of Level A harassment would be expected, independent of the implementation of required mitigation measures. See Table 3 for total estimated incidents of take.

Table 3. Calculations for Incidental Take Estimation

Species	n (animals/km ²)	Activity	n * ZOI ¹	Proposed authorized takes ²
Phase I (73 days)				
Bottlenose dolphin ³	4.15366	Vibratory driving	3	219
Phase II (37 days)				
Bottlenose dolphin ³	4.15366	Vibratory driving	3	111
Contingency impact driving (20 days)				
Bottlenose dolphin ³	4.15366	Impact driving	2	40
Total exposures				370

¹See Table 2 for relevant ZOIs. The product of this calculation is rounded to the nearest whole number.

²The product of n * ZOI is multiplied by the total number of activity-specific days to estimate the number of takes.

³It is impossible to estimate from available information which stock these takes may accrue to.

Analyses and Determinations

Negligible Impact Analysis

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.”

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 Level B harassment 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 behavioral harassment, we consider 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 the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat.

Pile driving activities associated with the wharf construction 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 ensonified zone 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 minimized through the construction method and the implementation of the planned mitigation measures. Specifically, vibratory hammers will be the primary method of installation (impact driving is included only as a contingency and is not expected to be required), and this activity does not have the potential to cause injury to marine mammals due to the relatively low source levels produced (less than 180 dB) and the lack of potentially injurious source characteristics. Impact pile driving produces short, sharp pulses with higher peak levels and much sharper rise time to reach those peaks. If impact driving is necessary, implementation of soft start and shutdown zones 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 that is annoying prior to it becoming potentially injurious. Environmental conditions in the confined and protected Mayport turning basin mean that marine mammal detection ability by trained observers is high, enabling a high rate of success in implementation of shutdowns to avoid injury.

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 similar to, or less impactful than, numerous other construction activities conducted in San Francisco Bay and in the Puget Sound region, which have taken place with no reported injuries or mortality to marine mammals, and no known long-term adverse consequences from behavioral harassment. These activities are also nearly identical to the pile driving activities that took place at Wharf C-2 at NSM, which also reported zero 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 hearing impairment or to significantly disrupt foraging behavior. Thus, even repeated Level B harassment of some small subset of the overall stock is unlikely to result in any significant realized decrease in viability for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment will 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.

In summary, this negligible impact analysis is founded on the following factors: (1) the possibility of injury, serious injury, or mortality may reasonably be considered discountable; (2)

the anticipated incidents of Level B harassment consist of, at worst, temporary modifications in behavior; (3) the absence of any significant habitat within the project area, including known areas or features of special significance for foraging or reproduction; (4) the presumed efficacy of the planned mitigation measures in reducing the effects of the specified activity to the level of least practicable impact. In addition, these stocks are not listed under the ESA, although coastal bottlenose dolphins are designated as depleted under the MMPA. In combination, we believe that these factors, as well as the available body of evidence from other similar activities, demonstrate that the potential effects of the specified activity will have only short-term effects on individuals. The specified activity is not expected to impact rates of recruitment or survival and will therefore not result in population-level impacts.

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 planned monitoring and mitigation measures, we find that the total marine mammal take from the Navy's wharf construction activities will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers Analysis

As described previously, of the 370 incidents of behavioral harassment predicted to occur for bottlenose dolphin, we have no information allowing us to parse those predicted incidents amongst the three stocks of bottlenose dolphin 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 one of the bottlenose dolphin stocks, the total predicted number of incidents of take authorized would be considered

small – approximately four percent for the southern migratory stock– even if each estimated taking occurred to a new individual. This is an extremely unlikely scenario as, for bottlenose dolphins in estuarine and nearshore waters, there is likely to be some overlap in individuals present day-to-day.

The total number of authorized takes for bottlenose dolphins, if assumed to accrue solely to new individuals of the Jacksonville Estuarine Stock (JES) or northern Florida coastal stocks, is higher relative to the total stock abundance, which is currently considered unknown for the JES stock and is 1,219 for the northern Florida coastal stock. However, these numbers represent the estimated incidents of take, not the number of individuals taken. That is, it is highly likely that a relatively small subset of these bottlenose dolphins will be harassed by project activities.

JES bottlenose dolphins range from Cumberland Sound at the Georgia-Florida border south to approximately Palm Coast, Florida, an area spanning over 120 linear km of coastline and including habitat consisting of complex inshore and estuarine waterways. JES dolphins, divided by Caldwell (2001) into Northern and Southern groups, show strong site fidelity and, although members of both groups have been observed outside their preferred areas, it is likely that the majority of JES dolphins would not occur within waters ensonified by project activities.

In the western North Atlantic, the Northern Florida Coastal Stock is present in coastal Atlantic waters from the Georgia/Florida border south to 29.4°N (Waring *et al.*, 2014), a span of more than 90 miles. There is no obvious boundary defining the offshore extent of this stock. They occur in waters less than 20 m deep; however, they may also occur in lower densities over the continental shelf (waters between 20 m and 100 m depth) and overlap spatially with the offshore morphotype (Waring *et al.*, 2014).

In summary, JES dolphins are known to form two groups and exhibit strong site fidelity (*i.e.*, individuals do not generally range throughout the recognized overall JES stock range); and neither stock is expected to occur at all in a significant portion of the larger ZOI, which is almost entirely confined within NSM. Given that the specified activity will be stationary within an enclosed basin not recognized as an area of any special significance that would serve to attract or aggregate dolphins, we therefore believe that the estimated numbers of takes, were they to occur, likely represent repeated exposures of a much smaller number of bottlenose dolphins and that these estimated incidents of take represent small numbers of bottlenose dolphins.

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 mitigation and monitoring measures, we find that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action. Therefore, we have 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.

Endangered Species Act (ESA)

No marine mammal species listed under the ESA are expected to be affected by these activities. Therefore, we have determined that section 7 consultation under the ESA is not required.

National Environmental Policy Act (NEPA)

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq.*), as implemented by the regulations published by the Council on Environmental Quality (40 CFR parts 1500-1508), the Navy prepared an Environmental Assessment (EA) to consider the direct, indirect and cumulative effects to the human environment resulting from the bravo wharf recapitalization project. NMFS made the Navy's EA available to the public for review and comment, in relation to its suitability for adoption by NMFS in order to assess the impacts to the human environment of issuance of an IHA to the Navy. Also in compliance with NEPA and the CEQ regulations, as well as NOAA Administrative Order 216-6, NMFS has reviewed the Navy's EA, determined it to be sufficient, and adopted that EA and signed a Finding of No Significant Impact (FONSI) in July, 2016. The 2016 NEPA documents are available at www.nmfs.noaa.gov/pr/permits/incidental/construction.htm.

Authorization

As a result of these determinations, we have issued an IHA to the Navy for conducting the described construction activities at the Bravo Wharf at NSM, Jacksonville, FL for one year of issuance, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

Dated: August 4, 2016.

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

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