BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XD330

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Breakwater Replacement Project in Eastport, Maine

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

ACTION: Notice; proposed incidental harassment authorization; request for comments.

SUMMARY: NMFS has received an application from the Maine Department of Transportation (ME DOT) for an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment, incidental to in-water construction activities in Eastport, Maine. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is proposing to issue an IHA to incidentally harass, by Level B harassment, four species of marine mammals during the specified activity within a specific geographic region and is requesting comments on its proposal.

DATES: Comments and information must be received no later than [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Comments on the application and this proposal should be addressed to Jolie Harrison, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910. The mailbox address for providing email comments is ITP.Hopper@noaa.gov. NMFS is not responsible for e-mail

comments sent to addresses other than the one provided here. Comments sent via e-mail, including all attachments, must not exceed a 10-megabyte file size.

Instructions: All comments received are a part of the public record and will generally be posted to http://www.nmfs.noaa.gov/pr/permits/incidental.htm without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

An electronic copy of the application containing a list of the references used in this document may be obtained by writing to the address specified above, telephoning the contact listed below (see FOR FURTHER INFORMATION CONTACT), or visiting the internet at: http://www.nmfs.noaa.gov/pr/permits/incidental.htm. Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address.

NMFS is also preparing an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) and will consider comments submitted in response to this notice as part of that process. The EA will be posted at the foregoing internet site once it is finalized.

FOR FURTHER INFORMATION CONTACT: Brian D. Hopper, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by United States citizens who engage in a specified activity (other than

commercial fishing) within a specific geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

Summary of Request

On February 21, 2014, NMFS received an application from ME DOT requesting an IHA for the take, by Level B harassment, of small numbers of harbor seals (Phoca vitulina), gray seals (Halichoerus grypus), harbor porpoises (Phocoena phocoena), and Atlantic white-sided dolphins (Lagenorhynchus acutus) incidental to in-water construction activities in Eastport, Maine. Upon

receipt of additional information and a revised application, NMFS determined the application complete and adequate on May 6, 2014.

ME DOT and the Eastport Port Authority plan to replace and expand the pier and breakwater in Eastport, Maine. The project includes the removal of the original filled sheet pile structure (built in 1962), the replacement of the approach pier, expansion of the existing pier head, and the construction of a new wave attenuator. Because elevated sound levels from pile driving activities and the operation of an underwater saw have the potential to result in marine mammal harassment, NMFS proposes to issue an IHA for take incidental to in-water construction activities.

Description of the Specified Activity

Overview

The Eastport Breakwater is a solid fill multi-use pier serving the local fishing community by providing a safe harbor for berthing as well as a loading and off-loading point for the fishing fleet. It also serves as a berth for larger commercial and passenger ships and a docking area for U.S. Coast Guard vessels. It is an 'L' shaped structure with one leg perpendicular to the shoreline and the outer leg parallel (see Appendix A of the ME DOT IHA application). The existing pier was built in 1962 and is on the verge of being taken out of service due to public safety concerns. Recently, emergency repairs have been completed to prevent shutdown; however, these repairs are only temporary and will not keep the pier in service indefinitely. The recommended replacement structure would consist of an open pier supported by 151 piles, which would consist of steel pipe piles, reinforced concrete pile caps, and a prestressed plank deck with structural overlay. The proposed approach pier would be 40 ft by 300 ft and the proposed main pier section that would be parallel to the shoreline would be 50 ft by 400 ft.

Date and Duration of Proposed Activity

ME DOT plans to begin in-water construction in September 2014. The potential construction schedule is presented in Table 1. Although construction is expected to last more than one year, under the MMPA, NMFS can only issue an IHA for a one-year period; therefore, ME DOT will have to apply for another IHA to complete the project. Pile driving would only occur in weather that provides adequate visibility for marine mammal monitoring activities.

Table 1. Easport Breakwater Construction Schedule

Activity	Duration	Expected Timeframe	Approximate hours of in water noise producing activities with sound levels over 120 dB RMS	Pile type to be driven/ Activity resulting in harassment
Approach Pier Work	15-17 weeks	September 2014-January 2015	140	Sheet Piles
Construction of New Pile Supported Pier	32-34 weeks	January 2015-August 2015	190	16-24 inch steel pipe piles
Demolition of Old pier	1 week of sheet removal, 6 weeks old fill removal	August 2015-September 2015	25	Vibratory Extractor/Underwater Saw
Breakwater Construction	6 weeks	October 2015-December 2015	50	N/A
Installation of Fender Piles	2 weeks	October 2015-December 2015	15	24-36 inch steel pipe piles

Specified Geographic Region

The proposed activity would occur in Cobscook Bay, in Eastport, Maine. The breakwater lies near the mouth of the St. Croix River at the end of a long peninsula adjacent to Quoddy

Head. Cobscook Bay has extremely strong tidal currents and notably high tides, creating an extensive intertidal habitat for marine and coastal species. Water depths at the proposed project location are between 8-55 ft (2.4 – 17m). The Bay is considered a relatively intact marine system, as the area has not experienced much industrialization.

Detailed Description of Activities

The replacement pier will consist of two different sections. The approach pier will be replaced in kind by placing fill inside of a sheet pile enclosure, supported by driven piles. The approach section will consist of sheet piles that are driven just outside of the existing sheet piles. The sheet piles can be installed by use of a vibratory hammer only. The main pier, fender system, and wave fence system will be pile supported with piles ranging from 16 inch – 36 inch diameter pipe piles. These piles will be driven with a vibratory hammer to a point and must be seated with an impact hammer to ensure stability. The breakdown of the size and amount of piles can be found in Table 2.

The vibratory hammer will drive the pile by applying a rapidly alternating force to the pile by rotating eccentric weights resulting in a downward vibratory force on the pile. The vibratory hammer will be attached to the pile head with a clamp. The vertical vibration in the pile functions by disturbing or liquefying the soil next to the pile, causing the soil particles to lose their frictional grip on the pile. The pile moves downward under its own weight, plus the weight of the hammer. It takes approximately one to three minutes to drive one pile. An impact hammer will be used to ensure the piles are embedded deep enough into the substrate to remain stable for the life of the pier. The impact hammer works by dropping a mass on top of the pile repeatedly to drive it into the substrate. Diesel combustion is used to push the mass upwards and allow it to fall onto the pile again to drive it.

Table 2. Proposed pile types and amounts (approximate amounts)

Pile Size and Type	Amount proposed
16” steel pipe pile	32
20” steel pipe pile	97
24” steel pipe pile	14
36” steel pipe pile	8
Steel sheet pile	215

The breakwater component of the facility consists of two portions; sheet piles will be installed along the back of the main pier and the other portion will be full depth wave attenuator consisting of king piles and sheet piles. Each king pile is designed as a cantilever beam to resist lateral loads. The king piles may also be able to be used to anchor the floating docks. The wave attenuator will be placed on the inshore side of the pier structure to reduce overall length and eliminate interference with the berthing face.

Electrical and water utilities will be installed inside of the approach pier and also under the main pier. This will require a small amount of trenching under the main pier to bury portions of these lines.

At this stage of the project, the demolition of the old breakwater/pier system will take place. This is likely to be staged after a portion of the construction of the new pier is completed to help with access during demolition. The existing pier is a solid fill pier that is surrounded by sheet piles. Demolition will include removal of the fill material between the sheet piles, and cutting the sheet piles off at the mud line for removal. The fill will likely be removed with an excavator. Hydroacoustic impacts are also expected from using an underwater saw to cut off piles at the mud line.

Standard ME DOT construction best management practices (BMPs) will be used throughout the project. The erosion and sedimentation control BMPs can be found at the following link: http://www.maine.gov/mdot/env/envdocs.htm. A spill prevention, control, and

countermeasure (SPCC) plan will also be required for the project. This plan will make sure that all contaminants are properly stored and a cleanup plan is in place in case of any spills.

The data included in Table 3 below is found in Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish, prepared for Caltrans, 2009. The remaining data comes from the references below.

Caltrans states that drilling and saw cutting are anticipated to produce underwater sound pressure levels (SPLs) in excess of 120 dB RMS, but are not anticipated to exceed the 180 dB re 1 µPa (RMS) (79 FR 2421, January 14, 2014).

Installation of some of the pile anchors will require the use of a down hole hammer. The hydroacoustic impacts of a down hole hammer are largely unknown. Hydroacoustic measurements from work on the Memorial Bridge between Maine and New Hampshire suggest that these impacts may reach Peak SPL limits of 240 dB dB re 1 µPa. The down hole hammer will be required for installation of 14 – 24" steel pipe piles.

Table 3- Summary of data for unattenuated pile strikes with an impact hammer and down hole hammer

Pile Type/Size	Relative Water Depth	Average Sound Pressure Measured in dB		
		Peak	**RMS**	**SEL**
12" / Steel Pipe	<5 meters	192	177	--
24" / Steel Pipe	~15 meters	207	194	178
36" / Steel Pipe	~ 10 meters	210	193	183
Down Hole Hammer	~3 meters	240	---	---

Table 4- Summary of data for unattenuated pile driving with a vibratory hammer/ underwater saw

Pile Type/Size	Relative Water Depth	Average Sound Pressure Measured in dB		
		Peak	**RMS**	**SEL**
12" / Steel Pipe	<5 meters	171	150	150
36" / Steel Pipe	~ 5 meters	180	170	170
24"/ Steel Sheet	~ 15 meters	182	165	165
Underwater Saw	UNK	--	120-180	--

Description of Marine Mammals in the Area of the Specified Activity

Marine mammals with known presence in this region of Cobscook Bay are the harbor seal, grey seal, harbor porpoise, and Atlantic white-sided dolphin (Table 5). The best available data for marine mammals in the vicinity of the project comes from the monitoring surveys conducted in preparation of the Ocean Renewable Power Company (ORPC) tidal generator project that was located between Eastport and Lubec, ME. Although the ORPC project was located on the other side of the peninsula from the Eastport pier, the presence of species and timing of their occurrence would be similar between the two sites.

Table 5. List of Marine Mammal Species under NMFS Jurisdiction that Occur in the Vicinity of the Eastport Breakwater Replacement Project

Common Name	Scientific Name	Stock	ESA Status	Abundance
Harbor Seal	Phoca vitulina	Western North Atlantic	Not listed	70,142
Gray Seal	Halichoerus grypus	Western North Atlantic	Not listed	Over 250,000
Harbor Porpoise	Phocoena phocoena	Gulf of Maine-Bay of Fundy	Not listed	79,883
Atlantic White-sided Dolphin	Lagenorhynchus acutus	Western North Atlantic	Not listed	48,819

ORPC has been conducting incidental visual observations of marine mammals in Cobscook Bay since 2007, during turbine testing, travel to and from ORPC's research vessel Energy Tide 2, and acoustic, fisheries, subtidal, and avian surveys. During this time, ORPC personnel and contractors, who have received specialized training in marine mammal observation and documentation, recorded approximately 252 4-hr observational periods over 222 days. Marine mammal observers recorded 57 seals, 47 harbor porpoises, and two Atlantic white-sided dolphins (Table 6). The most intensive monitoring effort was conducted in 2010, when approximately 71 marine mammals were observed over the course of 132 observation days

between March 8 and December 31. Marine mammal observers recorded 2 dolphins, 27 harbor porpoises, and 42 harbor seals. This information is documented in ORPC's Marine Mammal Monitoring Plan for the Cobscook Bay Tidal Power Project (ORPC, 2011). No observations of any whale species have been made in Cobscook Bay by ORPC since monitoring began in 2007. In addition, a review of available databases does not indicate any recorded whale sightings in Cobscook Bay. Other species that may possibly occur in the vicinity of the proposed activity include North Atlantic right whale (Eubalaena glacialis), humpback whale (Megaptera novaengliae), fin whale (Balaenoptera borealis), minke whale (Balaenoptera acutorostrata), and sei whale (Balaenoptera borealis). However, these five species are generally associated with open ocean habitats and occur in more offshore locations. NMFS has concluded that the specified activity will not impact these five species and they are not discussed further.

Table 6. Marine mammal observations in the proposed project vicinity between December 2007, and December 2010.

Month	Hours of effort	Harbor and grey seal	Harbor porpoise	Atlantic white-sided dolphin
January	16	0	0	0
February	36	0	1	0
March	56	1	0	0
April	160	4	3	0
May	56	1	3	0
June	84	8	1	0
July	84	4	10	0
August	120	16	24	2
September	100	9	5	0

Month	Hours of effort	Harbor and grey seal	Harbor porpoise	Atlantic white-sided dolphin
October	96	8	0	0
November	72	4	0	0
December	104	2	0	0
Total	1,008	57	47	2

Harbor Seals

Harbor seals are typically found in temperate coastal habitats and use rocks, reefs, beaches, and drifting glacial ice as haul outs and pupping sites. On the east coast, they range from the Canadian Arctic to southern New England, New York, and occasionally the Carolinas. There are an estimated 70,142 harbor seals in the western North Atlantic stock and the population is increasing. Harbor seals are not listed under the Endangered Species Act (ESA) nor considered depleted under the MMPA. More information, including stock assessment reports, can be found at: http://www.nmfs.noaa.gov/pr/species/mammals/pinnipeds/harborseal.htm.

Gray seals

Gray seals reside in coastal waters and also inhabit islands, sandbars, ice shelves, and icebergs. The western North Atlantic stock ranges from eastern Canada to the northeastern United States. Current population numbers for the western North Atlantic stocks are unknown, but are estimated at over 250,000 animals. Most recent population estimates show increases in abundance in Canada and the United States, although the population in the Gulf of St. Lawrence appears to be declining. Gray seals pup at two established colonies off the coast of Maine: Green Island and Seal Island. Both colonies are tens of miles away from the proposed project

site. Gray seals are not listed under the ESA nor considered depleted under the MMPA. More information, including stock assessment reports, can be found at http://ww.nmfs.noaa.gov/pr/sepcies/mammals/pinnipeds/grayseal.htm.

Pinnipeds produce a wide range of social signals, most occurring at relatively low frequencies (Southall et al., 2007), suggesting that hearing is keenest at these frequencies. Pinnipeds communicate acoustically both on land and underwater, but have different hearing capabilities dependent upon the medium (air or water). Based on numerous studies, as summarized in Southall et al. (2007), pinnipeds are more sensitive to a broader range of sound frequencies underwater than in air. Underwater, pinnipeds can hear frequencies from 75 Hz to 75 kHz. In air, pinnipeds can hear frequencies from 75 Hz to 30 kHz (Southall et al., 2007).

Harbor Porpoises

Harbor porpoises reside in northern temperate and subarctic coastal and offshore waters. They are commonly found in bays, estuaries, harbors, and fjords less than 200 m (650 ft) deep. In the western North Atlantic, harbor porpoises range from west Greenland to Cape Hatteras, North Carolina. Harbor porpoises in United States waters are divided into 10 stocks, based on genetics, movement patterns, and management. Any harbor porpoises encountered during the proposed project would be part of the Gulf of Maine-Bay of Fundy stock, which has an estimated abundance of 79,883 animals. Population trends for all U.S. stocks of harbor porpoises are currently unknown. Gulf of Maine-Bay of Fundy harbor porpoises are not listed under the ESA nor considered depleted under the MMPA. More information, including stock assessment reports, can be found at: http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/harborporpoise.htm.

Cetaceans are divided into three functional hearing groups: low-frequency, mid-frequency, and high-frequency. Harbor porpoises are considered high-frequency cetaceans and their estimated auditory bandwidth (lower to upper frequency hearing cut-off) ranges from 200 Hz to 180 kHz.

Atlantic White-sided Dolphins

Atlantic white-sided dolphins are only found in temperate waters of the North Atlantic Ocean and typically reside along the continental shelf and slope. They range from Greenland to North Carolina and exhibit seasonal movements between inshore northern waters and southern offshore waters. The western North Atlantic stock has an estimated 48,819 animals, but there is insufficient information to determine population trends. Atlantic white-sided dolphins are not listed under the ESA nor considered depleted under the MMPA. More information, including stock assessment reports, can be found at: http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/whitesideddolphin_atlantic.htm.

Atlantic white-sided dolphins are considered mid-frequency cetaceans and their estimated auditory bandwidth ranges from 150 Hz to 160 kHz.

Potential Effects of the Specified Activity on Marine Mammals

This section discusses the types of stressors associated with the specified activity (e.g., in-water construction) and their impacts on marine mammals. This section may include a discussion of known effects that do not rise to the level of an MMPA take (for example, with acoustics, we may include a discussion of studies that reported no reaction to sound from animals or exhibiting barely measureable avoidance). This discussion may also include reactions that we consider to rise to the level of take. This section provides background on potential effects and does not consider either the specific manner in which the proposed activity will be carried out or

the mitigation that may be implemented or how either influences the anticipated impacts of the specific activity. 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 the proposed activity. The "Negligible Impact Analysis" section includes the analysis of how this specific activity will impact marine mammals and considers the content of this section, the "Estimated Take by Incidental Harassment" section, the "Mitigation" section, and the "Anticipated Effects on Marine Mammal Habitat" section to draw preliminary conclusions regarding the likely impacts of the proposed activity on the reproductive success or survivorship of individuals and on the affected marine mammal populations or stocks.

Elevated in-water sound levels from pile driving and operating an underwater saw in the proposed project area may temporarily impact marine mammal behavior. Elevated in-air sound levels are not a concern because the nearest significant pinniped haul-out is more than six nautical miles (NM) away. Marine mammals are continually exposed to many sources of sound. For example, lightning, rain, sub-sea earthquakes, and animals are natural sound sources throughout the marine environment. Marine mammals produce sounds in various contexts and use sound for various biological functions including, but not limited to, (1) social interactions; (2) foraging; (3) orientation; and (4) predator detection. Interference with producing or receiving these sounds may result in adverse impacts. Audible distance or received levels will depend on the sound source, ambient noise, and the sensitivity of the receptor (Richardson et al., 1995). Marine mammal reactions to sound may depend on sound frequency, ambient sound, what the animal is doing, and the animal's distance from the sound source (Southall et al., 2007).

Acoustic Impacts

When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. Based on available behavioral data, audiograms have been derived using auditory evoked potentials, anatomical modeling, and other data, Southall et al. (2007) designate "functional hearing groups" for marine mammals and estimate the lower and upper frequencies of functional hearing of the groups. The functional groups and the associated frequencies are indicated below (though animals are less sensitive to sounds at the outer edge of their functional range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range):

- Low frequency cetaceans (13 species of mysticetes): functional hearing is estimated to occur between approximately 7 Hz and 22 kHz (however, a study by Au et al. (2006) of humpback whale songs indicate that the range may extend to at least 24 kHz);
- Mid-frequency cetaceans (32 species of dolphins, six species of larger toothed whales, and 19 species of beaked and bottlenose whales): functional hearing is estimated to occur between approximately 150 Hz and 160 kHz;
- High frequency cetaceans (eight species of true porpoises, six species of river dolphins, Kogia, the franciscana, and four species of cephalorhynchids): functional hearing is estimated to occur between approximately 200 Hz and 180 kHz; and
- Pinnipeds in Water: functional hearing is estimated to occur between approximately 75 Hz and 75 kHz, with the greatest sensitivity between approximately 700 Hz and 20 kHz.

As mentioned previously in this document, four marine mammal species (two cetacean and two pinniped species) are likely to occur in the area of the proposed activity. Of the two cetacean species likely to occur in the proposed project area, the Atlantic white-sided dolphin is classified as a mid-frequency cetacean and the harbor porpoise is classified as a high-frequency cetacean (Southall et al. 2007). A species' functional hearing group is a consideration when we analyze the effects of exposure to sound on marine mammals.

ME DOT and NMFS determined that in-water construction activities involving the use of impact and vibratory pile driving and operation of an underwater saw during the Eastport Breakwater replacement project have the potential to result in behavioral harassment of marine mammal species and stocks in the vicinity of the proposed activity.

Marine mammals exposed to high intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Kastak et al. 1999; Schlundt et al. 2000; Finneran et al. 2002; 2005). TS can be permanent (PTS), in which case the loss of hearing sensitivity is unrecoverable, or temporary (TTS), in which case the animal's hearing threshold will recover over time (Southall et al. 2007). Since marine mammals depend on acoustic cues for vital biological functions, such as orientation, communication, finding prey, and avoiding predators, hearing impairment could result in the reduced ability of marine mammals to detect or interpret important sounds. Repeated noise exposure that leads to TTS could cause PTS.

Experiments on a bottlenose dolphin (Tursiops truncates) and beluga whale (Delphinapterus leucas) showed that exposure to a single watergun impulse at a received level of 207 kPa (or 30 psi) peak-to-peak (p-p), which is equivalent to 228 dB (p-p) re 1 μPa, resulted in a 7 and 6 dB TTS in the beluga whale at 0.4 and 30 kHz, respectively. Thresholds returned to

within 2 dB of the pre-exposure level within 4 minutes of the exposure (Finneran et al. 2002). No TTS was observed in the bottlenose dolphin. Although the source level of pile driving from one hammer strike is expected to be much lower than the single watergun impulse cited here, animals being exposed for a prolonged period to repeated hammer strikes could receive more noise exposure in terms of SEL than from the single watergun impulse (estimated at 188 dB re 1 μPa^2-s) in the aforementioned experiment (Finneran et al. 2002).

Chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions (Clark et al. 2009). 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.

Masking occurs at the frequency band which the animals utilize. Therefore, since noise generated from in-water vibratory pile driving and sawing is mostly concentrated at low frequency ranges, it may have less effect on high frequency echolocation sounds by odontocetes (toothed whales). However, lower frequency man-made noises are more likely to affect detection of communication calls and other potentially important natural sounds such as surf and prey noise. It may also affect communication signals when they occur near the noise band and thus reduce the communication space of animals (e.g., Clark et al. 2009) and cause increased stress levels (e.g., Foote et al. 2004; Holt et al. 2009).

Unlike TS, masking can potentially impact the species at population, community, or even ecosystem levels, as well as individual levels. Masking affects both senders and receivers of the signals and could have long-term chronic effects on marine mammal species and populations.

Recent science suggests that low frequency ambient sound levels have increased by as much as 20 dB (more than 3 times in terms of SPL) in the world's ocean from pre-industrial periods, and most of these increases are from distant shipping (Hildebrand 2009). All anthropogenic noise sources, such as those from vessels traffic and pile driving, contribute to the elevated ambient noise levels, thus intensify masking.

Nevertheless, the sum of noise from the proposed construction activities at the Eastport Breakwater is confined in an area that is largely bounded by jetty and landmass, therefore, the noise generated is not expected to contribute to increased ocean ambient noise. Due to shallow water depths near the construction site, underwater sound propagation for low-frequency sound (which is the major noise source from pile driving and underwater sawing) is expected to be poor.

Finally, exposure of marine mammals to certain sounds could lead to behavioral disturbance (Richardson et al. 1995), such as: 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); visible startle response or aggressive behavior (such as tail/fluke slapping or jaw clapping), avoidance of areas where noise sources are located, and/or flight responses (e.g., pinnipeds flushing into water from haulouts or rookeries).

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification could be expected to be biologically significant if the change affects growth, survival, and reproduction. Some of these significant behavioral modifications include:

- Drastic change in diving/surfacing patterns (such as those thought to be causing beaked whale stranding due to exposure to military mid-frequency tactical sonar);
- Habitat abandonment due to loss of desirable acoustic environment; and
- Cease feeding or social interaction.

The onset of behavioral disturbance from anthropogenic noise depends on both external factors (characteristics of noise sources and their paths) and the receiving animals (hearing, motivation, experience, demography), and is also difficult to predict (Southall et al. 2007). The proposed project area is not a prime habitat for marine mammals, nor is it considered an area frequented by marine mammals. Therefore, behavioral disturbances that could result from anthropogenic noise associated with breakwater replacement activities are expected to affect only a small number of marine mammals on an infrequent basis.

Visual Disturbance

The activities of workers in the project area may also cause behavioral reactions of marine mammals, such as pinnipeds flushing from haul-out sites, or moving farther from the disturbance to forage. No impacts from visual disturbance are anticipated because there are no known pinniped haul-outs within the proposed project area. The only potential disturbance anticipated to occur would be during diving operations, which may cause individual marine mammals to temporarily avoid the area. Therefore, the presence of workers would not result in population level impacts or affect the long-term fitness of the species.

Anticipated Effects on Marine Mammal Habitat

The proposed activities at the Eastport Breakwater would not result in permanent impacts to habitats used directly by marine mammals, such as haul-out sites, but may have potential short-term impacts to food sources such as forage fish. There are no rookeries or major haul-out

sites nearby, foraging hotspots, or other ocean bottom structure of significant biological importance to marine mammals that may be present in the marine waters in the vicinity of the project area. Therefore, the main impact issue associated with the proposed activity 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) near the pier and minor impacts to the immediate substrate during installation of piles and removal of the old structure during the breakwater replacement project.

Construction activities would produce both pulsed (i.e., impact pile driving) and continuous (i.e., vibratory pile driving and underwater saw) sounds. Fish react to sounds which are especially strong and/or intermittent low-frequency sounds. Short duration, sharp sounds can cause overt or subtle changes in fish behavior and local distribution. Hastings and Popper (2005, 2009) identified several studies that suggest fish may relocate to avoid certain areas of sound energy. Additional studies have documented effects of pile driving (or other types of continuous sounds) on fish, although several are based on studies in support of large, multiyear bridge construction projects (e.g., Scholik and Yan, 2001, 2002; Popper and Hastings, 2009). Sound pulses at received levels of 160 dB re 1 µPa may cause subtle changes in fish behavior. SPLs of 180 dB may cause noticeable changes in behavior (Pearson et al., 1992; Skalski et al., 1992). SPLs of sufficient strength may cause injury to fish and fish mortality. The most likely impact to fish from pile driving and underwater sawing activities at the project area would be temporary behavioral avoidance of the area. The duration of fish avoidance of this area after these activities stop is unknown, but a rapid return to normal recruitment, distribution and behavior is

anticipated. In general, impacts to marine mammal prey species are expected to be minor and temporary due to the short timeframe for the pier replacement project.

Avoidance by potential prey (i.e., fish) of the immediate area due to the temporary loss of this foraging habitat is also possible. The duration of fish avoidance of this area after pile driving stops is unknown, but a rapid return to normal recruitment, distribution and behavior is anticipated. Any behavioral avoidance by fish of the disturbed area would still leave significantly large areas of fish and marine mammal foraging habitat in the vicinity of Cobscook Bay.

Given the short daily duration of sound associated with individual pile driving and sawing events and the relatively small areas being affected, in-water construction activities associated with the proposed action are not likely to have a permanent, adverse effect on any fish habitat, or populations of fish species. Therefore, pile the proposed in-water construction activities are not likely to have a permanent, adverse effect on marine mammal foraging habitat at the project area.

Proposed 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 adverse 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 (where relevant).

ME DOT proposed the following mitigation measures to minimize adverse impacts to marine mammals:

Sound Attenuation Device

When using a diesel impact hammer to "proof" piles, ME DOT would use sound absorption cushions and/or a bubble curtain to reduce hydroacoustic sound levels and avoid the potential for marine mammal injury. Based on previous studies, sound attenuation devices are expected to reduce sound levels by at least 5 dB.

Exclusion Zone

The purpose of the proposed exclusion zone is to prevent Level A harassment (injury) of any marine mammal species. During all in-water impact pile driving, ME DOT would establish a preliminary marine mammal exclusion zone around each pile to avoid exposure to sounds at or above 180 dB. The preliminary exclusion zone is based on the results of ORPC's 2012 monitoring report and the reported ranges to the Level A and Level B harassment thresholds while driving 30-inch piles with a wood block cushion (Table 7).

Table 7. Range to Level A and Level B Harassment Thresholds

Hammer Type	Range to Level A threshold (in meters)	Range to Level B threshold (in meters)
Vibratory	N/A	500
Impact	10	275

Prior to commencing pile driving, ME DOT would conduct hydroacoustic monitoring to measure sound from in-water construction activities. The hydroacousitc monitoring plan would include the following elements: monitoring for dB (rms) levels at 10 m from the pile; monitoring at 100 m to proof the marine mammal monitoring areas; and real time reporting of noise levels to the construction team. ME DOT would provide NMFS with a report following completion of the hydroacoustic monitoring. Once hydroacoustic monitoring is conducted, the exclusion and buffer zone may be adjusted accordingly so that marine mammals are not exposed to Level A harassment sound pressure levels. The exclusion zone would be monitored continuously during impact pile driving to ensure that no marine mammals enter the area. Two protected species

observers (PSOs) would be stationed on the pier. One PSO would be responsible for monitoring the exclusion zone, while the second observer would conduct behavioral monitoring outwards to a distance of 1 nm. Several floats anchored at 10 m (33 ft) and 305 m (1000 ft) would be located around the installation site to help identify when marine mammals are entering or within the exclusion zone. An exclusion zone for vibratory pile driving and underwater sawing is unnecessary as source levels would not exceed the Level A harassment threshold.

Impact Pile Driving Shut Down and Delay Procedures

If a PSO sees a marine mammal within or approaching the exclusion zone prior to start of impact pile driving, the observer would notify the on-site project lead (or other authorized individual) who would then be required to delay pile driving until the marine mammal has moved 305 m (1000 ft) from the sound source or if the animal has not been resighted within 30 minutes. If a marine mammal is sighted within or on a path toward the 10-m (33-ft) exclusion zone during pile driving, pile driving would cease until that animal has moved 305 m (1000 ft) and is on a path away from the exclusion zone or 30 minutes has lapsed since the last sighting.

Soft-start Procedures

A "soft-start" technique would be used at the beginning of each pile installation and each use of the underwater saw to allow any marine mammal that may be in the immediate area to leave before the pile hammer reaches full energy or saw begins sawing. For vibratory pile driving, the soft-start procedure requires contractors to initiate noise from the vibratory hammer for 15 seconds at 40-60 percent reduced energy followed by a 1-minute waiting period. The procedure would be repeated two additional times before full energy may be achieved. For impact hammering, contractors would be required to provide an initial set of three strikes from the impact hammer at 40 percent energy, followed by a 1-minute waiting period, then two

subsequent three-strike sets. For operating the underwater saw, contractors would be required to turn on the saw 3 or 4 times for 2 to 3 seconds each time over the course of 30 seconds. Soft-start procedures would be conducted any time hammering ceases for more than 30 minutes.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's proposed mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting 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:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals;
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and
- The practicability of the measure for applicant implementation.

Any mitigation measure(s) prescribed by NMFS 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 numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of sound from impact and vibratory pile driving and operation of an underwater saw, or other activities expected to result in

the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

3. A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels of sound from impact and vibratory pile driving and operation of an underwater saw, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

4. A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of sound from impact and vibratory pile driving and operation of an underwater saw, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).

5. Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/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 applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed mitigation measures provide the means of effecting the least practicable impact on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed 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 IHAs 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.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

1. An increase in the probability of detecting marine mammals, both within the mitigation zone (thus allowing for more effective implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below;

2. An increase in our understanding of how many marine mammals are likely to be exposed to levels of sound from impact and vibratory pile driving and operation of an underwater saw that we associate with specific adverse effects, such as behavioral harassment, TTS, or PTS;

3. An increase in our understanding of how marine mammals respond to stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:

- Behavioral observations in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);

- Physiological measurements in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);

- Distribution and/or abundance comparisons in times or areas with concentrated stimuli versus times or areas without stimuli.

4. An increased knowledge of the affected species; and

5. An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

Monitoring

Hydroacoustic monitoring would be performed at the initial installation of each pile driving method to ensure that the harassment isopleths are not extending past the calculated distances described in this notice and to assess the efficiency of the sound attenuation devices. ME DOT would designate two biologically-trained, on-site PSOs, approved in advance by NMFS, to monitor the exclusion zone (preliminarily set at 10 m [33 ft]) for marine mammals 30 minutes before, during, and 30 minutes after all impact pile driving activities and call for shut down if any marine mammal is observed within or approaching the exclusion zone. These PSOs would be positioned on the pier. One observer would survey inwards toward the pile driving site and the second observer would conduct behavioral monitoring outwards to a distance of 1 nm during all impact pile driving.

Protected species observers would be provided with the equipment necessary to effectively monitor for marine mammals (for example, high-quality binoculars, compass, and range-finder as well as a digital SLR camera with telephoto lens and video capability) in order to determine if animals have entered into the exclusion zone or Level B harassment isopleth and to

record species, behaviors, and responses to pile driving. If hydroacoustic monitoring indicates that threshold isopleths are greater than originally calculated, ME DOT would contact NMFS within 48 hours and make the necessary adjustments. Likewise, if threshold isopleths are actually less than originally calculated, downward adjustments may be made to the exclusion and buffer zone.

Reporting

ME DOT would be required to submit a report to NMFS within 90 days of completion of in-water construction activities. The report would include data from marine mammal sightings (such as date, time, location, species, group size, and behavior), any observed reactions to construction, distance to operating pile hammer, and construction activities occurring at time of sighting and environmental data for the period (wind speed and direction, Beaufort sea state, cloud cover, and visibility).

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury (Level A harassment), serious injury, or mortality, ME DOT would immediately cease the specified activities and immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Brian.D.Hopper@noaa.gov and the Greater Atlantic Regional Fisheries Office Stranding Coordinator (Mendy.Garron@noaa.gov). The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;

- Status of all sound source use in the 24 hrs preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hrs preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS would work with ME DOT to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. ME DOT may not resume their activities until notified by NMFS via letter, email, or telephone.

In the event that ME DOT discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), ME DOT would immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Brian.D.Hopper@noaa.gov and the Greater Atlantic Regional Fisheries Office Stranding Coordinator at 978-281-9300 (Mendy.Garron@noaa.gov). The report must include the same information identified in the paragraph above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS would work with ME DOT to determine whether modifications in the activities are appropriate.

In the event that ME DOT discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in the IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), ME DOT would report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Brian.D.Hopper@noaa.gov and the NMFS Stranding Hotline (866-755-6622) and/or by email to the Greater Atlantic Regional Fisheries Office Stranding Coordinator (Mendy.Garron@noaa.gov), within 24 hrs of the discovery. ME DOT would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. Activities may continue while NMFS reviews the circumstances of the incident.

Estimated Take of Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

Current NMFS practice regarding exposure of marine mammals to anthropogenic noise is that in order to avoid the potential for injury (PTS), cetaceans and pinnipeds should not be exposed to impulsive sounds of 180 and 190 dB or above, respectively. This level is considered precautionary as it is likely that more intense sounds would be required before injury would actually occur (Southall et al., 2007). Potential for behavioral Level B harassment is considered

to have occurred when marine mammals are exposed to sounds at or above 160 dB for impulse sounds (such as impact pile driving) and 120 dB for continuous noise (such as vibratory pile driving and underwater sawing). These levels are also considered precautionary.

Table 8. Current Acoustic Exposure Criteria

Non-Explosive Sound		
Criterion	Criterion Definition	Threshold
Level A Harassment (Injury)	Permanent Threshold Shift (PTS) (Any level above that which is known to cause TTS)	180 dB re 1 microPa-m (cetaceans) / 190 dB re 1 microPa-m (pinnipeds) root mean square (rms)
Level B Harassment	Behavioral Disruption (for impulse noises)	160 dB re 1 microPa-m (rms)
Level B Harassment	Behavioral Disruption (for continuous, noise)	120 dB re 1 microPa-m (rms)

Distances to NMFS' harassment thresholds were calculated based on the expected sound levels at each source and the expected attenuation rate of sound (Table 3). The 10-m (33-ft) distance to the Level A harassment threshold provides protected species observers plenty of time and adequate visibility to prevent marine mammals from entering the area during impact pile driving. This would prevent marine mammals from being exposed to sound levels that reach the Level A harassment threshold.

Proposed Incidental Takes

The estimated number of marine mammals potentially taken is based on ORPC's marine mammal monitoring observations between 2007 and 2010. Based on marine mammal sightings during that period, further consultation between ORPC and NMFS, and the estimated number of pile driving and underwater sawing days for the Eastport Breakwater project, ME DOT requests authorization for the incidental take of 45 seals (because they cannot always be identified to the species-level), 39 harbor porpoises, and two Atlantic white-sided dolphins. The proposed take is

based on the maximum group size of animals observed during ORPC's marine mammal observations (i.e., six seals, five to six harbor porpoises, and one Atlantic white-sided dolphin) multiplied by the maximum expected number of pile driving and underwater sawing days. These numbers are extremely conservative and indicate the maximum number of animals expected to occur within the largest Level B harassment isopleth.

Table 8. Estimated Marine Mammal Takes by Level B Harassment

Common species name	Estimated Take by Level B Harassment	Abundance of Stock	Percentage of Stock Potentially Affected	Population Trend
Gray seal	45	Over 250,000 in western North Atlantic	0.018	increasing
Harbor seal		70,142 in western North Atlantic	0.049	N/A
Harbor porpoise	39	79,883 in Gulf of Maine/Bay of Fundy	0.043	N/A
Atlantic white-sided dolphin	2	48,819 in the western North Atlantic	0.003	N/A

Preliminary Determinations

Negligible Impact

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, NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive

time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, effects on habitat, and the status of the species. ME DOT's proposed Eastport breakwater replacement project would involve pile driving and removal activities as well as the use of an underwater saw. Elevated noise levels are expected to be generated as a result of these activities. However, ME DOT would use noise attenuation devices (e.g., pile cushions, bubble curtains) during impact pile driving to ensure that sound levels of 180 dB (rms) do not extend more than 10 m from the pile, which eliminates the potential for injury (PTS) and TTS. Given the required mitigation and monitoring, no injuries or mortalities are anticipated to occur as a result of ME DOT's proposed action in Eastport, and none are proposed to be authorized. In addition, as described above, marine mammals in the area would not be exposed to activities or sound levels which would result in hearing impairment (TTS or PTS) or non-auditory physiological effects. The small number of takes that are anticipated to occur would be limited to short-term Level B harassment.

In-water construction activities would occur in relatively shallow coastal waters of Cobscook Bay. The proposed project area is not considered significant habitat for marine mammals. Marine mammals approaching the action area would likely be traveling or opportunistically foraging. There are no rookeries or major haul-out sites nearby, foraging hotspots, or other ocean bottom structure of significant biological importance to marine mammals that may be present in the marine waters in the vicinity of the project area. The closest significant pinniped haul out is more than 6 nm away (ME DOT, pers. comm.), which is well outside the project area's largest harassment zone. The proposed project area is not a prime habitat for marine mammals, nor is it considered an area frequented by marine mammals. Therefore, behavioral disturbances that could result from anthropogenic noise associated with

breakwater replacement activities are expected to affect only a small number of marine mammals on an infrequent basis. Although it is possible that some individual marine mammals may be exposed to sounds from in-water construction activities more than once, the duration of these multi-exposures is expected to be low since animals would be constantly moving in and out of the area and in-water construction activities would not occur continuously throughout the day.

Marine mammals may be temporarily impacted by noise from pile driving activities and the operation of an underwater saw. These low intensity, localized, and short-term noise exposures may cause brief startle reactions or short-term behavioral modifications by the animals. These reactions and behavioral changes are expected to subside quickly when the exposures cease. Moreover, marine mammals are expected to avoid the area during in-water construction because animals generally move away from active sound sources, thereby reducing exposure and impacts. In addition, through mitigation measures including soft start, marine mammals are expected to move away from a sound source that is annoying prior to its becoming potentially injurious and detection of marine mammals by observers would enable the implementation of shutdowns to avoid injury, serious injury, or mortality. In-water construction activities involving pile driving and underwater sawing are expected to occur for about 12 days total each month. 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 an overall stock is unlikely to result in any significant realized decrease in fitness to those 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 project area while the activity is occurring.

Based on the application and subsequent analysis, the impact of the described in-water construction activities may result in, at most, short-term modification of behavior by small numbers of marine mammals within the action area. No injury, serious injury, or mortality is expected to occur and due to the nature, degree, and context of the Level B harassment anticipated, the activity is not expected to impact rates of recruitment or survival.

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 proposed monitoring and mitigation measures, NMFS preliminarily finds that the total marine mammal take from the proposed activity will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

The amount of take NMFS proposes to authorize is considered small (less than one percent) relative to the estimated populations of 70,142 harbor seals, 250,000 gray seals, 79,883 harbor porpoises, and 48,819 Atlantic white-sided 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, NMFS preliminarily finds 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, 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.

Endangered Species Act (ESA)

No marine mammal species listed under the ESA are anticipated to occur within the action area. Therefore, NMFS has determined that a 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), and NOAA Administrative Order 216-6, NMFS is preparing an Environmental Assessment (EA) to consider the environmental impacts of issuance of a one-year IHA. This analysis will be completed prior to the issuance or denial of this proposed IHA. Upon completion, this EA will be available on the NMFS website listed in the beginning of this document (see ADDRESSES).

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to ME DOT for the Breakwater Replacement Project in Eastport, Maine, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated.

This section contains a draft of the IHA itself. The wording contained in this section is proposed for inclusion in the IHA (if issued). The language contained in the draft IHA is not intended for codification and would not be published in the Code of Federal Regulations, if issued. The draft IHA language is provided next.

1. This Authorization is valid from September 1, 2014 through August 31, 2015.

2. This Authorization is valid for in-water construction activities in Eastport, Maine for replacement of a pier and breakwater, as described in the Incidental Harassment Authorization (IHA) application.

3. ME DOT is hereby authorized to take, by Level B harassment only, 45 total grey and harbor seals (Halichoerus grypus and Phoca vitulina), 39 harbor porpoises (Phocoena phocoena), and two Atlantic white-sided dolphins (Lagenorhynchus acutus) incidental to in-water construction activities associated with the breakwater replacement project.

4. The taking by Level A harassment, serious injury, or mortality of any of the species listed in 3 above or the taking of any kind of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.

5. The taking of any marine mammal in a manner prohibited under this Authorization must be reported immediately to NMFS' Greater Atlantic Regional Fisheries Office, 55 Great Republic Drive, Gloucester, MA 01930-2276; phone 978-281-9328, and NMFS' Office of Protected Resources (NMFS), 1315 East-West Hwy, Silver Spring, MD 20910; phone 301-427-8401; fax 301-713-0376.

6. The holder or designees must notify NMFS' Greater Atlantic Regional Fisheries Office and Headquarters at least 24 hours prior to the seasonal commencement of the specified activity (see contact information in 5 above).

7. Mitigation Requirements - The holder of this Authorization is required to abide by the following mitigation conditions listed in 7(a)-(d). Failure to comply with these conditions may result in the modification, suspension or revocation of this Authorization.

(a) Sound Attenuation Device: When using an impact pile hammer to install piles, sound absorption cushions and/or a bubble curtain will be used to reduce hydroacoustic sound levels and avoid the potential for marine mammal injury.

(b) Establishment of an Exclusion Zone: During all in-water impact pile driving, ME DOT will establish a preliminary marine mammal exclusion and buffer zone of 10 m (33 ft) around each pile to avoid exposing marine mammals to sounds at or above 180 dB. The exclusion zone will be monitored continuously during all impact pile driving to ensure that no marine mammals enter the 10-m (33-ft) radius. Once underwater sound measurements are taken, the exclusion and buffer zone may be adjusted accordingly so that marine mammals are not exposed to Level A harassment sound pressure levels. An exclusion zone for vibratory pile driving or underwater sawing is unnecessary to prevent Level A harassment as source levels will not exceed the Level A harassment threshold.

(c) Pile Driving Shut Down and Delay Procedures: If a protected species observer sees a marine mammal within or approaching the exclusion zone prior to the start of impact pile driving, the observer will notify the on-site project lead (or other authorized individual), who will then be required to delay pile driving until the marine mammal has moved 305 m (1,000 ft) from the sound source or the animal has not been resighted within 30 minutes. If a marine mammal is sighted within or on a path toward the 152-m (500-ft) exclusion and buffer zone during pile driving, pile driving will cease until that animal has moved 305 m (1,000 ft) and is on a path away from the exclusion zone or 30 minutes has lapsed since the last sighting.

(d) Soft-start Procedures: A ‘‘soft-start’’ technique will be used at the beginning of each pile installation and each use of the underwater saw to allow any marine mammal that may be in the immediate area to leave before the pile hammer reaches full energy or saw begins sawing.

For vibratory pile driving, contractors will initiate noise from the vibratory hammer for 15 seconds at 40-60 percent reduced energy, followed by a 1-minute waiting period. The procedure will be repeated two additional times before full energy may be achieved. For impact hammering, contractors will provide an initial set of three strikes from the impact hammer at 40 percent energy, followed by a 1-minute waiting period, then two subsequent three-strike sets. For underwater sawing, contractors will turn on the saw 3 or 4 times for 2 to 3 seconds each time over the course of 30 seconds. The soft-start procedure will be conducted prior to driving each pile if hammering ceases for more than 30 minutes.

8. Monitoring Requirements - The holder of this Authorization is required to abide by the following monitoring conditions listed in 8(a)-(b). Failure to comply with these conditions may result in the modification, suspension, or revocation of this Authorization.

(a) Visual Monitoring

(i) The holder of this Authorization must designate at least two biologically-trained, on-site individual(s), approved in advance by NMFS, to monitor the exclusion and buffer zone (preliminarily set at 152 m [500 ft]) for marine mammals 30 minutes before, during, and 30 minutes after all impact pile driving activities. The protected species observer(s) shall conduct observations on the number, type(s), location(s), and behavior(s) of marine mammals in the designated exclusion zone (see Reporting section below).

(ii) Protected species observers must call for delay or shut down if any marine mammal is observed within or approaching the designated exclusion zone (preliminarily set at 10 m [33 ft]).

(iii) The holder of this Authorization must designate at least two biologically trained, on-site individuals, approved in advance by NMFS, to conduct behavioral monitoring out to 1 nmi

during all impact pile driving. In addition, observers will be stationed at the Level B harassment isopleth (4,600 m [2.5 mi]) during at least three events of vibratory pile driving/underwater sawing to conduct behavioral monitoring and validate take estimates.

(iv) Protected species observers will be provided with the equipment necessary to effectively monitor for marine mammals (for example, high-quality binoculars, spotting scopes, compass, range-finder, and digital SLR camera with telephoto lens) in order to determine if animals have entered into the exclusion zone or Level B harassment isopleth and to record species, behaviors, and responses to in-water construction activities.

(v) NMFS must be informed immediately of any changes or deletions to any portions of the monitoring plan, as described in the application.

(b) Hydroacoustic Monitoring

(i) Underwater sound measurements will be taken at the initial installation of each pile driving method to ensure that the harassment isopleths are not extending past the estimated distances. Exclusion zones and harassment isopleths may be adjusted accordingly for marine mammals so that they are not exposed to Level A harassment sound pressure levels (180 dB). ME DOT will contact NMFS within 48 hours in order to make the necessary adjustments.

(ii) Persons conducting sound measurements shall coordinate with the pile driver operator and marine mammal observer(s) to determine which activities are occurring at the time measurements are taken and if any marine mammals are in the area.

9. Reporting Requirements - The holder of this Authorization is required to submit a report on all activities and visual and acoustic monitoring results to the Office of Protected Resources, NMFS, and the Greater Atlantic Regional Administrator, NMFS, 90 days prior to the

expiration of the IHA if a renewal is sought, or within 90 days of completion of in water construction activities.

(a) The visual monitoring report must contain the following information:

(i) number of marine mammals observed and number taken, by species, and, if possible, sex and age class;

(ii) Marine mammal behavior patterns observed;

(iii) Marine mammal distances to pile driving or sawing activities;

(iv) Time pile driving begins and ends and if pile driving was occurring during a sighting;

(v) Time underwater sawing begins and ends if sawing was occurring during a sighting;

(vi) Time and locations of all marine mammal sightings;

(vii) environmental conditions, including but not limited to visibility, tide level and state (i.e., slack, ebb, flood), and sea state; and

(viii) other human activity in the area (e.g., vessel operation).

(b) The acoustic monitoring report must contain the following:

(i) type of equipment used to collect acoustic data including frequency range;

(ii) estimated water depth of pile being driven and depth at which measurements were taken;

(iii) distances to the source where acoustic data were collected;

(iv) maximum, minimum, and average dB_{RMS} levels received at each measured distance;

(v) the type of pile driving method (i.e., impact or vibratory) associated with each collected measurement;

(vi) estimated rate of attenuation or transmission loss (TL) based on collected measurements; and

(vii) estimated source levels based on TL rate.

(c) In the unanticipated event that in-water construction activities clearly cause the take of a marine mammal in a manner prohibited by this Authorization, such as an injury (Level A harassment), serious injury, or mortality, ME DOT shall immediately cease in-water construction activities and report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Jolie.Harrison@noaa.gov and Brian.D.Hopper@noaa.gov and the Greater Atlantic Regional Stranding Coordinator (Mendy.Garron@noaa.gov). The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the incident;

(ii) The name and type of vessel involved;

(iii) The vessel's speed during and leading up to the incident;

(iv) Description of the incident;

(v) Status of all sound source use in the 24 hours preceding the incident;

(vi) Water depth;

(vii) Environmental conditions (e.g. wind speed and direction, Beaufort sea state, cloud cover, and visibility);

(viii) Description of marine mammal observations in the 24 hours preceding the incident;

(ix) Species identification or description of the animal(s) involved;

(x) The fate of the animal(s); and

(xi) Photographs or video footage of the animal (if equipment is available).

Activities shall not resume until NFMS is able to review the circumstances of the prohibited take. NMFS shall work with ME DOT to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. ME DOT may not resume their activities until notified by NMFS via letter, email, or telephone.

(d) In the event that ME DOT discovers an injured or dead marine mammal, and the lead PSO determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), ME DOT will immediately report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Brian.D.Hopper@noaa.gov and the Greater Atlantic Regional Stranding Coordinator (Mendy.Garron@noaa.gov). The report must include the same information identified in Condition 9(c) above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with ME DOT to determine whether modifications in the activities are appropriate.

(e) In the event that ME DOT discovers an injured or dead marine mammal, and the lead PSO determines that the injury or death is not associated with or related to the activities authorized in Condition 3 of this Authorization (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), ME DOT shall report the incident to the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to Jolie.Harrison@noaa.gov and Brian.D.Hopper@noaa.gov and the Greater Atlantic Regional Stranding Coordinator (Mendy.Garron@noaa.gov), within 24 hours of the discovery. ME DOT shall provide photographs or video footage (if available) or other

documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. Activities may continue while NMFS reviews the circumstances of the incident.

10. A copy of this Authorization must be in the possession of the lead contractor on site and PSOs operating under the authority of this Incidental Harassment Authorization.

11. This Authorization may be modified, suspended, or withdrawn if the Holder fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.

Request for Public Comments

NMFS requests comments on our analysis, the draft authorization, and any other aspect of the Notice of Proposed IHA for ME DOT's construction project in Eastport, Maine. Please include with your comments any supporting data or literature citations to help inform our final decision on ME DOT's request for an MMPA authorization.

Dated: July 28, 2014.

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

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