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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XE267

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Operation, Maintenance, and Repair of the Northeast Gateway Liquefied Natural Gas Port and the Algonquin Pipeline Lateral Facilities in Massachusetts Bay

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

ACTION: Notice; proposed incidental harassment authorization and receipt of application for five-year regulations; request for comments and information.

SUMMARY: NMFS has received a request from Excelerate Energy, L.P. (Excelerate) and Tetra Tech, Inc. (Tetra Tech), on behalf of the Northeast Gateway® Energy Bridge™, L.P. (Northeast Gateway or NEG) and Algonquin Gas Transmission, L.L.C. (Algonquin) for an authorization to take small numbers of 14 species of marine mammals, by Level B harassment, incidental to operating, maintaining, and repairing a liquefied natural gas (LNG) port and the Algonquin Pipeline Lateral (Pipeline Lateral) facilities by NEG and Algonquin, in Massachusetts Bay. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an authorization to NEG and Algonquin to incidentally take, by Level B harassment, small numbers of marine mammals during the specified activity for a period of 1 year. NMFS is also requesting comments, information, and suggestions concerning NEG's application and the structure and content of future regulations.

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

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, 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 on this action is *ITP.Guan@noaa.gov*. Comments sent via email, including all attachments, must not exceed a 25-megabyte file size. A copy of the application and a list of references used in this document may be obtained by writing to this address, and is also available at: *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*. NMFS is not responsible for comments sent to addresses other than those provided here.

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#applications* 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.

The Maritime Administration (MARAD) and U.S. Coast Guard (USCG) Final Environmental Impact Statement (Final EIS) on the Northeast Gateway Energy Bridge LNG Deepwater Port license application is available for viewing at *http://www.nmfs.noaa.gov/pr/permits/incidental.htm#applications*.

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

SUPPLEMENTARY INFORMATION:

Background

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

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

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the U.S. can apply for a one-year authorization to incidentally take small numbers of marine mammals by harassment, provided that there is no potential for serious injury or mortality to result from the activity. Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

Summary of Request

On June 9, 2015, NMFS received an application from Excelerate and Tetra Tech, on behalf of Northeast Gateway and Algonquin, for an authorization to take 14 species of marine mammals by Level B harassment incidental to operations, maintenance, and repair of an LNG port and the Pipeline Lateral facilities in Massachusetts Bay. They are: North Atlantic right whale, humpback whale, fin whale, sei whale, minke whale, long-finned pilot whale, Atlantic white-sided dolphin, bottlenose dolphin, short-beaked common dolphin, killer whale, Risso's dolphin, harbor porpoise, harbor seal, and gray seal. Since LNG Port and Pipeline Lateral operation, maintenance, and repair activities have the potential to take marine mammals, a marine mammal take authorization under the MMPA is warranted. NMFS first issued an IHA to Northeast Gateway and Algonquin to allow for the incidental harassment of small numbers of marine mammals resulting from the construction and operation of the NEG Port and the Algonquin Pipeline Lateral (72 FR 27077; May 14, 2007). Subsequently, NMFS issued five one-year IHAs for the take of marine mammals incidental to the operation of the NEG Port activity pursuant to section 101(a)(5)(D) of the MMPA (73 FR 29485, May 21, 2008; 74 FR 45613, September 3, 2009; 75 FR 53672, September 1, 2010; and 76 FR 62778, October 11, 2011). On December 22, 2014, NMFS issued an IHA to NEG and Algonquin to take marine mammals incidental to the operations of the NEG Port as well as maintenance and repair activities (79 FR 78806, December 31, 2014). The current IHA expires on December 21, 2015.

Because the LNG Port facility and Algonquin Pipeline Lateral operation and maintenance activities will be ongoing in the foreseeable future, Excelerate and Tetra Tech have submitted an application for both an IHA under section 101(a)(5)(D) to cover the next one-year period of

operations and maintenance/repair, and regulations under section 101(a)(5)(A) to cover the same activities for a subsequent 5-year period. In this FR notice NMFS is (1) proposing to issue a one-year IHA to cover the period from [x-y], with a 30-day public comment period; and (2) announcing its notice of receipt of the application for five-year regulations, also with a 30-day public comment period. Following a decision on the proposed IHA, NMFS will proceed with consideration of proposed regulations pursuant to section 101(a)(5)(A) of the MMPA

Description of the Specified Activity

The proposed NEG and Algonquin activities include the following:

NEG Port Operations: The NEG Port operations involve docking of LNG vessels and regasification of LNG for delivery to shore. Noises generated during these activities, especially from the LNG vessel's dynamics positioning thrusters during docking, could result in takes of marine mammals in the Port vicinity by level B behavioral harassment.

NEG Port Maintenance and Repair: Regular maintenance and occasional repair of the NEG Port are expected to occur throughout the NEG Port operation period. Machinery used during these activities generate noises that could result in takes of marine mammals in the Port vicinity by Level B behavioral harassment.

Algonquin Pipeline Lateral Routine Operations and Maintenance: The Algonquin Pipeline Lateral that is used for gas delivery would be inspected regularly to ensure proper operations. The work would be done using support vessels operating in dynamic positioning mode. Noises generated from these activities could result in takes of marine mammals in the vicinity of Pipeline Lateral by Level B behavioral harassment.

Unplanned Pipeline Repair Activities: Unplanned repair activities may be required

from time to time at a location along the Algonquin Pipeline Lateral in west Massachusetts Bay, as shown in Figure 2.1 of the IHA application. The repair would involve the use of a dive vessel operating in dynamic positioning mode. Noise generated from this activity could result in takes of marine mammals in the vicinity of repair work by Level B behavioral harassment.

An IHA was previously issued to NEG and Algonquin for this activity on December 22, 2014 (79 FR 78806; December 31, 2014), based on activities described on Excelerate and Tetra Tech's IHA application submitted in June 2014 and on the **Federal Register** notice for the proposed IHA (78 FR 69049; November 18, 2013). The latest IHA application submitted by Excelerate and Tetra Tech on October 9, 2015, contains the same information on project descriptions as described in the June 2014 IHA application. There is no change on the NEG and Algonquin's proposed LNG Port and Pipeline Lateral operations and maintenance and repair. Please refer to these documents for a detailed description of NEG and Algonquin's proposed LNG Port and Pipeline Lateral operations and maintenance and repair activities.

Description of Marine Mammals in the Area of the Specified Activities

General information on the marine mammal species found in Massachusetts Bay can be found in Waring *et al.* (2014), which is available at the following URL: *http://www.nmfs.noaa.gov/pr/sars/pdf/ao2013_tm228.pdf*. Refer to that document for information on these species.

Marine mammal species that potentially occur in the vicinity of the Northeast Gateway facility can be found in the IHA application and in the earlier Federal Register notice for the proposed IHA (78 FR 69049; November 18, 2013). These species are summarized in Table 1 below.

Table 1. Marine Mammal Species Potentially Present in Region of Activity

Species	ESA Status	MMPA Status	Abundance	Range	Occurrence
North Atlantic right whale	Endangered	Depleted	465	N .Atlantic	Occasional
Humpback whale	Endangered	Depleted	823	N. Atlantic	Occasional
Fin whale	Endangered	Depleted	1618	N. Atlantic	Occasional
Sei whale	Endangered	Depleted	357	N. Atlantic	Occasional
Minke whale	Not listed	Non-depleted	20741	N. Atlantic	Occasional
Long-finned pilot whale	Not listed	Non-depleted	21515	N. Atlantic	Occasional
Atlantic white-sided dolphin	Not listed	Non-depleted	48819	N. Atlantic	Occasional
Bottlenose dolphin	Not listed	Non-depleted	11548	N. Atlantic	Uncommon
Common dolphin	Not listed	Non-depleted	173486	N. Atlantic	Uncommon
Killer whale	Not listed	Non-depleted	Unknown	N. Atlantic	Uncommon
Risso's dolphin	Not listed	Non-depleted	18250	N. Atlantic	Uncommon
Harbor porpoise	Not listed	Non-depleted	79833	N. Atlantic	Uncommon
Harbor Seal	Not listed	Non-depleted	75834	N. Atlantic	Occasional
Gray seal	Not listed	Non-depleted	Unknown	N. Atlantic	Occasional

Potential Effects of the Specified Activity on Marine Mammals

This section includes a summary and discussion of the ways that the types of stressors associated with the specified activity (e.g., pile removal and pile driving) have been observed to impact marine mammals. This discussion may also include reactions that we consider to rise to the level of a take and those that we do not consider to rise to the level of a take (for example, with acoustics, we may include a discussion of studies that showed animals not reacting at all to sound or exhibiting barely measurable avoidance). This section is intended as a background of potential effects and does not consider either the specific manner in which this activity will be carried out or the mitigation that will be implemented, and how either of those will shape the anticipated impacts from this specific activity. The "**Estimated Take by Incidental Harassment**" section later in this document will include a quantitative analysis of the number of individuals that are expected to be taken by this activity. The "**Negligible Impact Analysis**" section will include the analysis of how this specific activity will impact marine mammals and

will consider the content of this section, the "**Estimated Take by Incidental Harassment**" section, the "**Proposed Mitigation**" section, and the "**Anticipated Effects on Marine Mammal Habitat**" section to draw conclusions regarding the likely impacts of this activity on the reproductive success or survivorship of individuals and from that on the affected marine mammal populations or stocks.

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 25 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;

- Phocid pinnipeds (true seals): functional hearing is estimated between 75 Hz to 100 kHz; and
- Otariid pinnipeds (sea lions and fur seals): functional hearing is estimated between 100 Hz to 48 kHz.

Species found in the vicinity of NEG LNG port and Algonquin Pipeline Lateral operations and maintenance and repair area include five low-frequency cetacean species (North Atlantic right whale, humpback whale, fin whale, sei whale, and minke whale), six mid-frequency cetacean species (long-finned pilot whale, Atlantic white-sided dolphin, bottlenose dolphin, common dolphin, Risso's dolphin, and killer whale), one high-frequency cetacean species (harbor porpoise), and two pinniped species (harbor seal and gray seal) (Table 1).

The proposed NEG LNG port operations and maintenance and repair activities could adversely affect marine mammal species and stocks by exposing them to elevated noise levels in the vicinity of the activity area.

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, marine mammals that suffer from PTS or TTS will have reduced fitness in survival and reproduction, either permanently or temporarily.

Repeated noise exposure that leads to TTS could cause PTS.

In addition, 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). Acoustic masking can interfere with detection of acoustic signals such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired from maximizing their performance fitness in survival and reproduction.

Masking occurs at the frequency band which the animals utilize. Therefore, since noise generated from in-water vibratory pile driving and removal 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 affect 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 sound pressure level (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 vessel traffic, vessel docking, and stationing while operating dynamic positioning (DP) thrusters, dredging and pipe laying associated with LNG Port and Pipeline Lateral maintenance and repair, and LNG regasification activities, contribute to the elevated ambient noise levels, thus increasing potential for or severity of masking.

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 are expected to be biologically significant if the change affects growth, survival, and/or reproduction.

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). Currently NMFS uses 160 dB re 1 μPa (rms) at received level for impulse noises (such as impact pile driving) as the onset of marine mammal behavioral harassment, and 120 dB re 1 μPa (rms) for non-impulse noises (such as operating DP thrusters, dredging, pipe laying, and LNG

regasification). No impulse noise is expected from the NEG and Algonquin's proposed LNG Port and Pipeline Lateral operation, maintenance, and repair activities. For the NEG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities, only the 120 dB re 1 μPa (rms) threshold is considered because only non-impulse noise sources would be generated.

Potential Effects on Marine Mammal Habitat

The proposed action area is considered biologically important habitat for the North Atlantic right, fin, humpback, and minke whales during part of the seasons, and it is adjacent to the Stellwagen Bank National Marine Sanctuary. There is no critical habitat in the vicinity of the proposed action area.

NEG Port Operations

Operation of the NEG Port will not result in short-term effects; however, long-term effects on the marine environment, including alteration of the seafloor conditions, continued disturbance of the seafloor, regular withdrawal of sea water, and regular generation of underwater noise, will result from Port operations. Specifically, a small area (0.14 acre) along the Pipeline Lateral has been permanently altered (armored) at two cable crossings. In addition, the structures associated with the NEG Port (flowlines, mooring wire rope and chain, suction anchors, and pipeline end manifolds) occupy 4.8 acres of seafloor. An additional area of the seafloor of up to 43 acres (worst case scenario based on severe 100-year storm with Energy Bridge Regasification Vehicle (EBRVs) occupying both submerged turret loading (STL) buoys) will be subject to disturbance due to chain sweep while the buoys are occupied. Given the relatively small size of the NEG Port area that will be directly affected by Port operations, NMFS does not anticipate that habitat loss will be significant.

EBRVs are currently authorized to withdraw an average of 4.97 million gallons per day (mgd) and 2.6 billion gallons per year of sea water for general ship operations during cargo delivery activities at the NEG Port. However, as we explained in the FR notice for the current IHA (78 FR 69049; November 18, 2013), during the operations of the NEG Port facility, it was revealed that significantly more water usage is needed than what was originally evaluated in the final USCG Environmental Impact Statement/Environmental Impact Report (EIS/EIR). The updates for the needed water intake and discharge temperature are:

- 11 billion gallons of total annual water use at the Port;
- Maximum daily intake volume of up to 56 mgd at a rate of 0.45 feet per second when an EBRV is not able to achieve the heat recovery system (HRS: it is the capability of reducing water use during the regasification process) mode of operation; and,
- Maximum daily change in discharge temperature of 12ºC (21.6ºF) from ambient from the vessel's main condenser cooling system.

Under the requested water-use scenario, Tetra Tech (2011) conducted an environmental analysis on the potential impacts to marine mammals and their prey. To evaluate impacts to phytoplankton under the increased water usage, the biomass of phytoplankton lost from the Massachusetts Bay ecosystem was estimated based on the method presented in the final EIS/EIR. Phytoplankton densities of 65,000 to 390,000 cells/gallon were multiplied by the annual planned activities of withdrawal rate of 11 billion gallons to estimate a loss of 7.15×10^{14} to 4.29×10^{15} cells per year. Assuming a dry-weight biomass of 10^{-10} to 10^{-11} gram per cell (g/cell), an estimated 7.2 kg to 429 kg of biomass would be lost from Massachusetts Bay under the proposed activity, up to approximately 4.2 times that estimated in the final EIS/EIR for the permitted

operational scenario. An order of magnitude estimate of the effect of this annual biomass loss on the regional food web can be calculated assuming a 10 percent transfer of biomass from one trophic level to the next (Sumich 1988) following the method used in the final EIS/EIR. This suggests that the loss of 7.2 kg to 429 kg of phytoplankton will result in the loss of about 0.7 kg to 42.9 kg of zooplankton, less than 0.1 kg to 4.3 kg of small planktivorous fish, and up to 0.4 kg of large piscivorous fish (approximately equivalent to a single 1-pound striped bass). Relative to the biomass of these trophic levels in the project area, this biomass loss is minor and consistent with the findings in the final EIS/EIR.

In addition, zooplankton losses will also increase proportionally to the increase in water withdrawn. The final EIS/EIR used densities of zooplankton determined by the sampling conducted by the Massachusetts Water Resource Authority (MWRA) to characterize the area around its offshore outfall and assumed a mean zooplankton density of 34.9×10^3 organisms per m^3. Applying this density, the water withdrawal volume under the proposed activity would result in the entrainment of 2.2×10^{10} zooplankton individuals per trip or 1.5×10^{12} individuals per year. Assuming an average biomass of 0.63×10^{-6} g per individual, this would result in the loss of 14.1 kg of zooplankton per shipment or 916.5 kg of zooplankton per year. As discussed for phytoplankton, biomass transfers from one trophic level to the next at a rate of about 10 percent. Therefore, this entrainment of zooplankton would result in loss of about 91.6 kg of planktivorous fish and 9.2 kg of large piscivorous fish (approximately equivalent to two 9-pound striped bass). These losses are minor relative to the total biomass of these trophic levels in Massachusetts Bay.

Finally, ichthyoplankton (fish eggs and larvae) losses and equivalent age one juvenile

fish estimates under the proposed activity were made based on actual monthly ichthyoplankton data collected in the port area from October 2005 through December 2009 and the proposed activity withdrawal volume of 11 billion gallons per year evenly distributed among months (0.92 billion gallons per month) as a worst-case scenario, representing the maximum number of Port deliveries during any given month. Similarly, the lower, upper, and mean annual entrainment estimates are based on the lower and upper 95 percent confidence limits, of the monthly mean ichthyoplankton densities, and the monthly mean estimates multiplied by the monthly withdrawal rate of 0.92 billion gallons per month. At this withdrawal rate approximately 106 million eggs and 67 million larvae are estimated to be lost (see Table 4.2-2 of the IHA application). The most abundant species and life stages estimated to be entrained under the proposed activity are cunner post yolk-sac larvae (33.3 million), yellowtail flounder/Labridae eggs (27.4 million) and hake species eggs (18.7 million). Together, these species and life stages accounted for approximately 46 percent of the total entrainment estimated. Entrainment was estimated to be highest in June through July when 97.4 million eggs and larvae (approximately 57 percent of the annual total) were estimated to be entrained. However, the demand for natural gas and corresponding Port activities will likely be greatest during the winter heating season (November through March) when impacts from entrainment will likely be lower.

These estimated losses are not significant given the very high natural mortality of ichthyoplankton. This comparison was done in the final EIS/EIR where ichthyoplankton losses based on historic regional ichthyoplankton densities and a withdrawal rate of approximately 2.6 billion gallons per year were represented by the equivalent number of age one fish. Under the final EIS/EIR withdrawal scenario, equivalent age one losses due to entrainment ranged from 1

haddock to 43,431 sand lance (Tetra Tech 2010). Equivalent age one losses under the conditions when no NEG Port operations occurrence were recalculated using Northeast Gateway monitoring data in order to facilitate comparisons between the permitted scenario and the updated scenario. Using Northeast Gateway monitoring data, withdrawal of 2.6 billion gallons per year would result in equivalent age one losses ranging from less than 1 haddock to 5,602 American sand lance. By comparison, equivalent age one losses under the proposed activity withdrawal rate of 11 billion gallons per year ranged from less than 1 haddock to 23,701 sand lance and were generally similar to or less than those in the final EIS/EIR. Substantially more equivalent age one Atlantic herring, pollock, and butterfish were estimated to be lost under the final EIS/EIR at a withdrawal rate of 2.6 billion gallons per year, while substantially more equivalent age one Atlantic cod, silver hake and hake species, cunner, and Atlantic mackerel are estimated to be lost under the proposed activity.

Although no reliable annual food consumption rates of baleen whales are available for comparison, based on the calculated quantities of phytoplankton, zooplankton, and ichthyoplankton removal analyzed above, it is reasonable to conclude that baleen whale predation rates would dwarf any reasonable estimates of prey removals by NEG Port operations.

NEG Port Maintenance

As stated earlier, NEG LNG Port will require scheduled maintenance inspections using either divers or remote operated vehicles (ROVs). The duration of these inspections are not anticipated to be more than two 8-hour working days. An EBRV will not be required to support these annual inspections. Water usage during the LNG Port maintenance would be limited to the standard requirements of NEG's normal support vessel. As with all vessels operating in

Massachusetts Bay, sea water uptake and discharge is required to support engine cooling, typically using a once-through system. The rate of seawater uptake varies with the ship's horsepower and activity and therefore will differ between vessels and activity type. For example, the *Gateway Endeavor* is a 90-foot vessel powered with a 1,200 horsepower diesel engine with a four-pump seawater cooling system. This system requires seawater intake of about 68 gallons per minute (gpm) while idling and up to about 150 gpm at full power. Use of full power is required generally for transit. A conservatively high estimate of vessel activity for the Gateway Endeavor would be operation at idle for 75 percent of the time and full power for 25 percent of the time. During the routine activities this would equate to approximately 42,480 gallons of seawater per 8-hour work day. When compared to the engine cooling requirements of an EBRV over an 8-hour period (approximately 18 million gallons), the *Gateway Endeavour* uses about 0.2 percent of the EBRV requirement. To put this water use into context, potential effects from the waters-use scenario of 56 mgd have been concluded to be orders of magnitude less than the natural fluctuations of Massachusetts Bay and Cape Cod Bay and not detectable. Water use by support vessels during routine port activities would not materially add to the overall impacts.

Certain maintenance and repair activities may also require the presence of an EBRV at the Port. Such instances may include maintenance and repair on the STL Buoy, vessel commissioning, and any onboard equipment malfunction or failure occurring while a vessel is present for cargo delivery. Because the requested water-use scenario allows for daily water use of up to 56 mgd to support standard EBRV requirements when not operating in the HRS mode, vessels would be able to remain at the Port as necessary to support all such maintenance and

repair scenarios. Therefore, NMFS considers that NEG Port maintenance and repair would have negligible impacts to marine mammal habitat in the proposed activity area.

Unanticipated Algonquin Pipeline Lateral Maintenance and Repair

As stated earlier, proper care and maintenance of the Algonquin Pipeline Lateral should minimize the likelihood of an unanticipated maintenance and/or repair event; however, unanticipated activities may occur from time to time if facility components become damaged or malfunction. Unanticipated repairs may range from relatively minor activities requiring minimal equipment and one or two diver/ROV support vessels to major activities requiring larger construction-type vessels similar to those used to support the construction and installation of the facility.

Major repair activities, although unlikely, may include repairing or replacement of pipeline manifolds or sections of the Pipeline Lateral. This type of work would likely require the use of large specialty construction vessels such as those used during the construction and installation of the NEG Port and Algonquin Pipeline Lateral. The duration of a major unplanned activity would depend upon the type of repair work involved and would require careful planning and coordination.

Turbidity would likely be a potential effect of Algonquin Pipeline Lateral maintenance and repair activities on listed species. In addition, the possible removal of benthic or planktonic species, resulting from relatively minor construction vessel water use requirements, as measured in comparison to EBRV water use, is unlikely to affect in a measurable way the food sources available to marine mammals. Thus, any impacts to marine mammal habitat are not expected to cause significant or long-term consequences for individual marine mammals or their populations.

Proposed Mitigation Measures

In order to issue an incidental take authorization 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. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat.

For the proposed NEG LNG Port operations and maintenance and repair activities, Excelerate and Tetra Tech worked with NMFS to develop mitigation measures to minimize the potential impacts to marine mammal populations in the project vicinity as a result of the LNG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities. The primary purpose of these proposed mitigation measures is to ensure that no marine mammal would be injured or killed by vessels transiting the LNG Port facility, and to minimize the intensity of noise exposure of marine mammals in the activity area. For the proposed NEG Port and Algonquin Pipeline Lateral operations and maintenance and repair, the following mitigation measures are proposed.

(a) General Marine Mammal Avoidance Measures

All vessels shall utilize the International Maritime Organization (IMO)-approved Boston Traffic Separation Scheme (TSS) on their approach to and departure from the NEG Port and/or

the repair/maintenance area at the earliest practicable point of transit in order to avoid the risk of whale strikes.

Upon entering the TSS and areas where North Atlantic right whales are known to occur, including the Great South Channel Seasonal Management Area (GSC-SMA) and the Stellwagen Bank National Marine Sanctuary (SBNMS), the Energy Bridge Regasification Vessels (EBRV™) shall go into "Heightened Awareness" as described below.

(1) Prior to entering and navigating the modified TSS, the Master of the vessel shall:

- Consult Navigational Telex (NAVTEX), NOAA Weather Radio, the NOAA Right Whale Sighting Advisory System (SAS) or other means to obtain current right whale sighting information as well as the most recent Cornell acoustic monitoring buoy data for the potential presence of marine mammals;
- Post a look-out to visually monitor for the presence of marine mammals;
- Provide the US Coast Guard (USCG) required 96-hour notification of an arriving EBRV to allow the NEG Port Manager to notify Cornell of vessel arrival.

(2) The look-out shall concentrate his/her observation efforts within the 2-mile radius zone of influence (ZOI) from the maneuvering EBRV.

(3) If marine mammal detection was reported by NAVTEX, NOAA Weather Radio, SAS and/or an acoustic monitoring buoy, the look-out shall concentrate visual monitoring efforts towards the areas of the most recent detection.

(4) If the look-out (or any other member of the crew) visually detects a marine mammal within the 2-mile radius ZOI of a maneuvering EBRV, he/she will take the following actions:

- The Officer-of-the-Watch shall be notified immediately; who shall then relay the sighting information to the Master of the vessel to ensure action(s) can be taken to avoid physical contact with marine mammals.
- The sighting shall be recorded in the sighting log by the designated look-out.

In accordance with 50 CFR 224.103(c), all vessels associated with NEG Port and Pipeline Lateral activities shall not approach closer than 500 yards (460 m) to a North Atlantic right whale and 100 yards (91 m) to other whales to the extent physically feasible given navigational constraints. In addition, when approaching and departing the project area, vessels shall be operated so as to remain at least 1 kilometer away from any visually-detected North Atlantic right whales.

In response to active right whale sightings and active acoustic detections, and taking into account exceptional circumstances, EBRVs as well as repair and maintenance vessels shall take appropriate actions to minimize the risk of striking whales. Specifically vessels shall:

(1) Respond to active right whale sightings and/or Dynamic Management Areas (DMAs) reported on the Mandatory Ship Reporting (MSR) or SAS by concentrating monitoring efforts towards the area of most recent detection and reducing speed to 10 knots or less if the vessel is within the boundaries of a DMA or within the circular area centered on an area 8 nautical miles (nm) in radius from a sighting location;

(2) Respond to active acoustic detections by concentrating monitoring efforts towards the area of most recent detection and reducing speed to 10 knots or less within an area 5 nm in radius centered on the detecting auto-detection buoy (AB); and

(3) Respond to additional sightings made by the designated look-outs within a 2-mile radius of the vessel by slowing the vessel to 10 knots or less and concentrating monitoring efforts towards the area of most recent sighting.

All vessels operated under NEG and Algonquin must follow the established specific speed restrictions when calling at the NEG Port. The specific speed restrictions required for all vessels (i.e., EBRVs and vessels associated with maintenance and repair) consist of the following:

(1) Vessels shall reduce their maximum transit speed while in the TSS from 12 knots or less to 10 knots or less from March 1 to April 30 in all waters bounded by straight lines connecting the following points in the order stated below unless an emergency situation dictates for an alternate speed. This area shall hereafter be referred to as the Off Race Point Seasonal Management Area (ORP-SMA) and tracks NMFS regulations at 50 CFR 224.105:

42°30' N 70°30' W	41°40' N 69°57' W
42°30' N 69°45' W	42°12' N 70°15' W
41o40' N 69°45' W	42°12' N 70°30' W
42°04.8' N 70°10' W	42°30' N 70°30' W

(2) Vessels shall reduce their maximum transit speed while in the TSS to 10 knots or less unless an emergency situation dictates for an alternate speed from April 1 to July 31 in all waters bounded by straight lines connecting the following points in the order stated below. This area shall hereafter be referred to as the GSC-SMA and tracks NMFS regulations at 50 CFR 224.105:

42°30' N 69°45' W	41°40' N 69°45' W

42°30' N 67°27' W	42°30' N 69°45' W
42°09' N 67°08.4' W	41°00' N 69°05' W

(3) Vessels are not expected to transit the Cape Cod Bay or the Cape Cod Canal; however, in the event that transit through the Cape Cod Bay or the Cape Cod Canal is required, vessels shall reduce maximum transit speed to 10 knots or less from January 1 to May 15 in all waters in Cape Cod Bay, extending to all shorelines of Cape Cod Bay, with a northern boundary of 42°12' N latitude and the Cape Cod Canal. This area shall hereafter be referred to as the Cape Cod Bay Seasonal Management Area (CCB-SMA).

(4) All Vessels transiting to and from the project area shall report their activities to the mandatory reporting Section of the USCG to remain apprised of North Atlantic right whale movements within the area. All vessels entering and exiting the MSRA shall report their activities to WHALESNORTH. Vessel operators shall contact the USCG by standard procedures promulgated through the Notice to Mariner system.

(5) All Vessels greater than or equal to 300 gross tons (GT) shall maintain a speed of 10 knots or less, unless an emergency situation requires speeds greater than 10 knots.

(6) All Vessels less than 300 GT traveling between the shore and the project area that are not generally restricted to 10 knots will contact the Mandatory Ship Reporting (MSR) system, the USCG, or the project site before leaving shore for reports of active DMAs and/or recent right whale sightings and, consistent with navigation safety, restrict speeds to 10 knots or less within 5 miles (8 kilometers) of any sighting location, when traveling in any of the seasonal management areas (SMAs) or when traveling in any active DMA.

(b) NEG Port-specific Operations

In addition to the general marine mammal avoidance requirements identified above, vessels calling on the NEG Port must comply with the following additional requirements:

(1) EBRVs shall travel at 10 knots maximum speed when transiting to/from the TSS or to/from the NEG Port/Pipeline Lateral area. For EBRVs, at 1.86 miles (3 km) from the NEG Port, speed will be reduced to 3 knots and to less than 1 knot at 1,640 ft (500 m) from the NEG buoys, unless an emergency situation dictates the need for an alternate speed.

(2) EBRVs that are approaching or departing from the NEG Port and are within the Area to be Avoided (ATBA) surrounding the NEG Port, shall remain at least 1 km away from any visually-detected North Atlantic right whale and at least 100 yards (91 m) away from all other visually-detected whales unless an emergency situation requires that the vessel stay its course. During EBRV maneuvering, the Vessel Master shall designate at least one look-out to be exclusively and continuously monitoring for the presence of marine mammals at all times while the EBRV is approaching or departing from the NEG Port.

(3) During NEG Port operations, in the event that a whale is visually observed within 1 km of the NEG Port or a confirmed acoustic detection is reported on either of the two ABs closest to the NEG Port (western-most in the TSS array), departing EBRVs shall delay their departure from the NEG Port, unless an emergency situation requires that departure is not delayed. This departure delay shall continue until either the observed whale has been visually (during daylight hours) confirmed as more than 1 km from the NEG Port or 30 minutes have passed without another confirmed detection either acoustically within the acoustic detection range of the two ABs closest to the NEG Port, or visually within 1 km from the NEG Port.

Vessel captains shall focus on reducing dynamic positioning (DP) thruster power to the maximum extent practicable, taking into account vessel and Port safety, during the operation activities. Vessel captains will shut down thrusters whenever they are not needed.

(c) Planned and Unplanned Maintenance and Repair Activities

NEG Port

(1) The Northeast Gateway shall conduct empirical source level measurements on all noise emitting construction equipment and all vessels that are involved in maintenance/repair work.

(2) If DP systems are to be employed and/or activities will emit noise with a source level of 139 dB re 1 μPa at 1 m, activities shall be conducted in accordance with the requirements for DP systems listed above.

(3) Northeast Gateway shall provide the NMFS Headquarters Office of the Protected Resources, NMFS Northeast Region Ship Strike Coordinator, and SBNMS with a minimum of 30 days notice prior to any planned repair and/or maintenance activity. For any unplanned/emergency repair/maintenance activity, Northeast Gateway shall notify the agencies as soon as it determines that repair work must be conducted. Northeast Gateway shall continue to keep the agencies apprised of repair work plans as further details (e.g., the time, location, and nature of the repair) become available. A final notification shall be provided to agencies 72 hours prior to crews being deployed into the field.

Pipeline Lateral

(1) Pipeline maintenance/repair vessels less than 300 GT traveling between the shore and the maintenance/repair area that are not generally restricted to 10 knots shall contact the

MSR system, the USCG, or the project site before leaving shore for reports of active DMAs and/or recent right whale sightings and, consistent with navigation safety, restrict speeds to 10 knots or less within 5 miles (8 km) of any sighting location, when travelling in any of the seasonal management areas (SMAs) as defined above.

(2) Maintenance/repair vessels greater than 300 GT shall not exceed 10 knots, unless an emergency situation that requires speeds greater than 10 knots.

(3) Planned maintenance and repair activities shall be restricted to the period between May 1 and November 30 when most of the majority of North Atlantic right whales are absent in the area.

(4) Unplanned/emergency maintenance and repair activities shall be conducted utilizing anchor-moored dive vessel whenever operationally possible.

(5) Algonquin shall also provide the NMFS Office of the Protected Resources, NMFS Northeast Region Ship Strike Coordinator, and SBNMS with a minimum of 30-day notice prior to any planned repair and/or maintenance activity. For any unplanned/emergency repair/maintenance activity, Northeast Gateway shall notify the agencies as soon as it determines that repair work must be conducted. Algonquin shall continue to keep the agencies apprised of repair work plans as further details (e.g., the time, location, and nature of the repair) become available. A final notification shall be provided to agencies 72 hours prior to crews being deployed into the field.

(6) If DP systems are to be employed and/or activities will emit noise with a source level of 139 dB re 1 μPa at 1 m, activities shall be conducted in accordance with the requirements for DP systems listed in (5)(b)(ii).

(7) In the event that a whale is visually observed within 0.5 mile (0.8 kilometers) of a repair or maintenance vessel, the vessel superintendent or on-deck supervisor shall be notified immediately. The vessel's crew shall be put on a heightened state of alert and the marine mammal shall be monitored constantly to determine if it is moving toward the repair or maintenance area.

(8) Repair/maintenance vessel(s) must cease any movement and/or cease all activities that emit noises with source level of 139 dB re 1 μPa @ 1 meter or higher when a right whale is sighted within or approaching at 500 yards (457 meters) from the vessel. The source level of 139 dB corresponds to 120 dB received level at 500 yards (457 meters). Repair and maintenance work may resume after the marine mammal is positively reconfirmed outside the established zones (500 yards [457 meters]) or 30 minutes have passed without a redetection. Any vessels transiting the maintenance area, such as barges or tugs, must also maintain these separation distances.

(9) Repair/maintenance vessel(s) must cease any movement and/or cease all activities that emit noises with source level of 139 dB re 1 μPa @ 1 meter or higher when a marine mammal other than a right whale is sighted within or approaching at 100 yards (91 meters) from the vessel. Repair and maintenance work may resume after the marine mammal is positively reconfirmed outside the established zones (100 yards [91 meters]) or 30 minutes have passed without a redetection. Any vessels transiting the maintenance area, such as barges or tugs, must also maintain these separation distances.

(10) Algonquin and associated contractors shall also comply with the following:

- Operations involving excessively noisy equipment (source level exceeding 139 dB re 1μPa @ 1 meter) shall "ramp-up" sound sources, allowing whales a chance to leave the area before sounds reach maximum levels. In addition, Northeast Gateway, Algonquin, and other associated contractors shall maintain equipment to manufacturers' specifications, including any sound-muffling devices or engine covers in order to minimize noise effects. Noisy construction equipment shall only be used as needed and equipment shall be turned off when not in operation.
- Any material that has the potential to entangle marine mammals (e.g., anchor lines, cables, rope or other construction debris) shall only be deployed as needed and measures shall be taken to minimize the chance of entanglement.
- For any material that has the potential to entangle marine mammals, such material shall be removed from the water immediately unless such action jeopardizes the safety of the vessel and crew as determined by the Captain of the vessel.
- In the event that a marine mammal becomes entangled, the marine mammal coordinator and/or protected species observer (PSO) will notify NMFS (if outside the SBNMS), and SBNMS staff (if inside the SBNMS) immediately so that a rescue effort may be initiated.

(11) All maintenance/repair activities shall be scheduled to occur between May 1 and November 30; however, in the event of unplanned/emergency repair work that cannot be scheduled during the preferred May through November work window, the following additional measures shall be followed for Pipeline Lateral maintenance and repair related activities between December and April:

- Between December 1 and April 30, if on-board PSOs do not have at least 0.5-mile visibility, they shall call for a shutdown. At the time of shutdown, the use of thrusters must be minimized. If there are potential safety problems due to the shutdown, the captain will decide what operations can safely be shut down.
- Prior to leaving the dock to begin transit, the barge shall contact one of the PSOs on watch to receive an update of sightings within the visual observation area. If the PSO has observed a North Atlantic right whale within 30 minutes of the transit start, the vessel shall hold for 30 minutes and again get a clearance to leave from the PSOs on board. PSOs shall assess whale activity and visual observation ability at the time of the transit request to clear the barge for release.
- Transit route, destination, sea conditions and any marine mammal sightings/mitigation actions during watch shall be recorded in the log book. Any whale sightings within 1,000 meters of the vessel shall result in a high alert and slow speed of 4 knots or less and a sighting within 750 meters shall result in idle speed and/or ceasing all movement.
- The material barges and tugs used in repair and maintenance shall transit from the operations dock to the work sites during daylight hours when possible provided the safety of the vessels is not compromised. Should transit at night be required, the maximum speed of the tug shall be 5 knots.
- All repair vessels must maintain a speed of 10 knots or less during daylight hours. All vessels shall operate at 5 knots or less at all times within 5 km of the repair area.

Acoustic Monitoring Related Activities

Vessels associated with maintaining the AB network operating as part of the mitigation/monitoring protocols shall adhere to the following speed restrictions and marine mammal monitoring requirements.

(1) In accordance with 50 CFR 224.103 (c), all vessels associated with NEG Port activities shall not approach closer than 500 yards (460 meters) to a North Atlantic right whale.

(2) All vessels shall obtain the latest DMA or right whale sighting information via the NAVTEX, MSR, SAS, NOAA Weather Radio, or other available means prior to operations.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's proposed mitigation 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.
- 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 pile driving and pile removal 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 intensity of exposures (either total number or number at biologically important time or location) to received levels of pile driving, 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).

(4) 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.

(5) 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 that include vessel speed reduction, noise level related shutdown measures, and ramping up procedures, 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 in the proposed action area. Tetra Tech submitted a marine mammal monitoring plan as part of the IHA application. It can be found at *http://www.nmfs.noaa.gov/pr/permits/incidental.htm*. The plan may be modified or supplemented based on comments or new information received from the public during the public comment period.

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 pile driving 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.

Proposed Monitoring Measures

(a) Vessel-based visual monitoring

Vessel-based monitoring for marine mammals shall be done by trained look-outs during NEG LNG Port and Pipeline Lateral operations and maintenance and repair activities. The observers shall monitor the occurrence of marine mammals near the vessels during LNG Port and Pipeline Lateral related activities. Lookout duties include watching for and identifying marine mammals; recording their numbers, distances, and reactions to the activities; and documenting "take by harassment." The vessel look-outs assigned to visually monitor for the presence of marine mammals shall be provided with the following:

(1) Recent NAVTEX, NOAA Weather Radio, SAS and/or acoustic monitoring buoy detection data;

(2) Binoculars to support observations;

(3) Marine mammal detection guide sheets; and

(4) Sighting log.

(b) NEG LNG Port Operations

All individuals onboard the EBRVs responsible for the navigation duties and any other personnel that could be assigned to monitor for marine mammals shall receive training on marine mammal sighting/reporting and vessel strike avoidance measures.

While an EBRV is navigating within the designated TSS, there shall be three people with look-out duties on or near the bridge of the ship including the Master, the Officer-of-the-Watch and the Helmsman-on-watch. In addition to the standard watch procedures, while the EBRV is transiting within the designated TSS, maneuvering within the ATBA, and/or while actively engaging in the use of thrusters, an additional look-out shall be designated to exclusively and continuously monitor for marine mammals.

All sightings of marine mammals by the designated look-out, individuals posted to navigational look-out duties, and/or any other crew member while the EBRV is transiting within the TSS, maneuvering within the ATBA and/or when actively engaging in the use of thrusters, shall be immediately reported to the Officer-of-the-Watch who shall then alert the Master. The Master or Officer-of-the-Watch shall ensure the required reporting procedures are followed and the designated marine mammal look-out records all pertinent information relevant to the sighting.

Visual sightings made by look-outs from the EBRVs shall be recorded using a standard sighting log form. Estimated locations shall be reported for each individual and/or group of

individuals categorized by species when known. This data shall be entered into a database and a summary of monthly sighting activity shall be provided to NMFS. Estimates of take and copies of these log sheets shall also be included in the reports to NMFS.

(c) Planned and Unplanned Maintenance and Repair

Two qualified and NMFS-approved PSOs shall be assigned to each vessel that will use DP systems during maintenance and repair related activities. PSOs shall operate individually in designated shifts to accommodate adequate rest schedules. Additional PSOs shall be assigned to additional vessels if AB data indicates that sound levels exceed 120 dB re 1 µPa, further then 100 meters (328 feet) from these vessels.

All PSOs shall receive NMFS-approved marine mammal observer training and be approved in advance by NMFS after review of their resume. All PSOs shall have direct field experience on marine mammal vessels and/or aerial surveys in the Atlantic Ocean/Gulf of Mexico.

PSOs (one primary and one secondary) shall be responsible for visually locating marine mammals at the ocean's surface and, to the extent possible, identifying the species. The primary PSO shall act as the identification specialist and the secondary PSO will serve as data recorder and also assist with identification. Both PSOs shall have responsibility for monitoring for the presence of marine mammals and sea turtles. Specifically PSO's shall:

(1) Monitor at all hours of the day, scanning the ocean surface by eye for a minimum of 40 minutes every hour.

(2) Monitor the area where maintenance and repair work is conducted beginning at daybreak using 25x power binoculars and/or hand-held binoculars. Night vision devices must be provided as standard equipment for monitoring during low-light hours and at night.

(3) Conduct general 360° visual monitoring during any given watch period and target scanning by the observer shall occur when alerted of a whale presence.

(4) Alert the vessel superintendent or construction crew supervisor of visual detections within 2 miles (3.31 kilometers) immediately.

(5) Record all sightings on marine mammal field sighting logs. Specifically, all data shall be entered at the time of observation, notes of activities will be kept, and a daily report prepared and attached to the daily field sighting log form. The basic reporting requirements include the following:

- Beaufort sea state;
- Wind speed;
- Wind direction;
- Temperature;
- Precipitation;
- Glare;
- Percent cloud cover;
- Number of animals;
- Species;
- Position;
- Distance;

- Behavior;
- Direction of movement; and
- Apparent reaction to construction activity.

In the event that a whale is visually observed within the 2-mile (3.31-kilometers) zone of influence (ZOI) of a DP vessel or other construction vessel that has shown to emit noise with source level in excess of 139 dB re 1 µPa @ 1 m, the PSO will notify the repair/maintenance construction crew to minimize the use of thrusters until the animal has moved away, unless there are divers in the water or an ROV is deployed.

(d) Acoustic Monitoring

Northeast Gateway shall deploy 10 ABs within the Separation Zone of the TSS for the operational life of the Project. The ABs shall be used to detect a calling North Atlantic right whale an average of 5 nm from each AB. The AB system shall be the primary detection mechanism that alerts the EBRV Master to the occurrence of right whales, heightens EBRV awareness, and triggers necessary mitigation actions as described above. Northeast Gateway shall conduct short-term passive acoustic monitoring to document sound levels during:

(1) The initial operational events in the 2015-2016 winter heating season;

(2) Regular deliveries outside the winter heating season should such deliveries occur; and

(3) Scheduled and unscheduled maintenance and repair activities.

Northeast Gateway shall conduct long-term monitoring of the noise environment in Massachusetts Bay in the vicinity of the NEG Port and Pipeline Lateral using marine autonomous recording units (MARUs) when there is anticipated to be more than 5 LNG shipments in a 30-day period or over 20 shipments in a six-month period.

The acoustic data collected shall be analyzed to document the seasonal occurrences and overall distributions of whales (primarily fin, humpback and right whales) within approximately 10 nm of the NEG Port and shall measure and document the noise "budget" of Massachusetts Bay so as to eventually assist in determining whether or not an overall increase in noise in the Bay associated with the Project might be having a potentially negative impact on marine mammals.

Northeast Gateway shall make all acoustic data, including data previously collected by the MARUs during prior construction, operations, and maintenance and repair activities, available to NOAA. Data storage will be the responsibility of NOAA.

(e) Acoustic Whale Detection and Response Plan

NEG Port Operations

(1) Ten ABs that have been deployed since 2007 shall be used to continuously screen the low-frequency acoustic environment (less than 1,000 Hertz) for right whale contact calls occurring within an approximately 5-nm radius from each buoy (the AB's detection range).

(2) Once a confirmed detection is made, the Master of any EBRVs operating in the area will be alerted immediately.

NEG Port and Pipeline Lateral Planned and Unplanned/Emergency Repair and Maintenance Activities

(1) If the repair/maintenance work is located outside of the detectible range of the 10 project area ABs, Northeast Gateway and Algonquin shall consult with NOAA (NMFS and SBNMS) to determine if the work to be conducted warrants the temporary installation of an

additional AB(s) to help detect and provide early warnings for potential occurrence of right whales in the vicinity of the repair area.

(2) The number of ABs installed around the activity site shall be commensurate with the type and spatial extent of maintenance/repair work required, but must be sufficient to detect vocalizing right whales within the 120-dB impact zone.

(3) Should acoustic monitoring be deemed necessary during a planned or unplanned/emergency repair and/or maintenance event, active monitoring for right whale calls shall begin 24 hours prior to the start of activities.

(4) Source level data from the acoustic recording units deployed in the NEG Port and/or Pipeline Lateral maintenance and repair area shall be provided to NMFS.

Proposed Reporting Measures

(a) Throughout NEG Port and Pipeline Lateral operations, Northeast Gateway and Algonquin shall provide a monthly Monitoring Report. The Monitoring Report shall include:

- Both copies of the raw visual EBRV lookout sighting information of marine mammals that occurred within 2 miles of the EBRV while the vessel transits within the TSS, maneuvers within the ATBA, and/or when actively engaging in the use of thrusters, and a summary of the data collected by the look-outs over each reporting period.
- Copies of the raw PSO sightings information on marine mammals gathered during pipeline repair or maintenance activities. This visual sighting data shall then be correlated to periods of thruster activity to provide estimates of marine mammal takes (per species/species class) that took place during each reporting period.

- Conclusion of any planned or unplanned/emergency repair and/or maintenance period, a report shall be submitted to NMFS summarizing the repair/maintenance activities, marine mammal sightings (both visual and acoustic), empirical source-level measurements taken during the repair work, and any mitigation measures taken.

(b) During the maintenance and repair of NEG Port and Pipeline Lateral components, weekly status reports shall be provided to NOAA (both NMFS and SBNMS) using standardized reporting forms. The weekly reports shall include data collected for each distinct marine mammal species observed in the repair/maintenance area during the period that maintenance and repair activities were taking place. The weekly reports shall include the following information:

- Location (in longitude and latitude coordinates), time, and the nature of the maintenance and repair activities;
- Indication of whether a DP system was operated, and if so, the number of thrusters being used and the time and duration of DP operation;
- Marine mammals observed in the area (number, species, age group, and initial behavior);
- The distance of observed marine mammals from the maintenance and repair activities;
- Changes, if any, in marine mammal behaviors during the observation;
- A description of any mitigation measures (power-down, shutdown, etc.) implemented;
- Weather condition (Beaufort sea state, wind speed, wind direction, ambient temperature, precipitation, and percent cloud cover etc.);

- Condition of the observation (visibility and glare); and
- Details of passive acoustic detections and any action taken in response to those detections.

(d) Injured/Dead Protected Species Reporting

In the unanticipated event that survey operations clearly cause the take of a marine mammal in a manner prohibited by the proposed IHA, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), NEG and/or Algonquin shall immediately cease activities and immediately report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS and the Northeast Regional Stranding Coordinators. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- The name and type of vessel involved;
- The vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- The fate of the animal(s); and

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

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with NEG and/or Algonquin to determine what is necessary to minimize the likelihood of further prohibited take and ensure Marine Mammal Protection Act (MMPA) compliance. NEG and/or Algonquin may not resume their activities until notified by NMFS via letter, email, or telephone.

In the event that NEG and/or Algonquin 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), NEG and/or Algonquin will immediately (i.e., within 24 hours of the discovery) report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Northeast Stranding Coordinators. The report must include the same information identified above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with NEG and/or Algonquin to determine whether modifications in the activities are appropriate.

In the event that NEG or Algonquin 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 (if the IHA is issued) (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), NEG and/or Algonquin shall report the incident to the Supervisor of the Incidental Take Program, Permits and Conservation Division, Office of Protected Resources, NMFS, and the NMFS Northeast Stranding Coordinators, within 24 hours of the discovery. NEG and/or Algonquin shall provide photographs or video footage (if

available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. NEG and/or Algonquin can continue its operations under such a case.

Marine Mammal Monitoring Report from Previous IHA

Prior marine mammal monitoring during NEG's LNG Port and Algonquin Pipeline Lateral operation, maintenance and repair activities and monthly marine mammal observation memorandums (NEG 2010; 2015) indicate that only a small number of marine mammals were observed during these activities. Only one LNG Port operation occurred within the dates of the current IHA (December 22, 2014 through December 21, 2015) and no marine mammal was observed during the LNG Port operation period on December 31, 2014. No other NEG Port and Pipeline Lateral related activity occurred during this period.

Estimated Take by 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]. Only take by Level B harassment is anticipated as a result of NEG's operation and maintenance and repair activities. Anticipated take of marine mammals is associated with operation of dynamic positioning during the docking of the LNG vessels and positioning of maintenance and dive vessels, and by operations of certain machinery during maintenance and repair activities. The regasification process itself is an activity that

does not rise to the level of taking, as the modeled source level for this activity is 108 dB. Certain species may have a behavioral reaction to the sound emitted during the activities. Hearing impairment is not anticipated. Additionally, vessel strikes are not anticipated, especially because of the speed restriction measures that are proposed that were described earlier in this document.

The full suite of potential impacts to marine mammals was described in detail in the "Potential Effects of the Specified Activity on Marine Mammals" section found earlier in this document. The potential effects of sound from the proposed NEG and Algonquin LNG Port and Pipeline Lateral operations, maintenance and repair activities might include one or more of the following: masking of natural sounds and behavioral disturbance (Richardson *et al.* 1995). As discussed earlier in this document, the most common impact will likely be from behavioral disturbance, including avoidance of the ensonified area or changes in speed, direction, and/or diving profile of the animal. For reasons discussed previously in this document, hearing impairment (TTS and PTS) is highly unlikely to occur based on low noise source levels from the proposed activities that would preclude marine mammals from being exposed to noise levels high enough to cause hearing impairment.

For non-pulse sounds, such as those produced by operating dynamic positioning (DP) thruster during vessel docking and supporting underwater construction and repair activities and the operations of various machineries that produces non-pulse noises, NMFS uses the 120 dB (rms) re 1 μPa isopleth to indicate the onset of Level B harassment.

NEG Port and Algonquin Pipeline Lateral Activities Acoustic Footprints

I. NEG Port Operations

For the purposes of understanding the noise footprint of operations at the NEG Port, measurements taken to capture operational noise (docking, undocking, regasification, and EBRV thruster use) during the 2006 Gulf of Mexico field event were taken at the source. Measurements taken during EBRV transit were normalized to a distance of 328 feet (100 meters) to serve as a basis for modeling sound propagation at the NEG Port site in Massachusetts Bay.

Sound propagation calculations for operational activities were then completed at two positions in Massachusetts Bay to determine site-specific distances to the 120/160/180 dB isopleths:

- Operations Position 1 - Port (EBRV Operations): 70° 36.261'W and 42° 23.790' N
- Operations Position 2 – Boston TSS (EBRV Transit): 70° 17.621'W and 42° 17.539' N

At each of these locations sound propagation calculations were performed to determine the noise footprint of the operation activity at each of the specified locations. Updated acoustic modeling was completed using Tetra Tech's underwater sound propagation program which utilizes a version of the publicly available Range Dependent Acoustic Model (RAM). Based on the U.S. Navy's Standard Split-Step Fourier Parabolic Equation, this modeling methodology considers range and depth along with a geo-referenced dataset to automatically retrieve the time of year information, bathymetry, and seafloor geoacoustic properties along the given propagation transects radiating from the sound source. The calculation methodology assumes that outgoing energy dominates over scattered energy, and computes the solution for the outgoing wave equation. An approximation is used to provide two-dimensional transmission loss values in range and depth, i.e., computation of the transmission loss as a function of range and depth

within a given radial plane is carried out independently of neighboring radials, reflecting the assumption that sound propagation is predominantly away from the source. Transects were run along compass points at angular directions ranging from 0 to 360° in 5 degree increments. The received underwater sound levels at any location within the region of interest are computed from the ⅓-octave band source levels by subtracting the numerically modelled transmission loss at each 1/3-octave band center frequency and summing across all frequencies to obtain a broadband value. The resultant underwater sound pressure levels to the 120 dB isopleth is presented in Table 2.

Table 2. Radii of 120-dB SPL isopleths from NEG and Algonquin LNG Port and Pipeline Lateral operations, maintenance, and repair activities.

Activities	Radius to 120-dB zone (m)	120-dB ensonified area (km^2)
One EBRV docking procedure with support vessel	4,250	56.8
Barge / tug (pulling & pushing) / construction vessel / barge @ mid-pipeline	3,500	40.7

II. NEG Port Maintenance and Repair

Modeling analysis conducted for the construction of the NEG Port concluded that the only underwater noise of critical concern during NEG Port construction would be from vessel noises such as turning screws, engine noise, noise of operating machinery, and thruster use. To confirm these modeled results and better understand the noise footprint associated with construction activities at the NEG Port, field measurements were taken of various construction activities during the 2007 NEG Port and Algonquin Pipeline Lateral Construction period. Measurements were taken and normalized as described to establish the "loudest" potential construction measurement event. One position within Massachusetts Bay was then used to

determine site-specific distances to the 120/180 dB isopleths for NEG Port maintenance and repair activities:

- Construction Position 1. Port: 70° 36.261'W and 42° 23.790' N

Sound propagation calculations were performed to determine the noise footprint of the construction activity. The results showed that the estimated distance from the loudest source involved in construction activities fell to 120 dB re 1 µPa at a distance of 3,500 m.

III. Algonquin Pipeline Lateral Operation and Maintenance Activities

Modeling analysis conducted during the NEG Port and Pipeline Lateral construction concluded that the only underwater noise of critical concern during such activities would be from vessel noises such as turning screws, engine noise, noise of operating machinery, and thruster use. As with construction noise at the NEG Port, to confirm modeled results and better understand the noise footprint associated with construction activities along the Algonquin Pipeline Lateral, field measurements were taken of various construction activities during the 2007 NEG Port and Algonquin Pipeline Lateral construction period. Measurements were taken and normalized to establish the "loudest" potential construction measurement event. Two positions within Massachusetts Bay were then used to determine site-specific distances to the 120/160/180 dB isopleths:

- Construction Position 2. PLEM: 70° 46.755'W and 42° 28.764' N
- Construction Position 3. Mid-Pipeline: 70° 40.842'W and 42° 31.328' N

Sound propagation calculations were performed to determine the noise footprint of the construction activity. The results of the distances to the 120-dB are shown in Table 2.

The basis for Northeast Gateway and Algonquin's "take" estimate is the number of marine mammals that would be exposed to sound levels in excess of 120 dB, which is the threshold used by NMFS for non-pulse sounds. For the NEG LNG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities, the take estimates are determined by multiplying the 120-dB ensonified area by local marine mammal density estimates, and then multiplying by the estimated dates such activities would occur during a year-long period. For the NEG Port operations, the 120-dB ensonified area is 56.8 km^2 for a single visit during docking when running DP system. Although two EBRV docking with simultaneous DP system running was modeled, this situation would not occur in reality. For NEG Port and Algonquin Pipeline Lateral maintenance and repair activities, modeling based on the empirical measurements showed that the distance of the 120-dB radius is expected to be 3.5 km, making a maximum 120-dB ZOI of approximately 40.7 km^2.

Since the issuance of an IHA to NEG on December 19, 2014, there was only one LNG delivery at the NEG Port which occurred on December 31, 2014. NEG expects that when the Port is under full operation, it will receive up to 65 LNG shipments per year, and would require 14 days for NEG Port maintenance and up to 40 days for planned and unplanned Algonquin Pipeline Lateral maintenance and repair.

Marine Mammal Take Estimates

NMFS recognizes that baleen whale species other than North Atlantic right whales have been sighted in the project area from May to November. However, the occurrence and abundance of fin, humpback, and minke whales is not well documented within the project area. Nonetheless, NMFS uses the data on cetacean distribution within Massachusetts Bay, such as

those published by the National Centers for Coastal Ocean Science (NCCOS 2006), to estimate potential takes of marine mammals species in the vicinity of project area.

The NCCOS study used cetacean sightings from two sources: (1) the North Atlantic Right Whale Consortium (NARWC) sightings database held at the University of Rhode Island (Kenney, 2001); and (2) the Manomet Bird Observatory (MBO) database, held at NMFS Northeast Fisheries Science Center (NEFSC). The NARWC data contained survey efforts and sightings data from ship and aerial surveys and opportunistic sources between 1970 and 2005. The main data contributors included: Cetacean and Turtles Assessment Program (CETAP), Canadian Department of Fisheries and Oceans, PCCS, International Fund for Animal Welfare, NOAA's NEFSC, New England Aquarium, Woods Hole Oceanographic Institution, and the University of Rhode Island. A total of 653,725 km (406,293 mi) of survey track and 34,589 cetacean observations were provisionally selected for the NCCOS study in order to minimize bias from uneven allocation of survey effort in both time and space. The sightings-per-unit-effort (SPUE) was calculated for all cetacean species by month covering the southern Gulf of Maine study area, which also includes the project area (NCCOS, 2006).

The MBO's Cetacean and Seabird Assessment Program (CSAP) was contracted from 1980 to 1988 by NMFS NEFSC to provide an assessment of the relative abundance and distribution of cetaceans, seabirds, and marine turtles in the shelf waters of the northeastern United States (MBO, 1987). The CSAP program was designed to be completely compatible with NMFS NEFSC databases so that marine mammal data could be compared directly with fisheries data throughout the time series during which both types of information were gathered. A total of 5,210 km (8,383 mi) of survey distance and 636 cetacean observations from the MBO

data were included in the NCCOS analysis. Combined valid survey effort for the NCCOS studies included 567,955 km (913,840 mi) of survey track for small cetaceans (dolphins and porpoises) and 658,935 km (1,060,226 mi) for large cetaceans (whales) in the southern Gulf of Maine. The NCCOS study then combined these two data sets by extracting cetacean sighting records, updating database field names to match the NARWC database, creating geometry to represent survey tracklines and applying a set of data selection criteria designed to minimize uncertainty and bias in the data used.

Owing to the comprehensiveness and total coverage of the NCCOS cetacean distribution and abundance study, NMFS calculated the estimated take number of marine mammals based on the most recent NCCOS report published in December 2006. A summary of seasonal cetacean distribution and abundance in the project area is provided in the 2013 **Federal Register** notice for the proposed IHA (78 FR 69049; November 18, 2013). For a detailed description and calculation of the cetacean abundance data and SPUE, please refer to the NCCOS study (NCCOS, 2006). These data show that the relative abundance of North Atlantic right, fin, humpback, minke, sei, and pilot whales, and Atlantic white-sided dolphins for all seasons, as calculated by SPUE in number of animals per kilometer, is 0.0082, 0.0097, 0.0118, 0.0059, 0.0084, 0.0407, and 0.1314 n/km, respectively.

In calculating the area density of these species from these linear density data, NMFS used 0.5 mi (0.825 km) as the hypothetical strip width (W). This strip width is based on the distance of visibility used in the NARWC data that was part of the NCCOS (2006) study. However, those surveys used a strip transect instead of a line transect methodology. Therefore, in order to obtain a strip width, one must divide the visibility or transect value in half. A 0.825 km

hypothetical strip width was chosen for density calculation, which roughly equals to 0.5 mi as half the distance of the radius for visual monitoring. The hypothetical strip width used in the analysis is less than half of that derived from the NARWC data. Therefore, the analysis provided here is more protective in calculating marine mammal densities in the area. Based on this information, the area density (D) of these species in the project area can be obtained by the following formula:

D = SPUE/2W

where D is marine mammal density in the area, and W is the strip width. For example, the take calculation for the North Atlantic right whale is:

0.0082/(2*0.825)*(65*56.8+14*40.7+40*40.7) = 29.

Based on this calculation method, the estimated take numbers per year for North Atlantic right, fin, humpback, sei, minke, and pilot whales, and Atlantic white-sided dolphins by the NEG Port facility operations (maximum 65 visits per year), NEG Port maintenance and repair (up to 14 days per year), and Algonquin Pipeline Lateral operation and maintenance (up to 40 days per year), are 29, 35, 42, 30, 21, 145, and 469, respectively (Table 3). Since it is very likely that individual animals could be "taken" by harassment multiple times, these percentages are the upper boundary of the animal population that could be affected. The actual number of individual animals being exposed or taken would likely be far less. There is no danger of injury, death, or hearing impairment from the exposure to these noise levels.

Table 3. Estimated annual takes of marine mammals from the NEG Port and Algonquin Pipeline Lateral operations and maintenance and repair activities in Massachusetts Bay

Species	Population/stock	Number of takes	% Population
Right whale	Western Atlantic	29	6.29%
Fin whale	Western North Atlantic	35	2.14%

Humpback whale	Gulf of Maine	42	5.12%
Sei whale	Nova Scotia	30	8.40%
Minke whale	Canadian East Coast	21	0.10%
Long-finned pilot whale	Western North Atlantic	145	0.67%
Atlantic white-sided dolphin	Western North Atlantic	469	0.96%
Bottlenose dolphin	Western North Atlantic Southern Migratory	20	0.17%
Short-beaked common dolphin	Western North Atlantic	40	0.02%
Risso's dolphin	Western North Atlantic	40	0.22%
Killer whale	Western North Atlantic	10	Unknown*
Harbor porpoise	Gulf of Maine/Bay of Fundy	20	0.03%
Harbor seal	Western North Atlantic	60	0.08%
Gray seal	Western North Atlantic	30	Unknown*

* Killer whale and gray seal abundance information is not available.

In addition, bottlenose dolphins, common dolphins, killer whales, Risso's dolphins, harbor porpoises, harbor seals, and gray seals could also be taken by Level B harassment as a result of deepwater NEG Port and Algonquin Pipeline Lateral operations and maintenance and repair. Since these species are less likely to occur in the area, and there are no density estimates specific to this particular area, NMFS based their sighting occurrence in the vicinity of the project area (SBNMS 2015). Therefore, NMFS estimates that up to approximately 20 bottlenose dolphins, 40 short-beaked common dolphins, 40 Risso's dolphins, 10 killer whales, 20 harbor porpoises, 60 harbor seals, and 30 gray seals could be exposed to continuous noise at or above 120 dB re 1 µPa rms incidental to operations during the one year period of the IHA, respectively. Since no population/stock estimates for killer whale and gray seal is available, the percentage of estimated takes for these species is unknown. Nevertheless, since Massachusetts Bay represents only a small fraction of the western North Atlantic basin where these animals occur NMFS has preliminarily determined that the takes of 10 killer whales and 30 gray seals represent a small fraction of the population and stocks of these species (Table 3).

Analysis and Preliminary Determinations

Negligible Impact

Negligible impact is "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival" (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of recruitment or survival (i.e., population-level effects). An estimate of the number of 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.

To avoid repetition, this introductory discussion of our analyses applies to all the species listed in Table 5, given that the anticipated effects of NE Gateway LNG Port and Algonquin Pipeline Lateral operations, maintenance, and repair activities on marine mammals (taking into account the proposed mitigation) are expected to be relatively similar in nature. Where there are meaningful differences between species or stocks, or groups of species, in anticipated individual responses to activities, impact of expected take on the population due to differences in population status, or impacts on habitat, they are described separately in the analysis below.

No injuries or mortalities are anticipated to occur as a result of NE Gateway and Algonquin's proposed Port and Pipeline Lateral operations, maintenance, and repair activities,

and none are authorized. Additionally, animals in the area are not expected to incur hearing impairment (i.e., TTS or PTS) or non-auditory physiological effects. The takes that are anticipated and authorized are expected to be limited to short-term Level B behavioral harassment. While NEG expects that when the Port is under full operation, it will receive up to 65 LNG shipments per year, and would require 14 days for NEG Port maintenance and up to 40 days for planned and unplanned Algonquin Pipeline Lateral maintenance and repair, schedules of LNG delivery would occur throughout the year, which include seasons certain marine mammals may not be present in the area.

Effects on marine mammals are generally expected to be restricted to avoidance of a limited area around NEG's proposed activities and short-term changes in behavior, falling within the MMPA definition of "Level B harassment." Mitigation measures, such as controlled vessel speed, dedicated marine mammal observers, and passive acoustic monitoring, will ensure that takes are within the level being analyzed. In all cases, the effects are expected to be short-term, with no lasting biological consequence.

Of the 14 marine mammal species likely to occur in the proposed marine survey area, North Atlantic right, humpback, fin, and sei whales are listed as endangered under the ESA. These species are also designated as "depleted" under the MMPA. None of the other species that may occur in the project area are listed as threatened or endangered under the ESA or designated as depleted under the MMPA.

The project area of the NEG and Algonquin's proposed activities is a biologically important area (BIA) for feeding for the North Atlantic right whale in February to April , humpback whale in March to December, fin whale year-round, and minke whale in March to

November (LaBrecque *et al.* 2015). However, prior monitoring reports show that most of the LNG deliveries occur during late fall through the winter months between late November and January. Therefore, the actual impacts to these species from the NE Gateway's proposed operations would likely be much less than what are analyzed here. The proposed project area is not a BIA for the rest of the species.

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 NEG and Algonquin's proposed LNG Port and Pipeline Lateral operation, maintenance, and repair activities in Masschusetts Bay are not expected to have adversely affect the affected species or stocks through impacts on annual rates of recruitment or survival, and therefore will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

The requested takes represent less than 8.4% of all populations or stocks potentially impacted (see Table 5 in this document). These take estimates represent the percentage of each species or stock that could be taken by Level B behavioral harassment and TTS (Level B harassment). The numbers of marine mammals estimated to be taken are small proportions of the total populations of the affected species or stocks. In addition, the mitigation and monitoring measures (described previously in this document) prescribed in the IHA are expected to reduce even further any potential disturbance to marine mammals.

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 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 subsistence uses of marine mammals in the proposed project area; and, thus, no subsistence uses impacted 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)

Our November 18, 2013, **Federal Register** notice of the proposed IHA described the history and status of Endangered Species Act (ESA) compliance for the NE Gateway LNG facility (78 FR 69049). As explained in that notice, the biological opinions for construction and operation of the facility only analyzed impacts on ESA-listed species from activities under the initial construction period and during operations, and did not take into consideration potential impacts to marine mammals that could result from the subsequent LNG Port and Pipeline Lateral maintenance and repair activities. In addition, NEG also revealed that significantly more water usage and vessel operating air emissions are needed from what was originally evaluated for the LNG Port operation. NMFS PR1 initiated consultation with NMFS Greater Atlantic Region Fisheries Office under section 7 of the ESA on the proposed issuance of an IHA to NEG under section 101(a)(5)(D) of the MMPA for the proposed activities that include increased NEG Port and Algonquin Pipeline Lateral maintenance and repair and water usage for the LNG Port operations this activity. A Biological Opinion was issued on November 21, 2014, and

concluded that the proposed action may adversely affect but is not likely to jeopardize the continued existence of ESA-listed right, humpback, fin, and sei whales.

NMFS' Permits and Conservation Division has preliminarily determined that the activities described in here are the same as those analyzed in the November 21, 2014, Biological Opinion. Therefore, a new consultation is not required for issuance of this IHA.

National Environmental Policy Act

MARAD and the USCG released a Final EIS/Environmental Impact Report (EIR) for the proposed Northeast Gateway Port and Pipeline Lateral. NMFS was a cooperating agency (as defined by the Council on Environmental Quality (40 CFR 1501.6)) in the preparation of the Draft and Final EISs. NMFS reviewed the Final EIS and adopted it on May 4, 2007. NMFS issued a separate Record of Decision for issuance of authorizations pursuant to section 101(a)(5) of the MMPA for the construction and operation of the Northeast Gateway's LNG Port Facility in Massachusetts Bay.

We have reviewed the NEG's application for a renewed IHA for ongoing activities for 2015-16 and the 2014-15 monitoring report. Based on that review, we have determined that the proposed action is very similar to that considered in the previous IHA. In addition, no significant new circumstances or information relevant to environmental concerns have been identified. Thus, we have determined preliminarily that the preparation of a new or supplemental NEPA document is not necessary.

Proposed Incidental Harassment Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to Northeast Gateway and Algonquin for activities associated with Northeast Gateway's LNG

Port and Algonquin's Pipeline Lateral operations and maintenance and repair activities in the Massachusetts Bay, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. The proposed IHA language is provided next.

(1) This Authorization is valid from December 22, 2015, through December 21, 2016.

(2) This Authorization is valid only for activities associated with Northeast Gateway's LNG Port and Algonquin's Pipeline Lateral operations and maintenance and repair activities in the Massachusetts Bay. The specific area of the activities is shown in Figure 2-1 of the Excelerate Energy, L.P. and Tetra Tech, Inc.'s IHA application.

(3)(a) The species authorized for incidental harassment takings, Level B harassment only, are: right whales (*Eubalaena glacialis*); fin whales (*Balaenoptera physalus*); humpback whales (*Megaptera novaeangliae*); minke whales (*B. acutorostrata*); sei whales (*B. borealis*); long-finned pilot whales (*Globicephala melas*); Atlantic white-sided dolphins (*Lagenorhynchus acutus*); bottlenose dolphins (*Tursiops truncatus*); short-beaked common dolphins (*Delphinus delphis*); Risso's dolphin (*Grampus griseus*); killer whales (*Orcinus orca*); harbor porpoises (*Phocoena phocoena*); harbor seals (*Phoca vitulina*); and gray seals (*Halichoerus grypus*).

(3)(b) The authorization for taking by harassment is limited to the following acoustic sources and from the following activities:

(i) NEG Port operations;

(ii) NEG Port maintenance and repair; and

(iii) Algonquin Pipeline Lateral operations and maintenance.

(3)(c) The taking of any marine mammal in a manner prohibited under this Authorization must be reported within 24 hours of the taking to the National Marine Fisheries Service (NMFS) Greater Atlantic Regional Administrator or his designee, NMFS Headquarter

Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at (301-427-8401), or her designee (301-427-8418).

(4) Prohibitions

(a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 5. The taking by Level A harassment, injury or death of these species or the taking by harassment, injury or death of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.

(5) Mitigation

The holder of this authorization is required to implement the following mitigation measures:

(a) General Marine Mammal Avoidance Measures

(i) All vessels shall utilize the International Maritime Organization (IMO)-approved Boston Traffic Separation Scheme (TSS) on their approach to and departure from the NEG Port and/or the repair/maintenance area at the earliest practicable point of transit in order to avoid the risk of whale strikes.

(ii) Upon entering the TSS and areas where North Atlantic right whales are known to occur, including the Great South Channel Seasonal Management Area (GSC-SMA) and the SBNMS, the EBRV shall go into "Heightened Awareness" as described below.

(A) Prior to entering and navigating the modified TSS the Master of the vessel shall:

(I) Consult Navigational Telex (NAVTEX), NOAA Weather Radio, the NOAA Right Whale Sighting Advisory System (SAS) or other means to obtain current right whale sighting information as well as the most recent Cornell acoustic monitoring buoy data for the potential

presence of marine mammals;

(II) Post a look-out to visually monitor for the presence of marine mammals;

(III) Provide the US Coast Guard (USCG) the required 96-hour notification of an arriving EBRV to allow the NEG Port Manager to notify Cornell of vessel arrival.

(B) The look-out shall concentrate his/her observation efforts within the 2-mile radius zone of influence (ZOI) from the maneuvering EBRV.

(C) If marine mammal detection was reported by NAVTEX, NOAA Weather Radio, SAS and/or an acoustic monitoring buoy, the look-out shall concentrate visual monitoring efforts towards the areas of the most recent detection.

(D) If the look-out (or any other member of the crew) visually detects a marine mammal within the 2-mile radius ZOI of a maneuvering EBRV, he/she will take the following actions:

(I) The Officer-of-the-Watch shall be notified immediately; who shall then relay the sighting information to the Master of the vessel to ensure action(s) can be taken to avoid physical contact with marine mammals.

(II) The sighting shall be recorded in the sighting log by the designated look-out.

(III) In accordance with 50 CFR 224.103(c), all vessels associated with NEG Port and Pipeline Lateral activities shall not approach closer than 500 yards (460 m) to a North Atlantic right whale and 100 yards (91 m) to other whales to the extent physically feasible given navigational constraints. In addition, when approaching and departing the project area, vessels shall be operated so as to remain at least 1 km away from any visually-detected North Atlantic right whales.

(IV) In response to active right whale sightings and active acoustic detections, and

taking into account exceptional circumstances, EBRVs, repair and maintenance vessels shall take appropriate actions to minimize the risk of striking whales. Specifically vessels shall:

(A) Respond to active right whale sightings and/or DMAs reported on the Mandatory Ship Reporting (MSR) or SAS by concentrating monitoring efforts towards the area of most recent detection and reducing speed to 10 knots or less if the vessel is within the boundaries of a DMA (50 CFR 224.105) or within the circular area centered on an area 8 nm in radius from a sighting location;

(B) Respond to active acoustic detections by concentrating monitoring efforts towards the area of most recent detection and reducing speed to 10 knots or less within an area 5 nm in radius centered on the detecting AB; and

(C) Respond to additional sightings made by the designated look-outs within a 2-mile radius of the vessel by slowing the vessel to 10 knots or less and concentrating monitoring efforts towards the area of most recent sighting.

(V) All vessels operated under NEG and Algonquin must follow the established specific speed restrictions when calling at the NEG Port. The specific speed restrictions required for all vessels (i.e., EBRVs and vessels associated with maintenance and repair) consist of the following:

(A) Vessels shall reduce their maximum transit speed while in the TSS from 12 knots or less to 10 knots or less from March 1 to April 30 in all waters bounded by straight lines connecting the following points in the order stated below unless an emergency situation dictates for an alternate speed. This area shall hereafter be referred to as the Off Race Point Seasonal Management Area (ORP-SMA) and tracks NMFS regulations at 50 CFR 224.105:

$42^{o}30'$ N $70^{o}30'$ W $41^{o}40'$ N $69^{o}57'$ W

42°30' N 69°45' W	42°12' N 70°15' W
41°40' N 69°45' W	42°12' N 70°30' W
42°04.8' N 70°10' W	42°30' N 70°30' W

(B) Vessels shall reduce their maximum transit speed while in the TSS to 10 knots or less unless an emergency situation dictates for an alternate speed from April 1 to July 31 in all waters bounded by straight lines connecting the following points in the order stated below. This area shall hereafter be referred to as the GSC-SMA and tracks NMFS regulations at 50 CFR 224.105:

42°30' N 69°45' W	41°40' N 69°45' W
42°30' N 67°27' W	42°30' N 69°45' W
42°09' N 67°08.4' W	41°00' N 69°05' W

(C) Vessels are not expected to transit the Cape Cod Bay or the Cape Cod Canal; however, in the event that transit through the Cape Cod Bay or the Cape Cod Canal is required, vessels shall reduce maximum transit speed to 10 knots or less from January 1 to May 15 in all waters in Cape Cod Bay, extending to all shorelines of Cape Cod Bay, with a northern boundary of 42°12’ N latitude and the Cape Cod Canal. This area shall hereafter be referred to as the Cape Cod Bay Seasonal Management Area (CCB-SMA).

(D) All Vessels transiting to and from the project area shall report their activities to the mandatory reporting Section of the USCG to remain apprised of North Atlantic right whale movements within the area. All vessels entering and exiting the MSRA shall report their activities to WHALESNORTH. Vessel operators shall contact the USCG by standard procedures promulgated through the Notice to Mariner system.

(E) All Vessels greater than or equal to 300 gross tons (GT) shall maintain a speed of

10 knots or less, unless an emergency situation requires speeds greater than 10 knots.

(F) All Vessels less than 300 GT traveling between the shore and the project area that are not generally restricted to 10 knots will contact the Mandatory Ship Reporting (MSR) system, the USCG, or the project site before leaving shore for reports of active DMAs and/or recent right whale sightings and, consistent with navigation safety, restrict speeds to 10 knots or less within 5 miles (8 kilometers) of any sighting location, when traveling in any of the seasonal management areas (SMAs) or when traveling in any active dynamic management area (DMA).

(b) NEG Port-specific Operations

(i) In addition to the general marine mammal avoidance requirements identified in (5)(a) above, vessels calling on the NEG Port must comply with the following additional requirements:

(A) EBRVs shall travel at 10 knots maximum speed when transiting to/from the TSS or to/from the NEG Port/Pipeline Lateral area. For EBRVs, at 1.86 miles (3 km) from the NEG Port, speed will be reduced to 3 knots and to less than 1 knot at 1,640 ft (500 m) from the NEG buoys, unless an emergency situation dictates the need for an alternate speed.

(B) EBRVs that are approaching or departing from the NEG Port and are within the ATBA5 surrounding the NEG Port, shall remain at least 1 km away from any visually-detected North Atlantic right whale and at least 100 yards (91 m) away from all other visually-detected whales unless an emergency situation requires that the vessel stay its course. During EBRV maneuvering, the Vessel Master shall designate at least one look-out to be exclusively and continuously monitoring for the presence of marine mammals at all times while the EBRV is approaching or departing from the NEG Port.

(C) During NEG Port operations, in the event that a whale is visually observed within

1 km of the NEG Port or a confirmed acoustic detection is reported on either of the two ABs closest to the NEG Port (western-most in the TSS array), departing EBRVs shall delay their departure from the NEG Port, unless an emergency situation requires that departure is not delayed. This departure delay shall continue until either the observed whale has been visually (during daylight hours) confirmed as more than 1 km from the NEG Port or 30 minutes have passed without another confirmed detection either acoustically within the acoustic detection range of the two ABs closest to the NEG Port, or visually within 1 km from the NEG Port.

(ii) Vessel captains shall focus on reducing dynamic positioning (DP) thruster power to the maximum extent practicable, taking into account vessel and Port safety, during the operation activities. Vessel captains will shut down thrusters whenever they are not needed.

(c) Planned and Unplanned Maintenance and Repair Activities

(i) NEG Port

(A) The Northeast Gateway shall conduct empirical source level measurements on all noise emitting construction equipment and all vessels that are involved in maintenance/repair work.

(B) If dynamic positioning (DP) systems are to be employed and/or activities will emit noise with a source level of 139 dB re 1 μPa at 1 m, activities shall be conducted in accordance with the requirements for DP systems listed in (5)(b)(ii).

(C) Northeast Gateway shall provide the NMFS Headquarters Office of the Protected Resources, NMFS Northeast Region Ship Strike Coordinator, and SBNMS with a minimum of 30 days notice prior to any planned repair and/or maintenance activity. For any unplanned/emergency repair/maintenance activity, Northeast Gateway shall notify the agencies as soon as it determines that repair work must be conducted. Northeast Gateway shall

continue to keep the agencies apprised of repair work plans as further details (e.g., the time, location, and nature of the repair) become available. A final notification shall be provided to agencies 72 hours prior to crews being deployed into the field.

(ii) Pipeline Lateral

(A) Pipeline maintenance/repair vessels less than 300 GT traveling between the shore and the maintenance/repair area that are not generally restricted to 10 knots shall contact the MSR system, the USCG, or the project site before leaving shore for reports of active DMAs and/or recent right whale sightings and, consistent with navigation safety, restrict speeds to 10 knots or less within 5 miles (8 km) of any sighting location, when travelling in any of the seasonal management areas (SMAs) as defined above.

(B) Maintenance/repair vessels greater than 300 GT shall not exceed 10 knots, unless an emergency situation that requires speeds greater than 10 knots.

(C) Planned maintenance and repair activities shall be restricted to the period between May 1 and November 30.

(D) Unplanned/emergency maintenance and repair activities shall be conducted utilizing anchor-moored dive vessel whenever operationally possible.

(E) Algonquin shall also provide the NMFS Office of the Protected Resources, NMFS Northeast Region Ship Strike Coordinator, and Stellwagen Bank National Marine Sanctuary (SBNMS) with a minimum of 30-day notice prior to any planned repair and/or maintenance activity. For any unplanned/emergency repair/maintenance activity, Northeast Gateway shall notify the agencies as soon as it determines that repair work must be conducted. Algonquin shall continue to keep the agencies apprised of repair work plans as further details (e.g., the time, location, and nature of the repair) become available. A final notification shall be provided to

agencies 72 hours prior to crews being deployed into the field.

(F) If dynamic positioning (DP) systems are to be employed and/or activities will emit noise with a source level of 139 dB re 1 μPa at 1 m, activities shall be conducted in accordance with the requirements for DP systems listed in (5)(b)(ii).

(G) In the event that a whale is visually observed within 0.5 mile (0.8 kilometers) of a repair or maintenance vessel, the vessel superintendent or on-deck supervisor shall be notified immediately. The vessel's crew shall be put on a heightened state of alert and the marine mammal shall be monitored constantly to determine if it is moving toward the repair or maintenance area.

(H) Repair/maintenance vessel(s) must cease any movement and/or cease all activities that emit noises with source level of 139 dB re 1 μPa @ 1 m or higher when a right whale is sighted within or approaching at 500 yd (457 m) from the vessel. Repair and maintenance work may resume after the marine mammal is positively reconfirmed outside the established zones (500 yd [457 m]) or 30 minutes have passed without a redetection. Any vessels transiting the maintenance area, such as barges or tugs, must also maintain these separation distances.

(I) Repair/maintenance vessel(s) must cease any movement and/or cease all activities that emit noises with source level of 139 dB re 1 μPa @ 1 m or higher when a marine mammal other than a right whale is sighted within or approaching at 100 yd (91 m) from the vessel. Repair and maintenance work may resume after the marine mammal is positively reconfirmed outside the established zones (100 yd [91 m]) or 30 minutes have passed without a redetection. Any vessels transiting the maintenance area, such as barges or tugs, must also maintain these separation distances.

(J) Algonquin and associated contractors shall also comply with the following:

(I) Operations involving excessively noisy equipment (source level exceeding 139 dB re 1μPa @ 1 m) shall "ramp-up" sound sources, allowing whales a chance to leave the area before sounds reach maximum levels. In addition, Northeast Gateway, Algonquin, and other associated contractors shall maintain equipment to manufacturers' specifications, including any sound-muffling devices or engine covers in order to minimize noise effects. Noisy construction equipment shall only be used as needed and equipment shall be turned off when not in operation.

(II) Any material that has the potential to entangle marine mammals (e.g., anchor lines, cables, rope or other construction debris) shall only be deployed as needed and measures shall be taken to minimize the chance of entanglement.

(III) For any material that has the potential to entangle marine mammals, such material shall be removed from the water immediately unless such action jeopardizes the safety of the vessel and crew as determined by the Captain of the vessel.

(IV) In the event that a marine mammal becomes entangled, the marine mammal coordinator and/or PSO will notify NMFS (if outside the SBNMS), and SBNMS staff (if inside the SBNMS) immediately so that a rescue effort may be initiated.

(K) All maintenance/repair activities shall be scheduled to occur between May 1 and November 30; however, in the event of unplanned/emergency repair work that cannot be scheduled during the preferred May through November work window, the following additional measures shall be followed for Pipeline Lateral maintenance and repair related activities between December and April:

(I) Between December 1 and April 30, if on-board PSOs do not have at least 0.5-mile visibility, they shall call for a shutdown. At the time of shutdown, the use of thrusters must be

minimized. If there are potential safety problems due to the shutdown, the captain will decide what operations can safely be shut down.

(II) Prior to leaving the dock to begin transit, the barge shall contact one of the PSOs on watch to receive an update of sightings within the visual observation area. If the PSO has observed a North Atlantic right whale within 30 minutes of the transit start, the vessel shall hold for 30 minutes and again get a clearance to leave from the PSOs on board. PSOs shall assess whale activity and visual observation ability at the time of the transit request to clear the barge for release.

(III) Transit route, destination, sea conditions and any marine mammal sightings/mitigation actions during watch shall be recorded in the log book. Any whale sightings within 1,000 m of the vessel shall result in a high alert and slow speed of 4 knots or less and a sighting within 750 m shall result in idle speed and/or ceasing all movement.

(IV) The material barges and tugs used in repair and maintenance shall transit from the operations dock to the work sites during daylight hours when possible provided the safety of the vessels is not compromised. Should transit at night be required, the maximum speed of the tug shall be 5 knots.

(V) All repair vessels must maintain a speed of 10 knots or less during daylight hours. All vessels shall operate at 5 knots or less at all times within 5 km of the repair area.

(d) Acoustic Monitoring Related Activities

(i) Vessels associated with maintaining the AB network operating as part of the mitigation/monitoring protocols shall adhere to the following speed restrictions and marine mammal monitoring requirements.

(A) In accordance with NOAA Regulation 50 CFR 224.103 (c), all vessels associated

with NEG Port activities shall not approach closer than 500 yards (460 meters) to a North Atlantic right whale.

(B) All vessels shall obtain the latest DMA or right whale sighting information via the NAVTEX, MSR, SAS, NOAA Weather Radio, or other available means prior to operations to determine if there are right whales present in the operational area.

(6) Monitoring

(a) Vessel-based visual monitoring

(i) Vessel-based monitoring for marine mammals shall be done by trained look-outs during NEG LNG Port and Pipeline Lateral operations and maintenance and repair activities. The observers shall monitor the occurrence of marine mammals near the vessels during LNG Port and Pipeline Lateral related activities. Lookout duties include watching for and identifying marine mammals; recording their numbers, distances, and reactions to the activities; and documenting "take by harassment."

(ii) The vessel look-outs assigned to visually monitor for the presence of marine mammals shall be provided with the following:

(A) Recent NAVTEX, NOAA Weather Radio, SAS and/or acoustic monitoring buoy detection data;

(B) Binoculars to support observations;

(C) Marine mammal detection guide sheets; and

(D) Sighting log.

(b) NEG LNG Port Operations

(i) All individuals onboard the EBRVs responsible for the navigation duties and any other personnel that could be assigned to monitor for marine mammals shall receive training on

marine mammal sighting/reporting and vessel strike avoidance measures.

(ii) While an EBRV is navigating within the designated TSS, there shall be three people with look-out duties on or near the bridge of the ship including the Master, the Officer-of-the-Watch and the Helmsman-on-watch. In addition to the standard watch procedures, while the EBRV is transiting within the designated TSS, maneuvering within the Area to be Avoided (ATBA), and/or while actively engaging in the use of thrusters, an additional look-out shall be designated to exclusively and continuously monitor for marine mammals.

(iii) All sightings of marine mammals by the designated look-out, individuals posted to navigational look-out duties and/or any other crew member while the EBRV is transiting within the TSS, maneuvering within the ATBA and/or when actively engaging in the use of thrusters, shall be immediately reported to the Officer-of-the-Watch who shall then alert the Master. The Master or Officer-of-the-Watch shall ensure the required reporting procedures are followed and the designated marine mammal look-out records all pertinent information relevant to the sighting.

(iv) Visual sightings made by look-outs from the EBRVs shall be recorded using a standard sighting log form. Estimated locations shall be reported for each individual and/or group of individuals categorized by species when known. This data shall be entered into a database and a summary of monthly sighting activity shall be provided to NMFS. Estimates of take and copies of these log sheets shall also be included in the reports to NMFS.

(c) Planned and Unplanned Maintenance and Repair

(i) Two (2) qualified and NMFS-approved protected species observers (PSOs) shall be assigned to each vessel that will use dynamic positioning (DP) systems during maintenance and repair related activities. PSOs shall operate individually in designated shifts to accommodate

adequate rest schedules. Additional PSOs shall be assigned to additional vessels if auto-detection buoy (AB) data indicates that sound levels exceed 120 dB re 1 µPa, further then 100 meters (328 feet) from these vessels.

(ii) All PSOs shall receive NMFS-approved marine mammal observer training and be approved in advance by NMFS after review of their resume. All PSOs shall have direct field experience on marine mammal vessels and/or aerial surveys in the Atlantic Ocean/Gulf of Mexico.

(iii) PSOs (one primary and one secondary) shall be responsible for visually locating marine mammals at the ocean's surface and, to the extent possible, identifying the species. The primary PSO shall act as the identification specialist and the secondary PSO will serve as data recorder and also assist with identification. Both PSOs shall have responsibility for monitoring for the presence of marine mammals and sea turtles. Specifically PSO's shall:

(A) Monitor at all hours of the day, scanning the ocean surface by eye for a minimum of 40 minutes every hour.

(B) Monitor the area where maintenance and repair work is conducted beginning at daybreak using 25x power binoculars and/or hand-held binoculars. Night vision devices must be provided as standard equipment for monitoring during low-light hours and at night.

(C) Conduct general 360° visual monitoring during any given watch period and target scanning by the observer shall occur when alerted of a whale presence.

(D) Alert the vessel superintendent or construction crew supervisor of visual detections within 2 miles (3.31 kilometers) immediately.

(E) Record all sightings on marine mammal field sighting logs. Specifically, all data shall be entered at the time of observation, notes of activities will be kept, and a daily report

prepared and attached to the daily field sighting log form. The basic reporting requirements include the following:

- Beaufort sea state;
- Wind speed;
- Wind direction;
- Temperature;
- Precipitation;
- Glare;
- Percent cloud cover;
- Number of animals;
- Species;
- Position;
- Distance;
- Behavior;
- Direction of movement; and
- Apparent reaction to construction activity.

(iv) In the event that a whale is visually observed within the 2-mile (3.31-kilometers) zone of influence (ZOI) of a DP vessel or other construction vessel that has shown to emit noise with source level in excess of 139 dB re 1 µPa @ 1 m, the PSO will notify the repair/maintenance construction crew to minimize the use of thrusters until the animal has moved away, unless there are divers in the water or an ROV is deployed.

(d) Acoustic Monitoring

(i) Northeast Gateway shall deploy 10 ABs within the Separation Zone of the TSS for

the operational life of the Project.

(ii) The ABs shall be used to detect a calling North Atlantic right whale an average of 5 nm from each AB. The AB system shall be the primary detection mechanism that alerts the EBRV Master to the occurrence of right whales, heightens EBRV awareness, and triggers necessary mitigation actions as described in section (5) above.

(iii) Northeast Gateway shall conduct short-term passive acoustic monitoring to document sound levels during the initial operational events in the 2015-2016 winter heating season, and during both regular deliveries outside the winter heating season should such deliveries occur, and during scheduled and unscheduled maintenance and repair activities.

(iv) Northeast Gateway shall conduct long-term monitoring of the noise environment in Massachusetts Bay in the vicinity of the NEG Port and Pipeline Lateral using marine autonomous recording units (MARUs) when there is anticipated to be more than 5 LNG shipments in a 30-day period or over 20 shipments in a six-month period.

(v) The acoustic data collected in 6(d)(ii) shall be analyzed to document the seasonal occurrences and overall distributions of whales (primarily fin, humpback and right whales) within approximately 10 nm of the NEG Port and shall measure and document the noise "budget" of Massachusetts Bay so as to eventually assist in determining whether or not an overall increase in noise in the Bay associated with the Project might be having a potentially negative impact on marine mammals.

(vi) Northeast Gateway shall make all acoustic data, including data previously collected by the MARUs during prior construction, operations, and maintenance and repair activities, available to NOAA. Data storage will be the responsibility of NOAA.

(e) Acoustic Whale Detection and Response Plan

(i) NEG Port Operations

(A) Ten (10) ABs that have been deployed since 2007 shall be used to continuously screen the low-frequency acoustic environment (less than 1,000 Hertz) for right whale contact calls occurring within an approximately 5-nm radius from each buoy (the AB's detection range).

(B) Once a confirmed detection is made, the Master of any EBRVs operating in the area will be alerted immediately.

(ii) NEG Port and Pipeline Lateral Planned and Unplanned/Emergency Repair and Maintenance Activities

(A) If the repair/maintenance work is located outside of the detectible range of the 10 project area ABs, Northeast Gateway and Algonquin shall consult with NOAA (NMFS and SBNMS) to determine if the work to be conducted warrants the temporary installation of an additional AB(s) to help detect and provide early warnings for potential occurrence of right whales in the vicinity of the repair area.

(B) The number of ABs installed around the activity site shall be commensurate with the type and spatial extent of maintenance/repair work required, but must be sufficient to detect vocalizing right whales within the 120-dB impact zone.

(C) Should acoustic monitoring be deemed necessary during a planned or unplanned/emergency repair and/or maintenance event, active monitoring for right whale calls shall begin 24 hours prior to the start of activities.

(D) Revised noise level data from the acoustic recording units deployed in the NEG Port and/or Pipeline Lateral maintenance and repair area shall be provided to NMFS.

(7) Reporting

(a) Throughout NEG Port and Pipeline Lateral operations, Northeast Gateway and Algonquin shall provide a monthly Monitoring Report. The Monitoring Report shall include:

(i) Both copies of the raw visual EBRV lookout sighting information of marine mammals that occurred within 2 miles of the EBRV while the vessel transits within the TSS, maneuvers within the ATBA, and/or when actively engaging in the use of thrusters, and a summary of the data collected by the look-outs over each reporting period.

(ii) Copies of the raw PSO sightings information on marine mammals gathered during pipeline repair or maintenance activities. This visual sighting data shall then be correlated to periods of thruster activity to provide estimates of marine mammal takes (per species/species class) that took place during each reporting period.

(iii) Conclusion of any planned or unplanned/emergency repair and/or maintenance period, a report shall be submitted to NMFS summarizing the repair/maintenance activities, marine mammal sightings (both visual and acoustic), empirical source-level measurements taken during the repair work, and any mitigation measures taken.

(b) During the maintenance and repair of NEG Port components, weekly status reports shall be provided to NOAA (both NMFS and SBNMS) using standardized reporting forms. The weekly reports shall include data collected for each distinct marine mammal species observed in the repair/maintenance area during the period that maintenance and repair activities were taking place. The weekly reports shall include the following information:

(i) Location (in longitude and latitude coordinates), time, and the nature of the maintenance and repair activities;

(ii) Indication of whether a DP system was operated, and if so, the number of thrusters being used and the time and duration of DP operation;

(iii) Marine mammals observed in the area (number, species, age group, and initial behavior);

(iv) The distance of observed marine mammals from the maintenance and repair activities;

(v) Changes, if any, in marine mammal behaviors during the observation;

(vi) A description of any mitigation measures (power-down, shutdown, etc.) implemented;

(vii) Weather condition (Beaufort sea state, wind speed, wind direction, ambient temperature, precipitation, and percent cloud cover etc.);

(viii) Condition of the observation (visibility and glare); and

(ix) Details of passive acoustic detections and any action taken in response to those detections.

(d) Injured/Dead Protected Species Reporting

(i) In the unanticipated event that survey operations clearly cause the take of a marine mammal in a manner prohibited by the proposed IHA, such as an injury (Level A harassment), serious injury or mortality (e.g., ship-strike, gear interaction, and/or entanglement), NEG and/or Algonquin shall immediately cease activities and immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, at and the Greater Atlantic Regional Stranding Coordinators or by phone at 978-281-9300. The report must include the following information:

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

(B) The name and type of vessel involved;

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

(D) Description of the incident;

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

(F) Water depth;

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

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

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

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

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

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

(ii) In the event that NEG and/or Algonquin 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), NEG and/or Algonquin will immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to *Jolie.Harrison@noaa.gov* and *Shane.Guan@noaa.gov* and the NMFS Greater Atlantic Stranding Coordinators by phone at 978-281-9300, within 24 hours of the discovery. The report must include the same information identified above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with NEG

and/or Algonquin to determine whether modifications in the activities are appropriate.

(iii) In the event that NEG or Algonquin 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 (if the IHA is issued) (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), NEG and/or Algonquin shall report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401, and/or by email to *Jolie.Harrison@noaa.gov* and *Shane.Guan@noaa.gov* and the NMFS Greater Atlantic Stranding Coordinators by phone at 978-281-9300, within 24 hours of the discovery. NEG and/or Algonquin shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. NEG and/or Algonquin can continue its operations under such a case.

(8) This Authorization may be modified, suspended, or withdrawn if the holder fails to abide by the conditions prescribed herein or if NMFS determines that the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.

(9) A copy of this Authorization and the Incidental Take Statement must be in the possession of each survey vessel operator taking marine mammals under the authority of this Incidental Harassment Authorization.

(10) Northeast Gateway and Algonquin are required to comply with the Terms and Conditions of the Incidental Take Statement corresponding to NMFS' Biological Opinion.

Request for Public Comments

NMFS requests comment on our analysis, the draft authorization for an IHA, the receipt of notice for a rulemaking, and any other aspect of the Notice of Proposed IHA for Northeast

Gateway and Algonquin's proposed LNG Port and Pipeline Lateral operations, maintenance, and repair activities in the Massachusetts Bay. Please include with your comments any supporting data or literature citations to help inform our final decision on Northeast Gateway and Algonquin's request for an MMPA authorization.

Dated: November 12, 2015.

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