



## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

**RTID 0648-XB056**

#### **Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Site Characterization Surveys off the Coast of Massachusetts**

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

**ACTION:** Notice; modified proposal of an incidental harassment authorization; request for comments on modified proposed authorization and possible renewal.

**SUMMARY:** NMFS has received a request from Mayflower Wind Energy LLC (Mayflower) for authorization to take marine mammals incidental to site characterization surveys off the coast of Massachusetts in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0521) and along potential submarine cable routes to landfall locations at Falmouth, Massachusetts and near Narragansett Bay. NMFS published a proposed incidental harassment authorization (IHA) in the **Federal Register** on March 1, 2021, Mayflower determined that they needed to add an additional export cable route corridor to the proposed IHA. Therefore, a final IHA was not issued and Mayflower submitted a modified application on April 19, 2021. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its modified proposal to issue an incidental harassment authorization (IHA) to incidentally take marine mammals during the specified activities. NMFS is also requesting comments on a possible one-year renewal that could be issued under certain circumstances and if all requirements are met, as described in Request for Public Comments at the end of this notice. NMFS will consider public

comments prior to making any final decision on the issuance of the requested MMPA authorizations and agency responses will be summarized in the final notice of our decision.

**ADDRESSES:** Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, and should be submitted via email to *ITP.Pauline@noaa.gov*.

*Instructions:* NMFS is not responsible for comments sent by any other method, to any other address or individual, or received after the end of the comment period.

Comments, including all attachments, must not exceed a 25-megabyte file size. All comments received are a part of the public record and will generally be posted online at *www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act* without change. All personal identifying information (*e.g.*, name, address) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

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

## **SUPPLEMENTARY INFORMATION:**

### **Background**

The MMPA prohibits the “take” of marine mammals, with certain exceptions. sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq.*) direct the Secretary of Commerce (as delegated to NMFS) to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in

a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed incidental take authorization may be provided to the public for review.

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

### **National Environmental Policy Act**

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

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

preliminarily determined that the issuance of the proposed IHA qualifies to be categorically excluded from further NEPA review.

NMFS will review all comments submitted in response to this notice prior to concluding our NEPA process or making a final decision on the IHA request.

### **Summary of Request**

On October 23, 2020, NMFS received a request from Mayflower for an IHA to take marine mammals incidental to site characterization surveys in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0521; Lease Area) and a submarine export cable route connecting the Lease Area to a landfall location in Falmouth, Massachusetts. A revised application was received on December 15, 2020. NMFS deemed that request to be adequate and complete on February 1, 2021. Mayflower's request was for take of a small number of 14 species of marine mammals by Level B harassment only. Neither Mayflower nor NMFS expected serious injury or mortality to result from this activity and, therefore, an IHA was appropriate. NMFS published a notice of proposed IHA in the **Federal Register** on March 1, 2021 (86 FR 11930).

Mayflower submitted a modified application on April 19, 2021 after the initial proposed IHA had published in the **Federal Register**. A final IHA was not issued for the initial proposed IHA. The modified application included an additional export cable route. Mayflower originally had proposed two separate but parallel export cable routes that would run north from the Lease Area between Martha's Vineyard and Nantucket islands through Nantucket Sound to a landfall location in Falmouth, MA. As part of the modification, Mayflower proposes to eliminate the easternmost export cable corridor route between Martha's Vineyard and Nantucket and replace it with an export cable corridor route that runs south of Martha's Vineyard through Narragansett Bay to an

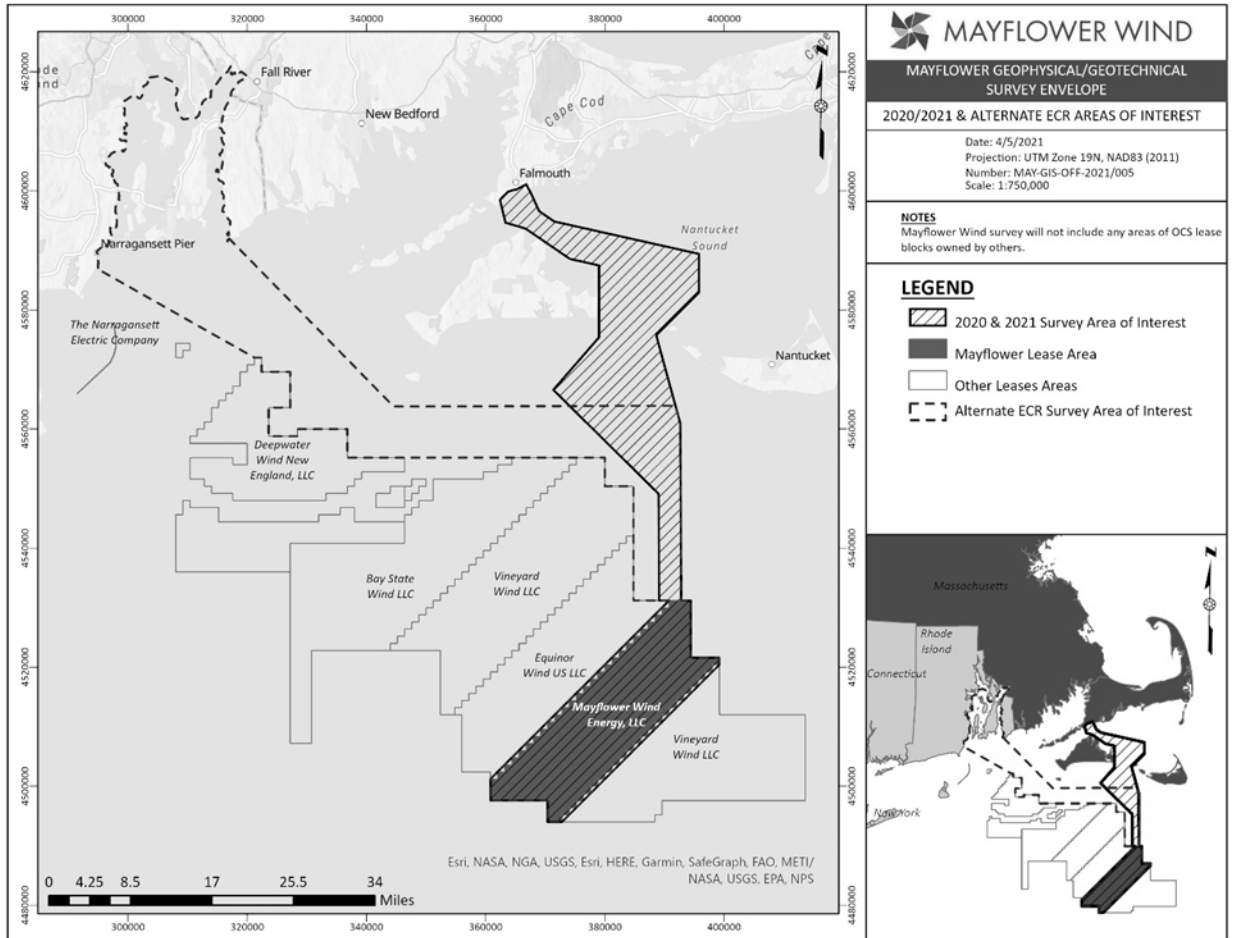
unspecified landfall location in the Bay. The westernmost export cable route corridor to Falmouth, MA would remain unchanged from the initial proposed IHA.

NMFS previously issued an IHA to Mayflower for similar work (85 FR 45578; July 29, 2020) in the same Lease Area and along the same submarine cable route that runs between Martha's Vineyard and Nantucket to a landfall location in Falmouth, MA that is currently effective from July 23, 2020 through July 22, 2021.

## **Description of Proposed Activity**

### *Overview*

Mayflower proposes to conduct marine site characterization surveys, including high-resolution geophysical (HRG) and geotechnical surveys, in the area of Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf #OCS-A 0521 (Lease Area) and along potential submarine cable routes to landfall locations at Falmouth, Massachusetts and in Narragansett Bay as shown in Figure 1.



**Figure 1 – Survey Area and Modified Export Route Cable Corridors**

The objective of the activities is to acquire high resolution geophysical (HRG) and geotechnical data on the bathymetry, seafloor morphology, subsurface geology, environmental/biological sites, seafloor obstructions, soil conditions, and locations of any

man-made, historical or archaeological resources within Lease Area OCS-A 0521 and along the proposed export cable route corridors.

HRG surveys would be carried out by up to four (4) different vessels. This is the same number of vessels that was proposed in the initial application and notice of proposed IHA (86 FR 11930; March 1, 2021).

Underwater sound resulting from Mayflower's proposed activities, specifically its proposed HRG surveys, have the potential to result in incidental take of marine mammals in the form of behavioral harassment.

#### *Dates and Duration*

The total duration of the modified proposed HRG survey activities would be approximately 471 survey days and the total trackline distance would be 14,350 kilometers (km) as shown in Table 1. These values are identical to those presented in the initial proposed IHA (86 FR 11930; March 1, 2021).

Mayflower deducted the trackline distance from the eastern cable route that was originally running to Falmouth as well as selected trackline distances originally planned for the Lease Area, and added these same trackline distances to the new proposed Narragansett Bay cable route corridor. Mayflower proposes to begin survey activities in June 2021 and conclude operations by December 31, 2021. However, the modified proposed IHA would be effective for 1 year from the date of issuance. In the initial proposed IHA, Mayflower had proposed effective dates of April 1, 2021 through November 30, 2021.

#### *Specific Geographic Region*

Mayflower's survey activities would occur in the Northwest Atlantic Ocean in Lease Area OCS-A 0521 which is located approximately 20 nautical miles (38 km) south-southwest of Nantucket, Massachusetts and covers approximately 515 km<sup>2</sup>. All survey efforts would occur within U.S. Federal and state waters. Water depths in the

Lease Area are approximately 38-62 meters (m). For the purpose of this IHA, the Lease Area and export cable routes are collectively referred to as the Project Area.

#### *Detailed Description of Specific Activity*

Mayflower's modified proposed marine site characterization surveys include the use of HRG survey equipment. Survey activities would occur within the Lease Area and along export cable routes between the Lease Area and Falmouth, MA and Narragansett Bay. Up to four (HRG survey vessels may operate concurrently as part of the proposed. One vessel would be operating primarily in the Lease Area and deep-water sections of the cable route (24 hour operations), with a second vessel operating primarily in the shallow water portion of the cable routes and sometimes into the deep water portion of the cable routes. Up to two shallow-draft vessels would work in very shallow waters (daylight only operations). Very shallow waters are defined as areas where only shallow draft vessels (<5 m) are capable of operating. Up to four additional vessels may be used to conduct geotechnical sampling activities (vibracores, seabed core penetration tests (CPTs), and boreholes) during the same period as the geophysical surveys but these activities are not expected to result in the harassment of marine mammals and will not be discussed further in this analysis. The proposed HRG survey activities are described below.

#### *HRG Survey Activities*

For assessing potential impacts to marine mammals, the survey has been divided into two areas. The Deep-water Survey Area shows the Lease Area where wind turbine generators (WTGs) and inter-array cables will be installed as well as the deep-water section of the export cable routes. The proposed survey in this area will primarily consist of 24-hour vessel operations, with some 12-hour per day vessel operations possible in the Shallow-water Survey Area which includes the rest of the export cable routes in shallow waters and very shallow nearshore waters. In the very shallow water areas, one or two



shallow-draft (<5 m) vessels will conduct nearshore surveys operating only during daylight hours.

The linear distance (survey tracklines) and number of active sound source days, including the new proposed Narragansett Bay cable route corridor, for the anticipated survey activity are summarized in Table 1 and remain unchanged from those presented in the initial notice of proposed IHA (86 FR 11930; March 1, 2021). The number of active sound source days was calculated by dividing the total survey trackline lengths in each area by the approximate survey distance per day anticipated to be achieved in each of the three zones shown in Table 1. The range of estimates provided for the shallow-water area result from assuming either daylight only (12-hours per day) survey operations or 24-hour per day operations.

**Table 1—Activity Details for 2021 Mayflower HRG Surveys from June through December 31, 2021**

Location	Approximate Survey Trackline <sup>1</sup> (km)	Approximate Survey Distance Per Day (km)	Active Sound Source Days
Lease Area and deep-water section of the cable route	7,000	80	88
Shallow-water section of the cable route	3,250	30–60	55–109
Very shallow cable route	4,100	15	274
Total	14,350	--	417-471

Some of the sources used during the planned surveys produce sounds that are audible to marine mammals and, therefore, may be detected by marine mammals (MacGillivray *et al.* 2014). Multiple factors related to source signal characteristics (*e.g.*, beamwidth) determine the likelihood of detection and, given detection, the likelihood that receipt of the signal would elicit a response to the degree that Level B harassment occurs. A geophysical survey contractor(s) has not yet been selected to conduct this work, so the exact equipment to be used is currently unknown. However, potential contractors provided representative sound-generating equipment that may be used during the survey

activities. The survey activities and equipment proposed for use in the modified proposed IHA are identical to those presented in the initial notice of proposed IHA (86 FR 11930; March 1, 2021). Acoustic source types that could result in take of marine mammals include the following:

- Shallow penetration, non-impulsive, non-parametric sub-bottom profilers (SBPs, also known as CHIRPs) are used to map the near-surface stratigraphy (top 0 to 10 m) of sediment below seabed. A CHIRP system emits signals covering a frequency sweep from approximately 0.01 to 1.9 kilohertz (kHz) over time. The frequency range can be adjusted to meet project variables.
- Medium penetration, impulsive sources (boomers, sparkers) are used to map deeper subsurface stratigraphy as needed. A boomer is a broad-band sound source operating in the 3.5 hertz (Hz) to 10 kHz frequency range. Sparkers are used to map deeper subsurface stratigraphy as needed. Sparkers create acoustic pulses from 50 Hz to 4 kHz omni-directionally from the source.

Operation of Non-impulsive, parametric SBPs; Ultra-short baseline (USBL) positioning systems; Multibeam echosounders (MBESs); and Side scan sonars (SSS) are not reasonably expected to result in take of marine mammals for reasons described in the initial notice of proposed IHA (86 FR 11930; March 1, 2021) and will not be carried forward in this analysis.

Table 2 identifies the representative survey equipment that may be used in support of planned HRG survey activities that operate below 180 kilohertz (kHz) (*i.e.*, at frequencies that are audible to and therefore may be detected by marine mammals) and have the potential to cause acoustic harassment to marine mammals. The make and model of the listed geophysical equipment may vary depending on availability and the final equipment choices will vary depending upon the final survey design, vessel availability, and survey contractor selection. Geophysical surveys are expected to use several

equipment types concurrently in order to collect multiple aspects of geophysical data along one transect. Selection of equipment combinations is based on specific survey objectives. Source levels for all equipment listed in Table 2 came from Crocker and Fratantonio (2016).

**Table 2–Summary of HRG Survey Equipment Proposed for Use that Could Result in Take of Marine Mammals**

Specific HRG Equipment	Operating Frequency Range (kHz)	Source Level (dB rms)	Beamwidth (degrees)	Typical Pulse Duration (ms)	Pulse Repetition rate (Hz)
<b>Sparker</b>					
Geomarine Geo-Spark 400 tip 800 J system	0.01 - 1.9	203	180	3.4	2
Applied Acoustics Dura-Spark UHD 400 tips, up to 800 J	0.01 - 1.9	203	180	3.4	2
<b>Boomer</b>					
Applied Acoustics S-Boom Triple Plate	0.01 – 5	205	61	0.6	3
Applied Acoustics S-Boom	0.01 – 5	195	98	0.9	3
<b>Sub-bottom Profiler</b>					
Edgetech 3100 with SB-2-16S towfish	2 - 16	179	51	9.1	10
Edgetech DW-106	1 - 6	176	66	14.4	10
Teledyne Benthos Chirp III – towfish	2 - 7	199	82	5.8	10
Knudson Pinger SBP	15	180	71	4	2

Proposed mitigation, monitoring, and reporting measures are described in detail later in this document (please see **Proposed Mitigation** and **Proposed Monitoring and Reporting**).

#### **Description of Marine Mammals in the Area of Specified Activities**

A description of the marine mammals in the area of the activities is found in the initial notice of proposed IHA (86 FR 11930; March 1, 2021) and remains applicable to this modified proposed IHA.

**Table 3—Marine Mammals Likely to Occur in the Project Area That May be Affected by Mayflower’s Proposed Activity**

Common name	Scientific name	Stock	ESA/MMP A status; Strategic (Y/N) <sup>1</sup>	Stock abundance (CV, N <sub>min</sub> , most recent abundance survey) <sup>2</sup>	PBR <sup>4</sup>	Annual M/SI <sup>3</sup>
Order Cetartiodactyla – Cetacea – Superfamily Mysticeti (baleen whales)						
Family Balaenidae						
North Atlantic right whale	<i>Eubalaena glacialis</i>	Western North Atlantic	E/D; Y	368 <sup>3</sup> (0,408; 2018)	0.89	18.6
Family Balaenopteridae (rorquals)						
Humpback whale	<i>Megaptera novaeangliae</i>	Gulf of Maine	-/ -; Y	1,393 (0; 1,375; 2016)	22	58
Fin whale	<i>Balaenoptera physalus</i>	Western North Atlantic	E/D; Y	6,820 (0.24; 5,573; 2016)	12	2.35
Sei whale	<i>Balaenoptera borealis</i>	Nova Scotia	E/D; Y	6292 (1.02; 3,098; 2016)	6.2	1.2
Minke whale	<i>Balaenoptera acutorostrata</i>	Canadian East Coast	-/ -; N	21,968 (0.31; 17,002; 2016)	170	10.6
Superfamily Odontoceti (toothed whales, dolphins, and porpoises)						
Family Physeteridae						
Sperm whale	<i>Physeter macrocephalus</i>	NA	E; Y	4,349 (0.28; 3,451 ; See SAR)	3.9	0
Family Delphinidae						
Long-finned pilot whale	<i>Globicephala melas</i>	Western North Atlantic	-/ -; N	39,215 (0.3; 30,627; See SAR)	306	21
Bottlenose dolphin	<i>Tursiops spp.</i>	Western North Atlantic Offshore	-/ -; N	62,851 (0.213; 51,914; See SAR)	519	28
Common dolphin	<i>Delphinus delphis</i>	Western North Atlantic	-/ -; N	172,897 (0.21; 145,216; 2016)	1,452	399
Atlantic white-sided dolphin	<i>Lagenorhynchus acutus</i>	Western North Atlantic	-/ -; N	92,233 (0.71; 54,433; See SAR)	544	26
Risso’s dolphin	<i>Grampus griseus</i>	Western North Atlantic	-/ -; N	35,493 (0.19; 30,289; See SAR)	303	54.3
Family Phocoenidae (porpoises)						
Harbor porpoise	<i>Phocoena phocoena</i>	Gulf of Maine/Bay of Fundy	-/ -; N	95,543 (0.31; 74,034; 2016)	851	217
Order Carnivora – Superfamily Pinnipedia						

Family Phocidae (earless seals)						
Gray seal <sup>5</sup>	<i>Halichoerus grypus</i>	Western North Atlantic	-/-; N	27,131 (0.19; 23,158, 2016)	1,389	4,729
Harbor seal	<i>Phoca vitulina</i>	Western North Atlantic	-/-; N	75,834 (0.15; 66,884, 2012)	2,006	350

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

<sup>2</sup> - NMFS marine mammal stock assessment reports online at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region/>. CV is coefficient of variation; Nmin is the minimum estimate of stock abundance. In some cases, CV is not applicable

<sup>3</sup> - Pace, RM. 2021. Revisions and Further Evaluations of the Right Whale Abundance Model: Improvements for Hypothesis Testing. NOAA Technical Memorandum NMFS-NE-269.

<sup>4</sup> - Potential biological removal, defined by the MMPA as the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population size (OSP). Annual M/SI, found in NMFS' stock assessment reports (SARs), represent annual levels of human-caused mortality plus serious injury from all sources combined (e.g., commercial fisheries, subsistence hunting, ship strike). Annual M/SI values often cannot be determined precisely and is in some cases presented as a minimum value.

<sup>5</sup> - NMFS stock abundance estimate applies to U.S. population only, actual stock abundance is approximately 505,000.

As indicated above, all 14 species (with 14 managed stocks) in Table 3 temporally and spatially co-occur with the proposed activity to the degree that take is reasonably likely to occur, and NMFS has proposed authorizing it.

At the time the notice of proposed IHA published (86 FR 11930; March 1, 2021) 32 North Atlantic right whales have been recorded as confirmed dead or stranded. As of April 26, 2021, the number has increased to 34. Humpback whale mortalities have increased from 145 to 149 and minke whale mortalities increased from 103 to 105 cases during the same time period. Additionally, the estimated abundance of North Atlantic right whales has been revised to 368 (Pace, 2021) since the initial notice of proposed IHA was published (86 FR 11930; March 1, 2021).

In response to the initial notice of proposed IHA (86 FR 11930; March 1, 2021) a group of environmental non-governmental organizations (ENGOS) including the Natural Resources Defense Council, Conservation Law Foundation, National Wildlife Federation, Defenders of Wildlife, Southern Environmental Law Center, Wildlife Conservation Society, Surfrider Foundation, Mass Audubon, Friends of the Earth,

International Fund for Animal Welfare, NY4WHALES, WDC Whale and Dolphin Conservation, Marine Mammal Alliance Nantucket, Gotham Whale, All Our Energy, Seatuck Environmental Association, Inland Ocean Coalition, Nassau Hiking & Outdoor Club, and Connecticut Audubon Society; and (2) the Delaware Department of Resources and Environmental Control (DNREC) commented that NMFS had not addressed recent findings associated with aerial and passive acoustic monitoring of North Atlantic right whales. This information is described below.

In the late fall months (*e.g.* October), North Atlantic right whales are generally thought to depart from the feeding grounds in the North Atlantic and move south along a migratory corridor to their calving grounds off Georgia and Florida. However, ongoing research indicates our understanding of their movement patterns remains incomplete (Davis *et al.*, 2017; Oleson *et al.*, 2020). A review of passive acoustic monitoring data from 2004 to 2014 throughout the western North Atlantic demonstrated nearly continuous year-round North Atlantic right whale presence across their entire habitat range (for at least some individuals), including in locations previously thought of as migratory corridors, suggesting that not all of the population undergoes a consistent annual migration (Davis *et al.*, 2017). Acoustic monitoring data from 2004 to 2014 indicated that the number of North Atlantic right whale vocalizations detected in the modified proposed project area were relatively constant throughout the year, with the exception of August through October when detected vocalizations showed an apparent decline (Davis *et al.*, 2017). Shifts in habitat use have also been observed. Cole *et al.* (2013) provided survey evidence that North Atlantic right whales were absent from the well-documented central Gulf of Maine winter habitat. Although present to some extent year round in the region south of Martha's Vineyard and Nantucket Islands (Oleson *et al.*, 2020), North Atlantic right whales have recently been observed feeding in large numbers in this area in the winter (Leiter *et al.*, 2017), which is outside of the 2016

Northeastern U.S. Foraging Area Critical Habitat. Observations of these transitions in North Atlantic right whale habitat use, variability in seasonal presence in identified core habitats, and utilization of habitat outside of previously focused survey effort prompted the formation of a NMFS' Expert Working Group, which identified current data collection efforts, data gaps, and provided recommendations for future survey and research efforts (Oleson *et al.*, 2020).

During the aerial surveys conducted in the Rhode Island/Massachusetts and Massachusetts Wind Energy Areas (WEAs) from 2011-2015, the highest number of North Atlantic right whale sightings (n) occurred in March (n=21), with sightings also occurring in December (n=4), January (n=7), February (n=14), and April (n=14), and no sightings in any other months (Kraus *et al.*, 2016). There was not significant variability in sighting rate among years, indicating consistent annual seasonal use of the area by North Atlantic right whales. Despite the lack of visual detection, North Atlantic right whales were acoustically detected in 30 out of the 36 recorded months (Kraus *et al.*, 2016). While density data from Roberts *et al.* (2020) confirm that the highest density of North Atlantic right whales in the project area occurs in March, it is clear that North Atlantic right whales are present in or near the project area throughout the year, particularly south of Martha's Vineyard and Nantucket Islands, which is thought to be an important foraging area, and that habitat use is changing (Leiter *et al.*, 2017; Stone *et al.*, 2017; Oleson *et al.*, 2020). The modified proposed project area is part of an important migratory area for North Atlantic right whales; this migratory area is comprised of the waters of the continental shelf offshore the East Coast of the United States and extends from Florida through Massachusetts. Aerial surveys conducted in and near the project area from 2011-2015 documented a total of six instances of feeding behavior by North Atlantic right whales (Kraus *et al.*, 2016). Finally, the modified proposed project area is located within the North Atlantic right whale migratory corridor Biologically Important

Area (BIA), which is applicable November 1 through December 31, 2021 and March 1, 2022 through April 31, 2022 and extends from Florida to Massachusetts (LeBreque *et al.*, 2015).

NMFS has reviewed recent draft Stock Assessment Reports, information on any other relevant Unusual Mortality Events, and recent scientific literature, and determined that no additional new information affects the analysis of impacts under the initial IHA.

### **Potential Effects of Specified Activities on Marine Mammals and their Habitat**

A description of the potential effects of the specified activities on marine mammals and their habitat may be found in the documents supporting Mayflower's initial proposed IHA covering Lease Area OCS-A 0521 and potential export cable routes (86 FR 11930; March 1, 2021). There is no new information on potential effects which would impact our analysis.

### **Estimated Take**

This section provides an estimate of the number of incidental takes proposed for authorization through this IHA, which will inform both NMFS' consideration of "small numbers" and the negligible impact determination.

Harassment is the only type of take expected to result from these activities. Except with respect to certain activities not pertinent here, section 3(18) of the MMPA defines "harassment" as any act of pursuit, torment, or annoyance, which (i) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (Level B harassment).

Authorized takes would be by Level B harassment only in the form of disruption of behavioral patterns for individual marine mammals resulting from exposure to HRG sources. Based on the nature of the activity and the anticipated effectiveness of the



mitigation measures (*i.e.*, exclusion zones (EZs) and shutdown measures), discussed in detail below in **Proposed Mitigation** section, Level A harassment is neither anticipated nor proposed to be authorized even in the absence of mitigation.

As described previously, no mortality is anticipated or proposed to be authorized for this activity even without the employment of mitigation measures. Below NMFS describes how the take is estimated.

Generally speaking, NMFS estimate take by considering: (1) acoustic thresholds above which NMFS believes the best available science indicates marine mammals will be behaviorally harassed or incur some degree of permanent hearing impairment; (2) the area or volume of water that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) the number of days of activities. NMFS notes that while these basic factors can contribute to a basic calculation to provide an initial prediction of takes, additional information that can qualitatively inform take estimates is also sometimes available (*e.g.*, previous monitoring results or average group size). Below, NMFS describes the factors considered here in more detail and present the proposed take estimate.

#### *Acoustic Thresholds*

NMFS recommends the use of acoustic thresholds that identify the received level of underwater sound above which exposed marine mammals would be reasonably expected to be behaviorally harassed (equated to Level B harassment) or to incur permanent threshold shift (PTS) of some degree (equated to Level A harassment).

*Level B Harassment for non-explosive sources* – Though significantly driven by received level, the onset of behavioral disturbance from anthropogenic noise exposure is also informed to varying degrees by other factors related to the source (*e.g.*, frequency, predictability, duty cycle), the environment (*e.g.*, bathymetry), and the receiving animals (hearing, motivation, experience, demography, behavioral context) and can be difficult to

predict (Southall *et al.*, 2007, Ellison *et al.*, 2012). Based on what the available science indicates and the practical need to use a threshold based on a factor that is both predictable and measurable for most activities, NMFS uses a generalized acoustic threshold based on received level to estimate the onset of behavioral harassment. NMFS predicts that marine mammals are likely to be behaviorally harassed in a manner NMFS considers Level B harassment when exposed to underwater anthropogenic noise above received levels of 120 dB re 1 micropascal root mean square (1  $\mu$ Pa (rms) for continuous (*e.g.*, vibratory pile-driving, drilling) and above 160 dB re 1  $\mu$ Pa (rms) for non-explosive impulsive (*e.g.*, seismic airguns) or intermittent (*e.g.*, scientific sonar) sources. Mayflower's proposed activity includes the use of intermittent sources (geophysical survey equipment), and therefore use of the 160 dB re 1  $\mu$ Pa (rms) threshold is applicable.

*Level A harassment for non-explosive sources* - NMFS' Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) (Technical Guidance, 2018) identifies dual criteria to assess auditory injury (Level A harassment) to five different marine mammal groups (based on hearing sensitivity) as a result of exposure to noise from two different types of sources (impulsive or non-impulsive). Mayflower's proposed activities that could result in take by harassment include the use of impulsive and non-impulsive sources.

Predicted distances to Level A harassment isopleths, which vary based on marine mammal functional hearing groups were calculated. The updated acoustic thresholds for impulsive and non-impulsive sounds (such as HRG survey equipment) contained in the Technical Guidance (NMFS, 2018) were presented as dual metric acoustic thresholds using both cumulative sound exposure level ( $SEL_{cum}$ ) and peak sound pressure level (peak SPL) metrics. As dual metrics, NMFS considers onset of permanent threshold shift (PTS) (Level A harassment) to have occurred when either one of the two metrics is

exceeded (*i.e.*, metric resulting in the largest isopleth). The  $SEL_{cum}$  metric considers both level and duration of exposure, as well as auditory weighting functions by marine mammal hearing group.

These thresholds are provided in Table 4 below. The references, analysis, and methodology used in the development of the thresholds are described in NMFS 2018 Technical Guidance, which may be accessed at

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-acoustic-technical-guidance>.

**Table 4—Thresholds Identifying the Onset of Permanent Threshold Shift**

Hearing Group	PTS Onset Acoustic Thresholds* (Received Level)	
	Impulsive	Non-impulsive
Low-Frequency (LF) Cetaceans	<i>Cell 1</i> $L_{pk,flat}$ : 219 dB $L_{E,LF,24h}$ : 183 dB	<i>Cell 2</i> $L_{E,LF,24h}$ : 199 dB
Mid-Frequency (MF) Cetaceans	<i>Cell 3</i> $L_{pk,flat}$ : 230 dB $L_{E,MF,24h}$ : 185 dB	<i>Cell 4</i> $L_{E,MF,24h}$ : 198 dB
High-Frequency (HF) Cetaceans	<i>Cell 5</i> $L_{pk,flat}$ : 202 dB $L_{E,HF,24h}$ : 155 dB	<i>Cell 6</i> $L_{E,HF,24h}$ : 173 dB
Phocid Pinnipeds (PW) (Underwater)	<i>Cell 7</i> $L_{pk,flat}$ : 218 dB $L_{E,PW,24h}$ : 185 dB	<i>Cell 8</i> $L_{E,PW,24h}$ : 201 dB
Otariid Pinnipeds (OW) (Underwater)	<i>Cell 9</i> $L_{pk,flat}$ : 232 dB $L_{E,OW,24h}$ : 203 dB	<i>Cell 10</i> $L_{E,OW,24h}$ : 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p><u>Note</u>: Peak sound pressure (<math>L_{pk}</math>) has a reference value of 1 <math>\mu Pa</math>, and cumulative sound exposure level (<math>L_E</math>) has a reference value of 1 <math>\mu Pa^2s</math>. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (<i>i.e.</i>, varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

### *Ensonified Area*

Here, NMFS describes operational and environmental parameters of the activity that will feed into identifying the area ensonified above the acoustic thresholds, which include source levels and transmission loss coefficient.

The proposed survey activities would entail the use of HRG equipment. The distance to the isopleth corresponding to the threshold for Level B harassment was calculated for all HRG equipment with the potential to result in harassment of marine mammals. NMFS has developed a methodology for determining distance to the 160-dB isopleth for the purposes of estimating take by Level B harassment resulting from exposure to HRG survey equipment. This methodology incorporates frequency and some directionality to refine estimated ensonified zones. Mayflower used the methods specified in the interim methodology. For sources that operate with different beam widths, the maximum beam width was used. The lowest frequency of the source was used when calculating the absorption coefficient. The formulas used to apply the methodology are described in detail in Appendix A of the IHA application.

NMFS considers the data provided by Crocker and Fratantonio (2016) to represent the best available information on source levels associated with HRG equipment and therefore recommends that source levels provided by Crocker and Fratantonio (2016), when available, be incorporated in the method described above to estimate isopleth distances to the Level B harassment threshold. This was done for the sparker and boomer shown in Table 5. If there is no relevant information provided by Crocker and Fratantonio (2016) for a specific device, then manufacturers data should be used. This was done for the sub-bottom profiler in Table 5.

### **Table 5—Estimated Distances to Level A and Level B harassment Thresholds for the Planned Survey Equipment**

Representative System(s)	Distance (m) to Level A Harassment Threshold <sup>1</sup>					Distance to Level B Harassment Threshold (m)
	LFC	MFC	HFC	PPW	OPW	All Marine Mammals
Sparker						
SIG ELC 820 @ 750 J	1	<1	4 <sup>2</sup>	<1	<1	141
Sub-bottom Profiler						
Teledyne Benthos Chirp III	2	<1	57	1	<1	66
Boomer						
Applied Acoustics S-boom @ 700 J	<1	<1	1 <sup>2</sup>	<1	<1	90

<sup>1</sup>– Distances to the Level A harassment threshold based on the larger of the dual criteria (peak SPL and SEL<sub>cum</sub>) are shown.

<sup>2</sup>–Peak SPL pressure level resulted in larger isopleth than SEL<sub>cum</sub>.

Modeling of distances to isopleths corresponding to the Level A harassment threshold was performed for all types of HRG equipment proposed for use with the potential to result in harassment of marine mammals. Mayflower used a model developed by JASCO to calculate distances to Level A harassment isopleths based on both the peak SPL and the SEL<sub>cum</sub> metric. Additional details regarding the JASCO model may be found in the initial proposed IHA (86 FR 11930; March 1, 2021).

Modeled distances to isopleths corresponding to the Level A harassment threshold are very small (<1 m in most cases) for three of the four marine mammal functional hearing groups that may be impacted by the survey activities (*i.e.*, low frequency and mid frequency cetaceans, and phocid pinnipeds). Based on the extremely small Level A harassment zones for these functional hearing groups, the potential for species within these functional hearing groups to be taken by Level A harassment is considered so low as to be discountable. These three functional hearing groups encompass all but one of the marine mammal species that may be impacted by the planned activities. There is one

species (harbor porpoise) within the high frequency functional hearing group that may be impacted by the planned activities. However, the largest modeled distance to the Level A harassment threshold for the high frequency functional hearing group was 57 m (Table 5) for the Chirp III. This is likely a conservative assessment given that the JASCO model treats all devices as impulsive and results in gross overestimates for non-impulsive devices. Level A harassment would also be more likely to occur at close approach to the sound source or as a result of longer duration exposure to the sound source, and mitigation measures—including a 100 m exclusion zone for harbor porpoises—are expected to minimize the potential for close approach or longer duration exposure to active HRG sources. In addition, harbor porpoises are a notoriously shy species which is known to avoid vessels. Harbor porpoises would also be expected to avoid a sound source prior to that source reaching a level that would result in injury (Level A harassment). Therefore, NMFS has determined that the potential for take by Level A harassment of harbor porpoises or any other species is so low as to be discountable and does not propose authorizing take by Level A harassment of any marine mammals. Note that this is the same finding that was included in the initial notice or proposed IHA (86 FR 11930; March 1, 2021).

The largest distance to the 160 dB SPL<sub>rms</sub> Level B harassment threshold is expected to be 141 m from the sparkers. This distance was used as described in this section to estimate the area of water potentially exposed above the Level B harassment threshold by the planned activities.

As shown in Table 1, up to 14,350 km of survey activity may occur from June through December 2021, including turns between lines or occasional testing of equipment while not collecting geophysical data. For the purposes of calculating take, Mayflower's HRG survey activities have been split into two different areas, 1) the lease area plus the

deep-water portion of the cable routes, and 2) the shallow water portions of the cable routes including very shallow water sections of the cable routes.

Within the Lease Area and deep-water portion of the cable route, the vessel will conduct surveys at a speed of approximately 3 knots (5.6 km/hr) during mostly 24-hr operations. Allowing for weather and equipment downtime, the survey vessel is expected to collect geophysical data over an average distance of 80 km per day. Using a 160 dB  $SPL_{rms}$  threshold distance of 141 m, the monthly average total ensonified area is estimated to be 282.8 km<sup>2</sup> within the Lease Area and deep-water portion of the cable route.

Along the shallow-water portion of the cable route, survey vessels will also conduct surveys at a speed of approximately 3 knots (5.6 km/hr) during either daylight only or 24-hour operations. Survey operations in very shallow water will occur only during daylight hours. Allowing for weather and equipment downtime, the survey vessels are expected to cover an average distance of approximately 30–60 km per day in shallow waters and only 15 km per day in very shallow waters. Assuming daylight only operations and 30 km per day of surveys in shallow waters results in slightly larger ensonified area estimates. Distributing the 3,250 km of survey data to be collected in shallow waters and the 4,100 km to be collected in very shallow waters across the 7-month period of anticipated activity results in approximately 15.5 and 39 survey days per month in shallow and very-shallow waters, respectively. Using a 160 dB  $SPL_{rms}$  threshold distance of 141 m, the total daily ensonified area in shallow waters is estimated to be 8.5 km<sup>2</sup>, and in very-shallow waters 4.3 km<sup>2</sup>. Combined, these result in an average monthly ensonified area in the combined shallow water survey areas of 299.5 km<sup>2</sup>.

#### *Marine Mammal Occurrence*

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

Mayflower submitted a partial marine mammal monitoring report under the existing IHA (85 FR 45578; July 39, 2021) which included the first 90 days of survey work. A total of 415 individual identifiable marine mammals from six species were observed within the predicted Level B harassment zone while an HRG source was active. These observations included one humpback whale, two minke whales, two sei whales, three bottlenose dolphins and 405 common dolphins. There were also two unidentified seal observations. An additional 24 unidentified dolphins and one unidentified whale were observed inside the estimated Level B harassment zone but those observations could not be identified to the species level. All mitigation and monitoring requirements were followed and Mayflower did not exceed authorized take limits for any species.

Density estimates for all species except North Atlantic right whale within the deep and shallow portions of the survey areas were derived from habitat-based density modeling results reported by Roberts *et al.* (2016, 2017, 2018). Those data provide abundance estimates for species or species guilds within 10 km x 10 km grid cells (100 km<sup>2</sup>) on a monthly or annual basis, depending on the species. In order to select a representative sample of grid cells in and near the survey areas, a 10-km wide perimeter around the lease area and an 8-km wide perimeter around the cable routes were created in GIS (ESRI 2017). The perimeters were then used to select grid cells near the survey areas containing the most recent monthly or annual estimates for each species in the Roberts *et al.* (2016, 2017, 2018) data. The average monthly abundance for each species in each survey area was calculated as the mean value of the grid cells within each survey area in each month and then converted to density (individuals / 1 km<sup>2</sup>) by dividing by 100 km<sup>2</sup> (Table 6, Table 7).

The estimated monthly densities of North Atlantic right whales were based on updated model results from Roberts *et al.* (2020). These updated data for North Atlantic right whale are provided as densities (individuals/1 km<sup>2</sup>) within 5 km x 5 km grid cells



(25 km<sup>2</sup>) on a monthly basis. The same GIS process described above was used to select the appropriate grid cells from each month and the monthly North Atlantic right whale density in each survey area was calculated as the mean value of the grid cells within each survey area as shown in Table 6 and Table 7.

The estimated monthly density of seals provided in Roberts *et al.* (2018) includes all seal species present in the region as a single guild. Based upon a recommendation from NMFS, Mayflower did not separate this guild into the individual species based on the proportion of sightings identified to each species within the dataset because so few of the total sightings used in the Roberts *et al.* (2018) analysis were actually identified to species (Table 6, Table 7).

Marine mammal densities from Roberts *et al.* (2018) data in areas immediately adjacent to the coast and within Nantucket Sound were used when calculating potential takes from survey activities within Narragansett Bay. This is a conservative approach since there have only been a few reported sightings of marine mammal species, besides seals, within Narragansett Bay (Raposa 2009).

For comparison purposes and to account for local variation not captured by the predicted densities provided by Roberts *et al.* (2016, 2017, 2018, 2020), Protected Species Observers (PSOs) data from Mayflower's 2020 HRG surveys were analyzed to assess the appropriateness of the density-based take calculations. To do this, the total number of individual marine mammals sighted by PSOs within 150 m of a sound source (rounding up from the 141-m Level B harassment distance) from April 19 through September 19, 2020, a period of 23 weeks, were summed by species or "unidentified" species group when sightings were not classified to the species level. As a conservative approach, all sightings were included in this calculation regardless of whether the source was operating at the time. In order to include the "unidentified" individuals in the species-specific calculations, the number of individuals in each unidentified species

group (e.g., unidentified whale) was then added to the sums of the known species within that group (e.g., humpback whale, fin whale, etc.) according to the proportion of individuals within that group positively identified to the species level. With individuals from “unidentified” species sightings proportionally distributed among the species, Mayflower then divided the total number of individuals of each species by the number of survey weeks to calculate the average number of individuals of each species sighted within 150 m of the sound sources per week during the surveys. See section 6.4 in application for additional detail.

As described in the *Dates and Duration* section, Mayflower currently proposes for its survey activities to be concluded in December 2021. If the proposed survey activities extend beyond December 2021, the monthly densities for the marine mammals listed below may change, potentially affecting take values. In that situation, Mayflower would need to contact NMFS to determine a path forward to ensure that they remain in compliance with the MMPA.

**Table 6. Average Monthly Densities for Species That May Occur in the Lease Area and Along the Deep-Water Section of the Cable Route During the Planned Survey Period.**

Species	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Mysticetes</i>							
Fin Whale	0.0025	0.0025	0.0024	0.0020	0.0013	0.0011	0.0012
Humpback Whale	0.0012	0.0013	0.0009	0.0020	0.0015	0.0005	0.0006
Minke Whale	0.0018	0.0007	0.0005	0.0005	0.0005	0.0003	0.0004
North Atlantic Right Whale	0.0002	0.0000	0.0000	0.0000	0.0001	0.0005	0.0028
Sei Whale	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Odontocetes</i>							
Atlantic White-Sided Dolphin	0.0449	0.0318	0.0180	0.0183	0.0234	0.0249	0.0317
Common Bottlenose Dolphin	0.0267	0.0585	0.0483	0.0546	0.0459	0.0223	0.0136
Harbor Porpoise	0.0133	0.0088	0.0080	0.0067	0.0081	0.0267	0.0260
Pilot Whales	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046	0.0046
Risso’s Dolphin	0.0001	0.0003	0.0006	0.0005	0.0002	0.0002	0.0004
Short-Beaked Common Dolphin	0.0410	0.0432	0.0747	0.1187	0.1280	0.0903	0.1563
Sperm Whale	0.0001	0.0003	0.0003	0.0001	0.0001	0.0001	0.0000
<i>Pinnipeds</i>							

Seals (Harbor and Gray)	0.0322	0.0078	0.0041	0.0054	0.0085	0.0091	0.0345
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**Table 7. Average Monthly Densities for Species that May Occur Along the Shallow-Water Section of the Cable Routes During the Planned Survey Period.**

Species	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Mysticetes</i>							
Fin Whale	0.0003	0.0003	0.0003	0.0003	0.0002	0.0001	0.0001
Humpback Whale	0.0001	0.0001	0.0000	0.0001	0.0002	0.0001	0.0017
Minke Whale	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
North Atlantic Right Whale	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0005
Sei Whale	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Odontocetes</i>							
Atlantic White-Sided Dolphin	0.0010	0.0006	0.0005	0.0008	0.0014	0.0011	0.0006
Common Bottlenose Dolphin	0.2308	0.4199	0.3211	0.3077	0.1564	0.0813	0.0174
Harbor Porpoise	0.0048	0.0023	0.0037	0.0036	0.0003	0.0214	0.0253
Pilot Whales	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Risso's Dolphin	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Short-Beaked Common Dolphin	0.0003	0.0002	0.0006	0.0009	0.0008	0.0010	0.0006
Sperm Whale	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>Pinnipeds</i>							
Seal (Harbor and Gray)	0.2496	0.0281	0.0120	0.0245	0.0826	0.5456	1.3589

### *Take Calculation and Estimation*

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

The potential numbers of takes by Level B harassment were calculated by multiplying the monthly density for each species in each survey area shown in Table 6 and Table 7 by the respective monthly ensonified area within each survey area. The results are shown in the “Calculated Take” columns of Table 8. The survey area estimates were then summed to produce the “Total Density-based Calculated Take” and then rounded up to arrive at the number of “Density-based Takes” for each species (Table 8).

To account for potential local variation in animal presence compared to the predicted densities, the average weekly number of individuals for each species observed within 150 m of the HRG survey sound sources in 2020, regardless of their operational

status at the time were multiplied by the anticipated 32-week survey period in 2021. Note that the initial notice of proposed IHA (86 FR 11930; March 1, 2021) assumed that the survey period would be 35 weeks with the same number of survey days (471). These results are shown in the “Sightings-based Takes” column of Table 8. The larger of the take estimates from the density-based and sightings-based methods are shown in the “Proposed Take” column, except as noted below.

Based on density and sightings data for the modified Project Area, Mayflower modified its take authorization request and NMFS concurred with its modification. Accordingly, NMFS proposes to authorize the following take reductions by Level B harassment as part of the modified proposed IHA: 37 to 33 humpback whale takes; 15 to 14 minke whale takes; 85 to 57 Atlantic white-sided dolphin takes; 2,153 to 1,969 common dolphin takes; 61 to 46 harbor porpoise takes; and 989 to 718 seal takes. The number of proposed takes by Level B harassment for bottlenose dolphins has been increased from 483 to 536.

The differences in requested take for four species (Atlantic white-sided dolphin, common bottlenose dolphin, harbor porpoise, and seals) resulted from a combination of different monthly densities as well as a different monthly ensonified area being applied to those densities. The same calculations were performed for all species, so the relative changes in the requested take for these species was driven by the amount of change in monthly densities for each species. The densities changed between applications for two reasons, 1) the survey area location was changed to include the alternative cable route and 2) the months in which the activity will occur were shifted later in the year, from April - November to June – December. The various combinations of changes to these factors resulted in different relative changes to the requested takes for these four species.

For the other three species (*i.e.* humpback whale, minke whale, common dolphin) take calculated based on Roberts *et al.* densities was considerably lower than observed

numbers of animals during the 2020 surveys. Therefore, the numbers of observations per week were considered more representative of the area densities. For humpback whale, the requested take in the original proposed IHA was based on the average weekly sightings rate from 2020 PSO observations (1.04 humpback whales/week). The reduction in the proposed take is a result of the shortened overall length of the activity from 35 weeks to 32 weeks. For minke whale, the average weekly sightings rate from 2020 PSO observations (0.43 minke whales/week) reduced proposed take due to shortened overall length of the activity (from 35 weeks to 32 weeks). The same reduction in proposed take of common dolphin was similarly based on the average weekly sightings rate from 2020 PSO observations (61.52 common dolphins/week) and the decreased overall length of the activity. The reduction in the requested take is a result of the shortened overall length of the activity (from 35 weeks to 32 weeks).

Using the best available density data (Roberts *et al.* 2016, 2017, 2018, 2020), Mayflower requested and NMFS proposes to authorize 57 takes of white-sided dolphin, 536 takes of bottlenose dolphin and 46 harbor porpoise takes by Level B harassment. For six species, humpback whale, North Atlantic right whale, sei whale, pilot whales, Risso's dolphin, and sperm whale the proposed take column reflects a rounding up of three times the mean group size calculated from survey data in this region (Kraus *et al.* 2016; Palka *et al.* 2017). Three times the group size was used rather than a single group size to account for more than one chance encounter with these species during the surveys.

NMFS concurred with this assessment and, therefore, proposes the authorization of 9 North Atlantic right whale, 6 fin whale, 6 sei whale, 27 pilot whale, 18 Risso's dolphin, and 6 sperm whale takes by Level B harassment. The proposed take authorization numbers for these species remains unchanged from the original proposed IHA.

The proposed number of takes by Level B harassment as a percentage of the "best available" abundance estimates provided in the most recent NMFS draft Stock

Assessment Reports (Hayes *et al.* 2020) are also provided in Table 8. For the seal guild, the estimated abundance for both gray and harbor seals was summed in Table 8. Mayflower requested and NMFS proposes to authorize 718 incidental takes of harbor and gray seal by Level B harassment.

Bottlenose dolphins encountered in the survey area would likely belong to the Western North Atlantic Offshore Stock (Hayes *et al.* 2020). However, it is possible that a few animals encountered during the surveys could be from the North Atlantic Northern Migratory Coastal Stock, but they generally do not range farther north than New Jersey. Also, based on the distributions described in Hayes *et al.* (2020), pilot whale sightings in the survey area would most likely be long-finned pilot whales, although short-finned pilot whales could be encountered in the survey area during the summer months.

For North Atlantic right whales, the implementation of a 500 m exclusion zone means that the likelihood of an exposure to received sound levels greater than 160 dB SPL<sub>rms</sub> is very low. In addition, most of the survey activity will take place during the time of year when North Atlantic right whales are unlikely to be present in this region. Nonetheless, it is possible that North Atlantic right whales could occur within 500 m of the vessel without first being detected PSO, so Mayflower requested and NMFS proposes to authorize take consistent with other species (*i.e.* three times average group size).

**Table 8. Number of Level B takes Proposed and Percentages of Each Stock Abundance.**

	Lease Area + Deep water Cable	Shallow Water Cable	Total Density- based takes	Density Based Takes	Sightings based Takes	Proposed Takes	Abundance	Percent of Stock Abundance
<i>Mysticetes</i>								
Fin Whale	3.7	0.5	4.1	5	1	6	3,006	0.2
Humpback Whale	2.2	0.7	2.9	3	33	33	1,396	2.4
Minke Whale	1.3	0.1	1.5	2	14	14	2,591	0.5
North Atlantic Right Whale	1.0	0.2	1.2	2	0	9	368	2.4
Sei Whale	0.1	0.0	0.1	1	0	6	28	21.4
<i>Odontocetes</i>								
Atlantic White -Sided Dolphin	54.6	1.8	56.4	57	0	57	31,912	0.2
Common Bottlenose Dolphin	76.3	459.6	536.0	536	59	536	62,851	0.9
Harbor Porpoise	27.6	18.4	46.0	46	0	46	75,079	0.1
Pilot Whales	9.2	0.0	9.2	10	17	27	68,139	0.0
Risso's Dolphin	0.7	0.0	0.7	1	0	18	35,493	0.1
Short-Beaked Common Dolphin	184.5	1.3	185.8	186	1,969	1,969	80,227	2.5
Sperm Whale	0.3	0.0	0.3	1	0	6	4,349	0.1
<i>Pinnipeds</i>								
Seals (Harbor and Gray)	28.7	689.2	718.0	718	141	718	102,965	0.7

## **Proposed Mitigation**

The mitigation, monitoring, and reporting measures described here are identical to those included in the **Federal Register** notice announcing the initial proposed IHA and the discussion of the least practicable adverse impact included in that document remains accurate (86 FR 11930; 2021).

### *Marine Mammal Exclusion Zones and Harassment Zones*

NMFS proposes the following mitigation measures be implemented during Mayflower's proposed marine site characterization surveys.

Marine mammal EZs would be established around the HRG survey equipment and monitored by PSOs during HRG surveys as follows:

- A 500-m EZ would be required for North Atlantic right whales during use of all acoustic sources; and
- 100 m EZ for all marine mammals, with certain exceptions specified below, during operation of impulsive acoustic sources (boomer and/or sparker).

If a marine mammal is detected approaching or entering the EZs during the HRG survey, the vessel operator would adhere to the shutdown procedures described below to minimize noise impacts on the animals. These stated requirements will be included in the site-specific training to be provided to the survey team.

### *Pre-Clearance of the Exclusion Zones*

Mayflower would implement a 30-minute pre-clearance period of the EZs zones prior to the initiation of ramp-up of HRG equipment. During this period, the EZs will be monitored by the PSOs, using the appropriate visual technology. Ramp-up may not be initiated if any marine mammal(s) is within its respective EZ. If a marine mammal is observed within an EZ during the pre-clearance period, ramp-up may not begin until the animal(s) has been observed exiting its respective EZ or until an additional time period



has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and seals, and 30 minutes for all other species).

#### *Ramp-Up of Survey Equipment*

When technically feasible, a ramp-up procedure would be used for HRG survey equipment capable of adjusting energy levels at the start or restart of survey activities. The ramp-up procedure would be used at the beginning of HRG survey activities in order to provide additional protection to marine mammals near the Project Area by allowing them to vacate the area prior to the commencement of survey equipment operation at full power.

A ramp-up would begin with the powering up of the smallest acoustic HRG equipment at its lowest practical power output appropriate for the survey. When technically feasible, the power would then be gradually turned up and other acoustic sources would be added.

Ramp-up activities will be delayed if a marine mammal(s) enters its respective EZ. Ramp-up will continue if the animal has been observed exiting its respective EZ or until an additional time period has elapsed with no further sighting (*i.e.*, 15 minutes for small odontocetes and seals and 30 minutes for all other species).

Activation of survey equipment through ramp-up procedures may not occur when visual observation of the pre-clearance zone is not expected to be effective (*i.e.*, during inclement conditions such as heavy rain or fog).

#### *Shutdown Procedures*

An immediate shutdown of the impulsive HRG survey equipment would be required if a marine mammal is sighted entering or within its respective EZ. The vessel operator must comply immediately with any call for shutdown by the Lead PSO. Any disagreement between the Lead PSO and vessel operator should be discussed only after shutdown has occurred. Subsequent restart of the survey equipment can be initiated if the

animal has been observed exiting its respective EZ or until an additional time period has elapsed (*i.e.*, 30 minutes for all other species).

If a species for which authorization has not been granted, or, a species for which authorization has been granted but the authorized number of takes have been met, approaches or is observed within the Level B harassment zone (48 m, non-impulsive; 141 m impulsive), shutdown would occur.

If the acoustic source is shut down for reasons other than mitigation (*e.g.*, mechanical difficulty) for less than 30 minutes, it may be activated again without ramp-up if PSOs have maintained constant observation and no detections of any marine mammal have occurred within the respective EZ. If the acoustic source is shut down for a period longer than 30 minutes and PSOs have maintained constant observation, then pre-clearance and ramp-up procedures will be initiated as described in the previous section.

The shutdown requirement would be waived for small delphinids of the following genera: *Delphinus*, *Lagenorhynchus*, *Stenella*, and *Tursiops* and seals. Specifically, if a delphinid from the specified genera or a pinniped is visually detected approaching the vessel (*i.e.*, to bow ride) or towed equipment, shutdown is not required. Furthermore, if there is uncertainty regarding identification of a marine mammal species (*i.e.*, whether the observed marine mammal(s) belongs to one of the delphinid genera for which shutdown is waived), PSOs must use best professional judgement in making the decision to call for a shutdown. Additionally, shutdown is required if a delphinid or pinniped detected in the EZ and belongs to a genus other than those specified.

#### *Vessel Strike Avoidance*

Mayflower will ensure that vessel operators and crew maintain a vigilant watch for cetaceans and pinnipeds and slow down or stop their vessels to avoid striking these species. Survey vessel crew members responsible for navigation duties will receive site-specific training on marine mammals sighting/reporting and vessel strike avoidance

measures. Vessel strike avoidance measures would include the following, except under circumstances when complying with these requirements would put the safety of the vessel or crew at risk:

- Vessel operators and crews must maintain a vigilant watch for all protected species and slow down, stop their vessel, or alter course, as appropriate and regardless of vessel size, to avoid striking any protected species. A visual observer aboard the vessel must monitor a vessel strike avoidance zone based on the appropriate separation distance around the vessel (distances stated below). Visual observers monitoring the vessel strike avoidance zone may be third-party observers (*i.e.*, PSOs) or crew members, but crew members responsible for these duties must be provided sufficient training to 1) distinguish protected species from other phenomena and 2) broadly to identify a marine mammal as a North American right whale, other whale (defined in this context as sperm whales or baleen whales other than right whales), or other marine mammal.
- All vessels, regardless of size, must observe a 10-knot speed restriction in specific areas designated by NMFS for the protection of North Atlantic right whales from vessel strikes including seasonal management areas (SMAs) and dynamic management areas (DMAs) when in effect;
- All vessels greater than or equal to 19.8 m in overall length operating from November 1 through April 30 will operate at speeds of 10 knots or less while transiting to and from Project Area;
- All vessels must reduce their speed to 10 knots or less when mother/calf pairs, pods, or large assemblages of cetaceans are observed near a vessel.
- All vessels must maintain a minimum separation distance of 500 m from North Atlantic right whales. If a whale is observed but cannot be confirmed as

a species other than a right whale, the vessel operator must assume that it is a right whale and take appropriate action.

- All vessels must maintain a minimum separation distance of 100 m from sperm whales and all other baleen whales.
- All vessels must, to the maximum extent practicable, attempt to maintain a minimum separation distance of 50 m from all other marine mammals, with an understanding that at times this may not be possible (*e.g.*, for animals that approach the vessel).
- When marine mammals are sighted while a vessel is underway, the vessel shall take action as necessary to avoid violating the relevant separation distance (*e.g.*, attempt to remain parallel to the animal's course, avoid excessive speed or abrupt changes in direction until the animal has left the area). If marine mammals are sighted within the relevant separation distance, the vessel must reduce speed and shift the engine to neutral, not engaging the engines until animals are clear of the area. This does not apply to any vessel towing gear or any vessel that is navigationally constrained.
- These requirements do not apply in any case where compliance would create an imminent and serious threat to a person or vessel or to the extent that a vessel is restricted in its ability to maneuver and, because of the restriction, cannot comply.
- Members of the monitoring team will consult NMFS North Atlantic right whale reporting system and Whale Alert, as able, for the presence of North Atlantic right whales throughout survey operations, and for the establishment of a DMA. If NMFS should establish a DMA in the Lease Areas during the survey, the vessels will abide by speed restrictions in the DMA.

Project-specific training will be conducted for all vessel crew prior to the start of a survey and during any changes in crew such that all survey personnel are fully aware and understand the mitigation, monitoring, and reporting requirements. Prior to implementation with vessel crews, the training program will be provided to NMFS for review and approval. Confirmation of the training and understanding of the requirements will be documented on a training course log sheet. Signing the log sheet will certify that the crew member understands and will comply with the necessary requirements throughout the survey activities.

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

### **Proposed Monitoring and Reporting**

The monitoring, and reporting measures described here are identical to those included in the **Federal Register** notice announcing the initial proposed IHA (86 FR 11930; March 1, 2021).

Visual monitoring will be performed by qualified, NMFS-approved PSOs, the resumes of whom will be provided to NMFS for review and approval prior to the start of survey activities. Mayflower would employ independent, dedicated, trained PSOs, meaning that the PSOs must 1) be employed by a third-party observer provider, 2) have no tasks other than to conduct observational effort, collect data, and communicate with and instruct relevant vessel crew with regard to the presence of marine mammals and mitigation requirements (including brief alerts regarding maritime hazards), and 3) have successfully completed an approved PSO training course appropriate for their designated task. On a case-by-case basis, non-independent observers may be approved by NMFS for

limited, specific duties in support of approved, independent PSOs on smaller vessels with limited crew capacity operating in nearshore waters.

The PSOs will be responsible for monitoring the waters surrounding each survey vessel to the farthest extent permitted by sighting conditions, including EZs, during all HRG survey operations. PSOs will visually monitor and identify marine mammals, including those approaching or entering the established EZs during survey activities. It will be the responsibility of the Lead PSO on duty to communicate the presence of marine mammals as well as to communicate the action(s) that are necessary to ensure mitigation and monitoring requirements are implemented as appropriate.

During all HRG survey operations (*e.g.*, any day on which use of an HRG source is planned to occur), a minimum of one PSO must be on duty during daylight operations on each survey vessel, conducting visual observations at all times on all active survey vessels during daylight hours (*i.e.*, from 30 minutes prior to sunrise through 30 minutes following sunset). Two PSOs will be on watch during nighttime operations. The PSO(s) would ensure 360° visual coverage around the vessel from the most appropriate observation posts and would conduct visual observations using binoculars and/or night vision goggles and the naked eye while free from distractions and in a consistent, systematic, and diligent manner. PSOs may be on watch for a maximum of four consecutive hours followed by a break of at least two hours between watches and may conduct a maximum of 12 hours of observation per 24-hour period. In cases where multiple vessels are surveying concurrently, any observations of marine mammals would be communicated to PSOs on all nearby survey vessels.

Vessels conducting HRG survey activities in very-shallow waters using shallow-draft vessels are very limited in the number of personnel that can be onboard. In such cases, one visual PSO will be onboard and the vessel captain (or crew member on watch) will conduct observations when the PSO is on required breaks. All vessel crew

conducting PSO watches will receive training in monitoring and mitigation requirements and species identification necessary to reliably carry out the mitigation requirements. Given the small size of these vessels, the PSO would effectively remain available to confirm sightings and any related mitigation measures while on break.

PSOs must be equipped with binoculars and have the ability to estimate distance and bearing to detect marine mammals, particularly in proximity toEZs. Reticulated binoculars must also be available to PSOs for use as appropriate based on conditions and visibility to support the sighting and monitoring of marine mammals. During nighttime operations, night-vision goggles with thermal clip-ons and infrared technology would be used. Position data would be recorded using hand-held or vessel GPS units for each sighting.

During good conditions (*e.g.*, daylight hours; Beaufort sea state (BSS) 3 or less), to the maximum extent practicable, PSOs would also conduct observations when the acoustic source is not operating for comparison of sighting rates and behavior with and without use of the active acoustic sources. Any observations of marine mammals by crew members aboard any vessel associated with the survey would be relayed to the PSO team. Data on all PSO observations would be recorded based on standard PSO collection requirements. This would include dates, times, and locations of survey operations; dates and times of observations, location and weather; details of marine mammal sightings (*e.g.*, species, numbers, behavior); and details of any observed marine mammal behavior that occurs (*e.g.*, noted behavioral disturbances).

#### *Proposed Reporting Measures*

Within 90 days after completion of survey activities or expiration of this IHA, whichever comes sooner, a final technical report will be provided to NMFS that fully documents the methods and monitoring protocols, summarizes the data recorded during monitoring, summarizes the number of marine mammals observed during survey

activities (by species, when known), summarizes the mitigation actions taken during surveys (including what type of mitigation and the species and number of animals that prompted the mitigation action, when known), and provides an interpretation of the results and effectiveness of all mitigation and monitoring. Any recommendations made by NMFS must be addressed in the final report prior to acceptance by NMFS. All draft and final marine mammal and acoustic monitoring reports must be submitted to *PR.ITP.MonitoringReports@noaa.gov* and *ITP.Pauline@noaa.gov*. The report must contain, at minimum, the following:

- PSO names and affiliations
- Dates of departures and returns to port with port name
- Dates and times (Greenwich Mean Time) of survey effort and times corresponding with PSO effort
- Vessel location (latitude/longitude) when survey effort begins and ends; vessel location at beginning and end of visual PSO duty shifts
- Vessel heading and speed at beginning and end of visual PSO duty shifts and upon any line change
- Environmental conditions while on visual survey (at beginning and end of PSO shift and whenever conditions change significantly), including wind speed and direction, Beaufort sea state, Beaufort wind force, swell height, weather conditions, cloud cover, sun glare, and overall visibility to the horizon
- Factors that may be contributing to impaired observations during each PSO shift change or as needed as environmental conditions change (*e.g.*, vessel traffic, equipment malfunctions)
- Survey activity information, such as type of survey equipment in operation, acoustic source power output while in operation, and any other notes of



significance (*i.e.*, pre-clearance survey, ramp-up, shutdown, end of operations, etc.)

If a marine mammal is sighted, the following information should be recorded:

- Watch status (sighting made by PSO on/off effort, opportunistic, crew, alternate vessel/platform);
- PSO who sighted the animal;
- Time of sighting;
- Vessel location at time of sighting;
- Water depth;
- Direction of vessel's travel (compass direction);
- Direction of animal's travel relative to the vessel;
- Pace of the animal;
- Estimated distance to the animal and its heading relative to vessel at initial sighting;
- Identification of the animal (*e.g.*, genus/species, lowest possible taxonomic level, or unidentified); also note the composition of the group if there is a mix of species;
- Estimated number of animals (high/low/best) ;
- Estimated number of animals by cohort (adults, yearlings, juveniles, calves, group composition, etc.);
- Description (as many distinguishing features as possible of each individual seen, including length, shape, color, pattern, scars or markings, shape and size of dorsal fin, shape of head, and blow characteristics);
- Detailed behavior observations (*e.g.*, number of blows, number of surfaces, breaching, spyhopping, diving, feeding, traveling; as explicit and detailed as possible; note any observed changes in behavior);

- Animal's closest point of approach and/or closest distance from the center point of the acoustic source;
- Platform activity at time of sighting (*e.g.*, deploying, recovering, testing, data acquisition, other);
- Description of any actions implemented in response to the sighting (*e.g.*, delays, shutdown, ramp-up, speed or course alteration, etc.) and time and location of the action.

If a North Atlantic right whale is observed at any time by PSOs or personnel on any project vessels, during surveys or during vessel transit, Mayflower must immediately report sighting information to the NMFS North Atlantic Right Whale Sighting Advisory System: (866) 755-6622. North Atlantic right whale sightings in any location may also be reported to the U.S. Coast Guard via channel 16.

In the event that Mayflower personnel discover an injured or dead marine mammal, Mayflower would report the incident to the NMFS Office of Protected Resources (OPR) and the NMFS New England/Mid-Atlantic Regional Stranding Coordinator as soon as feasible ((866) 755-6622). The report would include the following information:

- Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);
- Species identification (if known) or description of the animal(s) involved;
- Condition of the animal(s) (including carcass condition if the animal is dead);
- Observed behaviors of the animal(s), if alive;
- If available, photographs or video footage of the animal(s); and
- General circumstances under which the animal was discovered.

In the unanticipated event of a ship strike of a marine mammal by any vessel involved in the activities covered by the IHA, Mayflower would report the incident to the

NMFS OPR (*PRITP.MonitoringReports@noaa.gov*) and the NMFS New England/Mid-Atlantic Stranding Coordinator ((866) 755-6622) as soon as feasible. The report would include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Species identification (if known) or description of the animal(s) involved;
- Vessel's speed during and leading up to the incident;
- Vessel's course/heading and what operations were being conducted (if applicable);
- Status of all sound sources in use;
- Description of avoidance measures/requirements that were in place at the time of the strike and what additional measures were taken, if any, to avoid strike;
- Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, visibility) immediately preceding the strike;
- Estimated size and length of animal that was struck;
- Description of the behavior of the marine mammal immediately preceding and following the strike;
- If available, description of the presence and behavior of any other marine mammals immediately preceding the strike;
- Estimated fate of the animal (*e.g.*, dead, injured but alive, injured and moving, blood or tissue observed in the water, status unknown, disappeared); and
- To the extent practicable, photographs or video footage of the animal(s)

### **Negligible Impact Analysis and Determination**

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

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

To avoid repetition, our analysis applies to all the species listed in Table 8 given that NMFS expects the anticipated effects of the proposed survey to be similar in nature. Where there are meaningful differences between species or stocks - as in the case of the North Atlantic right whale - they are included as separate subsections below.

NMFS does not anticipate that serious injury or mortality would occur as a result from HRG surveys, even in the absence of mitigation, and no serious injury or mortality is proposed to be authorized. As discussed in the **Potential Effects of Specified Activity on Marine Mammals and their Habitat** section in the initial notice of proposed IHA (86 FR 11930; March 1, 2021), non-auditory physical effects and vessel strike are not expected to occur. NMFS expects that all potential takes would be in the form of short-term Level B harassment behavioral harassment in the form of temporary avoidance of the area or decreased foraging (if such activity was occurring), reactions that are considered to be of low severity and with no lasting biological consequences (*e.g.*,

Southall *et al.*, 2007). Even repeated Level B harassment of some small subset of an overall stock is unlikely to result in any significant realized decrease in viability for the affected individuals, and thus would not result in any adverse impact to the stock as a whole. As described above, Level A harassment is not expected to occur given the nature of the operations, the estimated size of the Level A harassment zones, and the required shutdown zones for certain activities - and is not proposed to be authorized. The potential effects associated with the addition of the new export cable route extending through Narragansett Bay are similar to those described in the initial notice of proposed IHA (86 FR 11930; March 1, 2021).

In addition to being temporary, the maximum expected harassment zone for the modified proposed IHA is identical to that in the initial proposed IHA with a distance of 141 m per vessel. Therefore, the ensonified area surrounding each vessel is also identical, and relatively small, compared to the overall distribution of the animals in the area and their use of the habitat. Feeding behavior is not likely to be significantly impacted as prey species are mobile and are broadly distributed throughout the modified Project Area; therefore, marine mammals that may be temporarily displaced during survey activities are expected to be able to resume foraging once they have moved away from areas with disturbing levels of underwater noise. Similar to the initial proposed IHA, given the temporary nature of the disturbance and availability of similar habitat and resources in the surrounding area, the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or their populations in the modified proposed IHA.

Furthermore, the modified proposed Project Area is located approximately 50 miles west of feeding BIAs for North Atlantic right whales (February-April) and sei whales (May-November) and approximately 40 west of feeding BIAs for humpback whales (March-December) and fin whales (March-October). These were discussed in the

previous IHA (85 FR 45578; July 29, 2020) issued for this area. Additionally, the new proposed Narragansett Bay cable route corridor is located just to the north of the another fin whale BIA (March-October) located south of Martha's Vineyard. Even if whales are feeding outside of the identified feeding BIAs, they are extensive and sufficiently large (705 km<sup>2</sup> and 3,149 km<sup>2</sup> for North Atlantic right whales; 47,701 km<sup>2</sup> for humpback whales; 2,933 km<sup>2</sup> for fin whales; and 56,609 km<sup>2</sup> for sei whales), and the acoustic footprint of the proposed survey is sufficiently small, such that feeding opportunities for these whales would not be reduced appreciably. Therefore, under the modified proposed IHA, NMFS does not expect impacts to whales within feeding BIAs to affect the fitness of any large whales. Furthermore, NMFS does not anticipate impacts from the modified proposed survey that would impact annual rates of recruitment or survival and any takes that occur would not result in population level impacts.

There are no rookeries, mating or calving grounds known to be biologically important to marine mammals within the modified proposed Project Area. Furthermore, there is no designated critical habitat for any ESA-listed marine mammals in the proposed Project Area.

#### *North Atlantic right whales*

The status of the North Atlantic right whale population is of heightened concern and, therefore, merits additional analysis. As noted previously, elevated North Atlantic right whale mortalities began in June 2017 and there is an active UME. Overall, preliminary findings support human interactions, specifically vessel strikes and entanglements, as the cause of death for the majority of North Atlantic right whales. In addition to the right whale feeding BIA located west of the modified proposed Project Area noted above, the modified proposed Project Area overlaps a migratory corridor BIA for North Atlantic right whales (effective March-April and November-December) that extends from Massachusetts to Florida (LeBrecque *et al.*, 2015). Off the coast of

Massachusetts, this migratory BIA extends from the coast to beyond the shelf break. Due to the fact that that the proposed survey activities are temporary and the spatial extent of sound produced by the survey would be very small relative to the spatial extent of the available migratory habitat in the BIA, right whale migration is not expected to be impacted by the proposed survey. Given the relatively small size of the ensonified area, it is unlikely that prey availability would be adversely affected by HRG survey operations. Required vessel strike avoidance measures will also decrease risk of ship strike during migration; no ship strike is expected to occur during Mayflower's proposed activities. Additionally, only very limited take by Level B harassment of North Atlantic right whales has been requested by Mayflower and is being proposed by NMFS as HRG survey operations are required to maintain a 500 m EZ and shutdown if a North Atlantic right whale is sighted at or within the EZ. The 500 m shutdown zone for North Atlantic right whales is conservative, considering the Level B harassment isopleth for the most impactful acoustic source (*i.e.*, GeoMarine Geo-Source 400 tip sparker) is estimated to be 141 m, and thereby minimizes the potential for behavioral harassment of this species. As noted previously, Level A harassment is not expected due to the small PTS zones associated with HRG equipment types proposed for use.

As described previously, North Atlantic right whale presence is increasingly variable in identified core habitats, including the recently identified foraging area south of Martha's Vineyard and Nantucket islands where both visual and acoustic detections of North Atlantic right whales indicate a nearly year-round presence (Oleson *et al.*, 2020), although seasonal trends are still prominent (Hayes *et al.*, 2020). However, prey for North Atlantic right whales are mobile and broadly distributed throughout the project area; therefore, North Atlantic right whales are expected to be able to resume foraging once they have moved away from any areas with disturbing levels of underwater noise. In

addition, there are no North Atlantic right whale mating or calving areas within the proposed project area.

Given the information above, NMFS does not anticipate North Atlantic right whales takes that would result from Mayflower's proposed activities would impact the reproduction or survival of any individual North Atlantic right whales, much less annual rates of recruitment or survival. Thus, any takes that occur under the modified proposed IHA would not result in population level impacts for the species.

*Other marine mammal species with active UMEs*

As noted in the previous IHA (85 FR 45578; July 29, 2020) there are several active UMEs occurring in the vicinity of Mayflower's modified proposed Project Area. Elevated humpback whale mortalities have occurred along the Atlantic coast from Maine through Florida since January 2016. Of the cases examined, approximately half had evidence of human interaction (ship strike or entanglement). The UME does not yet provide cause for concern regarding population-level impacts. Despite the UME, the relevant population of humpback whales (the West Indies breeding population, or distinct population segment (DPS)) remains stable at approximately 12,000 individuals.

Beginning in January 2017, elevated minke whale strandings have occurred along the Atlantic coast from Maine through South Carolina, with highest numbers in Massachusetts, Maine, and New York. This event does not provide cause for concern regarding population level impacts, as the population abundance is greater than 20,000 whales.

Elevated numbers of harbor seal and gray seal mortalities were first observed in July 2018 and have occurred across Maine, New Hampshire, and Massachusetts. Based on tests conducted so far, the main pathogen found in the seals is phocine distemper virus, although additional testing to identify other factors that may be involved in this UME are underway. The UME does not yet provide cause for concern regarding



population-level impacts to any of these stocks. For harbor seals, the population abundance is over 75,000 and annual M/SI (350) is well below PBR (2,006) (Hayes *et al.*, 2020). The population abundance for gray seals in the United States is over 27,000, with an estimated abundance, including seals in Canada, of approximately 505,000. In addition, the abundance of gray seals is likely increasing in the U.S. Atlantic Exclusive Economic Zone as well as in Canada (Hayes *et al.*, 2020).

The required mitigation measures are expected to reduce the number and/or severity of proposed takes for all species listed in Table 8, including those with active UME's to the level of least practicable adverse impact. In particular they would provide animals the opportunity to move away from the sound source throughout the modified proposed Project Area before HRG survey equipment reaches full energy, thus preventing them from being exposed to sound levels that have the potential to cause injury (Level A harassment) or more severe Level B harassment. No Level A harassment is anticipated, even in the absence of mitigation measures, or proposed for authorization.

NMFS expects that takes would be in the form of short-term Level B harassment behavioral harassment by way of brief startling reactions and/or temporary vacating of the area, or decreased foraging (if such activity was occurring)—reactions that (at the scale and intensity anticipated here) are considered to be of low severity, with no lasting biological consequences. Since both the sources and marine mammals are mobile, animals would only be exposed briefly to a small ensonified area that might result in take. Additionally, required mitigation measures would further reduce exposure to sound that could result in more severe behavioral harassment.

The total duration of the modified proposed HRG survey activities is 471 survey days and the total trackline distance is 14,350 km which are identical to the values presented in the initial proposed IHA (86 FR 11930; March 1, 2021) and any effects or impacts are expected to be similar. Note that proposed takes in the modified proposed

IHA have been reduced for 6 species from the initial proposed IHA (*i.e.*, humpback whale, minke whale, Atlantic white-sided dolphin, common dolphin, harbor porpoise and seal) while proposed take has only increased for one species (*i.e.* bottlenose dolphin).

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

- No mortality or serious injury is anticipated or proposed for authorization;
- No Level A harassment (PTS) is anticipated, even in the absence of mitigation measures, or proposed for authorization;
- Foraging success is not likely to be significantly impacted as effects on species that serve as prey species for marine mammals from the survey are expected to be minimal;
- Due to the relatively small footprint of the survey activities in relation to the size of feeding BIAs for North Atlantic right, humpback, fin, and sei whales, the survey activities would not affect foraging success of these whale species;
- The availability of alternate areas of similar habitat value for marine mammals to temporarily vacate the Project Area during the planned survey to avoid exposure to sounds from the activity;
- Take is anticipated to be limited to Level B behavioral harassment consisting of brief startling reactions and/or temporary avoidance of the Project Area;
- While the Project Area is within areas noted as a migratory BIA for North Atlantic right whales, the activities would occur in such a comparatively small area such that any avoidance of the Project Area due to activities would not affect migration. In addition, mitigation measures to shutdown at 500 m to minimize potential for Level B behavioral harassment would limit any take of the species;

- While the foraging areas south of Martha's Vineyard and Nantucket overlap with the Project Area, prey for North Atlantic right whales are mobile and broadly distributed. Therefore, North Atlantic right whales are expected to be able to resume foraging once they have moved away from any areas with disturbing noise levels, which would be temporary in nature;
- The proposed mitigation measures, including visual monitoring and shutdowns, are expected to minimize potential impacts to marine mammals; and
- While UMEs are in effect for some species, the take from Mayflower's activities is not expected to impact the reproduction or survival of any individuals of any species, and therefore, is not expected to impact annual rates of recruitment or survival either alone or in combination with the effects of the UMEs.

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

### **Small Numbers**

As noted above, only small numbers of incidental take may be authorized under sections 101(a)(5)(A) and (D) of the MMPA for specified activities other than military readiness activities. The MMPA does not define small numbers and so, in practice, where estimated numbers are available, NMFS compares the number of individuals taken to the most appropriate estimation of abundance of the relevant species or stock in our determination of whether an authorization is limited to small numbers of marine mammals. When the predicted number of individuals to be taken is fewer than one third of the species or stock abundance, the take is considered to be of small numbers.

Additionally, other qualitative factors may be considered in the analysis, such as the temporal or spatial scale of the activities.

NMFS proposes to authorize incidental take of 14 marine mammal species. The total amount of takes proposed for authorization is less than 3 percent for all species and stocks authorized for take except for sei whales (less than 22 percent), which NMFS preliminarily finds are small numbers of marine mammals relative to the estimated overall population abundances for those stocks. See Table 8. Based on the analysis contained herein of the proposed activity (including the proposed mitigation and monitoring measures) and the anticipated take of marine mammals, NMFS preliminarily finds that small numbers of marine mammals will be taken relative to the population size of the affected species or stocks.

#### **Unmitigable Adverse Impact Analysis and Determination**

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

#### **Endangered Species Act**

Section 7(a)(2) of the Endangered Species Act of 1973 (ESA: 16 U.S.C. 1531 *et seq.*) requires that each Federal agency insure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. To ensure ESA compliance for the issuance of IHAs, NMFS consults internally, in this case with the NMFS Greater Atlantic Regional Fisheries Office (GARFO), whenever NMFS proposes to authorize take for endangered or threatened species.

The NMFS OPR is proposing to authorize the incidental take of four species of marine mammals listed under the ESA: the North Atlantic right, fin, sei, and sperm whale. The OPR has requested initiation of Section 7 consultation with NMFS GARFO for the issuance of this IHA. NMFS will conclude the ESA section 7 consultation prior to reaching a determination regarding the proposed issuance of the authorization.

### **Proposed Authorization**

As a result of these preliminary determinations, NMFS proposes to issue an IHA to Mayflower for conducting marine site characterization surveys offshore of Massachusetts in the area of the Commercial Lease of Submerged Lands for Renewable Energy Development on the Outer Continental Shelf (OCS-A 0521) and along a potential submarine cable routes to landfall at Falmouth, Massachusetts and Narragansett Bay for a period of one year from the date of issuance, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the modified proposed IHA can be found at <https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act>.

### **Request for Public Comments**

NMFS requests comment on our analyses, the proposed authorization, and any other aspect of this notice of a modified proposed IHA for the proposed marine site characterization surveys. NMFS also requests at this time comment on the potential Renewal of this modified proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform decisions on the request for this IHA or a subsequent Renewal IHA.

On a case-by-case basis, NMFS may issue a one-time, one-year Renewal IHA following notice to the public providing an additional 15 days for public comments when (1) up to another year of identical or nearly identical, or nearly identical, activities as

described in the **Description of Proposed Activity** section of this notice is planned or (2) the activities as described in the **Description of Proposed Activity** section of this notice would not be completed by the time the IHA expires and a Renewal would allow for completion of the activities beyond that described in the *Dates and Duration* section of this notice, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to the needed Renewal IHA effective date (recognizing that the Renewal IHA expiration date cannot extend beyond one year from expiration of the initial IHA).
- The request for renewal must include the following:
  1. An explanation that the activities to be conducted under the requested Renewal IHA are identical to the activities analyzed under the initial IHA, are a subset of the activities, or include changes so minor (*e.g.*, reduction in pile size) that the changes do not affect the previous analyses, mitigation and monitoring requirements, or take estimates (with the exception of reducing the type or amount of take).
  2. A preliminary monitoring report showing the results of the required monitoring to date and an explanation showing that the monitoring results do not indicate impacts of a scale or nature not previously analyzed or authorized.

Upon review of the request for Renewal, the status of the affected species or stocks, and any other pertinent information, NMFS determines that there are no more than minor changes in the activities, the mitigation and monitoring measures will remain the same and appropriate, and the findings in the initial IHA remain valid.

**Catherine Marzin,**  
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