



BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XF101

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Seabird and Shorebird Monitoring and Research at the Eastern Massachusetts National Wildlife Refuge Complex, Massachusetts

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

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

SUMMARY: NMFS has received an application from the Eastern Massachusetts (MA) National Wildlife Refuge (NWR) Complex, U.S. Fish and Wildlife Service (USFWS), for an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment incidental to conducting seabird and shorebird monitoring and research in the Eastern MA NWR Complex (Complex). The proposed dates for this action would be April 1, 2017 through March 31, 2018. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an IHA to the USFWS to incidentally take, by Level B harassment only, marine mammals during the specified activity.

DATES: NMFS must receive comments and information on or before [*INSERT DATE 30 CALENDAR DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER*].

ADDRESSES: Comments on the application should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National

Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910. The mailbox address for providing email comments is *ITP.McCue@noaa.gov*. Comments sent via email to *ITP.McCue@noaa.gov*, including all attachments, must not exceed a 25-megabyte file size. NMFS is not responsible for comments sent to addresses other than the one provided here.

Instructions: All comments received are a part of the public record and NMFS will post them to www.nmfs.noaa.gov/pr/permits/incidental/research.htm without change. All personal identifying information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information.

An electronic copy of the application may be obtained by writing to the address specified above, telephoning the contact listed below (see **FOR FURTHER INFORMATION CONTACT**), or online at:

[/www.nmfs.noaa.gov/pr/permits/incidental/research.htm](http://www.nmfs.noaa.gov/pr/permits/incidental/research.htm).

The Environmental Assessment (EA) specific to conducting seabird and shorebird monitoring and research is also available at the same internet address. Information in the EA and this notice collectively provide the environmental information related to the proposed issuance of the IHA for public review and comment. The public may also view documents cited in this notice, by appointment, during regular business hours, at the aforementioned address.

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

SUPPLEMENTARY INFORMATION:

Background

Section 101(a)(5)(D) of the MMPA of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals of a species or population stock, 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 authorization is provided to the public for review.

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

Summary of Request

On March 16, 2016, NMFS received an application from the USFWS for the taking of marine mammals incidental to seabird and shorebird monitoring and research activities within the Complex. NMFS received updated applications on September 14 and December 16, 2016 with updated take numbers and mitigation measures. NMFS determined the application complete and adequate on December 29, 2016.

The USFWS proposes to conduct seabird and shorebird monitoring and research at several locations within the Complex over a varying number of days for each project. This authorization, if issued, would be valid from one year, beginning on April 1, 2017. The following specific aspects of the proposed activities would likely to result in the take of marine mammals: (1) vessel landings; (2) research activities (*e.g.*, cannon nets, sign installation); and (3) human presence. Thus, NMFS anticipates that take, by Level B harassment only, of gray seals (*Halichoerus grypus grypus*) and harbor seals (*Phoca vitulina concolor*) could result from the specified activity.

Description of the Specified Activity

Overview

The USFWS would like to conduct biological tasks for refuge purposes at Monomoy NWR, Nantucket NWR, and Nomans Land Island NWR in MA. These three refuges are managed through the Complex as part of the NWR System of the USFWS. Complex staff census and monitor the presence and productivity of breeding and migrating shorebirds using the beaches of Monomoy, Nantucket, and Nomans Land Island NWRs for nesting from April 1 – November 30, annually. Monitoring activities occur daily (on Monomoy and Nantucket) from April – August and is necessary to document the productivity (number of chicks fledged per pair) and population of protected shorebird and seabird species. Monomoy NWR also participates in several less frequent, but equally important, high priority conservation tasks to monitor for threatened and endangered species, including censusing northeastern beach tiger beetles (*Cicindela dorsalis*) and participating in a red knot (*Calidris canutus*) migration study during southward migration. Additionally, both Monomoy and Nantucket NWRs serve as vital

staging grounds for migrating roseate terns (*Sterna dougallii*), where USFWS staff resight and stage counts.

Dates and Duration

The USFWS proposes to conduct the research activities at various times for each project from April 1 through November 30, 2017. Due to scheduling, time, tide constraints, and favorable weather/ocean conditions, the exact survey dates and durations are variable. The proposed IHA, if issued, would be effective from April 1, 2017 through March 31, 2018. NMFS refers the reader to the *Detailed Description of Activities* section later in this notice for more information on the scope of the proposed activities.

Specified Geographic Region

The Complex is made up of eight refuges, including its three coastal refuges: Monomoy NWR, Nantucket NWR, and Nomans NWR. The three main activity sites are NWRs managed by the USFWS and are islands located off the coast of Cape Cod, MA. Although Monomoy NWR consists of three managed barrier islands, pinnipeds are only disturbed while carrying out biological activities on the Atlantic side of South Monomoy Island where gray seals primarily haul out. Therefore, activities mentioned at Monomoy NWR will only refer to South Monomoy Island. While biological tasks performed at these three refuges differ in some regard, all activities are necessary to carry out high priority conservation work for threatened and endangered species. Each activity location is described below.

- 1. Monomoy NWR** (N 41.590348, -69.987432): This site refers to the Atlantic side of South Monomoy Island at Monomoy NWR. Seals use most of the ocean-facing beach of this island as a haul-out site. See Figure 1 of the USFWS's application.

2. **Nantucket NWR** (N 41.391754, W -70.050568): This site refers to Nantucket NWR located on the northeast tip of Nantucket Island. The point itself is the primary haul-out site for this location. See Figure 2 of the USFWS's application.
3. **Nomans NWR** (N 41.264267, W -70.812228): This site refers to Nomans Land Island NWR located off the coast of Martha's Vineyard. Seals here haul-out on the northeast peninsula, and sporadically along the northern shoreline. The rocks around the island are sometimes utilized as well. See Figure 3 of the USFWS's application.
4. **Cape Cod National Seashore nearby beaches** (see Figure 4 of the USFWS's application):
 - A. **Coast Guard Beach** (N 41.842333, W -69.943834): This site refers to one of the beaches located at the Cape Cod National Seashore in Eastham, MA. The seals here haul-out on the J-bars that form on the beach.
 - B. **North Beach Island** (N 41.669441, W -69.942765): This site refers to an island located at the Cape Cod National Seashore in Chatham, MA. The seals here haul-out on the sandbars on the southwest end of the island.
 - C. **High Head** (N 42.066108, W -70.111318): This site refers to a beach located at the Cape Cod National Seashore in Truro, MA.
 - D. **Jeremy Point** (N 41.884300, W -70.069532): This site refers to Jeremy Point located on the Cape Cod bayside at the Cape Cod National Seashore in Wellfleet, MA. The seals here haul-out on the sand flats in the waters around the point.

E. Provincetown Harbor (N 42.022342, W -70.178662): This site refers to the west end of the harbor in Provincetown. This is a new haul-out as of fall 2015 and has only been observed a few times by the Provincetown Center for Coastal Studies (CCS) (L. Sette, CCS, personal communication 2016).

Detailed Description of Activities

A description of each activity, based on location, is presented below. A summary of this information can also be found in Table 1.

1. Shorebird and Seabird Nest Monitoring and Research

Monomoy NWR

On January 10, 1986, the Service listed the Atlantic Coast population of piping plovers (*Charadrius melodus*) as threatened under the provisions of the U.S. Endangered Species Act (ESA) of 1973. Currently, Monomoy NWR serves as a nesting site for six percent of the breeding piping plover pairs in MA. Therefore, management and protection of the piping plover is one of the priority programs for the refuge. Many other avian species benefit from piping plover management, including the state-listed species of concern least tern (*Sternula antillarum*) and American oystercatcher (*Haematopus palliates*). Monomoy NWR has a great responsibility to follow the guidelines provided for management in the revised 1996 recovery plan for the species (USFWS 1996). The primary objective of the recovery program is to remove the Atlantic Coast piping plover population from the List of Endangered and Threatened Wildlife and Plants by: (1) achieving well-distributed increases in numbers and productivity of breeding pairs, and (2) providing for long-term protection of breeding and wintering plovers and their habitat. Actions needed to achieve these objectives include: (1) manage breeding piping plovers and habitat to maximize survival and productivity, (2) monitor and manage

wintering and migration areas to maximize survival and recruitment into the breeding population, (3) undertake scientific investigations that will facilitate recovery efforts, and (4) develop and implement public information and education programs, and (5) review progress towards recovery annually and revise recovery efforts as appropriate (USFWS 1996).

The piping plover recovery efforts at the Complex correspond closely to management recommendations in the Piping Plover Recovery Plan. In order to monitor the productivity (number of chicks fledged per pair) of piping plovers at Monomoy NWR, it is necessary to identify suitable nesting habitat for the species. At Monomoy, piping plovers generally select areas that are sandy with some cobble on the beach face and occasionally nest in dense vegetation or behind primary dunes. The same can be said for least terns and American oystercatcher pairs which also nest on South Monomoy Island. These nesting areas are adjacent to known gray seal haul-out sites.

Piping plovers begin returning to their Atlantic Coast nesting beaches in mid-March. The first nest is generally laid in mid-April and eggs will continue to be present on the beach until late July. During this time, nests are located by USFWS staff by looking for a number of signs; continuous presence of adult birds, courtship and territorial behavior in a certain area, large concentrations of tracks, and scrapes (nests or nest attempts). Methods for finding nests include waiting for a disturbed bird to return to its nest or covering probable nesting areas by searching the ground for signs of scrapes and zig-zagging the whole area to make sure the entire habitat is covered. Methods for finding nests can sometimes lead to seal disturbance. Nests are visited 4-5 times a week and confirmation of adult presence and incubation is confirmed at a distance when

possible to prevent disturbance. Nests hatch after 28 days of incubation and chicks will remain with one or both parents until they fledge at 25-35 days of age. Depending on the date of hatching, flightless chicks may be present on refuge beaches from mid-May until late August. Chicks are monitored until they fledge and may move hundreds of yards from the nest site to feed. Feeding areas include intertidal areas along the ocean and sound sides of South Monomoy Island as well as washover areas.

Similar activities are performed when searching and monitoring American oystercatchers nests and broods. No American oystercatcher pairs nested near seal haul out sites in 2015, but have nested on the ocean side of South Monomoy Island in previous years. In 2001, the American oystercatcher was warranted special attention from the U.S. Shorebird Conservation Plan after the population severely declined to under 11,000 individuals. Monomoy NWR has the largest concentration of nesting American oystercatchers on Cape Cod and nesting success at this site is important to the survival of the species. The nesting season occurs from the end of April until mid-August. Monomoy NWR also serves as an important staging site for resting migrants, and bands are often read and reported to the American Oystercatcher Working Group. Staging American oystercatcher will sometimes roost near seal haul-out sites.

Least terns nest in small groups around South Monomoy Island. Productivity is not measured throughout the season, but nesting pairs are censused during a 2-3 day period in mid-June. Least terns are censused using the line-sweep method throughout the extent of the nesting colonies and checked by staff weekly to gauge productivity.

USFWS staff install symbolic fencing (sign posts with “area closed” and “beach closed” informational signs) around nest sites of piping plovers, American oystercatchers,

and least terns to inform the public about the bird's presence and protect critical habitat from human disturbance. These areas are adjacent to known seal haul out sites and are regularly monitored throughout the season.

Nantucket NWR

Similar biological activities are carried out on Nantucket NWR as Monomoy NWR. Piping plover, least tern, and American oystercatcher are known species to use Nantucket NWR and nearby lands for nesting from the end of April until mid-August. Beach nesting birds are monitored following similar methods and protocols as Monomoy NWR and areas of nesting are posted with closed signs. Signs are placed at least 150 feet from known seal haul-out areas on Nantucket NWR, which predominately occurs at the north tip of the Refuge. These posts help protect those areas from public disturbance. Nesting beach birds generally do not nest within the closed area for seals, but instead nest adjacent to the haul outs. If need be, staff will briefly enter the closed area to check nests, but otherwise stay outside of the closed area, greater than 150 feet from seal haul outs. Seabirds and shorebirds do not nest on the Complex every year; in 2015, no beach birds nested on Nantucket NWR.

Nomans Land Island NWR

Nomans NWR is closed to the public and is only visited 1-3 times a year by USFWS staff. During these visits, the presence of shorebirds and seabirds are noted for record. Shorebirds and seabirds are inventoried by scoping suitable nesting and feeding habitat on the island. The greatest potential for marine mammal disturbance occurs in safe boat landing zones, because these areas often overlap with hauled out seals. Every precautionary measure is taken to reduce disturbance to seals on Nomans Land Island

NWR, but staff will land a boat or walk within 50 yards (yd) of seal haul outs if safety reasons prevail. A 25 foot Parker is used to travel to and from Nomans NWR.

2. *Roseate Tern Staging Counts and Resighting*

Monomoy NWR

On November 2, 1987, the Service listed the northeastern breeding population of the roseate terns as federally endangered. Monomoy NWR serves as an important nesting and staging site for the species. Monomoy NWR has a great responsibility to follow the guidelines provided for management in the Roseate Tern Recovery Plan for the Northeast population (USFWS 1998). The primary objective of the roseate tern recovery program is to promote an increase in breeding population size, distribution, and productivity so as to warrant reclassification to threatened status and eventual delisting. Actions needed to attain this objective include: (1) oversee breeding roseate terns and their habitat to help increase survival and productivity including the physical maintenance, expansion, and enhancement of nesting habitat; (2) develop a management plan for monitoring wintering and migration areas; (3) secure unprotected sites through acquisition and easements; (4) develop outreach materials and implement education programs; (5) conduct scientific investigations that will facilitate recovery efforts; (6) review progress of recovery annually and revise recovery efforts as needed (USFWS 1998). While breeding roseate terns prefer nesting habitat far from seal haul out sites, migrating terns use areas adjacent to the beach edge. Cape Cod and the surrounding islands as a whole serves as an important staging ground for common terns (*Sterna hirundo*) and roseate terns. In fact, the entire northeast population of roseate terns stage in this area prior to migrating to Central and South America. The USFWS conduct staging tern counts to document the

importance of Monomoy NWR relative to other sites and to record changes in use over time by gathering baseline data on the numbers of roseate terns staging on the Complex and adjacent beaches as well as the causes and duration of disturbances to staging terns. This is in compliance with the recovery plan to conduct scientific investigations that will facilitate recovery efforts (USFWS 1998).

In August, USFWS staff traverse areas of suitable staging habitat, including sand flats and open sand beaches, and make quick estimates of the number of staging terns. The terns are counted using binoculars and spotting scopes from a distance that does not disturb the birds. Color bands, field readable bands, and any tagged or banded birds are identified for reporting purposes. Observations on behavior and disturbance are also documented. Depending on the size of the flock, these surveys can last anywhere between one to three hours.

Nantucket NWR

Staging tern counts are carried out on Nantucket NWR following similar methods and protocols mentioned for Monomoy NWR.

Nomans Land Island NWR

Staging tern counts are not performed on Nomans NWR.

3. Red Knot Stopover Study

Monomoy NWR and Nearby Beaches in Chatham, Orleans, and Eastham

On December 11, 2014, the USFWS listed the rufa subspecies of the red knot as Federally threatened under the ESA. As noted in the State of the Birds 2014 report, the knot's status is representative of the steep declines represented in shorebirds that migrate long distances (NABCI 2014). Threats to shorebirds have become more diverse and

widespread in recent decades, requiring coordinated conservation efforts across their vast ranges. Protection of breeding, migration, and wintering habitat is critical to this species' recovery (Niles *et al.*, 2008).

Southeastern MA, Monomoy NWR and surrounding beaches in Chatham, Orleans, and Eastham in particular, likely provide one of the most important areas for adult and juvenile red knots during their southward migration (Koch and Paton 2009, Harrington *et al.*, 2010a, Harrington *et al.*, 2010b). Research has shown that this region supports red knots bound for different winter destinations, including red knots wintering as far south as Patagonia (Harrington *et al.*, 2010b). Currently, there is little information on migration routes, and no information on wintering sites of juvenile red knots.

The red know stop over study is not conducted on Nantucket NWR or Nomans NWR.

4. *Northeastern Beach Tiger Beetle Census*

In August of 1990, the USFWS listed the northeastern beach tiger beetle as threatened under the ESA. Currently northeastern beach tiger beetle can be found at only two sites in MA: one on the south shore of Martha's Vineyard and one on South Monomoy Island and Nauset/South Beach in Chatham, MA (USFWS 1994, USFWS 2015). Searches on Monomoy in the 1980s failed to locate the northeastern beach tiger beetle, but the structure of the habitat seemed favorable, making Monomoy the leading candidate as an introduction site. The first beetle larvae transplant occurred in May 2000. Since 2004, tiger beetle larvae have not been transferred to Monomoy (USFWS 2015). However, through continued adult tiger beetle monitoring, the annual presence of tiger beetles has been documented on the refuge. Annual monitoring confirms successful

survival and production of tiger beetles through all stages of life, and gives a firm indication of a new self-sustaining population at Monomoy NWR.

Northeastern beach tiger beetle live their entire life on the beach, and prefer medium to medium- coarse sand. Adults occur on the beach from June through September and often congregate around the water's edge on warm days (USFWS 2011). On Monomoy NWR, the population occurs in habitat on the Atlantic side of South Monomoy Island on the water's edge and in the wrack line. Several index counts of the tiger beetle population are completed by USFWS staff during July and August each year. Counts are conducted by slowly walking the water's edge at a width of 2-3 people across and tallying adults seen on the surface of the beach until the extent of suitable habitat is covered.

Northeastern beach tiger beetle surveys are not conducted on Nantucket NWR or Nomans Land Island NWR.

5. Coastal Shoreline Change Survey

Since 2011, Monomoy has participated in a long-term coastal shoreline monitoring project in collaboration with Rutgers's University and the National Park Service (NPS) protocol. The annual shoreline surveys are conducted twice a year to gain a finer understanding of the rate of shoreline change and to provide baseline information for sea level rise. Two 1-day surveys are conducted at most sites, one in the spring and one in the fall. Surveys are only conducted in the fall at Monomoy NWR, typically between September and November, consequent to the large number of seals using the area in the spring. To document accurate data on shoreline change, a handheld Trimble device is used to GPS the neap high tide swash line around the ocean-facing extent of

South Monomoy Island by walking the beach at a normal pace. The survey takes approximately one day to complete.

Shoreline surveys are not conducted on Nantucket NWR or Nomans NWR.

Table 1. Site location and duration of the five projects in the Eastern Massachusetts National Wildlife Refuge.

Activity	Time of Year	Site Location & Duration		
		Monomoy NWR	Nantucket	Nomans NWR
Shorebird and Seabird Monitoring & Research	April-August	17 weeks 2 days/ week 6-8 hours/day	17 weeks* 2 days/month <1 hour/day	1-3 days/year ~1 hours/day
Roseate Tern Staging Counts & Resighting	mid July-September	3 weeks 1-2 days/week 1-3 hours/day	6-8 weeks 2 days/month 1-3 hours/day	N/A
Red Knot Stopover Study	August-October	Two trapping windows 5-10 days in combination with CACO beaches 6-12 hours/day	N/A	N/A
Northeastern Beach Tiger Beetle Census	July-September	1-3 days/year 6-8 hours/day	N/A	N/A
Coastal Shoreline Change Survey	September-October	Once/year 8 hour day	N/A	N/A

*Shorebird and Seabird Monitoring & Research on Nantucket is contingent on the presence of nesting beach birds. In 2015, no Shorebirds or seabirds nested on Nantucket NWR.

Sound Sources and Sound Characteristics

NMFS does not expect that acoustic stimuli to result from human presence, and will therefore not have the potential to harass marine mammals, incidental to the conduct of the proposed activities. One activity (cannon nets) may have an acoustic component, but we believe take from this activity can be avoided.

This section includes a brief explanation of the sound measurements frequently used in the discussions of acoustic effects in this notice. Sound pressure is the sound force per unit area, and is usually measured in micropascals (μPa), where 1 pascal (Pa) is the pressure resulting from a force of one newton exerted over an area of one square meter. Sound pressure level (SPL) is the ratio of a measured sound pressure and a

reference level. The commonly used reference pressure is 1 μPa for under water, and the units for SPLs are dB re: 1 μPa . The commonly used reference pressure is 20 μPa for in air, and the units for SPLs are dB re: 20 μPa .

$$\text{SPL (in decibels (dB))} = 20 \log (\text{pressure/reference pressure}).$$

SPL is an instantaneous measurement expressed as the peak, the peak-peak, or the root mean square (rms). Root mean square is the square root of the arithmetic average of the squared instantaneous pressure values. All references to SPL in this document refer to the root mean square unless otherwise noted. SPL does not take into account the duration of a sound.

Research Activities Sound Characteristics

Activities that may have an acoustic component (*e.g.*, cannon nets) are not expected to reach the thresholds for Level B harassment. Cannon nets could be an airborne source of noise, and have a measured SL of 128 dB at one meter (m) (estimated based on a measurement of 98.4 dB at 30 m; L. Niles, pers. comm., December 2016); however, the SPL is expected to be less than the thresholds for airborne pinniped disturbance (*e.g.* 90 dB for harbor seals, and 100 dB for all other pinnipeds) at 80 yd from the source. The USFWS proposes to stay at least 100 yd from all pinnipeds if cannon nets are to be used for research purposes.

Description of Marine Mammals in the Area of the Specified Activity

Table 2 provides the following information: all marine mammal species with possible or confirmed occurrence in the proposed activity area; information on those species' regulatory status under the MMPA and the ESA of 1973 (16 U.S.C. 1531 *et seq.*); abundance; occurrence and seasonality in the activity area. NMFS refers the public

the draft 2016 NMFS Marine Mammal Stock Assessment Report available online at: <http://www.nmfs.noaa.gov/pr/sars/> for further information on the biology and distribution of these species.

Table 2 - General information on marine mammals that could potentially haul out on Northwest Seal Rock, November 2015 through November 2016.

Species	Stock	Regulatory Status ^{1, 2}	Stock Abundance (CV, N _{min} , most recent abundance survey) ³	PBR	Occurrence and Seasonality
Gray seal (<i>Halichoerus grypus grypus</i>)	Western North Atlantic	MMPA - NC ESA - NL	505,000 (unk; unk; unk)*	unk	Year-round presence
Harbor seal (<i>Phoca vitulina concolor</i>)	Western North Atlantic	MMPA - NC ESA - NL	75,834 (0.15; 66,884; 2012)	2,006	Occasional

¹ MMPA: D = Depleted, S = Strategic, NC = Not Classified.

² ESA: EN = Endangered, T = Threatened, DL = Delisted, NL = Not listed.

³ 2016 draft NMFS Stock Assessment Reports: Carretta *et al.* (2016).

*The Western North Atlantic stock of gray seals is comprised of the Canadian and U.S. populations. The U.S. population abundance estimate is unknown, but the Canadian population abundance estimate is 505,000. The 2016 draft SAR states that the western North Atlantic stock is equivalent to the Canada population.

Gray Seal

There are three major populations of gray seals found in the world; eastern Canada (western North Atlantic stock), northwestern Europe and the Baltic Sea. The gray seals that occur in the project area belong to the western North Atlantic Stock, which ranges from New Jersey to Labrador. Current estimates of the total western North Atlantic gray seal population are not available, although portions of stock have been calculated for select time periods. Models estimate that the total minimum Canadian gray seal population is at 505,000 individuals (Waring *et al.*, 2016). Present data are insufficient to calculate the minimum population estimate for U.S. waters; however, based on genetic analyses from the Canadian and U.S. populations, all individuals were placed into one population providing further evidence that this stock is one interbreeding population (Wood *et al.*, 2011). Current population trends show that gray seal abundance is likely increasing in the U.S. Atlantic Exclusive Economic Zone (Waring *et al.*, 2016).

Although the rate of increase is unknown, surveys conducted since their arrival in the 1980s indicate a steady increase in abundance in both Maine and Massachusetts (Waring *et al.*, 2016). It is believed that recolonization by Canadian gray seals is the source of the U.S. population (Waring *et al.*, 2016). Gray seals are not listed under the ESA and the stock is not considered strategic or depleted under the MMPA.

Monomoy NWR is the largest haul-out site for gray seals on the U.S. Atlantic seaboard, and one of only two consistent sites in Massachusetts (the other being Muskeget Island, west of Nantucket) where gray seals pup (USFWS 2015). Gray seals are known to use Monomoy NWR and Nantucket NWR land and water year round, with higher numbers accumulating during the winter and spring when pupping and molting occur. While gray seal pupping grounds are historically further north on Sable Island in Nova Scotia and in the Gulf of St. Lawrence in Canada, there has been a year-round breeding population on Cape Cod and the islands since the late 1990s (NOAA 2015a, USFWS 2015).

Gray seals start to group up in fall and pupping generally occurs from mid-December to early February (USFWS 2015). Gray seal pupping on Monomoy NWR was limited in the past but has been increasing rapidly in recent years. By early spring, upwards of 19,000 gray seals can be found hauled out on Monomoy NWR (B. Josephson, NOAA, personal communication). While many of these seals use Monomoy NWR for breeding, others make their way to the refuge to molt. By late spring, gray seal abundance continues to taper until the fall.

Gray seal pupping information for Nantucket NWR and Nomans Land Island NWR is limited, but evidence suggests that a small number of pups are born on the latter.

Aerial images and evidence do not show that pups are born on Nantucket NWR, although speculations persist (S. Wood, NOAA, personal communication). Similar trends in distribution at Monomoy NWR occur at Nomans and Nantucket NWRs, but in significantly less numbers. Gray seals are most abundant at the activity sites from late fall until spring, and less frequent during the summer months when most activity is occurring. Raw counts of gray seal counts from 2015 are summarized in Table 3.

Table 3. Raw count of the maximum number of individual gray seals using Monomoy NWR lands and surrounding waters in 2015 based on NOAA unpublished data (B. Josephson, NOAA, personal communication).

Gray Seals	
Month	Raw Count
January	4435
February	6047
March	16764
April	18098
May	19166
June	8764
July	978
August	1206
September	658
October	1113
November	2379
December	not calculated

Harbor seal

Harbor seals found on the project area are included in the Western North Atlantic Stock, which ranges from the Canadian Arctic to Southern New England and New York, and occasionally to the Carolinas (Waring *et al.*, 2016). Based on available counts along the Maine coast in 2012, the minimum population estimate is 75,834 (Waring *et al.*, 2016). Harbor seals are not listed under the ESA and the stock is not considered strategic or depleted under the MMPA.

Harbor seals occur seasonally in the Complex, and generally arrive in early September and remain through May (Waring *et al.*, 2016). Numbers of these seals increase slowly through this time period and then quickly drop off in March as they make their northward movement from southern New England to Maine and eastern Canada, where they breed in mid-May (USFWS 2015). Gray seals seem to be displacing harbor seals to some extent, but the two species will haul out together, with gray seals occupying the upper beach and harbor seals staying closer to the water (D. Waring, personal communication). Pupping generally occurs between mid- May through June off the coast of Maine; however recent evidence suggests that some pupping may occur as far south as Manomet, MA, but does not occur in the project area.

It is unclear how many harbor seals use the Complex. Harbor seals are seen infrequently and only occur seasonally. USFWS staff estimate that of all of the seals they observe in the Complex, approximately five percent are harbor seals.

Potential Effects of the Specified Activities on Marine Mammals and Their Habitat

This section includes a summary and discussion of the ways that components (*e.g.*, personnel presence) of the specified activity, including mitigation, may impact marine mammals and their habitat. The *Estimated Take by Incidental Harassment* section later in this document will include a quantitative analysis of the number of individuals that are expected to be taken during this activity. The *Negligible Impact Analysis* section will include the analysis of how this specific activity would impact marine mammals and will consider the content of this section, the *Estimated Take by Incidental Harassment* section, and the *Proposed Mitigation* section to draw conclusions regarding the likely impacts of this activity on the reproductive success or survivorship of individuals and

from that consideration, the likely impacts of this activity on the affected marine mammal populations or stocks.

Acoustic and visual stimuli generated by: (1) vessel landings; (2) research activities (*e.g.*, cannon nets, sign installation) and (3) human presence may have the potential to cause behavioral disturbance of pinnipeds.

Vessel Presence and Noise

Pinnipeds have the potential to be disturbed by underwater noise generated by the engine of the vessel (Born *et al.*, 1999; Richardson *et al.*, 1995). Data on underwater TTS-onset in pinnipeds exposed to pulses are limited to a single study which exposed two California sea lions to single underwater pulses from an arc-gap transducer and found no measurable TTS following exposures up to 183 dB re: 1 μ Pa (peak-to-peak) (Finneran *et al.*, 2003).

Researchers have demonstrated temporary threshold shift (TTS) in certain captive odontocetes and pinnipeds exposed to strong sounds (reviewed in Southall *et al.*, 2007). In 2004, researchers measured auditory fatigue to airborne sound in harbor seals, California sea lions, and Northern elephant seals after exposure to non-pulse noise for 25 minutes (Kastak *et al.*, 2004). In the study, the harbor seal experienced approximately six dB of TTS at 99 dB re: 20 μ Pa. The authors identified onset of TTS in the California sea lion at 122 dB re: 20 μ Pa. The northern elephant seal experienced TTS-onset at 121 dB re: 20 μ Pa (Kastak *et al.*, 2004).

As a general statement from the available information, pinnipeds exposed to intense (approximately 110 to 120 dB re: 20 μ Pa) non-pulse sounds often leave haulout

areas and seek refuge temporarily (minutes to a few hours) in the water (Southall *et al.*, 2007).

It is likely that the initial vessel approach would cause a subset, or all of the marine mammals hauled out to flush into the water. The physical presence of the vessel could also lead to non-auditory effects on marine mammals involving visual or other cues. Noise from the vessel would not be expected to cause direct physical effects but have the potential to affect behavior. The primary factor that may influence abrupt movements of animals is engine noise, specifically changes in engine noise. Responses by mammals could include hasty dives or turns, change in course, or flushing from a haul out site.

If pinnipeds are present on Nomans NWR when the vessel approaches, it is likely that the vessel would cause some number of the pinnipeds to flush; however, the USFWS staff would approach in a slow and controlled manner, as far away as possible from haul outs to prevent or minimize flushing. Staff would also avoid or proceed cautiously when operating boats in the direct path of swimming seals that may be present in the area as far from hauled out seals as possible.

Human Presence

The appearance of USFWS personnel may have the potential to cause Level B harassment of marine mammals hauled out on the beaches in the proposed action area. Disturbance includes a variety of effects, including subtle to conspicuous changes in behavior, movement, and displacement. Disturbance may result in reactions ranging from an animal simply becoming alert to the presence of the USFWS's staff (*e.g.*, turning the head, assuming a more upright posture) to flushing from the haul out site into the water.

NMFS does not consider the lesser reactions to constitute behavioral harassment, or Level B harassment takes, but rather assumes that pinnipeds that move greater than two body lengths to longer retreats over the beach, or if already moving, a change of direction of greater than 90 degrees in response to the presence of surveyors, or pinnipeds that flush into the water, are behaviorally harassed, and thus subject to Level B taking. NMFS uses a three-point scale (Table 4) to determine which disturbance reactions constitute take under the MMPA. Levels two and three (movement and flush) are considered take, whereas Level one (alert) is not.

Table 4. Disturbance scale of pinniped responses to in-air sources to determine take.

Level	Type of response	Definition
1	Alert	Seal head orientation or brief movement in response to disturbance, which may include turning head towards the disturbance, craning head and neck while holding the body rigid in a u-shaped position, changing from a lying to a sitting position, or brief movement of less than twice the animal's body length.
2*	Movement	Movements in response to the source of disturbance, ranging from short withdrawals at least twice the animal's body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degrees.
3*	Flush	All retreats (flushes) to the water.

* Only Levels 2 and 3 are considered take, whereas Level 1 is not.

Reactions to human presence, if any, depend on species, state of maturity, experience, current activity, reproductive state, time of day, and many other factors (Richardson *et al.*, 1995; Southall *et al.*, 2007; Weilgart, 2007). These behavioral reactions from marine mammals are often shown as: changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior;

avoidance of areas; and/or flight responses (*e.g.*, pinnipeds flushing into the water from haul-outs or rookeries). If a marine mammal does react briefly to human presence by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if visual stimuli from human presence displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (*e.g.*, Lusseau and Bejder 2007; Weilgart 2007).

Disturbances resulting from human activity can impact short- and long-term pinniped haul out behavior (Renouf *et al.*, 1981; Schneider and Payne 1983; Terhune and Almon 1983; Allen *et al.*, 1984; Stewart 1984; Suryan and Harvey 1999; and Kucey and Trites, 2006). Numerous studies have shown that human activity can flush harbor seals off haul out sites (Allen *et al.*, 1984; Calambokidis *et al.*, 1991; and Suryan and Harvey 1999;) or lead Hawaiian monk seals (*Neomonachus schauinslandi*) to avoid beaches (Kenyon 1972). In one case, human disturbance appeared to cause Steller sea lions to desert a breeding area at Northeast Point on St. Paul Island, Alaska (Kenyon 1962).

In cases where vessels actively approached marine mammals (*e.g.*, whale watching or dolphin watching boats), scientists have documented that animals exhibit altered behavior such as increased swimming speed, erratic movement, and active avoidance behavior (Acevedo 1991; Trites and Bain 2000; Williams *et al.*, 2002; Constantine *et al.*, 2003), reduced blow interval (Richter *et al.*, 2003), disruption of normal social behaviors (Lusseau 2003; 2006), and the shift of behavioral activities which may increase energetic costs (Constantine *et al.*, 2003; 2004).

In 1997, Henry and Hammil (2001) conducted a study to measure the impacts of small boats (*i.e.*, kayaks, canoes, motorboats and sailboats) on harbor seal haul out behavior in Metis Bay, Quebec, Canada. During that study, the authors noted that the most frequent disturbances (n=73) were caused by lower speed, lingering kayaks, and canoes (33.3 percent) as opposed to motorboats (27.8 percent) conducting high-speed passes. The seal's flight reactions could be linked to a surprise factor by kayaks and canoes, which approach slowly, quietly, and low on the water making them look like predators. However, the authors note that once the animals were disturbed, there did not appear to be any significant lingering effect on the recovery of numbers to their pre-disturbance levels. In conclusion, the study showed that boat traffic at current levels has only a temporary effect on the haul out behavior of harbor seals in the Metis Bay area.

In 2004, Acevedo-Gutierrez and Johnson (2007) evaluated the efficacy of buffer zones for watercraft around harbor seal haul out sites on Yellow Island, Washington. The authors estimated the minimum distance between the vessels and the haul-out sites; categorized the vessel types; and evaluated seal responses to the disturbances. During the course of the seven-weekend study, the authors recorded 14 human-related disturbances which were associated with stopped powerboats and kayaks. During these events, hauled out seals became noticeably active and moved into the water. The flushing occurred when stopped kayaks and powerboats were at distances as far as 453 and 1,217 ft (138 and 371 m) respectively. The authors note that the seals were unaffected by passing powerboats, even those approaching as close as 128 ft (39 m), possibly indicating that the animals had become tolerant of the brief presence of the vessels and ignored them. The authors reported that on average, the seals quickly recovered from the disturbances and returned

to the haul out site in less than or equal to 60 minutes. Seal numbers did not return to pre-disturbance levels within 180 minutes of the disturbance less than one quarter of the time observed. The study concluded that the return of seal numbers to pre-disturbance levels and the relatively regular seasonal cycle in abundance throughout the area counter the idea that disturbances from powerboats may result in site abandonment (Acevedo-Gutierrez and Johnson 2007). As a general statement from the available information, pinnipeds exposed to intense (approximately 110 to 120 decibels re: 20 μ Pa) non-pulsed sounds often leave haul out areas and seek refuge temporarily (minutes to a few hours) in the water (Southall *et al.*, 2007).

Stampede

There are other ways in which disturbance, as described previously, could result in more than Level B harassment of marine mammals. They are most likely to be consequences of stampeding, a potentially dangerous occurrence in which large numbers of animals succumb to mass panic and rush away from a stimulus. These situations are: (1) falling when entering the water at high-relief locations; (2) extended separation of mothers and pups; and (3) crushing of pups by large males during a stampede. However, NMFS does not expect any of these scenarios to occur from the USFWS's research activities. There is the risk of injury if animals stampede towards shorelines with precipitous relief (*e.g.*, cliffs). However, there are no cliffs on any of the haul out locations in the Complex. If disturbed, the small number of hauled-out adult animals may move toward the water without risk of encountering barriers or hazards that would otherwise prevent them from leaving the area. Moreover, seals may flush into the water, but would not have the potential to crush other seals like sea lions do during a stampede.

They may bump each other, but this is not expected to have lethal consequences. Thus, in this case, NMFS considers the risk of injury, serious injury, or death to hauled out animals as very low.

Anticipated Effects on Marine Mammal Habitat

The only habitat modification associated with the proposed activity is installation of signs on beaches where haul outs are located. Thus, NMFS does not expect that the proposed activity would have any effects on marine mammal habitat and NMFS expects that there will be no long- or short-term physical impacts to pinniped habitat in the Complex.

The proposed activities are not expected to result in any permanent impact on habitats used by marine mammals, including prey species and foraging habitat. The main impact associated with the proposed activity will be direct effects on marine mammals from human presence at haul outs (*i.e.*, the potential for temporary abandonment of the site), previously discussed in this notice.

NMFS does not anticipate that the proposed restoration activities would result in any permanent effects on the habitats used by the marine mammals in the proposed area, including the food sources they use (*i.e.*, fish and invertebrates). Based on the preceding discussion, NMFS does not anticipate that the proposed activity would have any habitat-related effects that could cause significant or long-term consequences for individual marine mammals or their populations.

Proposed Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, “and other means of

effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking” for certain subsistence uses. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat (50 CFR 216.104(a)(11)).

Time and Frequency: The USFWS would conduct research activities throughout the course of the year between April 1 and November 30, 2017.

Vessel Approach and Timing Techniques: The USFWS would ensure that its vessel approaches to beaches with pinniped haul outs would be conducted so as to not disturb marine mammals as most practicable. To the extent possible, the vessel should approach the beaches in a slow and controlled approach, as far away as possible from haul outs to prevent or minimize flushing. Staff would also avoid or proceed cautiously when operating boats in the direct path of swimming seals that may be present in the area.

Avoidance of Acoustic Impacts from Cannon nets: Cannon nets have a measured SL of 128 dB at one meter (m) (estimated based on a measurement of 98.4 dB at 30 m; L. Niles, pers. comm., December 2016); however, the SPL is expected to be less than the thresholds for airborne pinniped disturbance (*e.g.* 90 dB for harbor seals, and 100 dB for all other pinnipeds) at 80 yd from the source. The USFWS proposes to stay at least 100 yd from all pinnipeds if cannon nets are to be used for research purposes.

Avoidance of Visual and Acoustic Contact with People: The USFWS would instruct its members and research staff to avoid making unnecessary noise and not expose themselves visually to pinnipeds whenever practicable. USFWS staff would stay at least 50 yd from hauled out pinnipeds, unless it is absolutely necessary to approach seals closer, or potentially flush a pinniped, in order to continue conducting endangered species conservation work. When disturbance is unavoidable, staff will work quickly and efficiently to minimize the length of disturbance. Researchers and staff will do so by proceeding in a slow and controlled manner, which allows for the seals to slowly flush into the water. Staff will also maintain a quiet working atmosphere, avoiding loud noises, and using hushed voices in the presence of hauled-out pinnipeds. Pathways of approach to the desired study or nesting site will be chosen to minimize seal disturbance if an activity event may result in the disturbance of seals. USFWS staff will scan the surrounding waters near the haul outs, and if predators (*i.e.*, sharks) are seen, seals will not be flushed by USFWS staff.

Researchers, USFWS staff, and volunteers will be properly informed about the MMPA take prohibitions, and will educate the public on the importance of not disturbing marine mammals, when applicable. Staff at Nantucket NWR will remain present on the beaches utilized by pinnipeds to prevent anthropogenic disturbance during times of high public use (late spring-early fall). Staff at Monomoy NWR will also be present on beaches utilized by seals during the same time of year, and will inform the public to keep a distance from haul outs if an issue is noticed. Similar to the USFWS, the NPS also takes precautionary mitigation to help prevent seal take by the public. In August and on the weekends in September, staff and volunteers are present on the National Seashore

beaches to share with the public the importance of preventing disturbance to seals by keeping people at a proper viewing distance of at least 50 yd.

The presence/proximity of seal haul outs and the loud sound created by the firing of cannon nets are taken into consideration when selecting trapping sites for the Red Knot Stopover Study. Trapping sites are decided based on the presence of red knots, the number of juveniles located within roosts, and the observation of birds with attached geolocators and flags. Sites are not trapped on if there is a strong possibility of disturbing seals (*i.e.*, closer than 100 yd). The Red Knot Stopover Study occurs during the time of year (July-Sept) when the least number of seals are present at the activity sites.

Mitigation Conclusions

NMFS has carefully evaluated the USFWS's proposed mitigation measures in the context of ensuring that we prescribe the means of affecting the least practicable impact on the affected marine mammal species and stocks and their habitat. The evaluation of potential measures included consideration of the following factors in relation to one another:

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

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

1. Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).
2. A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to vessel or visual presence that NMFS expects to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).
3. A reduction in the number of times (total number or number at biologically important time or location) individuals exposed to vessel or visual presence that NMFS expects to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).
4. A reduction in the intensity of exposures (either total number or number at biologically important time or location) to vessel or visual presence that NMFS expects to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).
5. Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.
6. For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on the evaluation of the USFWS's proposed measures, 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

In order to issue an incidental take authorization for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth “requirements pertaining to the monitoring and reporting of such taking.” The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for IHAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that NMFS expects to be present in the proposed action area.

The USFWS submitted a marine mammal monitoring plan in Section 13 and Appendix A of their IHA application. NMFS or the USFWS may modify or supplement the plan based on comments or new information received from the public during the public comment period.

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

1. An increase in our understanding of the likely occurrence of marine mammal species in the vicinity of the action, (*i.e.*, presence, abundance, distribution, and/or density of species).
2. An increase in our understanding of the nature, scope, or context of the likely exposure of marine mammal species to any of the potential stressor(s) associated with the action (*e.g.*, sound or visual stimuli), through better understanding of one or more of the

following: the action itself and its environment (*e.g.*, sound source characterization, propagation, and ambient noise levels); the affected species (*e.g.*, life history or dive pattern); the likely co-occurrence of marine mammal species with the action (in whole or part) associated with specific adverse effects; and/or the likely biological or behavioral context of exposure to the stressor for the marine mammal (*e.g.*, age class of exposed animals or known pupping, calving or feeding areas).

3. An increase in our understanding of how individual marine mammals respond (behaviorally or physiologically) to the specific stressors associated with the action (in specific contexts, where possible, *e.g.*, at what distance or received level).

4. An increase in our understanding of how anticipated individual responses, to individual stressors or anticipated combinations of stressors, may impact either: the long-term fitness and survival of an individual; or the population, species, or stock (*e.g.* through effects on annual rates of recruitment or survival).

5. An increase in our understanding of how the activity affects marine mammal habitat, such as through effects on prey sources or acoustic habitat (*e.g.*, through characterization of longer-term contributions of multiple sound sources to rising ambient noise levels and assessment of the potential chronic effects on marine mammals).

6. An increase in understanding of the impacts of the activity on marine mammals in combination with the impacts of other anthropogenic activities or natural factors occurring in the region.

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

8. An increase in the probability of detecting marine mammals (through improved technology or methodology) to better achieve the above goals.

As part of its IHA application, the USFWS proposes to conduct marine mammal monitoring, in order to implement the mitigation measures that require real-time monitoring, and to satisfy the monitoring requirements of the proposed IHA. These include:

Monitoring seals as project activities are being conducted. Proposed monitoring requirements in relation to the USFWS's proposed activities would include species counts, numbers of observed disturbances, and descriptions of the disturbance behaviors during the research activities, including location, date, and time of the event. In addition, the USFWS would record observations regarding the number and species of any marine mammals either observed in the water or hauled out. Behavior of seals will be recorded on a three point scale (1= alert reaction; not considered harassment, 2= moving at least 2 body lengths, or change in direction > 90 degrees, 3= flushing) (Table 4). USFWS staff would also record and report all observations of sick, injured, or entangled marine mammals on Monomoy NWR to the International Fund for Animal Welfare (IFAW) marine mammal rescue team, and will report to NOAA if injured seals are found at Nantucket NWR and Nomans NWR. Tagged or marked marine mammals will also be recorded and reported to the appropriate research organization or federal agency, as well as any rare or unusual species of marine mammal. Photographs will be taken when possible. This information will be incorporated into a report for NMFS at the end of the season. The USFWS will also coordinate with any university, state, or federal researchers to attain additional data or observations that may be useful for monitoring marine

mammal usage at the activity sites.

If at any time injury, serious injury, or mortality of the species for which take is authorized should occur, or if take of any kind of any other marine mammal occurs, and such action may be a result of the USFWS's activities, the USFWS would suspend research activities and contact NMFS immediately to determine how best to proceed to ensure that another injury or death does not occur and to ensure that the applicant remains in compliance with the MMPA.

Proposed Reporting

The USFWS would submit a draft report to NMFS' Office of Protected Resources no later than 90 days after the expiration of the proposed IHA, if issued. The report will include a summary of the information gathered pursuant to the monitoring requirements set forth in the proposed IHA. The USFWS will submit a final report to the NMFS within 30 days after receiving comments from NMFS on the draft report. If the USFWS receives no comments from NMFS on the report, NMFS will consider the draft report to be the final report.

The report will describe the operations conducted and sightings of marine mammals near the proposed project. The report will provide full documentation of methods, results, and interpretation pertaining to all monitoring. The report will provide:

1. A summary and table of the dates, times, and weather during all research activities.
2. Species, number, location, and behavior of any marine mammals observed throughout all monitoring activities.

3. An estimate of the number (by species) of marine mammals exposed to human presence associated with the USFWS's activities.

4. A description of the implementation and effectiveness of the monitoring and mitigation measures of the IHA and full documentation of methods, results, and interpretation pertaining to all monitoring.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the authorization, such as an injury (Level A harassment), serious injury, or mortality (*e.g.*, stampede), USFWS personnel shall immediately cease the specified activities and immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the Northeast Regional Stranding Coordinator. The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Description and location of the incident (including water depth, if applicable);
- Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

The USFWS shall not resume its activities until NMFS is able to review the circumstances of the prohibited take. We will work with the USFWS to determine what is

necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The USFWS may not resume their activities until notified by us via letter, email, or telephone.

In the event that the USFWS discovers an injured or dead marine mammal, and the marine mammal observer determines that the cause of the injury or death is unknown and the death is relatively recent (*i.e.*, in less than a moderate state of decomposition as we describe in the next paragraph), the USFWS will immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the Northeast Regional Stranding Coordinator. The report must include the same information identified in the paragraph above this section. Activities may continue while NMFS reviews the circumstances of the incident. NMFS would work with the USFWS to determine whether modifications in the activities are appropriate.

In the event that the USFWS discovers an injured or dead marine mammal, and the lead visual observer determines that the injury or death is not associated with or related to the authorized activities (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), the USFWS will report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the Northeast Regional Stranding Coordinator within 24 hours of the discovery. The USFWS personnel will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to us. The USFWS can continue their survey activities while NMFS reviews the circumstances of the incident.

Estimated Take by Incidental Harassment

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

All anticipated takes would be by Level B harassment, involving temporary changes in behavior. NMFS expects that the proposed mitigation and monitoring measures would minimize the possibility of injurious or lethal takes. NMFS considers the potential for take by injury, serious injury, or mortality as remote. NMFS expects that the presence of the USFWS personnel could disturb animals hauled out on beaches near research activities and that the animals may alter their behavior or attempt to move away from the USFWS personnel.

As discussed earlier, NMFS assumes that pinnipeds that move greater than two body lengths to longer retreats over the beach, or if already moving, a change of direction of greater than 90 degrees in response to the presence of surveyors, or pinnipeds that flush into the water, are behaviorally harassed, and thus subject to Level B taking (Table 4). NMFS estimates that 39,666 gray seals will be taken, by Level B harassment, over the course of the IHA (Table 5).

This estimate is based on the number of seals observed in past research years that have been flushed during research activities. USFWS biologists used their knowledge of the number of seals that use the haul outs near their research activities, and how many of those may be taken (Levels 2 and 3 on the disturbance scale). The majority of takes will

occur on Monomoy NWR, which is one of the main haul outs for gray seals in the country. While the average number of gray seals present (in regards to Monomoy NWR) from April until August is less than what is reflected in Table 3, not every hauled-out seal on the beach is impacted from each activity and not all seals are impacted from every activity event. This is especially true for Monomoy NWR because the seal haul out stretches across over four miles of beach. For example, the gray seal counts on Monomoy NWR are very high, but the beaches are very large, and most of the work takes place on the upper berm close to the dune (farther away from seals). During April and May when seals are hauled out in very large numbers on the refuge, they may be present at beaches of varying width, between 30 m and 300 m. In narrower areas, all of the seals may be flushed; in mid-width areas, some of the younger and smaller seals may flush, but large males may remain on the beach; and in the widest area, USFWS activities may have no impact at all on the hauled out seals. Also, the amount of disturbance to seals may vary based on staff activities (*e.g.*, if project activities require staff to walk quickly through an area versus spending more time in one area close to seals). Take numbers were estimated from the number of seals using the refuge and the times that the activity might overlap with seal use areas. For example, most of the staging counts are not done in areas where seals haul out so the number of disturbances is very low during this task. Group size also played into the estimates. USFWS staff would impact a smaller number of seals during times of the year when group sizes are smaller (*e.g.*, outside of April and May). The knowledge of USFWS staff who have conducted these activities for multiple years is the best information available to us about the number of takes these activities may cause. In

this proposed IHA, we have included monitoring requirements that should inform our take numbers in future years.

The take numbers for gray seals is thought to be conservative, and likely an overestimate. USFWS staff believe these estimates are realistic and do not expect to exceed the take numbers.

Table 5. Estimated number of gray seal takes per activity at Monomoy, Nantucket, and Nomans Land Island NWRs.

Gray Seal			
Age: all	Sex: male & female		
	#takes/event^a	# events/activity^b	total takes
Shorebird and Seabird Monitoring & Research	1000 (Monomoy) 50 (Nantucket) 10 (Nomans)	34 (Monomoy) 8 (Nantucket) 3 (Nomans)	34,430
Roseate Tern Staging Counts & Resighting	10 (Monomoy) 10 (Nantucket)	6 (Monomoy) 4 (Nantucket)	100
Red Knot Stopover Study	250 (Monomoy) 150 (CACO)	5 (Monomoy) 5 (CACO)	2,000
Northeastern beach tiger beetle Census	750 (Monomoy)	3 (Monomoy)	2,250
Coastal Shoreline Change Survey	500 (Monomoy)	1 (Monomoy)	500
			39,280

^aNumber of takes/event are estimates based on NOAA unpublished data (Table 3) and USFWS field observations.

^bNumber of events/activity were calculated using the numbers in Table 1 for each site location and duration.

NMFS estimates that 1,983 harbor seals could be potentially affected by Level B behavioral harassment over the course of the IHA. USFWS staff estimate that of all of the seals hauled out in mixed species haul outs, approximately five percent are harbor seals. We estimated our number of level B takes of harbor seals by taking five percent of the total takes of gray seals (*i.e.*, five percent of 39,280 is 1,964). These incidental harassment take numbers represent less than three percent of the affected stocks of harbor seals and less than eight percent of the stock of gray seals (Table 6). However, actual take may be slightly less if animals decide to haul out at a different location for the day or if

animals are foraging at the time of the survey activities. The number of individual seals taken is also assumed to be less than the take estimate since these species show high philopatry (Waring *et al.*, 2016; Wood *et al.*, 2011). We expect the take numbers to represent the number of exposures, but assume that the same seals may be behaviorally harassed over multiple days, and the likely number of individual seals that may be harassed would be less. For example, the maximum number of seals observed hauled out on Monomoy NWR during the year is 19,166 (Table 3); therefore, we expect the actual number of individual takes to be closer to that number for activities at Monomoy NWR. Raw counts are not available for Nantucket NWR and Nomans NWR.

Table 6. The percentage of stock affected by the number of takes per species.

Species	Take Number	Stock Abundance	Percent of stock
Gray seal (<i>Halichoerus grypus grypus</i>)	39,280	505,000*	7.78
Harbor seal (<i>Phoca vitulina concolor</i>)	1,964	75,834	2.59

*The Western North Atlantic stock of gray seals is comprised of the Canadian and U.S. populations. The U.S. population abundance estimate is unknown, but the Canadian population abundance estimate is 505,000. The 2016 draft SAR states that the western North Atlantic stock is equivalent to the Canada population.

Because of the required mitigation measures and the likelihood that some pinnipeds will avoid the area, NMFS does not expect any injury, serious injury, or mortality to pinnipeds to occur and NMFS has not authorized take by Level A harassment for this proposed activity.

Analysis and Preliminary Determinations

Negligible Impact

Negligible impact is “an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival” (50 CFR 216.103). The

lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population level effects) forms the basis of a negligible impact finding. An estimate of the number of Level B harassment takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be “taken” through behavioral harassment, NMFS 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 the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat.

Although the USFWS’s survey activities may disturb a small number of marine mammals hauled out on beaches in the Complex, NMFS expects those impacts to occur to a localized group of animals. Marine mammals would likely become alert or, at most, flush into the water in reaction to the presence of the USFWS’s personnel during the proposed activities. Much of the disturbance will be limited to a short duration, allowing marine mammals to reoccupy haul outs within a short amount of time. Thus, the proposed action is unlikely to result in long-term impacts such as permanent abandonment of the area because of the availability of alternate areas for pinnipeds to avoid the resultant acoustic and visual disturbances from the research activities

The USFWS’s activities would occur during the least sensitive time (*e.g.*, April through November, outside of the pupping season) for hauled out pinnipeds in the Complex. Thus, pups or breeding adults would not be present during the proposed activity days.

Moreover, the USFWS’s mitigation measures regarding vessel approaches and

procedures that attempt to minimize the potential to harass the seals would minimize the potential for flushing and large-scale movements. Thus, the potential for large-scale movements and flushing leading to injury, serious injury, or mortality is low.

In summary, NMFS anticipates that impacts to hauled-out pinnipeds during the USFWS's proposed research activities would be behavioral harassment of limited intensity (*i.e.*, temporary flushing at most). NMFS does not expect stampeding, and therefore does not expect injury or mortality to occur (see *Proposed Mitigation* for more details). 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 USFWS's proposed survey activities will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

As mentioned previously, NMFS estimates that the USFWS's proposed activities could potentially affect, by Level B harassment only, two species of marine mammal under our jurisdiction. For each species, these estimates are small numbers (less than three percent of the affected stock of harbor seals and less than eight percent of the stock of gray seals) relative to the population size (Table 6). As stated before, the number of individual seals taken is also assumed to be less than the take estimate (number of exposures) since we assume that the same seals may be behaviorally harassed over multiple days.

Based on the analysis contained in this notice of the likely effects of the specified

activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, NMFS preliminarily finds that the USFWS's proposed activities would take small numbers of marine mammals relative to the populations of the affected species or stocks.

Impact on Availability of Affected Species or Stock for Taking for Subsistence Uses

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

Endangered Species Act (ESA)

NMFS does not expect that the USFWS's proposed research activities would affect any species listed under the ESA. Therefore, NMFS has determined that a section 7 consultation under the ESA is not required.

National Environmental Policy Act (NEPA)

To meet our NEPA requirements for the issuance of an IHA to the USFWS, NMFS has prepared an EA specific to conducting research activities in the Complex. The EA, titled "Issuance of an Incidental Harassment Authorization to Take Marine Mammals by Harassment Incidental to Conducting Seabird and Shorebird Monitoring and Research at the Eastern Massachusetts National Wildlife Refuge Complex, Massachusetts," evaluated the impacts on the human environment of our authorization of incidental Level B harassment resulting from the specified activity in the specified geographic region. An electronic copy of the EA for this activity is available on the website at:

www.nmfs.noaa.gov/pr/permits/incidental/research.htm.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes issuing an IHA to the USFWS for conducting research activities at the Eastern MA NWR locations, from April 1, 2017 through November 30, 2017, provided they incorporate the previously mentioned mitigation, monitoring, and reporting requirements.

Draft Proposed Authorization

This section contains the draft text for the proposed IHA. NMFS proposes to include this language in the IHA, if issued.

Proposed Authorization Language

The United States Fish and Wildlife Service, Eastern Massachusetts National Wildlife Refuge Complex (USFWS), 73 Weir Hill Road, Sudbury, MA 01776, is hereby authorized under section 101(a)(5)(D) of the MMPA (16 U.S.C. 1371(a)(5)(D)) and 50 CFR 216.107, to harass marine mammals incidental to conducting research activities in the Eastern Massachusetts National Wildlife Refuge Complex (Complex).

1. This Incidental Harassment Authorization (IHA) is valid from April 1, 2017 through March 31, 2018.
2. This IHA is valid only for activities associated with research activities and human presence (See items 2(a) – (d)) in the Complex.
 - a. The use of a small vessel to transit to Nomans NWR;
 - b. Research activities (*e.g.*, shorebird and seabird nest monitoring and research; Roseate Tern (*Sterna dougallii*), staging count and resighting; Red knot (*Calidris canutus*) stopover study; Northeastern beach tiger beetle (*Cicindela dorsalis*) census; and coastal shoreline change survey)) conducted at the Complex;

- c. Human presence

3. General Conditions

- a. A copy of this IHA must be in the possession of the USFWS, its designees, and work crew personnel operating under the authority of this IHA.

- b. The species authorized for taking are the gray seal (*Halichoerus grypus grypus*) and the Harbor seal (*Phoca vitulina concolor*).

- c. The taking, by Level B harassment only, is limited to the species listed in condition 3(b). Authorized take: gray seal (39,280); and harbor seal (1,964).

- d. The taking by Level A harassment, injury or death of any of the species listed in item 3(b) of the IHA or the taking by harassment, injury or death of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA.

4. Cooperation

The holder of this IHA is required to cooperate with the NMFS and any other Federal, state, or local agency authorized to monitor the impacts of the activity on marine mammals.

5. Mitigation Measures

In order to ensure the least practicable impact on the species listed in condition 3(b), the holder of this IHA is required to:

- a. Conduct research activities in the Complex between April 1, 2017 and November 30, 2017.

- b. Ensure that vessel approaches to Nomans NWR will be such that the techniques are least disturbing to marine mammals. To the extent possible, the vessel

should conduct a slow and controlled approach to the island as far away as possible from haul outs. USFWS staff will avoid or proceed cautiously when operating boats in the direct path of swimming seals that may be present in the area.

c. Provide instructions to USFWS staff and team members, and if applicable, to tourists, on appropriate conduct when in the vicinity of hauled-out marine mammals. The USFWS research teams will maintain a quiet working atmosphere by avoiding making unnecessary noise and by using hushed voices while near hauled out seals; will remain at least 50 yd from seals when possible; and will choose pathways to study sites that will minimize disturbance to seals.

d. Ensure cannon nets will not be used closer than 100 yd from seals.

e. Ensure that the waters surrounding the haul outs are free of predators (*e.g.*, sharks) before USFWS staff flush seals from the haul outs.

6. Monitoring

The holder of this IHA is required to:

a. Monitor seals when research activities are conducted in the presence of marine mammals.

b. Record the date, time, and location (or closest point of ingress) of each of the research activities in the presence of marine mammals.

c. Collect the following information for each visit:

i. Information on the numbers (by species) of marine mammals observed during the activities, by age and sex, if possible;

ii. The estimated number of marine mammals (by species) that may have been harassed during the activities based on the 3-point disturbance scale;

iii. Any behavioral responses or modifications of behaviors that may be attributed to the specific activities (*e.g.*, flushing into water, becoming alert and moving, rafting);

iv. The date, location, and start and end times of the event; and

v. Information on the weather, including the tidal state and horizontal visibility.

vi. Observations of sick, injured, or entangled marine mammals, and any tagged or marked marine mammals. Photographs will be taken when possible.

7. Reporting Requirements

Final Report: The holder of this IHA is required to submit a draft monitoring report to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, 1315 East West Highway, 13th Floor, Silver Spring, MD 20910 no later than 90 days after the project is completed. The report must contain the following information:

a. A summary of the dates, times, and weather during all research activities.

b. Species, number, location, and behavior of any marine mammals, observed throughout all monitoring activities.

c. An estimate of the number (by species) of marine mammals that are known to have been exposed to visual and acoustic stimuli associated with the research activities.

d. A description of the implementation and effectiveness of the monitoring and mitigation measures of the IHA and full documentation of methods, results, and interpretation pertaining to all monitoring.

8. Reporting Prohibited Take

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA (if issued), such as an injury (Level A harassment), serious injury, or mortality (*e.g.*, stampede, etc.), the USFWS shall immediately cease the specified activities and immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the Assistant Westcoast Regional Stranding Coordinator.

The report must include the following information:

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

The USFWS shall not resume its activities until we are able to review the circumstances of the prohibited take. We shall work with the USFWS to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA

compliance. The USFWS may not resume their activities until notified by us via letter, email, or telephone.

9. Reporting an Injured or Dead Marine Mammal with an Unknown Cause of Death

In the event that the USFWS discovers an injured or dead marine mammal, and the observer determines that the cause of the injury or death is unknown and the death is relatively recent (*i.e.*, in less than a moderate state of decomposition as we describe in the next paragraph), the USFWS will immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, and the Assistant Westcoast Regional Stranding Coordinator. The report must include the same information identified in the paragraph above this section. Activities may continue while we review the circumstances of the incident. We will work with the USFWS to determine whether modifications in the activities are appropriate.

The report must include the same information identified in the paragraph above. Activities may continue while we review the circumstances of the incident. We will work with the USFWS to determine whether modifications in the activities are appropriate.

10. Reporting an Injured or Dead Marine Mammal not Related to the USFWS's

Activities:

In the event that the USFWS discovers an injured or dead marine mammal, and the lead visual observer determines that the injury or death is not associated with or related to the authorized activities (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), the USFWS will report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources,

and the Assistant Westcoast Regional Stranding Coordinator, within 24 hours of the discovery.

The USFWS's staff will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to us.

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

Request for Public Comments

NMFS requests comments on our analysis, the draft IHA, and any other aspect of this notice of proposed IHA for the proposed activities. Please include any supporting data or literature citations with your comments to help inform our final decision on the USFWS's request for an IHA.

Dated: January 6, 2017.

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

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