permit sanctions are sufficient to deter both individual violators and the regulated community as a whole from committing violations; (4) economic incentives for noncompliance are eliminated; and (5) compliance is expeditiously achieved and maintained to protect natural resources.

This revised Penalty Policy also reflects legislation passed and regulations promulgated since issuance of the 2014 Policy, in particular:

- The Illegal, Unreported, and Unregulated Fishing Enforcement Act of 2015, Public Law 114–81, which implemented the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported, and Unregulated Fishing and amended the enforcement provisions of a number of statutes administered by NOAA; and
- The most recent adjustments to the maximum civil monetary penalties authorized under statutes administered and enforced by NOAA, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990 (see 84 FR 2445, February 7, 2019).

Under this revised Policy, NOAA will continue to promote consistency at a national level, provide greater predictability for the regulated community and the public, maintain transparency in enforcement, and more effectively protect natural resources. The major changes to the existing Penalty Policy made by this revision include:

(1) Additional clarity on what would be considered ''such other matters as justice may require'' under the adjustment factors;

(2) Clarification on our policy for when and how the newly adjusted statutory penalty maximums will apply;

(3) Clarification of the policy on application of prior offenses to penalty assessments;

(4) Updates to the penalty schedules to reflect new statutory authorities or regulations;

(5) Adjustments to the penalty matrixes to reflect the most recent adjustments to the maximum civil monetary penalties.

Some of the statutory adjustments to the maximum civil monetary penalties were significant and required a rebalancing of our distribution of the penalty ranges in the penalty matrixes. In making these adjustments, there were two primary considerations that affected the revised penalty matrixes. First, for each matrix that was adjusted, a percentage increase was applied across the entire matrix and the percentage increase was, in all cases, less than the percentage increase to the statutory maximum (numbers were rounded). This was done so as to take a conservative approach to the statutory penalty increases, which reflected a ''catch-up'' application of adjustments for inflation causing some significant penalty increases. Second, the matrixes were adjusted to ensure each individual matrix utilized the full penalty range in a balanced manner so that the penalty ranges increased gradually as the gravity level of the violations increased, rather than having an exponential increase in penalty ranges from one gravity level to the next.

The revised Penalty Policy will supersede the previous Penalty Policy regarding the assessment of penalties or permit sanctions, and previous penalty and permit sanction schedules issued by the NOAA Office of General Counsel. This Penalty Policy provides guidance for the NOAA General Counsel's Office in assessing penalties but is not intended to create a right or benefit, substantive or procedural, enforceable at law or in equity, in any person or company. NOAA retains discretion to assess the full range of penalties authorized by statute in any particular case.

The full revised Penalty Policy, along with examples, matrixes, and schedules can be found at *https://www.gc.noaa.gov/enforce-office3.html*. More information about the NOAA General Counsel Enforcement Section can be found at *https://www.gc.noaa.gov/enforce-office.html*.

Dated: April 25, 2019.

Jeff Dillen,

Deputy General Counsel, National Oceanic and Atmospheric Administration.

[FR Doc. 2019–08895 Filed 5–1–19; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648–XG818

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to U.S. Navy Target and Missile Launch Activities on San Nicolas Island, California

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

ACTION: Notice; proposed incidental harassment authorization; request for comments on proposed authorization and possible renewal.

SUMMARY: NMFS has received a request from the U.S. Navy (Navy) for authorization to take marine mammals incidental to target and missile launch activities on San Nicolas Island (SNI), California for the Naval Air Warfare Center Weapons Division (NAWCWD), Point Mugu Sea Range (PMSR). Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its 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. The Navy's activity is considered a military readiness activity pursuant to MMPA, as amended by the National Defense Authorization Act for Fiscal Year 2004 (NDAA).

DATES: Comments and information must be received no later than June 3, 2019.

ADDRESSES: Comments should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service. Physical comments should be sent to 1315 East-West Highway, Silver Spring, MD 20910 and electronic comments should be sent to *ITP.Egger@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 received electronically, including all attachments, must not exceed a 25-megabyte file size. Attachments to electronic comments will be accepted in Microsoft Word or Excel or Adobe PDF file formats only. All comments received are a part of the public record and will generally be posted online at *https://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: Stephanie Egger, 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 such 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 such takings are set forth.

The NDAA (Pub. L. 108–136) removed the ''small numbers'' and ''specified geographical region'' limitations indicated above and amended the definition of ''harassment'' as it applies to a ''military readiness activity.'' The activity for which incidental take of marine mammals is being requested addressed here qualifies as a military readiness activity. 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 we have 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.

We 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 December 13, 2018, NMFS received a request from the Navy for an IHA to take marine mammals incidental to target and missile launch activities on SNI. The application was deemed adequate and complete on April 10, 2019. The Navy's request is for take of California sea lions (*Zalophus californianus*), harbor seals (*Phoca vitulina*), and northern elephant seals (*Mirounga angustirostris*) by Level B harassment only. Neither Navy nor NMFS expects serious injury or mortality to result from this activity and, therefore, an IHA is appropriate.

NMFS has previously issued incidental take authorizations to the Navy for similar launch activities since 2001 with the current authorization in effect until June 3, 2019 (79 FR 32678; June 6, 2014 and 79 FR 32919; June 9, 2014). Navy complied with all the requirements (*e.g.,* mitigation, monitoring, and reporting) of the previous authorizations and information regarding their monitoring results may be found in the *Potential Effects of Specified Activity on Marine Mammals and their Habitat* and *Estimated Take* sections. This proposed IHA would cover one year of on-going activity for which Navy obtained prior authorizations. The on-going activity involves continuation of target and missile launches from SNI. The Navy is considering a subsequent IHA or renewal in 2020 as well as a request for incidental take regulations in 2021 for future activities.

Description of Proposed Activity

Overview

The Navy proposes to continue a target and missile launch program from two launch sites on SNI. Missiles vary from tactical and developmental weapons to target missiles used to test defensive strategies and other weapons systems. Some launch events involve a single missile, while others involve the launch of multiple missiles in quick succession. The Navy proposes to conduct up to 40 missile launch events from SNI, but the total may be less than 40 depending on operational requirements. Launch timing will be determined by operational, meteorological, and logistical factors. Up to 10 of the 40 launches may occur at night, but this is also dependent on operational requirements and only conducted when required by test objectives. Airborne sound from these launch events may take pinnipeds that are hauled out on SNI by Level B harassment. All flights over SNI would be subsonic; therefore, there would be no sonic booms that could affect pinnipeds hauled out at sites on SNI.

The purpose of these launches is to support training and testing activities associated with operations on the NAWCWD PMSR. The PMSR is used by the U.S. and allied military services to test and evaluate sea, land, and air weapon systems; to provide realistic training opportunities; and to maintain operational readiness of these forces. Some of the launches are used for practicing defensive drills against the types of weapons simulated by these missiles and some launches are conducted for the related purpose of testing new types of targets.

Dates and Duration

The Navy is requesting an IHA for the continuation of specific launch activities at SNI for one year, from June 4, 2019 to June 3, 2020. The timing of launch activities is variable and subject to test and training requirements, and meteorological and logistical limitations. To meet the Navy's operational testing and training requirements, up to 40 launch events may be conducted at any time of year, day or night. However, only 10 of the 40 launches per year may occur at night, but this is also dependent on operational requirements and only conducted when required by test objectives. No more than 25 launches have occurred in any single year since 2001. Given the launch acceleration and flight speed of the missiles, most launch events are of extremely short duration. Strong launch sounds are typically

detectable near the beaches at western SNI for no more than a few seconds per launch.

Location of the Activity

The Navy is proposing launch activities on SNI, California for testing and training activities associated with operations on the NAWCWD PMSR (see Figure 1–1 of the application). SNI is one of the eight Channel Islands in the Southern California Bight, located about 105 kilometers (km) southwest of Point Mugu. The missiles are launched from one of several fixed locations on the western end of SNI. Missiles launched from SNI fly generally west, southwest, and northwest through the PMSR. The primary launch locations are the Alpha Launch Complex, located 190 meters (m) above sea level on the west-central part of SNI and the Building 807 Launch Complex, which accommodates several fixed and mobile launchers, at the western end of SNI at approximately 11 m above sea level. The Point Mugu airfield on the mainland, the airfield on SNI, and the target sites in the PMSR will be a routine part of proposed launch operations.

Many of the beaches and rocky outcroppings around the perimeter of SNI are pinniped resting, molting, or breeding sites. The Alpha Launch Complex is approximately 2 km from the nearest beach where pinnipeds are known to routinely haul out. The Building 807 Launch Complex is 30 m from the nearest pinniped haulout. However, few pinnipeds are known to haul out on the shoreline immediately adjacent to this launch site. Refer to Figure 1–2 of the application for launch sites and anticipated launch azimuths in relation to potentially affected pinniped haulout areas on SNI.

Detailed Description of Specific Activity

Missiles are rocket-propelled weapons designed to deliver an explosive warhead with accuracy at high speed. Missiles vary from small tactical weapons that are effective out to only a few hundred feet to much larger strategic weapons that have ranges of several thousand miles. Almost all missiles contain some form of guidance and control mechanism and are therefore often referred to as guided missiles. Guided missiles have four system components: Targeting or missile guidance, flight system, engine, and warhead. A guided missile powered along a low, level flight path by an air-breathing jet engine is called a cruise missile. An unguided military missile, as well as any launch vehicle, is usually referred to as a rocket. Tactical guided missiles are generally categorized according to the location of the launch platform and target and include: Air-to-air, air-to-surface, surface-to-air, anti-ship, and anti-tank (or assault).

Missiles can be propelled by either liquid-fueled or solid-fueled rocket engines; however, solid fuel is preferred for military uses. Such engines commonly propel tactical guided missiles (*i.e.,* missiles intended for use within the immediate area) toward their targets at twice the speed of sound. Cruise or ballistic missiles are designed to strike targets far beyond the immediate area, and are therefore also known as strategic missiles. Cruise missiles are jet-propelled at subsonic speeds throughout their flights, while ballistic missiles are rocket-powered only in the initial (boost) phase of flight, after which they follow an arcing trajectory to the target. As gravity pulls the ballistic warhead back to Earth, speeds of several times the speed of sound are reached. Ballistic missiles are most often categorized as short-range, medium-range, intermediate-range, and intercontinental ballistic missiles. Missiles weights range between 54–2,900 kilograms (kg), but total weight is dependent on fuel or boosters.

Below is the number of launches that have occurred at SNI since 2001 (Table 1) and the missile types that are proposed to be launched under this IHA. There have not been more than 25 launch events conducted in any given year since 2001.

TABLE 1—THE TOTAL NUMBER OF LAUNCHES THAT HAVE OCCURRED SINCE 2001 AT SNI

Time period	Number of launches
August 2001 to October 2005	69
February 2006 to December 2009	11
January 2010 to December 2014	36
December 20015 to November 2018	30

Missile descriptions are representative of some of the types of missiles typically launched from SNI. While this list is not inclusive of all potential missiles that could be launched annually, the descriptions and the sound profiles are representative of the diversity of the types of missiles typically launched. For information on the sound levels these missiles produce please refer to Section 1.2 of the application.

Rolling Airframe Missiles

At SNI, Rolling Airframe Missiles (RAMs) are launched from the Building 807 Launch Complex, near the shoreline.

GQM–163A ''Coyote''

The Coyote, designated GQM–163A, is an expendable Supersonic Sea-Skimming Target (SSST) powered by a ducted-rocket ramjet. This missile is designed to provide a ground-launched, aerial target system to simulate a supersonic, sea-skimming Anti-Ship Cruise missile threat. The Coyote utilizes a previously installed launcher at the Alpha Launch Complex on SNI with a Launcher Interface Kit. Coyote launches are expected to be the primary large missile launched from SNI over the next several years. Coyotes are launched from the inland location (Alpha Launch Complex).

Multi-Stage Sea Skimming Target (MSST)

The Multi-Stage Sea Skimming Target (MSST) is a subsonic cruise missile with a supersonic terminal stage that approaches its target at low-level at Mach 2.8. The MSST is launched from the Alpha Launch Complex on SNI.

Standard Missile (SM–2, SM–3, SM–6)

The Standard family of missiles consists of a range of air defense missiles including supersonic, medium, and extended range surface-to-air and surface-to-surface missiles. The Standard Missile 3 Block IIA (SM–3) is a ship-based missile system used to intercept short- to intermediate-range ballistic missiles as a part of the Aegis Ballistic Missile Defense System. Although primarily designed as an antiballistic missile defensive weapon, the SM–3 has also been employed in an anti-satellite capacity against a satellite at the lower end of low Earth orbit. Similarly, the SM–6 is a vertically launched, extended range missile compatible with the Aegis Weapon System to be used against extended range threats. The SM–6 Block I/IA combines the tested legacy of the SM–2 propulsion system and warhead with an active radio frequency seeker modified from the AIM–120 Advanced Medium Range Air-to-Air Missile. The new features allow for over-the-horizon engagements, enhanced capability at extended ranges and increased firepower. To date, only the SM–3 has been launched from SNI.

Other Missiles That May Be Used During Launch Events

The Navy may also launch other missiles to simulate various types of threat missiles and aircraft and to test other systems. For example, on August 23, 2002, a Tactical Tomahawk was launched from Building 807 Launch Complex. A Falcon was launched from the Alpha Launch Complex.

Missiles of the BQM–34, BQM–74, or BQM–177 aerial target type could also be launched. These are small, unmanned aircraft that are launched using jet-assisted take-off rocket bottles; they then continue offshore powered by small turbojet engines. If launches of other missile types occur, they would be included within the total of 40 launches anticipated per year.

General Launch Operations

Aircraft and helicopter flights between the Point Mugu airfield on the mainland, the airfield on SNI, and the target sites in the PMSR are a routine part of a planned launch operation. These flights generally do not pass at low level over the beaches where pinnipeds are expected to be hauled out. Aircraft and helicopters will maintain a minimum altitude of 305 m from pinniped haulouts and rookeries, with some exceptions, like emergencies, and are not expected to result in any incidental take of pinnipeds.

Movements of personnel are restricted near the launch sites at least several hours prior to a launch for safety reasons. No personnel are allowed on the western end of SNI during launches. Movements of personnel or missiles near pinniped haulout sites and rookeries are also restricted at other times of the year for purposes of environmental protection and preservation of cultural resource sites.

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

Sections 3 and 4 of the Navy's application summarize available information regarding status and trends, distribution and habitat preferences, and behavior and life history, of the potentially affected species. Additional information regarding population trends and threats may be found in NMFS's Stock Assessment Reports (SARs; *https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments*) and more general information about these species (*e.g.,* physical and behavioral descriptions) may be found on NMFS' website (*https://www.fisheries.noaa.gov/find-species*).

Table 2 below lists all species with expected potential for occurrence in the project area and summarizes information related to the population or stock, including regulatory status under the MMPA and ESA and potential biological removal (PBR), where known. For taxonomy, we follow Committee on Taxonomy (2018). PBR is 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 (as described in NMFS' SARs). While no mortality is anticipated or authorized here, PBR and annual serious injury and mortality from anthropogenic sources are included here as gross indicators of the status of the species and other threats.

Marine mammal abundance estimates presented in this document represent the total number of individuals that make up a given stock or the total number estimated within a particular study or survey area. NMFS' stock abundance estimates for most species represent the total estimate of individuals within the geographic area, if known, that comprises that stock. For some species, this geographic area may extend beyond U.S. waters. All managed stocks in this region are assessed in NMFS' U.S. Pacific and Alaska SARs (Carretta *et al.,* 2018). All values presented in Table 2 are the most recent available at the time of publication (draft SARs available online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports*).

Marine mammal species likelihood of occurrence (designated as ''unlikely,'' ''potential'' or ''likely'') was determined through review of NMFS SARs, species-specific literature research, and SNI monitoring reports (Table 2). ''Unlikely'' means occurrence is not expected, ''potential'' means the species may occur or there is casual occurrence history, and ''likely'' means there is a strong possibility of or regular occurrence in the project area.

The Channel Islands, located in the Southern California Bight, are inhabited by large populations of pinnipeds. California sea lions, northern elephant seals, and harbor seals are the most numerous pinniped species at the Channel Islands (Lowry *et al.,* 2008; Lowry *et al.,* 2014; Lowry *et al.,* 2017). California sea lions and harbor seals are found at all of the Channel Islands (Lowry *et al.,* 2008; Lowry *et al.,* 2014; Lowry *et al.,* 2017). Northern fur seals (*Callorhinus ursinus*) have only been observed at a single island, and Steller sea lions (*Eumetopias jubatus*) and Guadalupe fur seals (*Arctocephalus philippii townsendi*) are rare visitors to the Channel Islands (Bonnell *et al.,* 1980; Stewart and Yochem, 1984; Orr, *et al.,* 2012). SNI is one of the islands within the Channel Islands where pinnipeds occur.

Six species of pinnipeds have been observed on SNI. All pinniped species that could potentially occur in the proposed survey areas are included in Table 2. As described below, three pinniped species (with three managed stocks) temporally and spatially co-occur with the activity to the degree that take is reasonably likely to occur. The three pinniped species likely to occur on shore in the activity area either regularly or in large numbers during certain times of the year are California sea lions, harbor seals, and northern elephant seals, and we propose authorizing take for these species.

An additional three pinniped species haul out rarely or occasionally on SNI. These include the northern fur seal, the Guadalupe fur seal, and the Steller sea lion. The temporal and/or spatial occurrence of these three additional pinniped species is such that take is not expected to occur, and they are not discussed further beyond the explanation provided below in this section.

TABLE 2—MARINE MAMMALS OCCURRENCE IN THE PROJECT AREA

Common name	Scientific name	Stock	ESA/MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]	Occurrence
Order Carnivora—Superfamily Pinnipedia							
Family Otariidae (eared seals and sea lions):							
California sea lion	*Zalophus californianus*	U.S	-, -, N	257,606 (N/A, 233,515, 2014)	14,011	≥319	Likely.
Northern Fur Seal	*Callorhinus ursinus*	CA	-, D, N	14,050 (N/A, 7,524, 2013)	451	1.8	Potential.
Steller Sea Lion	*Eumetopias jubatus*	Eastern	T, D, Y	41,638 (see SAR, 41,638, 2015)	2,498	108	Unlikely.

TABLE 2—MARINE MAMMALS OCCURRENCE IN THE PROJECT AREA—Continued

Common name	Scientific name	Stock	ESA/ MMPA status; strategic (Y/N) [1]	Stock abundance (CV, N_{min}, most recent abundance survey) [2]	PBR	Annual M/SI [3]	Occurrence
Guadalupe Fur Seal	*Arctocephalus philippii townsendi.*	Mexico	T, D, Y	20,000 (N/A, 15,830, 2010)	542	≥3.2	Potential.
Family Phocidae (earless seals):							
Harbor Seal	*Phoca vitulina*	CA	-, -, N	30,968 (N/A, 27,348, 2012)	1,641	43	Likely.
Northern Elephant Seal	*Mirounga angustirostris*	CA Breeding ..	-, -, N	179,000 (N/A, 81,368, 2010)	4,882	8.8	Likely.

[1] 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 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.

[2] NMFS marine mammal stock assessment reports online at: *https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports.* CV is coefficient of variation; N_{min} is the minimum estimate of stock abundance. In some cases, CV is not applicable.

[3] These values, found in NMFS's SARs, represent annual levels of human-caused mortality plus serious injury from all sources combined (*e.g.,* commercial fisheries, ship strike). Annual M/SI often cannot be determined precisely and is in some cases presented as a minimum value or range. A CV associated with estimated mortality due to commercial fisheries is presented in some cases.

Note: *Italicized species are not expected to be taken or proposed for authorization.*

Distribution of California sea lions, harbor seals, and harbor seals on SNI, as well as on the other Channel Islands, was conducted during the NMFS' Southwest Fisheries Science Center (SWFSC) July 2011–2015 survey. In 1987, the SWFSC began using aerial photography at the Channel Islands to census pinnipeds. Years later, the survey expanded to include all the Channel Islands in aerial surveys). July surveys are intended to census California sea lions after all pups have been born to monitor population trends and abundance of the U.S. population and to collect summer residence count-data for northern elephant seals and harbors seals (Lowry *et al.*, 20187b). The perimeter of each SNI was divided into small area-coded units to describe intra-island distribution of pinnipeds as shown in Figure 1 below. We include Figure 1 here as a reference when describing some of the census data by Lowry *et al.* (2017b) below and later in the *Estimated Take* section, to describe what areas may be impacted by launch events and where the Navy is monitoring pinnipeds.

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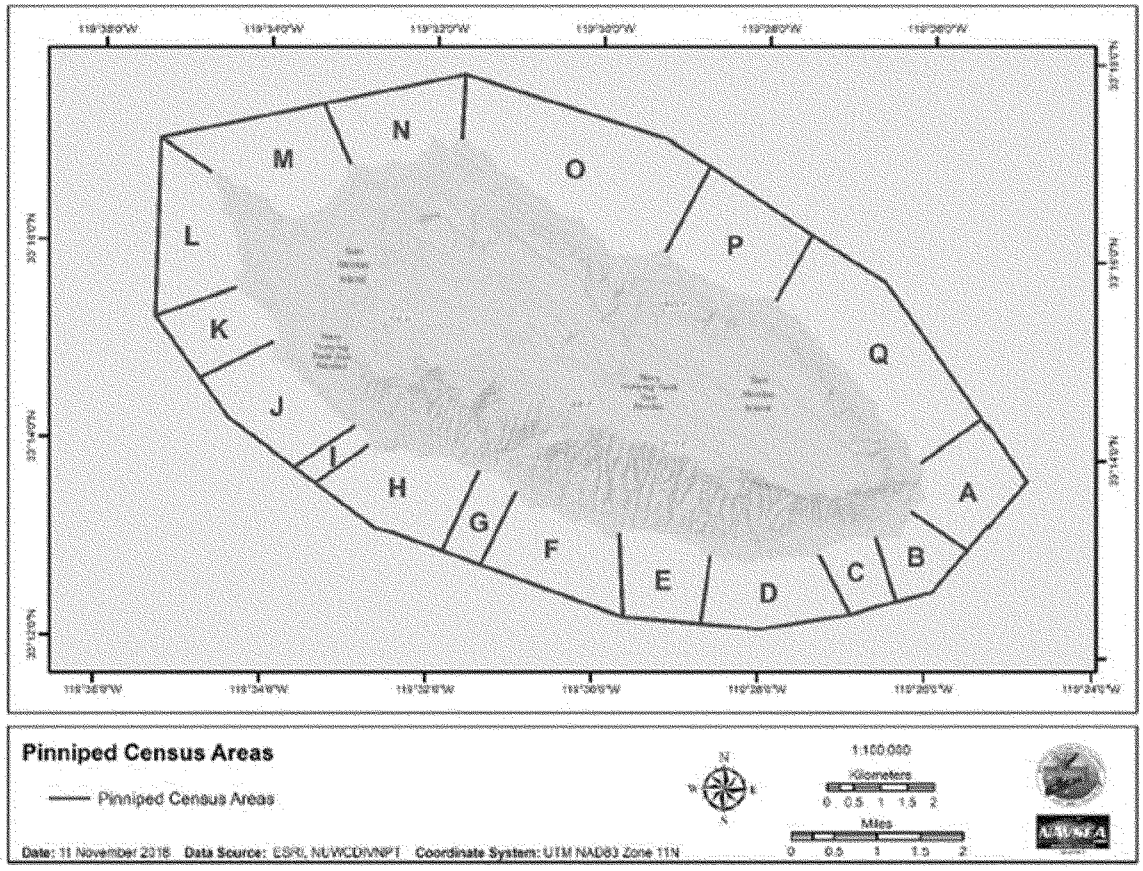

Figure 1. Census and Monitoring Areas on SNI associated with the July 2011-2015 pinniped survey of the Channel Islands (Lowry *et al.*, 2017b).

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California Sea Lion

The California sea lion is by far the most common pinniped on SNI. This species hauls out at many sites along the south side of SNI and at some sites on the western part of the island. Peak abundance of California sea lions is during June and July (breeding season) and pupping occurs on the beaches from mid-May to mid-July. Female California sea lions with pups haul out during most of the year at SNI. Females nurse their pups for about eight days before coming into estrus and then begin an alternating pattern of foraging at sea and nursing the pup on land; this pattern may last for eight months (with some pups nursing up to one year after birth). Many juveniles move north to forage although some continue to periodically haul out at SNI.

Barlow *et al.* (1997) reported that 47 percent of the U.S. stock, or 49 percent of the PMSR population, used the shoreline of SNI to breed, pup, or haul out in 1994. The population of California sea lions at SNI generally grew from 1975–2014 with inter-annual variability due to intermittent El Niño events (Lowry *et al.,* 2017a). During July 2011–2015 surveys, SNI had the second largest number of California sea lions among the Channel Islands and averaged 52,634.8 individuals per year (SD = 9,899.0) (Lowry *et al.,* 2017b) (see Table 3 of the application). California sea lions were not uniformly distributed around the perimeter of SNI, but had the most total numbers of at Areas D, H, L and Q (see Figure 1). California sea lions continue to expand their range and occupy new areas on SNI (Lowry *et al.,* 2017a; Lowry *et al.,* 2017b). Over the course of the year, over 100,000 sea lions use SNI. Please refer to the application for additional information on California sea lions on SNI.

Harbor Seals

Peak abundance of harbor seals is during late-May to early June (molt season in southern California) and pupping occurs on the beaches from February to May. The California population of harbor seals increased between 1981 and 2004 but this increase has slowed since 1995 with a decrease after 2005 (see Figure 4.1 of the application) (Carretta *et al.,* 2017). Counts from 1975 to 2012 fluctuated between 128 and 858 harbor seals, based on peak counts (Fluharty 1999; Le Boeuf *et al.,* 1978; Lowry *et al.,* 2008; Lowry pers. comm. as cited in the application). During May–July 2002, 2004, 2007, and 2009, 584, 784, 858 and 754 harbor seals were hauled out on SNI respectively, representing between about 15 and 18 percent of the harbor seals in the Channel Islands (Lowry *et al.,* 2008). During July 2011–2015 surveys, harbor seal counts on SNI were variable, ranging from 229 to 673 during the period from 2011 to 2015 (Lowry *et al.,* 2017b). Lowry *et al.* (2017b) only counted 259 harbor seals on SNI in 2015 (18.9 percent of harbor seals in the Channel Islands). Harbor seals were not uniformly distributed around the perimeter of SNI. Harbor seals at SNI were mostly found in areas L, N, and Q (see Figure 1) (Lowry *et al.,* 2017b).

Please refer to the application for additional information on harbor seals on SNI.

Northern Elephant Seal

Peak abundance for northern elephant seals at SNI is during January and February (breeding season). Northern elephant seals also haul out during the molting periods in the spring and summer, and smaller numbers haul out at other times of year. Given that elephant seals forage in areas that are a great distance from SNI and the PMSR, with adult males foraging as far north as the Aleutian Islands, and adult females in the north-central Pacific Ocean, it is unlikely that large numbers are present outside of the breeding season at PMSR at any one time. Pupping occurs on beaches at SNI from January to early February, and pups are typically weaned through March. During this period, they undergo their first molt (Le Boeuf and Laws 1994). By the end of April, 80 percent of pups have left the rookery, and the remainder leave in May.

SNI is currently the second largest elephant seal rookery and haulout in Southern California (Lowry *et al.,* 2017b). In July 2015, when all of the Channel Islands were surveyed for elephant seals, approximately 62 percent of northern elephant seals hauled out on San Miguel Island, approximately 20.5 percent on SNI, and 17 percent on Santa Rosa Island (Lowry *et al.,* 2017b. Increasing numbers of elephant seals haul out at various sites around SNI, including the western part of the island. Northern elephant seals were not uniformly distributed around the perimeter of SNI, and Area K at SNI had the most northern elephant seals on island during the July 2011–2015 surveys (Lowry *et al.,* 2017b) (see Figure 1). The timing of haul out by various age and sex categories of seals is reflected in the bi-modal peak pattern in the counts of hauled-out elephant seals on the island (Stewart and Yochem 1984). The population of northern elephant seals on SNI is likely increasing, based on recent counts (Lowry, pers. comm. 2018 as cited in the application). Please refer to the application for additional information on harbor seals on SNI.

Steller Sea Lions

There are two distinct population segments (DPSs) identified in U.S. waters for the Steller sea lion: The Eastern U.S. stock, which includes animals born east of Cape Suckling, Alaska (at 144 degrees West longitude), and the Western U.S. stock, which includes animals born at and west of Cape Suckling (Loughlin 1998). Steller sea lions often disperse widely outside of the breeding season. A northward shift in the overall breeding distribution has occurred, with a contraction of the range in southern California and new rookeries established in Southeast Alaska (Pitcher *et al.,* 2007).

Steller sea lions are rare on the northern Channel Islands, and their nearest breeding rookery is in northern California. The Steller sea lion was once abundant in the waters off southern California, but numbers have declined since 1938. At San Miguel Island, formerly the southern extent of the species' breeding range, Steller sea lions are no longer known to breed; the last mature Steller sea lion was seen there in 1983 (DeLong and Melin 1999). Historically, Steller sea lions were sighted occasionally at SNI (Bartholomew and Boolootian 1960). A sub-adult male Steller sea lion was sighted at San Clemente Island on April 27, 2013 and individuals have been sighted at San Miguel Island and one adult male at SNI in 2010 (Lowry, pers. comm. as cited in the application.). While few Steller sea lion adults have been sighted recently at the Channel Islands, they are rare and it is unlikely any would be hauled out on SNI during launch events. Therefore, take of Steller sea lions is not proposed for authorization.

Guadalupe Fur Seal

Guadalupe fur seal were abundant prior to seal exploitation, when they were likely the most abundant pinniped species on the Channel Islands, but are considered uncommon in Southern California. Guadalupe fur seal is an occasional visitor to the Channel Islands. Adult and juvenile male Guadalupe fur seals have been observed at San Miguel Island, California, since the mid-1960s (Melin and DeLong 1999), and sightings have also occurred at Santa Barbara, San Nicolas, and San Clemente Islands in the Channel Islands (Bartholomew 1950; Stewart 1981b; Stewart et al., 1993). On San Miguel Island, one to several male Guadalupe fur seals had been observed annually between 1969 and 2000 (DeLong and Melin 2000) and juvenile animals of both sexes have been seen occasionally over the years (Stewart *et al.,* 1987). Twenty-one sightings of Guadalupe fur seals were made on SNI from 1949 to 1986 (Bartholomew 1950; Stewart 1981b; Stewart et al. 1987; G. Smith, NAWCWD, pers. comm.). Most sightings were either juveniles of undetermined sex or adult males. One male was observed in six consecutive years from 1981 to 1986: It was defending a territory amongst breeding California sea lions along the south shore approximately 6.9 km from the western tip of the island. A lone female was observed on the south side of SNI in the summer of 1997 (G. Smith, NAWCWD, pers. comm.). The first adult female at San Miguel Island was also seen in 1997. This fur seal gave birth to a pup in rocky habitat along the south side of the island and, over the next year, reared the pup to weaning age. This was apparently the first pup born in the Channel Islands in at least 150 years. A lone male Guadalupe fur seal was again seen defending a territory on the south shore of SNI between 2006 and 2009 and again in 2012 (J. Laake, NOAA, pers. comm. as cited in the application.). Because only single individuals of this species have been seen on SNI since 1981 and the most recent observations were on the south shore far from launch operations, it is unlikely any Guadalupe fur seals would occur ashore during the proposed activities or be in the area impacted by missile launch sounds. Therefore, take of Guadalupe fur seals is not proposed for authorization.

Northern Fur Seal

San Miguel Island and the adjacent Castle Rock are the only known rookeries of northern fur seals in California. Comprehensive count data for northern fur seals on San Miguel Island are not available, therefore the best available information on northern fur seal abundance on the northern Channel Islands comes from subject matter experts which indicates the population is at its maximum in summer (June–August) with an estimated 13,384 animals at San Miguel Island, with approximately half that number present in the fall (September and October) and approximately 50–200 animals present from November through May (pers. comm. Sharon Melin, NMFS MML, to J. Carduner, NMFS OPR). San Miguel Island is the only island in the northern Channel Islands on which northern fur seals have been observed, and on San Miguel Island they only occur at the west end of the island and on Castle Rock (a small offshore rock on the northwest side of the island) (pers. comm. Sharon Melin, NMFS MML, to J. Carduner, NMFS OPR). Given the limited sightings of northern fur seal on SNI, it is unlikely that northern fur seals would be impacted by missile launches. Missile launches are not expected to impact San Miguel Island where northern fur seals would be expected. Therefore, take of northern fur seals is not proposed for authorization.

Unusual Mortality Events

Below, we include additional information about the marine mammals in the project area, that will inform our analysis, such as where Unusual Mortality Events (UME) have been designated. Two UMEs that could be relevant to informing the current analysis are discussed below. The Guadalupe fur seal UME in California is still active and involves an ongoing investigation.

California Sea Lion UME

From January 2013 through September 2016, a greater than expected number of young malnourished California sea lions stranded along the coast of California. Sea lions stranding from an early age (6–8 month old) through to two years of age were consistently underweight without other disease processes detected. Of the 8,122 stranded animals in this age class, 93 percent stranded alive (n = 7,587, with 3,418 of these released after rehabilitation) and 7 percent (n = 531) stranded dead. Several factors are hypothesized to have impacted the ability of nursing females and young sea lions to acquire adequate nutrition. In late 2012, decreased anchovy and sardine recruitment (CalCOFI data July 2013) may have led to nutritionally stressed adult females. Biotoxins were present at various times throughout the UME, and while they were not detected in the young sea lions (which were not eating), they may have impacted the adult females. Therefore, the role of biotoxins in this UME, via its possible impact on adult females, is unclear. The primary cause of the UME is related to shifts in distribution and abundance of sea lion prey items around the Channel Island rookeries during critical sea lion life history events (nursing by adult females, and transitioning from milk to prey by young sea lions). These prey shifts were most likely driven by unusual oceanographic conditions at the time due to the warm water blob and El Niño. This investigation will soon be closed. NMFS staff recently confirmed that the mortality of pups and yearlings returned to normal in 2017 and 2018 and the Working Group will be reviewing a closure package shortly (Deb Fauquier, NMFS, pers. comm. 2019). Please refer to NMFS' website at *https://www.fisheries.noaa.gov/national/marine-life-distress/2013-2017-california-sea-lion-unusual-mortality-event-california* for more information on this UME.

Guadalupe Fur Seal UME

Increased strandings of Guadalupe fur seals began along the entire coast of California in January 2015 and were eight times higher than the historical average (approximately 10 seals/yr). Strandings have continued since 2015 and have remained well above average through 2018. As of March 18, 2019, the total number of Guadalupe fur seals to date in the UME is 286. Strandings are seasonal and generally peak in April through June of each year. The Guadalupe fur seal strandings have been mostly weaned pups and juveniles (1–2 years old) with both live and dead strandings occurring. Current findings from the majority of stranded animals include primary malnutrition with secondary bacterial and parasitic infections. Additionally a few seals have had evidence of some biotoxin (domoic acid) exposure especially in 2015. The preliminary cause of this UME is related to ecosystems changes secondary to unusual oceanographic conditions such as the warm water blob and El Niño. This UME occurred in the same area as the 2013–2016 California sea lion UME. This investigation is ongoing but a closure package will be submitted shortly to the Working Group to consider (Deb Fauquier, NMFS, pers. comm. 2019). Please refer to *https://www.fisheries.noaa.gov/national/marine-life-distress/2015-2019-guadalupe-fur-seal-unusual-mortality-event-california* for more information on this UME.

Marine Mammal Hearing

Hearing is the most important sensory modality for marine mammals underwater, and exposure to anthropogenic sound can have deleterious effects. To appropriately assess the potential effects of exposure to sound, it is necessary to understand the frequency ranges marine mammals are able to hear. Current data indicate that not all marine mammal species have equal hearing capabilities (*e.g.,* Richardson *et al.,* 1995; Wartzok and Ketten, 1999; Au and Hastings, 2008). To reflect this, Southall *et al.* (2007) recommended that marine mammals be divided into functional hearing groups based on directly measured or estimated hearing ranges on the basis of available behavioral response data, audiograms derived using auditory evoked potential techniques, anatomical modeling, and other data. Note that no direct measurements of hearing ability have been successfully completed for mysticetes (*i.e.,* low-frequency cetaceans). Subsequently, NMFS (2018) described generalized hearing ranges for these marine mammal hearing groups. Generalized hearing ranges were chosen based on the approximately 65 dB threshold from the normalized composite audiograms, with the exception for lower limits for low-frequency cetaceans where the lower bound was deemed to be biologically implausible and the lower bound from Southall *et al.* (2007) retained. The functional group and the associated frequencies for this proposed IHA are indicated below in Table 4 (note that these frequency ranges correspond to the range for the composite group, with the entire range not necessarily reflecting the capabilities of every species within that group).

TABLE 4—RELEVANT MARINE MAMMAL FUNCTIONAL HEARING GROUPS AND THEIR GENERALIZED HEARING RANGES

Hearing group	Generalized hearing range *
Pinnipeds (in air)	75 Hz to 30 kHz.

* Southall *et al.*, 2007.

Potential Effects of Specified Activities on Marine Mammals and Their Habitat

This section includes a summary and discussion of the ways that components of the proposed activity may impact marine mammals and their habitat. The *Estimated Take* section later in this document includes a quantitative analysis of the number of individuals that are expected to be taken by this activity. The *Negligible Impact Analysis and Determination* section considers the content of this section, the *Estimated Take* section, and the *Proposed Mitigation* section, to draw conclusions regarding the likely impacts of these activities on the reproductive success or survivorship of individuals and how those impacts on individuals are likely to impact marine mammal species or stocks.

Description of Sound Sources

This section contains a brief technical background on sound, the characteristics of certain sound types, and on metrics used in this proposal inasmuch as the information is relevant to the specified activity and to a discussion of the potential effects of the specified activity on marine mammals found later in this document. Sound travels in waves, the basic components of which are frequency, wavelength, velocity, and amplitude. Frequency is the number of pressure waves that pass by a reference point per unit of time and is measured in hertz (Hz) or cycles per

second. Wavelength is the distance between two peaks or corresponding points of a sound wave (length of one cycle). Higher frequency sounds have shorter wavelengths than lower frequency sounds, and typically attenuate (decrease) more rapidly, except in certain cases in shallower water. Amplitude is the height of the sound pressure wave or the ''loudness'' of a sound and is typically described using the relative unit of the dB. A sound pressure level (SPL) in dB is described as the ratio between a measured pressure and a reference pressure and is a logarithmic unit that accounts for large variations in amplitude; therefore, a relatively small change in dB corresponds to large changes in sound pressure. For airborne sound pressure, the reference amplitude is usually 20 μPa and is expressed as dB re 20 μPa. The source level (SL) represents the SPL referenced at a distance of 1 m from the source while the received level is the SPL at the listener's position.

Root mean square (rms) is the quadratic mean sound pressure over the duration of an impulse. Root mean square is calculated by squaring all of the sound amplitudes, averaging the squares, and then taking the square root of the average (Urick, 1983). Root mean square accounts for both positive and negative values; squaring the pressures makes all values positive so that they may be accounted for in the summation of pressure levels (Hastings and Popper, 2005). This measurement is often used in the context of discussing behavioral effects, in part because behavioral effects, which often result from auditory cues, may be better expressed through averaged units than by peak pressures.

Sound exposure level (SEL; represented as dB re 1 μPa2-s) represents the total energy contained within a pulse and considers both intensity and duration of exposure. Peak sound pressure (also referred to as zero-to-peak sound pressure or 0–p) is the maximum instantaneous sound pressure measurable in the water at a specified distance from the source and is represented in the same units as the rms sound pressure. Another common metric is peak-to-peak sound pressure (pk–pk), which is the algebraic difference between the peak positive and peak negative sound pressures. Peak-to-peak pressure is typically approximately 6 dB higher than peak pressure (Southall *et al.,* 2007).

Animals are not equally sensitive to sounds across their hearing range, so weighting functions are used to emphasize ranges of best hearing and de-emphasize ranges of less or no sensitivity. In the Navy's application, there are three types of weighting considered for received source levels. F weighting means flat, so no weighting at all; M means M-weighting associated with Navy Phase III criteria and thresholds *(Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III) Technical Report* (U.S. Department of the Navy, 2017)) that considered new data on marine mammal hearing and the effect of noise on marine mammals. Separate weighting functions were developed for categories of marine mammals with the functions being appropriate in relation to the hearing abilities of the particular group of marine mammals (Mpa is the weighting function specifically for pinnipeds in air); and A weighting is weighted in regards to human hearing in air and seen in units of dBA. Weighting essentially acts as a filter to filter out sounds an animal/human is not as sensitive to or as susceptible to in terms of hearing loss. For example, when referring to Table 6–3 of the Navy's application for the range of sound levels of launch events, values are presented as F-, A-, and M-weighted where the values that are F or flat weighted are the highest (no sound filtered), while M-weighted values are higher than A weighted (in other words A weighting is filtering out more of the sound than M-weighting).

Sounds are often considered to fall into one of two general types: Pulsed and non-pulsed (defined in the following). The distinction between these two sound types is important because they have differing potential to cause physical effects, particularly with regard to hearing (*e.g.,* Ward, 1997 in Southall *et al.,* 2007). Please see Southall *et al.* (2007) for an in-depth discussion of these concepts.

Pulsed sound sources (*e.g.,* airguns, explosions, gunshots, sonic booms, impact pile driving) produce signals that are brief (typically considered to be less than one second), broadband, atonal transients (ANSI, 1986, 2005; Harris, 1998; NIOSH, 1998; ISO, 2003) and occur either as isolated events or repeated in some succession. Pulsed sounds are all characterized by a relatively rapid rise from ambient pressure to a maximal pressure value followed by a rapid decay period that may include a period of diminishing, oscillating maximal and minimal pressures, and generally have an increased capacity to induce physical injury as compared with sounds that lack these features.

Non-pulsed sounds can be tonal, narrowband, or broadband, brief or prolonged, and may be either continuous or non-continuous (ANSI, 1995; NIOSH, 1998). Some of these non-pulsed sounds can be transient signals of short duration but without the essential properties of pulses (*e.g.,* rapid rise time). Examples of non-pulsed sounds include those produced by vessels, aircraft, machinery operations such as drilling or dredging, vibratory pile driving, and active sonar systems (such as those used by the U.S. Navy). The duration of such sounds, as received at a distance, can be greatly extended in a highly reverberant environment.

The effects of sounds on marine mammals are dependent on several factors, including the species, size, and behavior (feeding, nursing, resting, etc.) of the animal; the intensity and duration of the sound; and the sound propagation properties of the environment. Impacts to marine species can result from physiological and behavioral responses to both the type and strength of the acoustic signature (Viada *et al.,* 2008). The type and severity of behavioral impacts are more difficult to define due to limited studies addressing the behavioral effects of sounds on marine mammals. Potential effects from impulsive sound sources can range in severity from effects such as behavioral disturbance or tactile perception to physical discomfort, slight injury of the internal organs and the auditory system, or mortality (Yelverton *et al.,* 1973).

Masking

Any man-made noise that is strong enough to be heard has the potential to reduce (mask) the ability of marine mammals to hear natural sounds at similar frequencies, including calls from conspecifics and environmental sounds such as surf noise. However, the infrequent launch events (up to 40 per year) of which some will be small missiles, could cause masking, but it would be expected for no more than a very small fraction of the time during any single day (*e.g.,* usually less than 2 seconds and rarely more than 5 seconds during a single launch). Occasional brief episodes of masking at SNI would have no significant effects on the ability of pinnipeds to hear one another or to detect natural environmental sounds that may be relevant. Due to the expected sound levels of the activities proposed and the distance of the activity from marine mammal habitat, the effects of sounds from the proposed activities are unlikely to result masking. Therefore, masking is not discussed further.

Temporary or Permanent Hearing Loss

Very strong sounds have the potential to cause temporary or permanent reduction in hearing sensitivity. Received sound levels must far exceed the animal's hearing threshold for there to be any temporary hearing impairment or temporary threshold shift (TTS). For transient sounds, the sound level necessary to cause TTS is inversely related to the duration of the sound. Received levels must be even higher for there to be risk of permanent hearing impairment, or permanent threshold shift (PTS). Although it is possible that some pinnipeds may incur TTS during launches from SNI, hearing impairment has not been measured for pinniped species exposed to launch sounds. Auditory brainstem response *(i.e.,* hearing assessment using measurements of electrical responses of the brain) was used to demonstrate that harbor seals did not exhibit loss in hearing sensitivity following launches of large rockets at Vandenberg Air Force Base (VAFB) (Thorson *et al.,* 1999; Thorson *et al.,* 1998). However, the hearing tests did not begin until at least 45 minutes after the launch; therefore, harbor seals may have incurred TTS which was undetectable by the time testing was begun. There was no sign of PTS in any of the harbor seals tested (Thorson *et al.,* 1999; Thorson *et al.,* 1998). Since 2001, no launch events at SNI have exposed pinnipeds to noise levels at or exceeding those where PTS could be incurred.

Based on measurements of received sound levels during previous launches at SNI (Burke 2017; Holst *et al.,* 2010; Holst *et al.,* 2005a; Holst *et al.,* 2008; Holst *et al.,* 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012), the Navy expects that there is a very limited potential of TTS for a few of the pinnipeds present, particularly for phocids. Available evidence from launch monitoring at SNI in 2001–2017 suggests that only a small number of launch events produced sound levels that could elicit TTS for some pinnipeds (Burke 2017; Holst *et al.,* 2008; Holst *et al.,* 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012). Table 6–1 of the Navy's application present the TTS and PTS thresholds for impulsive sources (unweighted SEL) with the TTS threshold for phocids in air at 123 dB SEL (unweighted) and 146 dB SEL (unweighted) for otariids in air. In the 2017 monitoring report, the SEL-f for launches were between 94 and 117 dB SEL-f (with the SEL–A and SEL-Mpa being even lower). Sounds at these levels are not expected to cause TTS or PTS for pinnipeds. There was one launch event in 2017 where the SEL-f at Dos Coves (associated with a Coyote launch from the Alpha Complex) exceeded the TTS value for phocids at 132.1 dB SEL-f; however, harbor seals were not hauled out on Dos Cove as they would be the most sensitive for hearing during these launches. Dos Cove is dominated by California sea lions and harbor seal do not normally frequent Dos Cove. Generally, harbor seals no longer haul out on beaches on the western side of SNI, but are north of the anticipated launch azimuths on Phoca Reef and Pirates Cove. Sound levels recorded from Coyote launches at Phoca Reef and Pirates Cove have been lower than those within the azimuth of the missiles launched at the western end of SNI. Also in the 2017 monitoring report, a sound level of 89.3 dB SEL-f (73.7 SEL–A, 78.9 SEL-Mpa) was measured at Phoca Reef, well below the TTS threshold. In 2016, sound levels at Pirates Cove were measured at 94.9 dB SEL-f (85.4 SEL–A, 92.0 SEL-Mpa) and 93.9 dB SEL-f (83.4 SEL–A, 90.8 SEL-Mpa) during Coyote launch events, also well below the TTS threshold.

In general, if any TTS were to occur to pinnipeds, it is expected to be mild and reversible. It is possible that some launch sounds as measured close to the launchers may exceed the permanent threshold shift (PTS) criteria, but it is not expected that any pinnipeds would be close enough to the launchers to be exposed to sounds strong enough to cause PTS. Due to the expected sound levels of the activities proposed and the distance of the activity from marine mammal habitat, the effects of sounds from the proposed activities are unlikely to result in PTS and therefore, PTS is not discussed further.

Non-Auditory Physical or Physiological Effects

If noise-induced stress does occur in marine mammals, it is expected to occur primarily in those exposed to chronic or frequent noise. It is very unlikely that it would occur in animals, specifically California sea lions, harbor seals, and northern elephant seals, exposed to only a few very brief launch events over the course of a year. Due to the expected sound levels of the activities proposed and the distance of the activity from marine mammal habitat, the effects of sounds from the proposed activities are unlikely to result non-auditory physical or physiological responses and are not discussed further in this section.

Flushing or Stampede-Related Injury or Mortality

It is possible that launch-induced stampedes could have adverse impacts on individual pinnipeds on the west end of SNI. Bowles and Stewart (1980) reported that harbor seals on San Miguel Island reacted to low-altitude jet overflights with alert postures and often with rapid movement across the haulout sites, especially when aircraft were visible. During missile launches in 2001–2017, there was no evidence of launch-related injuries or deaths (Burke 2017; Holst *et al.* 2010; Holst *et al.* 2005a; Holst *et al.* 2008; Holst *et al.* 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012). On several occasions, harbor seals and California sea lion adults moved near and sometimes over older pups (*i.e.,* greater than four months old) as the animals moved in response to the launches, but the pups were not injured (Holst *et al.,* 2010; Holst *et al.,* 2005a; Holst *et al.,* 2008; Holst *et al.,* 2011; Ugoretz and Greene Jr. 2012).

Disturbance Reactions

Missile launches are characterized by sudden onset of sound, moderate to high peak sound levels (depending on the type of missile and distance), and short sound duration. Disturbance includes a variety of effects, including subtle changes in behavior, more conspicuous changes in activities, and displacement. Behavioral responses to sound are highly variable and context-specific and reactions, if any, depend on species, state of maturity, experience, current activity, reproductive state, auditory sensitivity, time of day, and many other factors (Richardson *et al.,* 1995; Wartzok *et al.,* 2003; Southall *et al.,* 2007). Pinnipeds may be exposed to airborne sounds that have the potential to result in behavioral harassment, depending on an animal's distance from the sound and the type of missile being launched. Sound could cause hauled out pinnipeds to exhibit changes in their normal behavior, such as temporarily abandoning their habitat.

Habituation can occur when an animal's response to a stimulus wanes with repeated exposure, usually in the absence of unpleasant associated events (Wartzok *et al.,* 2003). Animals are most likely to habituate to sounds that are predictable and unvarying. The opposite process is sensitization, when an unpleasant experience leads to subsequent responses, often in the form of avoidance, at a lower level of exposure. Behavioral state may affect the type of response as well. For example, animals that are resting may show greater behavioral change in response to disturbing sound levels than animals that are highly motivated to remain in an area for feeding (Richardson *et al.,* 1995; NRC, 2003; Wartzok *et al.,* 2003).

Controlled experiments with captive marine mammals have shown pronounced behavioral reactions, including avoidance of loud underwater sound sources (Ridgway *et al.,* 1997; Finneran *et al.,* 2003). These may be of limited relevance to the proposed activities given that airborne sound, and not underwater sound, may result in harassment of marine mammals as a result of the proposed activities; however we present this information as background on the potential impacts of sound on marine mammals. Observed responses of wild marine mammals to loud pulsed sound sources (typically seismic guns or acoustic harassment devices) have been varied but often consist of avoidance behavior or other behavioral changes suggesting discomfort (Morton and Symonds, 2002; Thorson and Reyff, 2006; see also Gordon *et al.,* 2004; Wartzok *et al.,* 2003; Nowacek *et al.,* 2007).

The onset of noise can result in temporary, short-term changes in an animal's typical behavior and/or avoidance of the affected area. These behavioral changes may include: Reduced/increased vocal activities; changing/cessation of certain behavioral activities (such as socializing or feeding); visible startle response or aggressive behavior; avoidance of areas where sound sources are located; and/or flight responses (Richardson *et al.,* 1995).

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification could potentially be biologically significant if the change affects growth, survival, or reproduction. The onset of behavioral disturbance from anthropogenic sound depends on both external factors (characteristics of sound sources and their paths) and the specific characteristics of the receiving animals (hearing, motivation, experience, demography) and is difficult to predict (Southall *et al.,* 2007).

Responses of pinnipeds on beaches exposed to acoustic disturbance arising from launches are highly variable. Harbor seals can be more reactive when hauled out compared to other species, such as northern elephant seals. Northern elephant seals generally exhibit no reaction at all, except perhaps a heads-up response or some stirring. If northern elephant seals do react, it may occur if California sea lions are in the same area mingled with the northern elephant seals and the sea lions react strongly. Responsiveness also varies with time of year and age class, with juvenile pinnipeds being more likely to react by leaving the haulout site. The probability and type of behavioral response will also depend on the season, the group composition of the pinnipeds, and the type of activity in which they are engaged. For example, in some cases, harbor seals at SNI appear to be more responsive during the pupping/breeding season (Holst et al. 2005a; Holst et al. 2008) while in others, mothers and pups seem to react less to launches than lone individuals (Ugoretz and Greene Jr. 2012), and California sea lions seem to be consistently less responsive during the pupping season (Holst et al. 2010; Holst et al. 2005a; Holst et al. 2008; Holst et al. 2011; Holst et al. 2005b; Ugoretz and Greene Jr. 2012). Though pup abandonment could theoretically result from these reactions, site-specific monitoring data indicate that pup abandonment is not likely to occur as a result of the specified activity because it has not been previously observed. While the reactions are variable, and can involve abrupt movements by some individuals, biological impacts of these responses appear to be limited. The responses are not expected to result in significant injury or mortality, or long-term negative consequences to individuals or pinniped populations on SNI.

Monitoring Data

Given this variability in responses as described above, the Navy assumes that behavioral disturbance will sometimes occur upon exposure to launch sounds with SELs of 100 dB or higher; but for harbor seals, this level may be lower. Previous monitoring at SNI has shown that California sea lions and harbor seals move along the beach and/or enter the water at Mpa-weighted SELs above 100 dB re 20 $\mu Pa^2 \cdot s$. Some harbor seals have been shown to leave the haulout site and/or enter the water at Mpa-weighted SELs as low as 60 dB re20 $\mu Pa^2 \cdot s$, although the proportion of animals reacting is smaller when levels are lower (Holst et al. 2005a; Holst et al. 2008; Holst et al. 2011; Holst et al. 2005b). Stampedes of California sea lions into the water are infrequent during launch events and even more so when received sound levels are below 100 dB re 20 $\mu Pa^2 \cdot s$ (Holst *et al.,* 2005a; Holst *et al.,* 2008; Holst *et al.,* 2011; Holst *et al.,* 2005b). Nearly 20 years of monitoring data exists on pinniped responses to the stimuli associated with the proposed activities in the particular geographic area of the proposed activities. Therefore, we consider these data to be the best available information in regard to estimating take of pinnipeds to stimuli associated with the proposed activities. These data suggest that pinniped responses to the stimuli associated with the proposed activities are dependent on species and intensity of the stimuli. The data recorded by the Navy has shown that pinniped responses to launch noise vary depending on the species, the intensity of the stimulus, and the location (*i.e.,* the western haulouts within the launch azimuths and where sound exposure would be 100 dB SEL or greater on SNI); but in general responses are generally brief and limited.

Anticipated Effects on Marine Mammal Habitat

Impacts on marine mammal habitat are part of the consideration in making a finding of negligible impact on the species and stocks of marine mammals. Habitat includes, but is not necessarily limited to, rookeries, mating grounds, feeding areas, and areas of similar significance. We do not anticipate that the proposed operations would result in any temporary or 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). While it is anticipated that the proposed activity may result in marine mammals avoiding certain areas due to temporary ensonification, this impact to habitat is temporary and reversible and was considered in further detail earlier in this document, as behavioral modification. The main impact associated with the proposed activity will be temporarily elevated noise levels and the associated direct effects on marine mammals, previously discussed in this notice.

Various beaches around SNI are used by pinnipeds as places to rest, molt, and breed. These beaches consist of sand (*e.g.,* Red Eye Beach), rock ledges (*e.g.,* Phoca Reef), and rocky cobble (*e.g.,* Bachelor Beach). Pinnipeds continue to use beaches around the western end of SNI, and indeed are expanding their use of some beaches despite ongoing launch activities for many years. Similarly, it appears that sounds from prior launches have not affected pinniped use of coastal areas at VAFB.

Pinnipeds forage in the open ocean and in the waters near SNI; however, the airborne launch sounds would not persist in the water near SNI. Therefore, it is not expected that the launch activities would impact prey resources, Essential Fish Habitat (EFH), or feeding success of pinnipeds. Three types of EFH are present in the activity area: Groundfish, coastal pelagic species, and highly migratory species, as well as canopy kelp Habitat Areas of Particular

Concern (HAPC). However, none of these types of EFH or HAPC will be impacted by the proposed activity.

Boosters from missiles (*e.g.,* jet-assisted take off rocket bottles for BQM drone missiles) may be jettisoned shortly after launch and fall on the island and would be collected, but are not expected to impact beaches. Fuel contained in these boosters is consumed rapidly and completely, so there would be no risk of contamination even in the very unlikely event that a booster did land on a beach or nearshore waters. Overall, the proposed missile launch activity is not expected to cause significant impacts or have permanent, adverse effects on pinniped habitats or on their foraging habitats and prey.

Estimated Take

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

Harassment is the only type of take expected to result from these activities. For this military readiness activity, the MMPA defines ''harassment'' as (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered (Level B harassment).

Authorized takes would be by Level B harassment only, in the form of disruption of behavioral patterns (and/or TTS, although only some missile launches have exceeded the level at which TTS onset might occur, particularly for phocids) for individual marine mammals resulting from exposure to airborne sounds from rocket and missile launch. Based on the nature of the activity, Level A harassment is neither anticipated nor proposed to be authorized.

As described previously, no mortality is anticipated or proposed to be authorized for this activity. Below we describe how the take is estimated.

Generally speaking, we 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 that will be ensonified above these levels in a day; (3) the density or occurrence of marine mammals within these ensonified areas; and, (4) and the number of days of activities. We note 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, we describe the factors considered here in more detail and present the proposed take estimate.

Acoustic Thresholds

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. Generally, for in-air sounds, NMFS predicts that harbor seals exposed above received levels of 90 dB re 20 μPa (rms) will be behaviorally harassed, and other pinnipeds will be harassed when exposed above 100 dB re 20 μPa (rms). However, more recent data suggest that pinnipeds will be harassed when exposure is above 100 dB SEL (unweighted) (*Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III) Technical Report* (U.S. Department of the Navy, 2017)). NMFS previously helped develop the Phase III criteria and has determined that the criteria and thresholds shown in Table 5 are appropriate to determine when Level B harassment by behavioral disturbance may occur as a result of exposure to airborne sound on SNI. This behavioral disturbance criterion was used to determine the areas that the Navy should monitor based on the sound levels recorded at the pinniped haul outs during launch events. This criterion is not being used to directly estimate the take, rather to assume areas within which pinnipeds hauled out on particular beaches may be harassed (based on the previous acoustic monitoring).

TABLE 5—BEHAVIORAL THRESHOLD FOR IMPULSIVE SOUND FOR PINNIPEDS

Species	Level B harassment by behavior disturbance threshold
All pinniped species (in-air)	100 dB re 20 μPa2s SEL (unweighted).

Thresholds have also been developed identifying the received level of in-air sound for the onset of TTS (no PTS is anticipated to occur) for pinnipeds and discussed previously in this document (U.S. Department of the Navy, 2017). The TTS/PTS threshold for pinnipeds (in-air) are repeated here (see Table 6 below).

TABLE 6—TTS/PTS THRESHOLDS FOR PINNIPEDS

[In-air]

Group	Non-impulsive		Impulsive			
	TTS threshold SEL [a] (weighted)	PTS threshold SEL [a] (weighted)	TTS threshold SEL [a] (weighted)	TTS threshold peak SPL [b] (unweighted)	PTS threshold SEL [b] (weighted)	PTS threshold peak SPL [b] (unweighted)
OA [c]	157	177	146	170	161	176

TABLE 6—TTS/PTS THRESHOLDS FOR PINNIPEDS—Continued

[In-air]

Group	Non-impulsive		Impulsive			
	TTS threshold SEL [a] (weighted)	PTS threshold SEL [a] (weighted)	TTS threshold SEL [a] (weighted)	TTS threshold peak SPL [b] (unweighted)	PTS threshold SEL [b] (weighted)	PTS threshold peak SPL [b] (unweighted)
PA [d]	134	154	123	155	138	161

[a] SEL thresholds are in dB re(20μPa)²·s.
[b] SPL thresholds in dB 20μPa in air.
[c] OA-Otariid in air (California sea lion).
[d] PA-Phocid in air (harbor seal, northern elephant seal).

Ensonified Area

In-air sound propagation from missile launch sources at SNI had not been well studied prior to monitoring work during 2001–2007. During the 2001–2017 period, the strongest sounds originating from a missile in flight over the beaches at SNI were produced by Vandal (no longer launched from SNI) and Coyote launches, with the exception of one SM–2 launched in 2015 (see Table 6–3 of the application, but also Table 7 below). The range of sound levels recorded on SNI during Coyote launches were 128 dB re 20 μPa2·s SEL-f (115 dB SEL–A, 123 dB SEL-Mpa) closest to the launcher and ranged from 87 to 119 dB re 20 μPa2·s SEL-f (46 to 107 dB SEL–A, 60 to 114 dB SEL-Mpa weighted) at nearshore locations. These values demonstrate that the sound levels are high enough to cause disturbance based on the behavioral thresholds (Table 5), but below the TTS thresholds (Table 6) during Coyote launches (most frequently launched missile on SNI). For additional information on sound levels please refer to the application.

Coyotes are launched from the inland Alpha Launch Complex so there would be no pinnipeds near the launcher. The pinnipeds closest to the Coyote launches are on the beaches (areas L and M) directly below the flight trajectory, for which the CPA distance is about 0.9 km. Stronger sounds were also recorded at the launcher, but sound levels were dependent on the size of the missile launched. Launches of smaller missiles typically occur from the Building 807 Complex near the beach where the closest pinniped haulouts (area L and portions of K) are located about 0.3 km from the CPA. Harbor seal haulouts (areas L and J) are located at least 1 km from the CPA from the Building 807 Complex. It is important to note that in recent years, harbor seals are not always present when Navy conducts their monitoring during launch events, and there have not been many places to observe harbor seals during the launches. There is not a constant occupation of harbor seals on haul outs and occupation is dependent on tides. Harbor seals tend to be more sensitive to visual cues as well and do not prefer beaches with California sea lions. Most of the beaches where harbor seals are hauled out, and which Navy has been able to monitor, occur in area O which is north of both the Alpha Launch Complex and Building 307 Complex and not in the trajectory of launches that occur from these sites.

The Navy will continue to conduct marine mammal and acoustic measurements during every launch event at three pinniped sites per launch event within areas K, L, M or O. As an example in 2017, the Navy conducted acoustic and marine mammal monitoring during their launch events at beaches with hauled out pinnipeds (see Navy's Table 2.2 from the 2017 monitoring report) in areas M and L (beaches of Dos Cove and Redeye Beach) and in area O (beaches of Pirates Cove and Phoca Reef).

Marine Mammal Occurrence

In this section we provide the information about the presence, density, or group dynamics of marine mammals that will inform the take calculations. Some pinnipeds that haulout on the western end of SNI are expected to be within the area where noise from launches exceeds 100 dB SEL. However, it is likely that far fewer pinnipeds occur within the area where sounds from smaller launch missiles, such as the BQM missiles, reach above 100 dB SEL and none of the recorded SELs appear to be sufficiently strong to induce TTS. Previous monitoring during 2001–2017 showed that SELs above 100 dB re 20 μPa²·s were measured in pinniped areas K, L, and M (Cormorant Rock to Red Eye Beach); therefore, these are the areas that the Navy focuses their marine mammal monitoring on. In more recent years, Navy started monitoring area O (Phoca Reef and Pirates Cove) as harbor seals are hauling out here now and not as frequently in areas K, L, and M. Refer to Figure 1 for a map of these areas.

California Sea Lions

During the July 2011–2015 census, California sea lion counts on SNI averaged 52,634.8 individuals per year (SD = 9,899.0) (Lowry *et al.,* 2017b). Between 2001 and 2017, a maximum of 2,807 instances of take of California sea lions by Level B harassment were estimated to have been potentially harassed in a single monitoring year incidental to missile launches at SNI (Burke 2017; Holst et al. 2010; Holst et al. 2008; Holst et al. 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012). From the 2015–2017 monitoring seasons, there was a total of 4,940 instances of take of California sea lions by Level B harassment (702 sea lions in 2017, 1431 sea lions in 2016, and 2,807 sea lions in 2015) over 18 launches. Of these results, an average of 274.44 instances of take of sea lions by Level B harassment per launch occurred.

Harbor Seals

During the July 2011–2015 census, in July 2015 when all the Channel Islands were surveyed for harbor seals, 259 seals were counted at SNI (18.9 percent) (Lowry *et al.,* 2017b). Harbor seals are not uniformly distributed around the perimeter of SNI. During the July 2011–2015 census most harbor seals were mostly found in areas L, N, and Q on SNI (see Figure 1 for a map of these areas). However, in recent years, the Navy has indicated that harbor seals are mostly found and monitored in area O, just north of the launch azimuths on the northern side of the island so that is where they conduct their acoustic and marine mammal monitoring for harbor seals. Between 2001 and 2017, a maximum of 31 instances of take of harbor seals by Level B harassment were estimated in a single monitoring year incidental to missile launches at SNI (Burke 2017; Holst et al. 2010; Holst et al. 2008; Holst et al. 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012). From the 2015–2017 monitoring seasons, a total

of 43 instances of take of harbor seals (8 in 2017, 4 in 2016, and 31 in 2015) by Level B harassment occurred over 18 total launches. Of these results, an average of 2.39 instances of take of harbor seals by Level B harassment per launch occurred. These harbor seals were mostly observed in area O (Phoca Reef and Pirates Cove).

Northern Elephant Seals

During the July 2011–2015 census, in 2015, when all islands were surveyed for elephant seals, 932 elephant seals were found on SNI (20.5 percent of total). Northern elephant seals were not uniformly distributed around the perimeter of SNI. Area K at SNI had the most elephant seals on island (Lowry *et al.,* 2017b). From the 2015–2017 monitoring seasons, a total of 11 instances of take of elephant seals by Level B harassment occurred (0 in 2017, 1 in 2016, 10 in 2015) of the 100 animals that were observed. Overall, from the 2015–2017 monitoring seasons, 11 instances of take of northern elephant seals by Level B harassment occurred over 18 launch events for an average of 0.61 per launch event.

Take Calculation and Estimation

The NDAA of 2004 (Pub. L. 103–136) removed the ''small numbers'' and ''specified geographical region'' limitations indicated above and amended the definition of ''harassment'' as it applies to a ''military readiness activity'' to read as follows (section 3(18)(B) of the MMPA): (i) Any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or (ii) Any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering, to a point where such behavioral patterns are abandoned or significantly altered (Level B Harassment).

It is difficult to derive unequivocal criteria to identify situations in which launch sounds are expected to cause significant disturbance responses to pinnipeds hauled out on SNI. One or more pinnipeds blinking its eyes, lifting or turning its head, or moving a few feet along the beach as a result of a human activity is not considered a ''take'' under the MMPA definition of harassment. Therefore, the criteria used by the Navy to determine if an animal is affected by a launch event and is taken by Level B harassment is as follows:

1. Pinnipeds that are exposed to launch sounds strong enough to cause TTS; or

2. Pinnipeds that leave the haulout site, or exhibit prolonged movement (>10 m) or prolonged behavioral changes (such as pups separated from mothers) relative to their behavior immediately prior to the launch.

Here we describe how the information provided above is brought together to produce a quantitative take estimate. Previously, take estimates were calculated based on areas ensonified above the behavioral disturbance criterion and the estimated numbers of pinnipeds exposed to at or above that level. However, for this IHA we rely on the past three seasons of monitoring of pinnipeds to determine the take estimate.

For California sea lions, take estimates were derived from three monitoring seasons (2015 to 2017) where an average of 274.44 instances of take of sea lions by Level B harassment occurred per launch event. Therefore, 275 sea lions was then multiplied by 40 launch events, for a conservative take estimate of 11,000 instances of take for California sea lions by Level B harassment (Table 7). This estimate is conservative because the Navy has not conducted more than 25 launch events (although authorized for more) in a given year since 2001.

For harbor seals, take estimates were derived from three monitoring seasons (2015 to 2017) where an average of 2.39 instances of take of harbor seals by Level B harassment occurred per launch event. Therefore, 3 harbor seals was then multiplied by 40 launch events for a conservative take estimate of 120 instances of take for harbor seals by Level B harassment (Table 7).

For northern elephant seals, take estimates were derived from three monitoring seasons (2015 to 2017) where an average of 0.61 instances of take of northern elephant seals by Level B harassment occurred per launch event. Therefore, one northern elephant seal was then multiplied by 40 launch events for a conservative take estimate of 40 instances of take of northern elephant seals by Level B harassment (Table 7). Generally, northern elephant seals do not react to launch events other than simple alerting responses such as raising their heads or temporarily going from sleeping to being awake; however, to account for the rare instances where they have reacted, the Navy considered that some northern elephant seals that could be taken during launch events.

TABLE 7—LEVEL B HARASSMENT TAKE ESTIMATES FOR PINNIPEDS ON SNI

Species	Proposed Level B harassment	Stock abundance (percent taken by Level B harassment)
California sea lion	11,000	257,606 (4.27 percent).
Harbor seal	120	30,968 (less than 1 percent).
Northern elephant seal	40	179,000 (less than 1 percent).

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 (latter not applicable for this action). 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 and their habitat (50 CFR 216.104(a)(11)). The NDAA for FY 2004 amended the MMPA as it relates to military readiness activities and the incidental take authorization process such that ''least practicable impact'' shall include consideration of personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

In evaluating how mitigation may or may not be appropriate to ensure the least practicable adverse impact on species or stocks and their habitat, as well as subsistence uses where

applicable, we carefully consider two primary factors:

(1) The manner in which, and the degree to which, the successful implementation of the measure(s) is expected to reduce impacts to marine mammals, marine mammal species or stocks, and their habitat. This considers the nature of the potential adverse impact being mitigated (likelihood, scope, range). It further considers the likelihood that the measure will be effective if implemented (probability of accomplishing the mitigating result if implemented as planned), the likelihood of effective implementation (probability implemented as planned), and;

(2) the practicability of the measures for applicant implementation, which may consider such things as cost, impact on operations, and, in the case of a military readiness activity, personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activity.

Personnel Mitigation

Personnel will not enter pinniped haulouts. Personnel will be adjacent to pinniped haulouts below the predicted missile path for two hours prior to a launch only for monitoring purposes.

Launch Mitigation

Missiles will not cross over pinniped haulouts at elevations less than 305 m (1,000 ft). Launches at night will be limited. Launches will be avoided during harbor seal pupping season (February through April) unless constrained by mission objectives. Launches will be limited during the pupping season for northern elephant seal (January through February) and California sea lion (June through July) unless constrained by mission objectives or certain other factors. It is vital that the Navy effectively executes readiness activities to ensure naval forces can effectively execute military operations. The ability to schedule and locate training and testing without excessively burdensome restrictions within the Study Area is crucial to ensure those activities are practical, effective, and safe to execute. To meet its military readiness requirements (mission objectives), the Navy requires consistent access to a variety of realistic, tactically-relevant oceanographic and environmental conditions (*e.g.,* bathymetry, topography, surface fronts, and variations in sea surface temperature), and sea space and airspace that is large enough or situated in a way that allows activities to be completed without physical or logistical obstructions, in order to achieve the highest skill proficiency and most accurate testing results possible in areas analogous to where the military operates.

Aircraft Operation Mitigation

All aircraft and helicopter flight paths must maintain a minimum distance of 1,000 ft (305 m) from recognized seal haulouts and rookeries), except in emergencies.

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

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, Section 101(a)(5)(D) of the MMPA states that NMFS must set forth requirements pertaining to the monitoring and reporting of such taking. The MMPA implementing regulations at 50 CFR 216.104(a)(13) indicate that requests for authorizations must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present in the proposed action area. Effective reporting is critical both to compliance as well as ensuring that the most value is obtained from the required monitoring.

Monitoring and reporting requirements prescribed by NMFS should contribute to improved understanding of one or more of the following:

- Occurrence of marine mammal species or stocks in the area in which take is anticipated (*e.g.,* presence, abundance, distribution, density);
- Nature, scope, or context of likely marine mammal exposure to potential stressors/impacts (individual or cumulative, acute or chronic), through better understanding of: (1) Action or environment (*e.g.,* source characterization, propagation, ambient noise); (2) affected species (*e.g.,* life history, dive patterns); (3) co-occurrence of marine mammal species with the action; or (4) biological or behavioral context of exposure (*e.g.,* age, calving or feeding areas);
- Individual marine mammal responses (behavioral or physiological) to acoustic stressors (acute, chronic, or cumulative), other stressors, or cumulative impacts from multiple stressors;
- How anticipated responses to stressors impact either: (1) Long-term fitness and survival of individual marine mammals; or (2) populations, species, or stocks;
- Effects on marine mammal habitat (*e.g.,* marine mammal prey species, acoustic habitat, or other important physical components of marine mammal habitat); and
- Mitigation and monitoring effectiveness.

The Navy has proposed a suite of monitoring measures on SNI to document impacts of the proposed launch events on marine mammals. These proposed monitoring measures are described below.

Visual and Video Camera Monitoring

The Navy proposes to conduct marine mammal monitoring during launches from SNI, using visual monitoring as well as simultaneous autonomous audio recording of launch sounds and video recording of pinniped behavior. The monitoring (all land-based) will provide data required to characterize the extent and nature of ''taking.'' In particular, it will provide the information needed to document the nature, frequency, occurrence, and duration of any changes in pinniped behavior that might result from the missile launches, including the occurrence of stampedes.

Visual monitoring, before and after launches, is a scan of the haul out beaches to count pinnipeds over a wider FOV than can be captured by a stationary video camera. This is typically done over a 15–30 minute period. Visual monitoring is conducted while the equipment is being set up and broken down for video and acoustic monitoring which is described in greater detail below. Prior to a launch event, Navy personnel will make observations of the monitored haulout and record the numbers and types of pinnipeds observed, noting the information on field data sheets. After a launch event, Navy personnel will return to the monitored haulout as soon as it is safe, and record the numbers and types of pinnipeds that remain on the haulout sites and any notable changes.

Video monitoring is conducted by recording continuously from a minimum of 2 hours before the event to approximately 1 hour after the event.

These video and audio records will be used to document pinniped responses to the launches. This will include the following components:

- Identify and document any change in behavior or movements that may occur at the time of the launch;
- Compare received levels of launch sound with pinniped responses, based on acoustic and behavioral data from up to three monitoring sites at different distances from the launch site and missile path during each launch; from the data accumulated across a series of launches, to attempt to establish the ''dose-response'' relationship for launch sounds under different launch conditions if possible;
- Ascertain periods or launch conditions when pinnipeds are most and least responsive to launch activities, and
- Document take by harassment.

The launch monitoring program will include remote video recordings before, during, and after launches when pinnipeds are present in the area of potential impact, as well as visual assessment by trained observers before and after the launch. Remote cameras are essential during launches because safety rules prevent personnel from being present in most of the areas of interest. In addition, video techniques will allow simultaneous ''observations'' at up to three different locations, and will provide a permanent record that can be reviewed in detail. During some launches, the use of video methods may allow observations of up to three pinniped species during the same launch, though in general one or two species will be recorded.

The Navy will seek to obtain video and audio records from up to three locations at different distances from the flight path of each missile launched from SNI. The Navy will try and reduce factors that limit recordings. On occasion, paired video and audio data were obtained from less than three sites during some launches, due to various potential problems with video and acoustic recorders, timing of remote recordings when launches are delayed, absence of pinnipeds from some locations at some times, etc. Corresponding data is available from the previous monitoring periods (2001–2018).

Two different types of cameras will be available for use in obtaining video data simultaneously from three sites:

(1) Small handheld high-definition video cameras on photographic tripods will be set up by Navy personnel at various locations on the day of a launch, with the video data being accessible following the launch. Recording duration varies between 300 and 600 minutes following initiation of record mode on these cameras, depending upon battery life, external memory card availability and other factors. The digital data is later copied to DVD–ROMs for subsequent viewing and analysis; and

(2) Portable Forward-Looking Infrared Radiometer (FLIR) video cameras will be set up by the Navy for nighttime launches. These cameras have a recording duration of approximately 300 minutes from initiation of the record mode. The FLIR video data will be accessible following the launch. The digital data will later be copied to DVD–ROMs for subsequent viewing and analysis.

Before each launch, Navy personnel will set up or activate up to three of the available video cameras such that they overlook chosen haulout sites. Placement will be such that disturbance to the pinnipeds is minimized, and each camera will be set to record a focal subgroup of sea lions or harbor seals within the haulout aggregation for the maximum recording time permitted by the videotape capacity. The entire haulout aggregation on a given beach will not be recorded during some launches, as the wide-angle view necessary to encompass an entire beach would not allow detailed behavioral analyses (Holst *et al.,* 2005a; Holst *et al.,* 2008). It will be more effective to obtain a higher-magnification view of a sample of the animals on the beach. Prior to selecting a focal animal group, a pan of the entire haul out beach and surrounding area will be made in order to document the total number of animals in the area.

Following each launch, video recordings will continue for at least 15 minutes and up to several hours. Greater post-launch time intervals are not advisable as storms and other events may alter the composition of pinniped haulout groups independent of launch events.

Video data will be transferred to DVD–ROMs. A trained biologist will review and code the data from the video data as they are played back to a monitor (Holst *et al.,* 2005a; Holst *et al.,* 2008). The variables transcribed from the videos, or recorded directly at the beach sites, will include:

- Composition of the focal subgroup of pinnipeds (approximate numbers and sexes of each age class);
- Description and timing of disruptive event (launch); this will include documenting the occurrence of launch, whether launch noise is evident on audio channel, and duration of audibility; and
- Movements of pinnipeds, including number and proportion moving, direction and distance moved, pace of movement (slow or vigorous). In addition, the following variables concerning the circumstances of the observations will also be recorded from the videotape or from direct observations at the site:
  - Study location;
  - Local time;
  - Weather (including an estimate of wind strength and direction, and presence of precipitation); and
  - Tide state (Exact times for local high and low tides will be determined by consulting relevant tide tables for the day of the launch).

Acoustic Monitoring

Acoustical recordings will be obtained during each monitored launch. These recordings will be suitable for quantitative analysis of the levels and characteristics of the received launch sounds. In addition to providing information on the magnitude, characteristics, and duration of sounds to which pinnipeds are exposed during each launch, these acoustic data will be combined with the pinniped behavioral data to determine if there is a ''dose-response'' relationship between received sound levels and pinniped behavioral reactions. The Navy will use up to four autonomous audio recorders to make acoustical measurements. During each launch, these will be located as close as practical to monitored pinniped haulout sites and near the launch pad itself. The monitored haulout sites will typically include one site as close as possible to the missile's planned flight path and one or two locations farther from the flight path within the area of potential impact with pinnipeds present. Autonomous Terrestrial Acoustic Recorders (ATARs) will be deployed at the recording locations on the launch day well before the launch time, and will be retrieved later the same day.

During each launch, data on the type and trajectory of the missile will be documented. From these records the CPA of the missile to the microphone will be determined, along with its altitude above the shoreline. These data will be important in comparing acoustic data with those from other launches. Other factors to be considered will include wind speed and direction and launch characteristics (*e.g.,* low- vs. high-angle launch). These analyses will include data from previous and ongoing monitoring work (Burke 2017; Holst *et al.,* 2010; Holst *et al.,* 2005a; Holst *et al.,* 2008; Holst *et al.,* 2011; Ugoretz 2016; Ugoretz and Greene Jr. 2012), as well as measurements to be obtained during launches under this IHA.

Reporting

A technical report will be submitted to the NMFS' Office of Protected Resources within 90 days from the date the IHA expires. This report will provide full documentation of methods, results, and interpretation pertaining to all monitoring tasks for launches activities at SNI that are covered under this proposed IHA.

The technical report containing the following information: Species present, number(s), general behavior, presence of pups, age class, gender, numbers of pinnipeds present on the haulout prior to commencement of the launch, numbers of pinnipeds that responded at a level that would be considered harassment length of time(s) pinnipeds remained off the haulout (for pinnipeds that flushed), and any behavioral responses by pinnipeds that were likely in response to the specified activities. Launch reports would also include date(s) and time(s) of each launch; date(s) and location(s) of marine mammal monitoring, and environmental conditions including: Visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction. If a dead or seriously injured pinniped is found during post-launch monitoring, the incident must be reported to the NMFS Office of Protected Resources and the NMFS' West Coast Regional Stranding Coordinator immediately. Results of acoustic monitoring, including the recorded sound levels associated with the launch and/or sonic boom (if applicable) would also be included in the report.

In the unanticipated event that any cases of pinniped mortality are judged to result from launch activities at any time during the period covered by this IHA, this will be reported to NMFS immediately.

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. We 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, the discussion of our analyses applies to all the species listed in Table 7, given that the anticipated effects of this activity on these different marine mammal species are expected to be similar. Activities associated with the proposed activities, as outlined previously, have the potential to disturb or displace marine mammals. Specifically, the specified activities may result in take, in the form of Level B harassment only, from airborne sounds of target and missile launch events. Based on the best available information, including monitoring reports from similar activities that have been authorized by NMFS, behavioral responses will likely be limited behavioral reactions such as alerting to the noise, with some animals possibly moving toward or entering the water, depending on the species and the intensity of the launch noise. Repeated exposures of individuals to levels of sound that may cause Level B harassment are unlikely to result in hearing impairment or to significantly disrupt foraging behavior. Given the launch acceleration and flight speed of the missiles, most launch events are of extremely short duration. Strong launch sounds are typically detectable near the beaches at western SNI for no more than a few seconds per launch (Holst *et al.,* 2010; Holst *et al.,* 2005a; Holst *et al.,* 2008; Holst *et al.,* 2005b). Pinnipids hauled out on beaches where missiles fly over launched from the Alpha Launch Complex routinely haul out and continue to use these beaches in large numbers. At the Building 807 Launch Complex few pinnipeds are known to haul out on the shoreline immediately adjacent to this launch site. Thus, even repeated instances of Level B harassment of some small subset of an overall stock is unlikely to result in any significant realized decrease in fitness to those individuals, and thus would not result in any adverse impact to the stock as a whole. Level B harassment would be reduced to the level of least practicable adverse impact through use of mitigation measures described above.

If a marine mammal responds to a stimulus by changing its behavior (*e.g.,* through relatively minor changes in locomotion direction/speed), the response may or may not constitute taking at the individual level, and is unlikely to affect the stock or the species as a whole. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on animals or on the stock or species could potentially be significant (*e.g.,* Lusseau and Bejder, 2007; Weilgart, 2007). Flushing of pinnipeds into the water has the potential to result in mother-pup separation, or could result in a stampede, either of which could potentially result in serious injury or mortality. However, based on the best available information, including reports from almost 20 years of marine mammal monitoring during launch events, no serious injury or mortality of marine mammals is anticipated as a result of the proposed activities.

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 injury, serious injury, or mortality are anticipated or authorized;
- The anticipated incidences of Level B harassment are expected to consist of temporary modifications in behavior (*i.e.,* movements of more than 10 m and occasional flushing into the water with return to haulouts), which are not expected to adversely affect the fitness of any individuals;
- The proposed activities are expected to result in no long-term changes in the use by pinnipeds of rookeries and haulouts in the project area, based on nearly 20 years of monitoring data; and
- The presumed efficacy of planned mitigation measures in reducing the effects of the specified activity to the level of least practicable adverse impact.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds

that the total marine mammal take from the proposed activity will have a negligible impact on all affected marine mammal 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 (ESA)

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. No incidental take of ESA-listed species is proposed for authorization or expected to result from this activity. Therefore, NMFS has determined that formal consultation under section 7 of the ESA is not required for this action.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to the Navy for conducting rocket and missile launch events, on SNI from June 4, 2019 to June 3, 2020, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. A draft of the proposed IHA can be found at *https://www.fisheries.noaa.gov/permit/incidental-take-authorizations-under-marine-mammal-protection-act.*

Request for Public Comments

We request comment on our analyses, the proposed authorization, and any other aspect of this Notice of Proposed IHA for the proposed Navy target and missile launch activities. We also request comment on the potential for renewal of this proposed IHA as described in the paragraph below. Please include with your comments any supporting data or literature citations to help inform our final decision on the request for MMPA authorization.

On a case-by-case basis, NMFS may issue a one-year IHA renewal with an expedited public comment period (15 days) when (1) another year of identical or nearly identical activities as described in the Specified Activities section is planned or (2) the activities would not be completed by the time the IHA expires and a second IHA would allow for completion of the activities beyond that described in the Dates and Duration section, provided all of the following conditions are met:

- A request for renewal is received no later than 60 days prior to expiration of the current IHA.
- The request for renewal must include the following:

(1) An explanation that the activities to be conducted under the proposed Renewal 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 because only a subset of the initially analyzed activities remain to be completed under the Renewal); and

(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.

Dated: April 29, 2019.

Donna S. Wieting,

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

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Submission for OMB Review; Comment Request

The Department of Commerce will submit to the Office of Management and Budget (OMB) for clearance the following proposal for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

Agency: National Oceanic and Atmospheric Administration (NOAA).

Title: Surveys to Collect Data on Use and NOAA Ecological Forecast Products.

OMB Control Number: 0648–XXXX.

Form Number(s): None.

Type of Request: Regular (This is a request for a new collection).

Number of Respondents: 850.

Average Hours per Response: 0.167 (10 minutes).

Burden Hours: 143.

Needs and Uses: In recent years, harmful algal blooms (HABs) and waterborne pathogens such as *Vibrio vulnificus* have caused major health, ecological, and economic concerns. HABs and other waterborne pathogens can lead to a number of impacts including impaired drinking water, reduced recreational opportunities, and human health impacts from either ingesting affected fish/water or contact with the bloom. To better serve the public and its stakeholders, NOAA has developed forecasts of HABs extent and severity in the western Lake Erie and in the Gulf of Mexico and is finalizing development of a forecast for *Vibrio vulnificus* in Chesapeake Bay. These forecast products are designed to provide stakeholders and the public with information that can be used to make better decisions that would mitigate the impacts of HABs and waterborne pathogens.

This request is for a set of related surveys to collect information on how stakeholders use NOAA's ecological forecast products in western Lake Erie, the Gulf of Mexico (the western shore of Florida and the Texas coastline), and Chesapeake Bay. The surveys are designed to collect similar information from the public and other stakeholders across the three geographic regions covered by the forecast products. The information from these surveys will assist NOAA in understanding how stakeholders, including the public, would use the forecast products. This information will help NOAA further improve upon research, development, and delivery of forecast products nationwide.

NOAA will collect information from the public on how using the information in the forecast products would affect decisions related to fishing (Lake Erie and Gulf of Mexico), beach-going/swimming (all three regions), and boating (Lake Erie only). These three recreational activities (fishing, swimming and boating) reflect the types of activities likely to be affected by HABs in each area. For Chesapeake Bay, NOAA would implement one survey focused on recreational swimmers since the primary risk posed by Vibrio vulnificus is through skin contact with the bacterium. A companion survey would ask charter boat operators on Lake Erie how information in the