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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XE980

Takes of Marine Mammals Incidental to Specified Activities; St. George Reef Lighthouse Restoration, Maintenance, and Tour Operations at Northwest Seal Rock, Del Norte County, California

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

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

SUMMARY: NMFS has received an application from the St. George Reef Lighthouse Preservation Society (Society), for an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment incidental to conducting aircraft operations, lighthouse renovation, light maintenance activities, and tour operations on the St. George Reef Lighthouse Station on Northwest Seal Rock (NWSR) in the northeast Pacific Ocean. The proposed dates for this action would be February 19, 2017 through February 18, 2018. Pursuant to the Marine Mammal Protection Act, NMFS is requesting comments on its proposal to issue an IHA to the Society to incidentally take, by Level B harassment only, marine mammals during the specified activity.

DATES: NMFS must receive comments and information on or before [*insert date 30 calendar days after date of publication in the FEDERAL REGISTER*].

ADDRESSES: Comments on the application should be addressed to Jolie Harrison,

Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910. The mailbox address for providing email comments is *ITP.McCue@noaa.gov*. Comments sent via email to *ITP.McCue@noaa.gov*, including all attachments, must not exceed a 25-megabyte file size.

Instructions: NMFS may not consider comments if they are sent by any other method, to any other to addresses or individual, or received after the comment period ends. All comments received are a part of the public record and NMFS will post them for public viewing to *http://www.nmfs.noaa.gov/pr/permits/incidental/research.htm* without change. All personal identifying information (*e.g.,* name, address, etc.), confidential business information, or otherwise sensitive information submitted voluntarily by the commenter is publicly accessible. NMFS will accept anonymous comments (enter "N/A" in the required fields if you wish to remain anonymous).

An electronic copy of the application may be obtained by writing to the address specified above, telephoning the contact listed below (see FOR FURTHER INFORMATION CONTACT), or visiting the internet at: *http://www.nmfs.noaa.gov/pr/permits/incidental/research.htm*.

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

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

SUPPLEMENTARY INFORMATION:

Background

Section 101(a)(5)(D) of the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq*.) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals of a species or population stock, by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

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

Summary of Request

On October 14, 2016, NMFS received an application from the Society for the taking of marine mammals incidental to restoration, maintenance, and tour operations at

St. George Reef Lighthouse (Station) located on Northwest Seal Rock offshore of Crescent City, California in the northeast Pacific Ocean. NMFS determined the application complete and adequate on December 12, 2016.

The Society proposes to conduct aircraft operations, lighthouse renovation, and periodic maintenance on the Station's optical light system on a monthly basis. The proposed activity would occur on a monthly basis over one weekend, November through April. The Society currently has an IHA that is valid through February 18, 2017. This IHA would start on February 19, 2017, to avoid a lapse in authorization, and would be valid for one year. The following specific aspects of the proposed activities would likely to result in the take of marine mammals: acoustic and visual stimuli from (1) helicopter landings/takeoffs; (2) noise generated during restoration activities (*e.g.*, painting, plastering, welding, and glazing); (3) maintenance activities (*e.g.*, bulb replacement and automation of the light system); and (4) human presence. Thus, NMFS anticipates that take, by Level B harassment only, of California sea lions (*Zalophus californianus*); Pacific harbor seals (*Phoca vitulina*); Steller sea lions (*Eumetopias jubatus*) of the eastern U.S. Stock; and northern fur seals (*Callorhinus ursinus*) could result from the specified activity.

Description of the Specified Activity

Overview

To date, NMFS has issued five IHAs to the Society for the conduct of the same activities from 2010 to 2016 (75 FR 4774, January 29, 2010; 76 FR 10564, February 25, 2011; 77 FR 8811, February 15, 2012; 79 FR 6179, February 3, 2014; and 81 FR 9440,

February 23, 2016). This is the Society's sixth request for an annual IHA as their current IHA will expire on February 18, 2017.

The Station, listed in the National Park Service's National Register of Historic Places, is located on NWSR offshore of Crescent City, California in the northeast Pacific Ocean. The Station, built in 1892, rises 45.7 meters (m) (150 feet (ft)) above sea level. The structure consists of hundreds of granite blocks topped with a cast iron lantern room and covers much of the surface of the islet. The purpose of the project is to restore the lighthouse, to conduct tours, and to conduct annual and emergency maintenance on the Station's optical light system.

Dates and Duration

The Society proposes to conduct the activities (aircraft operations, lighthouse restoration, and maintenance activities) at a maximum frequency of one session per month. The proposed duration for each session would last no more than three days (*e.g.*, Friday, Saturday, and Sunday). The proposed IHA, if issued, would be effective from February 19, 2017 through February 18, 2018 with restrictions on the Society conducting activities from May 1, 2017 to October 31, 2017. NMFS refers the reader to the *Detailed Description of Activities* section later in this notice for more information on the scope of the proposed activities.

Specified Geographic Region

The Station is located on a small, rocky islet (41°50'24" N, 124°22'06" W) approximately 9 kilometers (km) (6.0 miles (mi)) in the northeast Pacific Ocean, offshore of Crescent City, California (41°46′48″ N; 124°14′11″ W). NWSR is approximately 91.4 meters (m) (300 feet (ft)) in diameter that peaks at 5.18 m (17 ft) above mean sea level.

Detailed Description of Activities

Aircraft Operations

Because NWSR has no safe landing area for boats, the proposed restoration activities would require the Society to transport personnel and equipment from the California mainland to NWSR by a small helicopter. Helicopter landings take place on top of the engine room (caisson) which is approximately 15 m (48 ft) above the surface of the rocks on NWSR. The landing zone has been relocated nearer the edge of the caisson, increasing the distance of the rotor from the lighthouse tower by the required footage. The Society plans to charter a Raven R44 helicopter, owned and operated by Air Shasta Rotor and Wing, LLC. The Raven R44, which seats three passengers and one pilot, is a compact-sized (1134 kilograms (kg), 2500 pounds (lbs)) helicopter with two-bladed main and tail rotors. Both sets of rotors are fitted with noise-attenuating blade tip caps that would decrease flyover noise.

The Society proposes to transport no more than 15 work crew members and equipment to NWSR for each session and estimates that each session would require no more than 34 helicopter landings/takeoffs per month (see below for number per day). During landing, the helicopter would land on the caisson to allow the work crew members to disembark and retrieve their equipment located in a basket attached to the underside of the helicopter. The helicopter would then return to the mainland to pick up additional personnel and equipment.

Proposed schedule: The Society would conduct a maximum of 16 flights (8 arrivals and eight departures) for the first day. The first flight would depart from Crescent City Airport at approximately 9 a.m. for a 6-minute flight to NWSR. The helicopter

would land and takeoff immediately after offloading personnel and equipment every 20 minutes (min). The total duration of the first day's aerial operations could last for approximately three hours (hrs) and 26 min and would end at approximately 12:34 p.m. Crew members would remain overnight at the Station and would not return to the mainland on the first day.

For the second day, the Society would conduct a maximum of 10 flights (five arrivals and five departures) to transport additional materials on and off the islet, if needed. The first flight would depart from Crescent City Airport at 9 a.m. for a 6-min flight to NWSR. The total duration of the second day's aerial operations could last up to three hrs. Second-day operations are only conducted if needed; flights on the second day do not normally occur.

For the final day of operations, the Society could conduct a maximum of eight helicopter flights (four arrivals and four departures) to transport the remaining crew members and equipment/material back to the Crescent City Airport. The total duration of the third day's helicopter operations in support of restoration could last up to two hrs and 14 min.

Lighthouse Restoration Activities

Restoration and maintenance activities would involve the removal of peeling paint and plaster, restoration of interior plaster and paint, refurbishing structural and decorative metal, reworking original metal support beams throughout the lantern room and elsewhere, replacing glass as necessary, upgrading the present electrical system; and annual light beacon maintenance.

Emergency Light Maintenance

If the beacon light fails, the Society proposes to send a crew of two to three people to the Station by helicopter to repair the beacon light. For each emergency repair event, the Society proposes to conduct a maximum of four flights (two arrivals and two departures) to transport equipment and supplies. The helicopter may remain on site or transit back to shore and make a second landing to pick up the repair personnel.

In the case of an emergency repair between May 1, 2016, and October 31, 2016, the Society would consult with the NMFS' Westcoast Regional Office (WRO) biologists to best determine the timing of the trips to the lighthouse, on a case-by-case basis, based upon the existing environmental conditions and the abundance and distribution of any marine mammals present on NWSR. The regional biologists would have real-time knowledge regarding the animal use and abundance of the NWSR at the time of the repair request and would make a decision regarding when the Society could conduct trips to the lighthouse during the emergency repair time window that would have the least practicable adverse impact to marine mammals. The WRO biologists would also ensure that the Society's request for incidental take during emergency repairs would not exceed the number of incidental take authorized in the proposed IHA.

Sound Sources and Sound Characteristics

NMFS expects that acoustic stimuli resulting from the proposed helicopter operations; noise from maintenance and restoration activities; and human presence have the potential to harass marine mammals, incidental to the conduct of the proposed activities.

This section includes a brief explanation of the sound measurements frequently used in the discussions of acoustic effects in this notice. Sound pressure is the sound

force per unit area, and is usually measured in micropascals (μPa), where 1 pascal (Pa) is the pressure resulting from a force of one newton exerted over an area of one square meter. Sound pressure level (SPL) is the ratio of a measured sound pressure and a reference level. The commonly used reference pressure is 1 μPa for under water, and the units for SPLs are dB re: 1 μPa. The commonly used reference pressure is 20 μPa for in air, and the units for SPLs are dB re: 20 μPa.

SPL (in decibels (dB)) = 20 log (pressure/reference pressure).

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

R44 Helicopter Sound Characteristics

Noise testing performed on the R44 Raven Helicopter, as required for Federal Aviation Administration approval, required an overflight at 150 m (492 ft) above ground level, 109 knots and a maximum gross weight of 1,134 kg (2,500 lbs). The noise levels measured on the ground at this distance and speed were 81.9 dB re: 20 μPa (A-weighted) for the model R44 Raven I, or 81.0 dB re: 20 μPa (A-weighted) for the model R44 Raven II (NMFS, 2007).

Based on this information, we expect that the received sound levels at the landing area on the Station's caisson would increase above 81-81.9 dB re: 20 μPa (A-weighted).

Restoration and Maintenance Sound Characteristics

Any noise associated with these activities is likely to be from light construction (*e.g.*, sanding, hammering, or use of hand drills). The Society proposes to confine all

restoration activities to the existing structure which would occur on the upper levels of the Station. Pinnipeds hauled out on NWSR do not have access to the upper levels of the Station.

Description of Marine Mammals in the Area of the Specified Activity

Table 1 provides the following information: all marine mammal species with possible or confirmed occurrence in the proposed activity area; information on those species' regulatory status under the MMPA and the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 *et seq*.); abundance; occurrence and seasonality in the activity area. NMFS refers the public the draft 2016 NMFS Marine Mammal Stock Assessment Report available online at: *http://www.nmfs.noaa.gov/pr/sars/* for further information on the biology and distribution of these species.

Table 1 - General information on marine mammals that could potentially haul out on Northwest Seal Rock, November 2015 through November 2016.

Species	Stock	Regulatory Status[1, 2]	Stock Abundance (CV, N_{min}, most recent abundance survey)[3]	PBR	Occurrence and Seasonality
California sea lion (*Zalophus californianus*)	U.S.	MMPA - NC ESA – NL	296,750 (n/a; 153,337; 2011)	9,200	Year-round presence
Steller sea lion (*Eumetopias jubatus*)	Eastern Distinct Population Segment	MMPA - D ESA – DL	60,131 – 74,448 (n/a; 36,551; 2013)	1,645	Year-round presence
Pacific harbor seal (*Phoca vitulina*)	California	MMPA - NC ESA – NL	30,968 (n/a; 27,348; 2012)	1,641	Occasional, spring
Northern fur seal (*Callorhinus ursinus*)	California Breeding	MMPA - D ESA – NL	14,050 (n/a; 7,524; 2013)	451	Rare

[1] MMPA: D = Depleted, S = Strategic, NC = Not Classified.
[2] ESA: EN = Endangered, T = Threatened, DL = Delisted, NL = Not listed.
[3] 2016 draft NMFS Stock Assessment Reports: Carretta *et al*. (2015) and Muto *et al*. (2015).

Eastern Distinct Population Segment of Steller sea lions

Steller sea lions consist of two distinct population segments: the western and eastern distinct population segments (eDPS and wDPS, respectively) divided at 144° West longitude (Cape Suckling, Alaska). The western segment of Steller sea lions inhabit

central and western Gulf of Alaska, Aleutian Islands, as well as coastal waters and breed in Asia (*e.g.*, Japan and Russia). The eastern segment includes sea lions living in southeast Alaska, British Columbia, California, and Oregon. The eDPS includes animals born east of Cape Suckling, AK (144° W) and the latest abundance estimate for the stock is 60,131 to 74,448 animals, with PBR at 1,645 animals (Muto *et al*., 2015).

Steller sea lions range along the North Pacific Rim from northern Japan to California (Loughlin *et al*., 1984), with centers of abundance and distribution in the Gulf of Alaska and Aleutian Islands, respectively. The species is not known to migrate, but individuals disperse widely outside of the breeding season (late May through early July), thus potentially intermixing with animals from other areas.

The eDPS of Steller sea lions breeds on rookeries located in southeast Alaska, British Columbia, Oregon, and California. There are no rookeries located in Washington State. Steller sea lions give birth in May through July and breeding commences a couple of weeks after birth. Pups are weaned during the winter and spring of the following year.

Despite the wide-ranging movements of juveniles and adult males in particular, exchange between rookeries by breeding adult females and males (other than between adjoining rookeries) appears low, although males have a higher tendency to disperse than females (Trujillo *et al*., 2004; Hoffman *et al*., 2006). A northward shift in the overall breeding distribution has occurred, with a contraction of the range in southern California and new rookeries established in southeastern Alaska (Pitcher *et al*., 2007). Overall, counts of non-pups at trend sites in California and Oregon have been relatively stable or increasing slowly since the 1980s (Allen and Angliss 2012).

Steller sea lion numbers at NWSR ranged from 20 to 355 animals (CCR 2001). Counts of Steller sea lions during the spring (April - May), summer (June - August), and fall (September - October), averaged 68, 110, and 56, respectively (CCR 2001). A multi-year survey at NWSR between 2000 and 2004 showed Steller sea lion numbers ranging from 175 to 354 in July (M. Lowry, NMFS/SWFSC, unpubl. data). The Society presumes that winter use of NWSR by Steller sea lion to be minimal, due to inundation of the natural portion of the island by large swells.

For the 2010 season, the Society reported that no Steller sea lions were present in the vicinity of NWSR during restoration activities (SGRLPS 2010). Based on the monitoring report for the 2011 season, the maximum numbers of Steller sea lions present during the April and November 2011, work sessions was 2 and 150 animals, respectively (SGRLPS 2012). During the 2012 season, the Society did not observe any Steller sea lions present on NWSR during restoration activities. The Society did not conduct any operations for the 2013-2014, 2014-2015, and 2015-2016 seasons.

California Sea Lion

The estimated population of the U.S. stock of California sea lion is approximately 296,750 animals, with PBR at 9,200 individuals, and the current maximum population growth rate is 12 percent (Carretta *et al*., 2015).

California sea lion breeding areas are on islands located in southern California, in western Baja California, Mexico, and the Gulf of California. During the breeding season, most California sea lions inhabit southern California and Mexico. Rookery sites in southern California are limited to the San Miguel Islands and the southerly Channel Islands of San Nicolas, Santa Barbara, and San Clemente (Carretta *et al*., 2015). Males

establish breeding territories during May through July on both land and in the water. Females come ashore in mid-May and June where they give birth to a single pup approximately four to five days after arrival and will nurse pups for about a week before going on their first feeding trip. Females will alternate feeding trips with nursing bouts until weaning between four and 10 months of age (Allen and Angliss 2010).

Adult and juvenile males will migrate as far north as British Columbia, Canada while females and pups remain in southern California waters in the non-breeding season. In warm water (El Niño) years, some females range as far north as Washington and Oregon, presumably following prey.

Crescent Coastal Research (CCR) conducted a three-year (1998-2000) survey of the wildlife species on NWSR for the Society. They reported that counts of California sea lions on NWSR varied greatly (from 6 to 541) during the observation period from April 1997 through July 2000. CCR reported that counts for California sea lions during the spring (April - May), summer (June - August), and fall (September - October), averaged 60, 154, and 235, respectively (CCR 2001).

The most current counts for the month of July by NMFS (2000 through 2004) have been relatively low as the total number of California sea lions recorded in 2000 and 2003 was three and 11, respectively (M. Lowry, NMFS, SWFSC, unpublished data). Based on the monitoring report for the 2011 season, the maximum numbers of California sea lions present during the April and November, 2011 work sessions was 2 and 160 animals, respectively (SGRLPS 2012). There were no California sea lions present during the March, 2012 work session (SGRLPS 2012).

Northern fur seal

Northern fur seals occur from southern California north to the Bering Sea and west to the Sea of Okhotsk and Honshu Island of Japan. NMFS recognizes two separate stocks of northern fur seals within U.S. waters: an Eastern Pacific stock distributed among sites in Alaska, British Columbia; and a California stock (including San Miguel Island and the Farallon Islands). The estimated population of the California stock is 14,050 animals with PBR at 451 animals (Carretta *et al*., 2015).

Northern fur seals breed in Alaska and migrate along the west coast during fall and winter. Due to their pelagic habitat, they are rarely seen from shore in the continental United States, but individuals occasionally come ashore on islands well offshore (*i.e*., Farallon Islands and Channel Islands in California). During the breeding season, approximately 45 percent of the worldwide population inhabits the Pribilof Islands in the Southern Bering Sea, with the remaining animals spread throughout the North Pacific Ocean (Caretta *et al*., 2015).

CCR observed one male northern fur seal on Northwest Seal Rock in October, 1998 (CCR 2001). It is possible that a few animals may use the island more often than indicated by the CCR surveys, if they were mistaken for other otariid species (*i.e*., eared seals or fur seals and sea lions) (M. DeAngelis, NMFS, pers. comm., 2007).

For the 2010, 2011, and 2012 work seasons, the Society did not observe any Northern fur seals present on NWSR during restoration activities (SGRLPS 2010; 2011; 2012).

Pacific harbor seal

Harbor seals are widely distributed in the North Atlantic and North Pacific. Two subspecies exist in the Pacific: *Phoca vitulina stejnegeri* in the western North Pacific, near Japan, and *P. v. richardii* in the eastern North Pacific. The latter subspecies inhabits

coastal and estuarine areas from Mexico to Alaska (Carretta *et al*., 2014) and is the only stock present in the action area. Previous assessments of the status of harbor seals have recognized three stocks along the west coast of the continental U.S.: 1) California, 2) Oregon and Washington outer coast waters, and 3) inland waters of Washington; however, the exact placement of the boundary was arbitrary. The estimated population of the California stock of Pacific harbor seals is approximately 30,968 animals, with PBR at 1,641 animals (Carretta *et al*., 2015).

In California, over 500 harbor seal haul out sites are widely distributed along the mainland and offshore islands, and include rocky shores, beaches and intertidal sandbars (Lowry *et al*., 2005). Harbor seals mate at sea and females give birth during the spring and summer, although, the pupping season varies with latitude. Females nurse their pups for an average of 24 days and pups are ready to swim minutes after being born. Harbor seal pupping takes place at many locations and rookery size varies from a few pups to many hundreds of pups. The nearest harbor seal rookery relative to the proposed project site is at Castle Rock National Wildlife Refuge, located approximately located 965 m (0.6 mi) south of Point St. George, and 2.4 km (1.5 mi) north of the Crescent City Harbor in Del Norte County, California (USFWS, 2007).

CCR noted that harbor seal use of NWSR was minimal, with only one sighting of a group of 6 animals, during 20 observation surveys. They hypothesized that harbor seals may avoid the islet because of its distance from shore, relatively steep topography, and full exposure to rough and frequently turbulent sea swells. For the 2010 and 2011 seasons, the Society did not observe any Pacific harbor seals present on NWSR during

restoration activities (SGRLPS 2010; 2011). During the 2012 season, the Society reported sighting a total of two harbor seals present on NWSR (SGRLPS 2012).

Other Marine Mammals in the Proposed Action Area

California (southern) sea otters (*Enhydra lutris nereis*), listed as threatened under the ESA and categorized as depleted under the MMPA, usually range in coastal waters within 2 km (1.2 mi) of the mainland shoreline. Neither CCR nor the Society has encountered California sea otters on NWSR during the course of the four-year wildlife study (CCR 2001; SGRLPS 2010; 2011; 2012) nor has the Society encountered this species during the course of the previous five IHAs. The U.S. Fish and Wildlife Service (USFWS) manages the sea otter and NMFS will not consider this species further in this notice.

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

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

Acoustic and visual stimuli generated by: (1) helicopter landings/takeoffs; (2) restoration activities (*e.g.*, painting, plastering, welding, and glazing); (3) maintenance activities (*e.g.*, bulb replacement and automation of the light system); and (4) human presence may have the potential to cause behavioral disturbance.

Aircraft Presence and Noise

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

Researchers have demonstrated temporary threshold shift (TTS) in certain captive odontocetes and pinnipeds exposed to strong sounds (reviewed in Southall *et al*., 2007). In 2004, researchers measured auditory fatigue to airborne sound in harbor seals, California sea lions, and Northern elephant seals after exposure to non-pulse noise for 25 minutes (Kastak *et al*., 2004). In the study, the harbor seal experienced approximately 6 dB of temporary threshold shift (TTS) at 99 dB re: 20 µPa. The authors identified onset of TTS in the California sea lion at 122 dB re: 20 µPa. The northern elephant seal experienced TTS-onset at 121 dB re: 20 µPa (Kastak *et al*., 2004).

There is a dearth of information on acoustic effects of helicopter overflights on pinniped hearing and communication (Richardson, *et al*., 1995) and to NMFS' knowledge, there has been no specific documentation of TTS, let alone permanent

threshold shift (PTS), in free-ranging pinnipeds exposed to helicopter operations during realistic field conditions (Baker *et al*., 2012; Scheidat *et al*., 2011).

In 2008, NMFS issued an IHA to the USFWS for the take of small numbers of Steller sea lions and Pacific harbor seals, incidental to rodent eradication activities on an islet offshore of Rat Island, AK conducted by helicopter. The 15-minute aerial treatment consisted of the helicopter slowly approaching the islet at an elevation of over 1,000 ft (304.8 m); gradually decreasing altitude in slow circles; and applying the rodenticide in a single pass and returning to Rat Island. The gradual and deliberate approach to the islet resulted in the sea lions present initially becoming aware of the helicopter and calmly moving into the water. Further, the USFWS reported that all responses fell well within the range of Level B harassment (*i.e*., limited, short-term displacement resulting from aircraft noise due to helicopter overflights).

As a general statement from the available information, pinnipeds exposed to intense (approximately 110 to 120 dB re: 20 μPa) non-pulse sounds often leave haul out areas and seek refuge temporarily (minutes to a few hours) in the water (Southall *et al*., 2007). Per Richardson *et al*. (1995), approaching aircraft generally flush animals into the water and noise from a helicopter is typically directed down in a ‘‘cone’’ underneath the aircraft.

It is likely that the initial helicopter approach to NWSR would cause a subset, or all of the marine mammals hauled out to depart the rock and flush into the water. The physical presence of aircraft could also lead to non-auditory effects on marine mammals involving visual or other cues. Airborne sound from a low-flying helicopter or airplane may be heard by marine mammals while at the surface or underwater. In general,

helicopters tend to be noisier than fixed wing aircraft of similar size and underwater sounds from aircraft are strongest just below the surface and directly under the aircraft. Noise from aircraft would not be expected to cause direct physical effects, but have the potential to affect behavior. The primary factor that may influence abrupt movements of animals is engine noise, specifically changes in engine noise. Responses by mammals could include hasty dives or turns, change in course, or flushing and stampeding from a haul out site. There are few well documented studies of the impacts of aircraft overflight over pinniped haul out sites or rookeries, and many of those that exist, are specific to military activities (Efroymson *et al*., 2001).

Several factors complicate the analysis of long- and short-term effects for aircraft overflights. Information on behavioral effects of overflights by military aircraft (or component stressors) on most wildlife species is sparse. Moreover, models that relate behavioral changes to abundance or reproduction, and those that relate behavioral or hearing effects thresholds from one population to another are generally not available. In addition, the aggregation of sound frequencies, durations, and the view of the aircraft into a single exposure metric is not always the best predictor of effects and it may also be difficult to calculate. Overall, there has been no indication that single or occasional aircraft flying above pinnipeds in water cause long term displacement of these animals (Richardson *et al*., 1995). The Lowest Observed Adverse Effects Levels (LOAEL) are rather variable for pinnipeds on land, ranging from just over 150 m (492 ft) to about 2,000 m (6,562 ft) (Efroymson *et al*., 2001). A conservative (90th percentile) distance effects level is 1,150 m (3,773 ft). Most thresholds represent movement away from the overflight. Bowles and Stewart (1980) estimated an LOAEL of 305 m (1,000 ft) for

helicopters (low and landing) in California sea lions and harbor seals observed on San Miguel Island, CA; animals responded to some degree by moving within the haul out and entering into the water, stampeding into the water, or clearing the haul out completely. Both species always responded with the raising of their heads. California sea lions appeared to react more to the visual cue of the helicopter than the noise.

If pinnipeds are present on NWSR, it is likely that a helicopter landing at the Station would cause some number of the pinnipeds on NWSR to flush; however, when present, they appear to show rapid habituation to helicopter landing and departure (CCR, 2001; Guy Towers, SGRLPS, pers. com.). According to the CCR Report (2001), while up to 40 percent of the California and Steller sea lions present on NWSR have been observed to enter the water on the first of a series of helicopter landings, as few as zero percent have flushed on subsequent landings on the same date. In fact, the Society reported that during the November 2011 work session, Steller sea lions and California sea lions exhibited minimal ingress and egress from NWSR during helicopter approaches and departures (SGRLPS, 2011).

Human Presence

The appearance of Society personnel may have the potential to cause Level B harassment of marine mammals hauled out on the small island in the proposed action area. Disturbance includes a variety of effects, including subtle to conspicuous changes in behavior, movement, and displacement. Disturbance may result in reactions ranging from an animal simply becoming alert to the presence of the Society's restoration personnel (*e.g.*, turning the head, assuming a more upright posture) to flushing from the haul out site into the water. NMFS does not consider the lesser reactions to constitute behavioral

harassment, or Level B harassment takes, but rather assumes that pinnipeds that move greater than two body lengths to longer retreats over the beach, or if already moving, a change of direction of greater than 90 degrees in response to the presence of surveyors, or pinnipeds that flush into the water, are behaviorally harassed, and thus subject to Level B taking. NMFS uses a 3-point scale (Table 2) to determine which disturbance reactions constitute take under the MMPA. Levels two and three (movement and flush) are considered take, whereas level one (alert) is not. Animals that respond to the presence of the Society's restoration personnel by becoming alert, but do not move or change the nature of locomotion as described, are not considered to have been subject to behavioral harassment.

Table 2. **Disturbance scale of pinniped responses to in-air sources to determine take.**

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

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

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

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

Disturbances resulting from human activity can impact short- and long-term pinniped haul out behavior (Renouf *et al*., 1981; Schneider and Payne, 1983; Terhune and Almon, 1983; Allen *et al*., 1984; Stewart, 1984; Suryan and Harvey, 1999; and Kucey and Trites, 2006). Numerous studies have shown that human activity can flush harbor seals off haul out sites (Allen *et al*., 1984; Calambokidis *et al*., 1991; Suryan and Harvey 1999; and Mortenson *et al*., 2000) or lead Hawaiian monk seals (*Neomonachus schauinslandi*) to avoid beaches (Kenyon 1972). In one case, human disturbance appeared to cause Steller sea lions to desert a breeding area at Northeast Point on St. Paul Island, Alaska (Kenyon 1962).

In cases where vessels actively approached marine mammals (*e.g*., whale watching or dolphin watching boats), scientists have documented that animals exhibit altered behavior such as increased swimming speed, erratic movement, and active avoidance behavior (Acevedo, 1991; Trites and Bain, 2000; Williams *et al*., 2002; Constantine *et al*., 2003), reduced blow interval (Richter *et al*., 2003), disruption of

normal social behaviors (Lusseau 2003; 2006), and the shift of behavioral activities which may increase energetic costs (Constantine *et al*., 2003; 2004).

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

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

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

Stampede

There are other ways in which disturbance, as described previously, could result in more than Level B harassment of marine mammals. They are most likely to be consequences of stampeding, a potentially dangerous occurrence in which large numbers of animals succumb to mass panic and rush away from a stimulus. These situations are: (1) falling when entering the water at high-relief locations; (2) extended separation of mothers and pups; and (3) crushing of pups by large males during a stampede. However, NMFS does not expect any of these scenarios to occur at NWSR. There is the risk of injury if animals stampede towards shorelines with precipitous relief (*e.g*., cliffs). However, there are no cliffs on NWSR. The haul out sites consist of ridges with unimpeded and non-obstructive access to the water. If disturbed, the small number of hauled-out adult animals may move toward the water without risk of encountering

barriers or hazards that would otherwise prevent them from leaving the area. Moreover, the proposed area would not be crowded with large numbers of Steller sea lions, further eliminating the possibility of potentially injurious mass movements of animals attempting to vacate the haul out. Thus, in this case, NMFS considers the risk of injury, serious injury, or death to hauled-out animals as very low.

Anticipated Effects on Marine Mammal Habitat

The only habitat modification associated with the proposed activity is the restoration of a light station which would occur on the upper levels of Northwest Seal Rock which are not used by marine mammals. Thus, NMFS does not expect that the proposed activity would have any effects on marine mammal habitat and NMFS expects that there will be no long- or short-term physical impacts to pinniped habitat on NWSR.

The Society would remove all waste, discarded materials and equipment from the island after each visit. The proposed activities will not result in any permanent impact on habitats used by marine mammals, including prey species and foraging habitat. The main impact associated with the proposed activity will be temporarily elevated noise levels and the associated direct effects on marine mammals (*i.e.*, the potential for temporary abandonment of the site), previously discussed in this notice.

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

Proposed Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, "and other means of effecting the least practicable impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking" for certain subsistence uses. NMFS regulations require applicants for incidental take authorizations to include information about the availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat (50 CFR 216.104(a)(11)).

Time and Frequency: The Society would conduct restoration activities at maximum of once per month over the course of the year, with the exception of between May 1, 2017 through October 31, 2017. Each restoration session would last no more than three days. Maintenance of the light beacon would occur only in conjunction with restoration activities.

Helicopter Approach and Timing Techniques: The Society would ensure that its helicopter approach patterns to the Station and timing techniques would be conducted at times when marine mammals are less likely to be disturbed. To the extent possible, the helicopter should approach NWSR when the tide is too high for the marine mammals to haul out on NWSR. Additionally, since the most severe impacts (stampede) precede rapid and direct helicopter approaches, the Society's initial approach to the Station must be offshore from the island at a relatively high altitude (*e.g.*, 800 - 1,000 ft, or 244 - 305 m).

Before the final approach, the helicopter shall circle lower, and approach from area with the lowest pinniped density. If for any safety reasons (*e.g.*, wind condition) the Society cannot conduct these types of helicopter approach and timing techniques, they must postpone the restoration and maintenance activities for that day.

Avoidance of Visual and Acoustic Contact with People on Island: The Society would instruct its members and restoration crews to avoid making unnecessary noise and not expose themselves visually to pinnipeds around the base of the Station. Although CCR reported no impacts from these activities in the 2001 CCR study, it is relatively simple for the Society to avoid this potential impact. The door to the lower platform shall remain closed and barricaded to all tourists and other personnel since the lower platform is used at times by pinnipeds.

Mitigation Conclusions

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

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

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

1. Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).

2. A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to vessel or visual presence that NMFS expects to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

3. A reduction in the number of times (total number or number at biologically important time or location) individuals exposed to vessel or visual presence that NMFS expects to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

4. A reduction in the intensity of exposures (either total number or number at biologically important time or location) to vessel or visual presence that NMFS expects to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).

5. Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.

6. For monitoring directly related to mitigation—an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

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

Proposed Monitoring

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

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

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

1. An increase in our understanding of the likely occurrence of marine mammal species in the vicinity of the action, (*i.e.*, presence, abundance, distribution, and/or density of species).

2. An increase in our understanding of the nature, scope, or context of the likely exposure of marine mammal species to any of the potential stressor(s) associated with the action (*e.g.*, sound or visual stimuli), through better understanding of one or more of the following: the action itself and its environment (*e.g.*, sound source characterization, propagation, and ambient noise levels); the affected species (*e.g.*, life history or dive pattern); the likely co-occurrence of marine mammal species with the action (in whole or part) associated with specific adverse effects; and/or the likely biological or behavioral context of exposure to the stressor for the marine mammal (*e.g.*, age class of exposed animals or known pupping, calving or feeding areas).

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

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

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

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

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

8. An increase in the probability of detecting marine mammals (through improved technology or methodology), both specifically within the safety zone (thus allowing for more effective implementation of the mitigation) and in general, to better achieve the above goals.

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

A NMFS approved, experienced biologist will be present on the first flight of each day of activity. This observer will be able to identify all species of pinnipeds expected to use the island, and qualified to determine age and sex classes when viewing conditions allow. The observer would record data including species counts, numbers of observed disturbances, and descriptions of the disturbance behaviors during the activities, including location, date, and time of the event. In addition, the Society would record observations regarding the number and species of any marine mammals either observed in the water or hauled out.

Aerial photographic surveys may provide the most accurate means of documenting species composition, age and sex class of pinnipeds using the project site

during human activity periods. The Society should complete aerial photo coverage of the island from the same helicopter used to transport the Society's personnel to the island during restoration trips. The Society would take photographs of all marine mammals hauled out on the island at an altitude greater than 300 m (984 ft) by a skilled photographer, on the first flight of each day of activities. These photographs will be forwarded to a biologist capable of discerning marine mammal species. Data shall be provided to us in the form of a report with a data table, any other significant observations related to marine mammals, and a report of restoration activities (see Reporting). The original photographs can be made available to us or other marine mammal experts for inspection and further analysis.

Proposed monitoring requirements in relation to the Society's proposed activities would include species counts, numbers of observed disturbances, and descriptions of the disturbance behaviors during the restoration activities, including location, date, and time of the event. In addition, the Society would record observations regarding the number and species of any marine mammals either observed in the water or hauled out.

The Society can add to the knowledge of pinnipeds in the proposed action area by noting observations of: (1) unusual behaviors, numbers, or distributions of pinnipeds, such that any potential follow-up research can be conducted by the appropriate personnel; (2) tag-bearing carcasses of pinnipeds, allowing transmittal of the information to appropriate agencies and personnel; and (3) rare or unusual species of marine mammals for agency follow-up.

If at any time injury, serious injury, or mortality of the species for which take is authorized should occur, or if take of any kind of any other marine mammal occurs, and

such action may be a result of the Society's activities, the Society would suspend survey activities and contact NMFS immediately to determine how best to proceed to ensure that another injury or death does not occur and to ensure that the applicant remains in compliance with the MMPA.

Summary of Previous Monitoring

The Society complied with the mitigation and monitoring required under the previous authorizations (2010-2012). They did not conduct any operations for the 2013-2016 seasons. However, in compliance with the 2012 Authorization, the Society submitted a final report on the activities at the Station, covering the period of February 15, 2012 through April 30, 2012. During the effective dates of the 2012 IHA, the Society conducted one work session in March, 2012. The Society's aircraft operations and restoration activities on NWSR did not exceed the activity levels analyzed under the 2012 authorization. During the March 2012 work session, the Society observed two harbor seals hauled out on NWSR. Both animals (a juvenile and an adult) departed the rock, entered the water, and did not return to the Station during the duration of the activities.

Proposed Reporting

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

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

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

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

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

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

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

- Time, date, and location (latitude/longitude) of the incident;
- Description and location of the incident (including water depth, if applicable);
- Environmental conditions (*e.g.*, wind speed and direction, Beaufort sea state, cloud cover, and visibility);

- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

The Society shall not resume its activities until NMFS is able to review the circumstances of the prohibited take. We will work with the Society to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. The Society may not resume their activities until notified by us via letter, email, or telephone.

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

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

the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the Assistant Westcoast Regional Stranding Coordinator within 24 hours of the discovery. Society personnel will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to us. The Society can continue their survey activities while NMFS reviews the circumstances of the incident.

Estimated Take by Incidental Harassment

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

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

As discussed earlier, NMFS assumes that pinnipeds that move greater than two body lengths to longer retreats over the beach, or if already moving, a change of direction of greater than 90 degrees in response to the presence of surveyors, or pinnipeds that flush into the water, are behaviorally harassed, and thus subject to Level B taking (Table 2).

Based on the Society's previous monitoring reports, NMFS estimates that approximately 2880 California sea lions (calculated by multiplying the maximum number California sea lions present on NWSR (160) by 18 days of the restoration and maintenance activities), 2700 Steller sea lions (NMFS' estimate of the maximum number of Steller sea lions that could be present on NWSR (150) by 18 days of activity), 108 Pacific harbor seals (calculated by multiplying the maximum number of harbor seals present on NWSR (6) by 18 days), and 18 Northern fur seals (calculated by multiplying the maximum number of northern fur seals present on NWSR (1) by 18 days) could be potentially affected by Level B behavioral harassment over the course of the IHA. NMFS bases these estimates of the numbers of marine mammals that might be affected on consideration of the number of marine mammals that could be disturbed appreciably by approximately 51 hours of aircraft operations during the course of the activity. These incidental harassment take numbers represent less than one percent of the affected stocks of California sea lions, Pacific harbor seals, and Northern fur seals, and less than five percent of the stock of Steller sea lions (Table 3). However, actual take may be slightly less if animals decide to haul out at a different location for the day or if animals are foraging at the time of the survey activities.

Table 3. The percentage of stock affected by the number of takes per species.

Species	Take Number	Stock Abundance	Percent of stock
California sea lion (*Zalophus californianus*)	2,880	296,750	0.975
Steller sea lion (*Eumetopias jubatus*)	2,790	60,131 – 74,448	4.64-3.75
Pacific harbor seal (*Phoca vitulina*)	36	30,968	0.35
Northern fur seal (*Callorhinus ursinus*)	18	14,050	.12

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

Encouraging and Coordinating Research

The Society would share observations and counts of marine mammals and all observed disturbances to the appropriate state and federal agencies at the conclusion of the survey.

Analysis and Preliminary Determinations

Negligible Impact

Negligible impact' is "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival'' (50 CFR 216.103). The lack of likely adverse effects on annual rates of recruitment or survival (*i.e.*, population level effects) forms the basis of a negligible impact finding. An estimate of the number of Level B harassment takes alone is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through behavioral harassment, NMFS considers other factors, such as the likely nature of any responses (*e.g.*, intensity, duration), the context of any responses (*e.g.*, critical reproductive time or location, migration), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat.

Although the Society's survey activities may disturb a small number of marine

mammals hauled out on NWSR, NMFS expects those impacts to occur to a small, localized group of animals for a limited duration (*e.g.*, six hours in one day). Marine mammals would likely become alert or, at most, flush into the water in reaction to the presence of the Society's personnel during the proposed activities. Disturbance will be limited to a short duration, allowing marine mammals to reoccupy NWSR within a short amount of time. Thus, the proposed action is unlikely to result in long-term impacts such as permanent abandonment of the area because of the availability of alternate areas for pinnipeds to avoid the resultant acoustic and visual disturbances from the restoration activities and helicopter operations. Results from previous monitoring reports also show that the pinnipeds returned to NWSR and did not permanently abandon haul out sites after the Society conducted their activities.

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

Moreover, the Society's mitigation measures regarding helicopter approaches and restoration site ingress and egress would minimize the potential for stampedes and large-scale movements. Thus, the potential for large-scale movements and stampede leading to injury, serious injury, or mortality is low.

Any noise attributed to the Society's proposed helicopter operations on NWSR would be short-term (approximately six min per trip). We would expect the ambient noise levels to return to a baseline state when helicopter operations have ceased for the day. As the helicopter landings take place 15 m (48 ft) above the surface of the rocks on NWSR,

NMFS presumes that the received sound levels would increase above 81-81.9 dB re: 20 μPa (A-weighted) at the landing pad. However, we do not expect that the increased received levels of sound from the helicopter would cause TTS or PTS because the pinnipeds would flush before the helicopter approached NWSR; thus increasing the distance between the pinnipeds and the received sound levels on NWSR during the proposed action.

If pinnipeds are present on NWSR, Level B behavioral harassment of pinnipeds may occur during helicopter landing and takeoff from NWSR due to the pinnipeds temporarily moving from the rocks and lower structure of the Station into the sea due to the noise and appearance of helicopter during approaches and departures. It is expected that all or a portion of the marine mammals hauled out on the island will depart the rock and slowly move into the water upon initial helicopter approaches. The movement to the water would be gradual due to the required controlled helicopter approaches (see *Proposed Mitigation* for more details), the small size of the aircraft, the use of noise-attenuating blade tip caps on the rotors, and behavioral habituation on the part of the animals as helicopter trips continue throughout the day. During the sessions of helicopter activity, if present on NWSR, some animals may be temporarily displaced from the island and either raft in the water or relocate to other haul outs.

Sea lions have shown habituation to helicopter flights within a day at the project site and most animals are expected to return soon after helicopter activities cease for that day. By clustering helicopter arrival/departures within a short time period, we expect animals present to show less response to subsequent landings. NMFS anticipates no

impact on the population size or breeding stock of Steller sea lions, California sea lions, Pacific harbor seals, or Northern fur seals.

In summary, NMFS anticipates that impacts to hauled-out pinnipeds during the Society's proposed helicopter operations and restoration/maintenance activities would be behavioral harassment of limited duration (*i.e.*, less than three days a month) and limited intensity (*i.e.*, temporary flushing at most). NMFS does not expect stampeding, and therefore injury or mortality to occur (see *Proposed Mitigation* for more details). Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds that the total marine mammal take from the Society's proposed survey activities will have a negligible impact on the affected marine mammal species or stocks.

Small Numbers

As mentioned previously, NMFS estimates that the Society's proposed activities could potentially affect, by Level B harassment only, four species of marine mammal under our jurisdiction. For each species, these estimates are small numbers (less than one percent of the affected stocks of California sea lions, Pacific harbor seals, and Northern fur seals, and less than five percent of the stock of Steller sea lions) relative to the population size (Table 3).

Based on the analysis contained in this notice of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the mitigation and monitoring measures, NMFS preliminarily finds that the Society's proposed activities would take small numbers of marine mammals

relative to the populations of the affected species or stocks.

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

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

Endangered Species Act (ESA)

NMFS does not expect that the Society's proposed helicopter operations and restoration/maintenance activities would affect any species listed under the ESA. Therefore, NMFS has determined that a Section 7 consultation under the ESA is not required.

National Environmental Policy Act (NEPA)

To meet our NEPA requirements for the issuance of an IHA to the Society, NMFS has prepared an EA specific to conducting aircraft operations and restoration and maintenance work on the St. George Reef Light Station. The EA, titled "Issuance of an Incidental Harassment Authorization to Take Marine Mammals by Harassment Incidental to Conducting Aircraft Operations, Lighthouse Restoration and Maintenance Activities, and Tour Operations on St. George Reef Lighthouse Station in Del Norte County, California," evaluated the impacts on the human environment of our authorization of incidental Level B harassment resulting from the specified activity in the specified geographic region. An electronic copy of the EA and the Finding of No Significant Impact (FONSI) for this activity is available on the website at: *http://www.nmfs.noaa.gov/pr/permits/incidental/research.html*.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes issuing an IHA to the Society for conducting helicopter operations and maintenance and restoration activities on the St. George Lighthouse Station in the northeast Pacific Ocean, February 19, 2017 through February 18, 2018, provided they incorporate the previously mentioned mitigation, monitoring, and reporting requirements.

Draft Proposed Authorization

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

Proposed Authorization Language

The St. George Reef Lighthouse Preservation Society (Society), P.O. Box 577, Crescent City, CA 95531, is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1371(a)(5)(D)) and 50 CFR 216.107, to harass marine mammals incidental to conducting helicopter operations and restoration and maintenance work on the St. George Reef Light Station (Station) on Northwest Seal Rock (NWSR) in the Northeast Pacific Ocean.

1. This Incidental Harassment Authorization (IHA) is valid from February 19, 2017 through February 18, 2018. The Society may not conduct operations from May 1, 2017 through October 31, 2017.

2. This IHA is valid only for activities associated with helicopter operations, lighthouse restoration and maintenance activities, and human presence (See items 2(a) – (d)) on the Station on NWSR (41° 50’24’’ N, 124° 22’06’’ W) in the Northeast Pacific Ocean.

a. The use of a small, compact, 4-person helicopter with two-bladed main and tail rotors fitted with noise-attenuating blade tip caps to transit to and from NWSR;

b. Restoration activities (*e.g.*, painting, plastering, welding, and glazing) conducted on the Station;

c. Maintenance activities (*e.g.*, bulb replacement and automation of the light system) conducted on the Station; and

d. Emergency repair events (*e.g.*, the failure of the PATON beacon light) outside of the three-day work session.

e. Human presence

3. General Conditions

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

b. The species authorized for taking are the California sea lion (*Zalophus californianus*), Pacific Harbor seal (*Phoca vitulina*), the eastern Distinct Population Segment of Steller sea lion (*Eumetopias jubatus*), and the eastern Pacific stock of northern fur seal (*Callorhinus ursinus*).

c. The taking, by Level B harassment only, is limited to the species listed in condition 3(b). Authorized take: California sea lion (2880); Steller sea lion (2790); Pacific harbor seal (36); and northern fur seal (18).

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

e. In the case of an emergency repair event (*i.e.*, failure of the PATON beacon light) between May 1, 2017 through October 31, 2017, the Society will consult with the ARA, Westcoast Region, NMFS, to best determine the timing of an emergency repair trip to the Station.

a. The Westcoast Region NMFS marine mammal biologist will make a decision regarding when the Society can schedule helicopter trips to the NWSR during the emergency repair time window and will ensure that such operations will have the least practicable adverse impact to marine mammals.

b. The ARA, Westcoast Region, NMFS will also ensure that the Society's request for incidental take during an emergency repair event would not exceed the number of incidental take authorized in this IHA.

4. Cooperation

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

5. Mitigation Measures

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

a. Conduct restoration and maintenance activities at the Station at a maximum of one session per month between February 19, 2017 and February 18, 2018. Each restoration session will be no more than three days in duration. Maintenance of the light beacon will occur only in conjunction with the monthly restoration activities.

b. Ensure that helicopter approach patterns to the NWSR will be such that the timing techniques are least disturbing to marine mammals. To the extent possible, the helicopter should approach NWSR when the tide is too high for the marine mammals to haul out on NWSR.

c. Avoid rapid and direct approaches by the helicopter to the station by approaching NWSR at a relatively high altitude (*e.g.*, 800 - 1,000 ft; 244 - 305 m). Before the final approach, the helicopter shall circle lower, and approach from area where the density of pinnipeds is the lowest. If for any safety reasons (e.g., wind conditions or visibility) such helicopter approach and timing techniques cannot be achieved, the Society must abort the restoration and maintenance session for that day.

d. Provide instructions to the Society's members, the restoration crew, and if applicable, to tourists, on appropriate conduct when in the vicinity of hauled-out marine mammals. The Society's members, the restoration crew, and if applicable, tourists, will avoid making unnecessary noise while on NWSR and must not view pinnipeds around the base of the Station.

e. Ensure that the door to the Station's lower platform shall remain closed and barricaded at all times.

6. Monitoring

The holder of this IHA is required to:

a. Have a NMFS-approved experienced biologist will be present on the first flight of each day of activities.

b. Record the date, time, and location (or closest point of ingress) of each visit to the NWSR.

c. Collect the following information for each visit:

i. Information on the numbers (by species) of marine mammals observed during the activities;

ii. The estimated number of marine mammals (by species) that may have been harassed during the activities;

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

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

d. Employ a skilled, aerial photographer to document marine mammals hauled out on NWSR.

i. The photographer will complete a photographic survey of NWSR using the same helicopter that will transport Society personnel to the island during restoration trips.

ii. Photographs of all marine mammals hauled-out on the island shall be taken at an altitude greater than 300 m (984 ft) during the first arrival flight to NWSR.

iii. The Society and/or its designees will forward the photographs to a biologist capable of discerning marine mammal species. The Society shall provide the data to us in the form of a report with a data table, any other significant observations related to marine mammals, and a report of restoration activities (see Reporting). The Society will make available the original photographs to NMFS or to other marine mammal experts for inspection and further analysis.

7. Reporting Requirements

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

a. A summary of the dates, times, and weather during all helicopter operations, restoration, and maintenance activities.

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

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

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

8. Reporting Prohibited Take

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

The report must include the following information:

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

The Society shall not resume its activities until we are able to review the circumstances of the prohibited take. We shall work with the Society to determine what is necessary to minimize the likelihood of further prohibited take and ensure Marine Mammal Protection Act compliance. The Society may not resume their activities until notified by us via letter, email, or telephone.

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

In the event that the Society discovers an injured or dead marine mammal, and the observer determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as we describe in the next paragraph), the Society will immediately report the incident to the Chief, Permits

and Conservation Division, Office of Protected Resources, and the Assistant Westcoast Regional Stranding Coordinator. The report must include the same information identified in the paragraph above this section. Activities may continue while we review the circumstances of the incident. We will work with the Society to determine whether modifications in the activities are appropriate.

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

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

In the event that the Society discovers an injured or dead marine mammal, and the lead visual observer determines that the injury or death is not associated with or related to the authorized activities (*e.g.*, previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), the Society will report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, and the Assistant Westcoast Regional Stranding Coordinator, within 24 hours of the discovery.

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

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

Request for Public Comments

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

Dated: December 16, 2016.

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Donna S. Wieting

Director, Office of Protected Resources,

National Marine Fisheries Service.

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