



NOAA FISHERIES

PROPOSED ACTION: Issuance of an Incidental Harassment Authorization to Take Marine Mammals Incidental to Conducting Aircraft Operations, Lighthouse Restoration and Maintenance Activities, and Tour Operations on St. George Reef Lighthouse Station in Del Norte County, California

TYPE OF STATEMENT: Environmental Assessment

LEAD AGENCY: U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service

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LOCATION: St. George Reef Lighthouse Station, Northwest Seal Rock, Del Norte County, California

ABSTRACT: This Environmental Assessment analyzes the environmental impacts of the National Marine Fisheries Service, Office of Protected Resources' proposal to issue an Incidental Harassment Authorization, pursuant to section 101(a)(5)(D) of the Marine Mammal Protection Act, to the St. George Reef Lighthouse Preservation Society for the take of small numbers of marine mammals incidental to conducting aircraft operations, and lighthouse restoration and maintenance activities on Northwest Seal Rock in Del Norte Count, California.

DATE: December 2016

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LIST OF ACRONYMS AND ABBREVIATIONS

CCR	Coastal Crescent Research
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dB	decibel
DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
ft	feet
FR	Federal Register
hr	Hour
HZ	Hertz
IHA	Incidental Harassment Authorization
km	Kilometer
m	meter
mi	miles
MMO	Marine Mammal Observer
MMPA	Marine Mammal Protection Act
MSFCMA	Magnuson-Stevens Fishery Conservation Management Act
NAO	NOAA Administrative Order
NCCOS	NOAA National Centers for Coastal Ocean Science
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NWFSC	Northwest Fisheries Science Center
NWR	National Wildlife Refuge
OMB	Office of Management and Budget
OPR	Office of Protected Resources
PATON	Private Aid to Navigation
PSO	Protected Species Observer
PTS	Permanent hearing threshold shift
SAR	NMFS Marine Mammal Stock Assessment Report
SGRLPS	St. George Reef Lighthouse Preservation Society
TTS	Temporary hearing threshold shift
USFWS	US Fish and Wildlife Service

Chapter 1 Introduction and Purpose and Need

1.1 BACKGROUND

The Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1631 et seq.) prohibits the incidental taking of marine mammals. The incidental take of a marine mammal falls under three categories: mortality, serious injury or harassment (i.e., injury and behavioral effects). Harassment¹ is any act of pursuit, torment or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment) or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns (Level B harassment). Disruption of behavioral patterns includes, but is not limited to, migration, breathing, nursing, breeding, feeding or sheltering. However, there are exceptions to the prohibition on take in Section 101(a)(5)(D) of the MMPA that gives the National Marine Fisheries Service (NMFS) the authority to authorize the incidental but not intentional take of small numbers of marine mammals by harassment provided certain determinations are made and statutory and regulatory procedures are met. Refer to Chapter 2 for details regarding this exception and NMFS' Incidental Harassment Authorization (IHA) criteria.

NMFS also promulgated regulations to implement the provisions of the MMPA governing the taking and importing of marine mammals, 50 Code of Federal Regulations (CFR) Part 216 and produced Office of Management and Budget (OMB)-approved application instructions (OMB Number 0648-0151) that prescribe the procedures necessary to apply for permits. All applicants must comply with these regulations and application instructions in addition to the provisions of the MMPA.

1.1.1. Applicant's Incidental Take Authorization Request

On October 14, 2016, NMFS received an application from the St. George Reef Lighthouse Preservation Society (Society) for the taking of marine mammals incidental to lighthouse restoration, maintenance, and tour operations in association with the St. George Reef Lighthouse Restoration, Maintenance, and Tour Operations Project (Project) at Northwest Seal Rock (NWSR). NMFS determined that the application was adequate and complete on December 12, 2016.

The Society proposes to conduct aircraft operations, lighthouse renovation, and periodic maintenance on the lighthouse station's optical light system on a monthly basis. The proposed activity would occur on a monthly basis over one weekend, no more than three days (e.g. Friday, Saturday, and Sunday) from November through April (maximum of 18 days over the course of the IHA). The lighthouse deteriorated over the course of several years and became subject to vandalism. The Society was founded in 1986 with the goals of restoring the lighthouse and increasing recognition of its important historical role in maritime and regional history.

1.1.2. Marine Mammals in the Action Area

The proposed construction project could adversely affect the following marine mammal species under our jurisdiction:

¹ As defined in the MMPA for non-military readiness activities (Section 3 (18)(A))

- Steller sea lion (*Eumatopias jubatus*)
- California sea lion (*Zalophus californianus*)
- Harbor seal (*Phoca vitulina*)
- Northern fur seal (*Callorhinus ursinus*)

1.2. Purpose and Need

1.2.1. Description of the Proposed Action

NMFS proposes to issue an IHA to the Society pursuant to Section 101(a)(5)(A) of the MMPA and 50 CFR Part 216. The IHA will be valid from February 19, 2017 – February 18, 2018, and authorizes takes, by Level B harassment, of marine mammals incidental to the Project activities. The impact of the aircraft operations, lighthouse restoration and maintenance activities, and human presence have the potential to cause marine mammals within or near NWSR to be behaviorally disturbed, thus warrants an IHA from NMFS. NMFS proposed action is a direct outcome of the Society's request for an IHA to take marine mammals.

1.2.2. Purpose

The purpose of our proposed action is to authorize take of marine mammals incidental to the Society's proposed aircraft operations, lighthouse restoration and maintenance activities, and human presence on NWSR. The IHA, if issued, would provide an exception to the Society from the take prohibitions contained in the MMPA. To authorize the incidental take of small numbers of marine mammals, NMFS evaluates the best available scientific information to determine whether the take would have a negligible impact on marine mammals or stocks and whether the activity would have an unmitigable impact on the availability of affected marine mammal species for subsistence use. NMFS cannot issue this IHA if it cannot make those findings in the affirmative. In addition, we must prescribe the permissible methods of taking and other means of effecting the least practicable impact on the species or stocks of marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance. If appropriate, we must prescribe means of effecting the least practicable impact on the availability of the species or stocks of marine mammals for subsistence uses. IHAs must also include requirements or conditions pertaining to the monitoring and reporting.

1.2.3. Need

U.S. citizens seeking to obtain authorization for the incidental take of marine mammals under NMFS jurisdiction must submit such a request (in the form of an application). On December 12, 2016, the Society submitted an adequate and complete application demonstrating both the need and potential eligibility for an IHA under the MMPA. NMFS now has a corresponding duty to determine whether and how to authorize take of marine mammals incidental to the activities

described the Society's application. NMFS' responsibilities under section 101(a)(5)(D) of the MMPA and its implementing regulations establish and frame NMFS' proposed action.

Any alternatives considered under NEPA must meet the agency's statutory and regulatory requirements. Our described purpose and need guide us in developing reasonable alternatives for consideration, including alternative means of mitigating potential adverse effects

1.3. The Environmental Review Process

In accordance with the Council on Environmental Quality (CEQ) Regulations and Agency policies for implementing the National Environmental Policy Act (NEPA), NMFS, to the fullest extent possible, integrates the requirements of NEPA with other regulatory processes required by law or by agency practice so that all procedures run concurrently, rather than consecutively. This includes coordination within National Oceanic Atmospheric Administration (NOAA), (e.g., the Office of the National Marine Sanctuaries) and with other regulatory agencies (e.g., the U.S. Fish and Wildlife Service), as appropriate, during NEPA reviews prior to implementation of a proposed action to ensure that requirements are met. Regarding the issuance of IHAs, we rely substantially on the public process required by the MMPA for preparing proposed IHAs to develop and evaluate relevant environmental information and provide a meaningful opportunity for public participation when we prepare corresponding NEPA documents. We fully consider public comments received in response to the publication of proposed IHAs during the corresponding NEPA review process.

1.3.1. National Environmental Policy Act

NEPA requires federal agencies to examine the environmental impacts of their proposed actions within the United States and its territories. A NEPA analysis is a detailed public document that provides an assessment of the potential effects a major federal action may have on the human environment, which includes the natural and physical environment. Major federal actions include activities that federal agencies fully or partially fund, regulate, conduct or approve. NMFS issuance of IHAs allow for the taking of marine mammals albeit consistent with provisions under the MMPA and incidental to the applicant's activities, is considered a major federal action; therefore, NMFS analyzes the environmental effects associated with authorizing incidental takes of protected species and prepares the appropriate NEPA documentation.

1.3.2. Scoping and Public Involvement

The NEPA process is intended to enable NMFS to make decisions based on an understanding of the environmental consequences and take actions to protect, restore, and enhance the environment. An integral part of the NEPA process is public involvement. Early public involvement facilitates the development of an EA and informs the scope of issues to be addressed in the EA. Although agency procedures do not require public involvement prior to finalizing an EA, NMFS determined that the publication of the proposed IHA was the appropriate step to involve the public in order to understand the public concerns for the proposed

action, identify significant issues related to the proposed action and obtain the necessary information to complete an analysis.

The Draft EA and Federal Register notice of the proposed IHA, combined with our preliminary determinations, supporting analyses, and corresponding public comment period are instrumental in providing the public with information on relevant environmental issues and offering the public a meaningful opportunity to provide comments to us for consideration in both the MMPA and NEPA decision-making processes. We posted the Society's application on our website concurrently with the release of the Federal Register notice of the proposed Authorization and this EA.

1.4. Other Environmental Laws or Consultations

NMFS must comply with all applicable federal environmental laws, regulations, and Executive Orders (EO) necessary to implement a proposed action. NMFS evaluation of and compliance with environmental laws, regulations and EOs is based on the nature and location of the applicants proposed activities and NMFS proposed action. Therefore, this section only summarizes environmental laws and consultations applicable to NMFS issuance of an IHA to the Society. There are no other environmental laws, regulations, EOs, consultations, federal permits or licenses applicable NMFS issuance of an IHA to the Society.

1.4.1 Magnuson-Stevens Fishery Conservation and Management Act

Under the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 U.S.C. 1801 et seq.), Federal agencies are required to consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency which may adversely affect essential fish habitat (EFH) identified under the MSA.

EFH has been designated for groundfish species (or species assemblages), adjacent to the action area. Details of the designations and description of the habitats are available in the Pacific Coast Groundfish Fishery Management Plan (PFMC, 2016). EFH can consist of both the water column and the underlying surface (e.g. seafloor) of a particular area. Certain properties of the water column such as temperature, nutrients, or salinity are essential to various species and may support the different life stages of each managed species.

The effects of restoration and maintenance activities would not occur in the surrounding water column and thus would not impact EFH or fish populations. Accordingly, this EA will not consider EFH in greater detail for the remainder of this document. Further, NMFS has not designated any Habitat Areas of Particular Concern (HAPC) within the action area.

1.4.2 Endangered Species Act

The Endangered Species Act (ESA) established protection over and conservation of threatened and endangered species (T&E) and the ecosystems upon which they depend. An endangered

species is a species in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered within the near future throughout all or in a significant portion of its range. The USFWS and NMFS jointly administer the ESA and are responsible for the listing of species (designating a species as either threatened or endangered) and designating geographic areas as critical habitat for threatened and endangered (T&E) species. The ESA generally prohibits the “take” of an ESA-listed species unless an exception or exemption applies. The term “take” as defined in section 3 of the ESA means to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Section 7(a)(2) requires each federal agency to ensure 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 critical habitat of such species. When a federal agency’s action may affect a listed species, that agency is required to consult with NMFS and/or the USFWS under procedures set out in 50 CFR Part 402. NMFS and USFWS can also be action agencies under section 7. Informal consultation is sufficient for species the action agency determines are not likely to be adversely affected if NMFS or USFWS concurs with the action agency’s findings, including any additional measures mutually agreed upon as necessary and sufficient to avoid adverse impacts to listed species and/or designated critical habitat.

NMFS issuance of an IHA is a federal action that is also subject to the requirements of section 7 of the ESA. As a result, we are required to ensure that the issuance of an IHA to the Society is not likely to jeopardize the continued existence of any T&E species or result in the destruction or adverse modification of critical habitat for these species. There are no marine mammal species that are listed under the ESA could potentially occur in the action area; therefore, ESA consultation is not necessary.

1.5. Document Scope

This Draft EA was prepared in accordance with NEPA (42 USC 4321, et seq.) and CEQ Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508). The analysis in this EA addresses potential impacts to the human environment and natural resources, specifically marine mammals and their habitat, resulting from NMFS’ proposed action to authorize incidental takes associated with the Society’s activities. We analyze direct, indirect, and cumulative impacts related to authorizing incidental take of marine mammals under the MMPA. The scope of our analysis is limited to the decision for which we are responsible (i.e. whether or not to issue the IHA). This EA is intended to provide focused information on the primary issues and impacts of environmental concern, which is our issuance of the IHA authorizing the take of marine mammals incidental the Society’s activity, and the mitigation and monitoring measures to minimize the effects of that take. For these reasons, this Draft EA does not provide a detailed evaluation of the effects to the elements of the human environment listed in Table 1 below.

Table 1. Components of the human environment not affected by our issuance of an IHA.

Biological	Physical	Socioeconomic / Cultural
Amphibians	Air Quality	Commercial Fishing
Humans	Essential Fish Habitat	Military Activities
Non-Indigenous Species	Geography	Oil and Gas Activities
Seabirds	Land Use	Recreational Fishing
	Oceanography	Shipping and Boating
	State Marine Protected Areas	National Historic Preservation Sites
	Federal Marine Protected Areas	National Trails and Nationwide Inventory of Rivers
	National Estuarine Research Reserves	Low Income Populations
	National Marine Sanctuaries	Minority Populations
	Park Land	Indigenous Cultural Resources
	Prime Farmlands	Public Health and Safety
	Wetlands	Historic and Cultural Resources
	Wild and Scenic Rivers	
	Ecologically Critical Areas	

In summary, the analysis herein supports our initial determinations that, with the incorporation of the proposed monitoring and mitigation measures, the issuance of the IHA to the Society would not result in any significant direct, indirect, or cumulative impacts. Based on our MMPA analysis, the limited harassment from the proposed activities would allow adequate time for the marine mammals to recover from potentially adverse effects. Furthermore, the analysis indicates that the cumulative effects of the project on its own or in combination with other activities are not expected to occur.

Chapter 2 Alternatives

2.1. Introduction

As described in Chapter 1, the National Marine Fisheries Service (NMFS) Proposed Action is to issue an Incidental Harassment Authorization (IHA) to authorize the take of small numbers of marine mammals incidental to the Society's proposed aircraft operations, and restoration and maintenance activities. NMFS Proposed Action is triggered by the Society's request for an IHA per the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1361 *et seq.*). In accordance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) Regulations, NMFS is required to consider alternatives to the Proposed Action. This includes the no action and other reasonable course of action associated with authorizing incidental take of protected species. The evaluation of alternatives under NEPA assists NMFS with ensuring that any unnecessary impacts are avoided through an assessment of alternative ways to achieve the purpose and need for our Proposed Action that may result in less environmental harm. To warrant detailed evaluation under NEPA, an alternative must be reasonable along with meeting the stated purpose and need for the proposed action. For the purposes of this Draft EA, an alternative will only meet the purpose and need if it satisfies the requirements under section 101(a)(5)(D) the MMPA. Therefore, NMFS applied the following screening criteria to the alternatives to identify which alternatives to carry forward for analysis. Accordingly, an alternative must meet the following criteria to be considered "reasonable".

The MMPA requires NMFS to prescribe the means of effecting the least practicable impact on the species or stocks of marine mammals and their habitat. In order to do so, we must consider the Society's proposed mitigation measures, as well as other potential measures, and assess how such measures could minimize impacts on the affected species or stocks and their habitat. Our evaluation of potential measures includes consideration of the following factors in relation to one another: (1) the manner in which, and the degree to which, we expect the successful implementation of the measure to minimize adverse impacts to marine mammals; (2) the proven or likely efficacy of the specific measure to minimize adverse impacts as planned; and (3) the practicability of the measure for applicant implementation.

Any additional mitigation measure proposed by us beyond what the applicant proposes should be able to or have a reasonable likelihood of accomplishing or contributing to the accomplishment of one or more of the following goals:

- Avoidance or minimization of marine mammal injury, serious injury, or death, wherever possible;
- A reduction in the numbers of marine mammals taken (total number or number at biologically important time or location);
- A reduction in the number of times the activity takes individual marine mammals (total number or number at biologically important time or location);
- A reduction in the intensity of the anticipated takes (either total number or number at biologically important time or location);

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

2.2. Description of the Society's Proposed Activities

The Society proposes to conduct aircraft operations, lighthouse renovation, and periodic maintenance on the Station's optical light system on a monthly basis. We present a general overview of the Society's project in our proposed IHA (81 FR 94326). We incorporate those descriptions and those found in the Society's request for incidental take authorization (2016) by reference in this EA and briefly summarize them here.

2.2.1. Specified Time and Specified Area

The Society's activities (aircraft operations, lighthouse restoration, and maintenance activities) would occur at a maximum frequency of one session per month for six months (between November 1 and April 30 each year). The proposed duration for each session would last no more than three days (*e.g.*, Friday, Saturday, and Sunday) for a maximum of 18 days. 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.

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

Detailed Description of Restoration, Maintenance, and Tour Operations Activities

The project includes the following elements:

- Aircraft Operations
- Lighthouse Restoration Activities
- Maintenance Activities
- Human presence

Detailed descriptions of these activities are provided below.

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 (eight 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-minute flight to NWSR. The total duration of the second day's aerial operations could last up to three hours. 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 and Maintenance Activities and Human Presence

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.

If the beacon light fails, the Society would need to conduct emergency light maintenance, and 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.

2.3. Description of Alternatives

2.3.1. Alternative 1 – Issuance of an Authorization with Mitigation Measures

The proposed action constitutes Alternative 1 and is the Preferred Alternative. Under this alternative, we would issue an IHA (valid from February 19, 2017 through February 18, 2018) to the Society allowing the incidental take, by Level B harassment, of four species of marine mammals, subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the proposed IHA, if issued, along with any additions based on consideration of public comments.

MITIGATION, MONITORING, AND REPORTING MEASURES

As described in Section 1.2.1, we must prescribe the means of effecting the least practicable impact on the species or stocks of marine mammals and their habitat. In order to do so, we must consider the Society's proposed mitigation measures, as well as other potential measures, and assess how such measures could benefit the affected species or stocks and their habitat. Our evaluation of potential measures includes consideration of the following factors in relation to one another: (1) the manner in which, and the degree to which, we expect the successful implementation of the measures to minimize adverse impacts to marine mammals; (2) the proven or likely efficacy of the measures to minimize adverse impacts as planned; and (3) the practicability of the measures for applicant implementation.

Any additional mitigation measure proposed by us beyond what the applicant proposes should be able to or have a reasonable likelihood of accomplishing or contributing to the accomplishment of one or more of the following goals:

- Avoidance or minimization of marine mammal injury, serious injury, or death wherever possible;

- A reduction in the numbers of marine mammals taken (total number or number at biologically important time or location);
- A reduction in the number of times the activity takes individual marine mammals (total number or number at biologically important time or location);
- A reduction in the intensity of the anticipated takes (either total number or number at biologically important time or location);
- 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; and
- For monitoring directly related to mitigation, an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

To reduce the potential for disturbance associated with the activities, the Society, in conjunction with NMFS, has proposed to implement several monitoring and mitigation measures for marine mammals. The proposed monitoring and mitigation measures include:

1. Time restrictions: The Society shall not operate during the months of May 1 through October 31, 2017 in order to avoid impacts to pinnipeds during pupping season;
2. Activities will be limited to one session per month, with no more than three days per session;
3. Marine mammal monitoring by a trained biologist will occur on the first flight of each day. This biologist will also take photographs of marine mammals on or near NWSR;
4. 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;
5. 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;
6. 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;

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

The Society is required to submit a draft monitoring report to NMFS Office of Protected Resources within 90 days after the conclusion of the activities. A final report shall be prepared and submitted within 30 days following resolution of any comments on the draft report from NMFS. A description of the activities conducted by the Society and the monitoring protocols would be included in the report.

In our *Federal Register* notice of proposed Authorization, which we incorporate by reference, we preliminarily determined that the measures included in the proposed Authorization were sufficient to reduce the effects of the Society's activity on marine mammals to the level of least practicable impact. In addition, we described our analysis of impacts and preliminarily determined that the taking of small numbers of marine mammals, incidental to the Society's project would have a negligible impact on the relevant species or stocks and would not have an unmitigable adverse impact on affected species or stocks for taking for subsistence uses. Accordingly, this Preferred Alternative would satisfy the purpose and need of our proposed action under the MMPA— issuance of an Authorization, along with required mitigation measures and monitoring that meets the standards set forth in section 101(a)(5)(D) of the MMPA and the implementing regulations.

2.3.2. Alternative 2 – No Action Alternative

For NMFS, denial of an MMPA authorization constitutes the NMFS No Action Alternative, which is consistent with our statutory obligation under the MMPA to grant or deny permit applications and to prescribe mitigation, monitoring and reporting with any authorizations. Under the NMFS No Action Alternative, there are two potential outcome scenarios. One is that the Project on NWSR occurs in the absence of an MMPA authorization. In this that case, (1) the Society would be in violation of the MMPA if takes occur; (2) mitigation, monitoring and reporting would not be prescribed by NMFS; and 3) mitigation measures might not be performed voluntarily by the applicant. Another outcome scenario is the Society could choose not to proceed with their proposed activities.

By undertaking prescribing measures to protect minimize impacts on marine mammals species or stocks from incidental take through the authorization program, we can potentially lessen the impacts of these activities on the marine environment. While NMFS does not authorize the Project activities, NMFS does authorize the unintentional or incidental take of marine mammals (under its jurisdiction) in connection with these activities and prescribes, where applicable, the methods of taking and other means of effecting the least practicable impact on the species and stocks and their habitats. Although the No Action Alternative would not meet the purpose and need to allow incidental takes of marine mammals under certain conditions, the CEQ's

regulations require consideration and analysis of a No Action Alternative for the purposes of presenting a comparative analysis to the action alternatives.

2.4. Alternatives Considered but Eliminated from Further Consideration

NMFS considered whether other alternatives could meet the purpose and need and support the Society's proposed restoration project. An alternative that would allow for the issuance of an IHA with no required mitigation or monitoring was considered but eliminated from consideration, as it would not be in compliance with the MMPA and therefore would not meet the purpose and need. For that reason, this alternative is not analyzed further in this document.

Chapter 3 Affected Environment

This chapter describes existing conditions in the proposed action areas. Complete descriptions of the physical, biological, and social environment of the action area are contained in the documents listed in Section 1.3.1 of this EA. We incorporate those descriptions by reference and briefly summarize or supplement the relevant sections for marine mammals in the following subchapters.

3.1. Physical Environment

As discussed in Chapter 1, our proposed action and alternatives relate only to the authorization of incidental take of marine mammals and not to the physical environment. Certain aspects of the physical environment are not relevant to our proposed action (see subchapter 1.3.2 - Scope of Environmental Analysis)..

3.1.1. Marine Mammal Habitat

We presented information on marine mammal habitat and the potential impacts to marine mammal habitat in the *Federal Register* notice of the proposed Authorization. In summary, Steller sea lions and California sea lions are the most common pinniped near NWSR, and harbor seals and Northern fur seals are rare, but occasionally frequent NWSR. 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). The eDPS of Steller sea lions breeds on rookeries located in southeast Alaska, British Columbia, Oregon, and California. 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). In California, the nearest rookery is in the Farallon Islands off Southern California (Carretta *et al.*, 2015). Northern fur seals live almost all of the time in the open ocean, and only use certain offshore islands for pupping and breeding.

3.2. Biological Environment

The primary component of the biological environment that would be impacted by the proposed action and alternatives would be marine mammals, which would be directly impacted by the authorization of incidental take. We briefly summarize this component of the biological environment here.

3.2.1. Marine Mammal Habitat

We presented information on marine mammal habitat (including prey species) and the potential impacts to marine mammal habitat in the *Federal Register* notice of the proposed Authorization.

These are further described in the Society’s IHA application. We have preliminarily concluded that the Society’s activities will not have any adverse impacts to marine mammal habitat.

3.2.2. Marine Mammals

We provide information on the occurrence of marine mammals most likely present in the proposed activity areas in section 1.1.2 of this EA. The marine mammals most likely to be harassed incidental to conducting the Project are: Steller sea lions, California sea lions, harbor seals, and Northern fur seals (Table 2). The marine waters in Northern California support many species of marine mammals, including pinnipeds and cetaceans; however, the number of species regularly occurring near the project area is limited. Steller sea lions and California sea lions are the most common marine mammals in the project area, while harbor seals are uncommon and Northern fur seals are rare. There are no marine mammal species listed as threatened or endangered under the ESA.

Table 2. Marine Mammals Potentially Present in the Vicinity of NWSR.

Species name	Stock(s) abundance Estimate ¹	ESA* Status	MMPA** Status	Frequency of Occurrence in project area
Steller sea lion (<i>Eumatopias jubatus</i>)	eDPS: 60,131-74,448	Not listed	Strategic, depleted	Common
California sea lion (<i>Zalophus californianus</i>)	U.S.: 296,750	Not listed	Not strategic, not depleted	Common
Harbor seal (<i>Phoca vitulina</i>)	California: 30,968	Not listed	Not strategic, not depleted	Infrequent
Northern Fur seal (<i>Callorhinus ursinus</i>)	California breeding: 14,050	Not listed	Not strategic, unknown	Rare

¹ 2015 marine mammal Stock Assessment Reports at <http://www.nmfs.noaa.gov/pr/sars/species.htm>.

*Endangered Species Act

**Marine Mammal Protection Act

3.2.2.1. Marine Mammals

Eastern DPS of Steller sea lion

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 and Angliss, 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 (NMFS, 1995; 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).

Crescent Coastal Research (CCR) conducted a three-year (1998-2000) survey of the wildlife species on NWSR for the Society. 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 (NMML, 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.

Counts of California sea lions on NWSR from the 1998-2000 surveys varied greatly (from six 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 two and 160 animals, respectively (SGRLPS, 2012). There were no California sea lions present during the March, 2012 work session (SGRLPS, 2012).

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 haulout 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 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 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 six 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).

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.*, 2016).

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 U.S., 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 (Carretta *et al.*, 2016).

CCR observed one male northern fur seal on NWSR 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.).

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).

3.3. Social Environment

3.3.1. Subsistence

No significant subsistence activity currently occurs within the action area.

Chapter 4 Environmental Consequences

This chapter of the EA analyzes the impacts of the two alternatives and addresses the potential direct, indirect, and cumulative impacts of our issuance of an IHA. The Society's application and other related environmental analyses identified previously, inform an analysis of the direct, indirect, and cumulative effects of our proposed issuance of an Authorization

Under the MMPA, we have evaluated the potential impacts of the Society's program activities on the affected marine mammal species or stocks in order to determine whether to authorize incidental take of marine mammals. Under NEPA, we have determined that an EA is appropriate to evaluate the potential significance of environmental impacts resulting from the issuance of an IHA.

4.1. Effects of Alternative 1 – Issuance of an IHA with Mitigation Measures

Alternative 1 is the Preferred Alternative, under which we would issue an IHA to the Society allowing the incidental take, by Level B harassment only, of four species of marine mammals from February 19, 2017 through February 18, 2018, subject to the mandatory mitigation and monitoring measures and reporting requirements set forth in the IHA, if issued. We would incorporate the mitigation and monitoring measures and reporting described earlier in this EA (see Section 2.3.1) into a final IHA.

4.1.1. Impacts to Marine Mammal Habitat

No permanent impacts to marine mammal habitat are proposed to or would occur as a result of the proposed Project. The Society's proposed activities would not modify the existing habitat. Therefore, no restoration of the habitat would be necessary. A temporary, small-scale loss of haul out habitat may occur for marine mammals, if the marine mammals leave the area during restoration, maintenance, and tour operation activities; however, past monitoring has shown that pinnipeds return to NWSR shortly after they have flushed.

Because of the short duration of the activities and considering it is unlikely that the habitat that may be affected, we have preliminarily determined that the impacts to marine mammals and the food sources that they utilize are not expected to cause significant or long-term consequences for individual marine mammals or marine mammal populations.

4.1.2. Impacts to Marine Mammals

We expect that behavioral disturbance or displacement and exposure to noise that could cause injury resulting from the activities associated with the Project has the potential to impact marine mammals and comprises the only likely source of effects to marine mammals. The level of impact on marine mammals from Project activities would vary depending on the species of marine mammal, the distance between the marine mammal and the Project activities, and environmental conditions. Our notice of proposed Authorization and the Society's IHA application provide detailed descriptions of these potential effects of proposed project activities

on marine mammals. That information is incorporated herein by reference and summarized below.

The majority of impacts are likely to occur from aircraft activities. Aircraft activities could cause pinniped behavioral modification within the vicinity of the action area through: (1) noise generated from the helicopter; and (2) visual disturbance from construction activities and crew. These activities are expected to be minor and are not anticipated to result in injury, serious injury, or mortality of any marine mammal species and none is proposed to be authorized.

We expect no long-term or substantial adverse effects on marine mammals, their habitats, or their role in the environment. We base our conclusion on the results of previous monitoring for the same activities and anecdotal observations for the same activities in the proposed area.

Estimated Take of Marine Mammals by Level B Incidental Harassment

As discussed above, aircraft operations, lighthouse restoration and maintenance activities, and human presence on NWSR could potentially harass marine mammals in the vicinity of the Society’s proposed Project.

Currently, NMFS uses 90 dB in air threshold for harbor seals and 100dB for all other pinnipeds (unweighted) (Table 3) to determine in-air disturbance. The Society’s Project activities are not considered to have SLs high enough to cause disturbance. Instead, we are concerned that the unexpected noise and sight of the aircraft or personnel could cause the animals to flush. NMFS uses a 3-point scale (Table 4) to determine which disturbance reactions constitute take under the MMPA. Only levels two and three (movement and flush) is considered take, whereas level one is not.

Table 3. Current Level B Acoustic Exposure Criteria for Non-explosive Sound in air

Criterion	Criterion Definition	Threshold
Level B harassment (airborne)	Behavioral disruption	90 dB (harbor seals) 100dB (other pinnipeds) (unweighted)

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

Level	Type of response	Definition
1	Alert	Seal head orientation or brief movement in response to disturbance, which may include turning head towards the disturbance, craning head and neck while holding the body rigid in a u-shaped position, changing from a lying to a sitting position, or brief movement of less than twice the animal’s body length.
2	Movement	Movements in response to the source of disturbance, ranging from short

		withdrawals at least twice the animal’s body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degrees.
3*	Flush	All retreats (flushes) to the water.

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

Expected marine mammal presence is determined by past observations and general abundance near the project area during the Project work window. For all marine mammals, local densities are not available; therefore the following calculation was used: numbers of animals in the area multiplied by the number of days of Project activities on which marine mammals are expected to be present.

Table 5 outlines the number of Level B harassment takes that we propose to authorize in the IHA, the regional population estimates for marine mammals in the action area, and the percentage of each population or stock that may be taken as a result of the Society’s activities. Both the proposed IHA notice and the Society’s application contain complete descriptions of how these take estimates were derived. We do not expect the proposed activities to impact rates of recruitment or survival for any affected species or stock. Further, the activities would not adversely affect marine mammal habitat.

Table 5. Summary of potential marine mammal takes and percentage of stocks affected.

Species	Take Number	Stock Abundance	Percent of stock
California sea lion (<i>Zalophus californianus</i>)	2880	296,750	0.975
Steller sea lion (<i>Eumetopias jubatus</i>)	2790	60,131 – 74,448	4.64 - 3.75
Pacific harbor seal (<i>Phoca vitulina</i>)	36	30,968	0.35
Northern fur seal (<i>Callorhinus ursinus</i>)	18	14,050	0.12

4.2. Effects of Alternative 2 – No Action Alternative

Under the No Action Alternative, we would not issue an IHA to the Society. As a result, the Society would not receive an exemption from the MMPA prohibitions against the take of marine mammals and would be in violation of the MMPA if take of marine mammals occurs.

The impacts to elements of the human environment resulting from the No Action Alternative—conducting the Project in the absence of required protective measures for marine mammals under the MMPA—would be greater than those impacts resulting from Alternative 1, the Preferred Alternative.

4.2.1. Impacts to Marine Mammal Habitat

Under the No Action Alternative, the effects on the physical environment or on components of the biological environment that function as marine mammal habitat would result from the Society's planned activities, are similar to those described in Section 1.4.2. Even without mitigation measures, however, impacts to marine mammal habitat (including prey species) would be minimal and temporary for the following reasons:

- The planned activities are minor, limited to helicopter approaches/departures and possible human presence;
- The area of potential effect is limited in time, only occurring on a maximum of 18 days in one year; and
- There are no rookeries or major haul-out sites nearby or ocean bottom structure of significant biological importance to marine mammals that may be present in the ensonified area.

This Alternative would result in similar effects on the physical environment and components of the biological environment that function as marine mammal habitat as Alternative 1.

4.2.2. Impacts to Marine Mammals

Under the No Action Alternative, the Society's planned Project activities could result in increased amounts of Level B harassment to marine mammals, although no takes by injury, serious injury or mortality would be expected even in the absence of mitigation and monitoring measures. While it is difficult to provide an exact number of takes that might occur under the No Action Alternative, the numbers would be expected to be larger than those presented in Table 5 above, because the Society would not be required to follow mitigation measures designed to minimize flushing by pinnipeds on NWSR, and additional species may be incidentally taken because the Society would not be required to follow any mitigation measures designed to minimize impacts to marine mammals in the project vicinity.

If the activities proceeded without the protective measures and reporting requirements required by a final IHA under the MMPA, the direct, indirect, and cumulative effects on the human or natural environment of not issuing the IHA would include the following:

- Increases in the number of behavioral responses and potential takes to additional species, because of the lack of mitigation measures required in the IHA. Thus, the incidental take of marine mammals would likely occur at higher levels than we have already identified and evaluated in our *Federal Register* notice on the proposed Authorization; and
- We would not be able to obtain the monitoring and reporting data needed to assess the anticipated impact of the activity upon the species or stock and to increase knowledge of the species, as required under the MMPA.

4.3. Unavoidable Adverse Impacts

The Society's application, our notice of a proposed IHA, and the other environmental analyses identified previously summarize unavoidable adverse impacts to marine mammals or to their populations to which they belong or on their habitats occurring in the proposed project area. We incorporated those documents by reference.

We acknowledge that the incidental take authorized would potentially result in unavoidable adverse impacts including marine mammal behavioral responses and alterations in the distribution of local populations as a result of the Project. However, we do not expect the Society's activities to have adverse consequences on the annual rates of recruitment or survival of marine mammals in California waters, and we do not expect the marine mammal populations in that area to experience reductions in reproduction, numbers, or distribution that might appreciably reduce their likelihood of surviving or recovering in the wild. We expect that the numbers of individuals of all species taken by harassment would be small (relative to species or stock abundance) and that the proposed Project and the take resulting from the proposed project activities would have a negligible impact on the affected species or stocks of marine mammals.

4.4. Cumulative Effects

NEPA defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR §1508.7). Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time.

This cumulative effects analysis focuses on activities that may temporally or geographically overlap with the Society's activities and would most likely impact the marine mammals present in the proposed areas. We consider the impact of the Society's presence and effects of conducting activities in the proposed action areas to be insignificant when compared to other human activities in the area.

Past, present, and reasonably foreseeable impacts to marine mammal populations include the following: climate change; marine pollution; disease; increased vessel traffic, and fisheries interactions. These activities account for cumulative impacts to regional and worldwide populations of marine mammals, many of which are a small fraction of their former abundance. However, quantifying the biological costs for marine mammals within an ecological framework is a critical missing link to our assessment of cumulative impacts in the marine environment and assessing cumulative effects on marine mammals (Clark *et al.*, 2009). Despite these regional and global anthropogenic and natural pressures, the Project is not likely to add an increment of disturbance that would cumulatively result in significant adverse impacts to marine mammals or their habitats.

The proposed project would add another, albeit localized and temporary, activity in Northern California. This activity would be limited to a small area on NWSR in St. George reef for a relatively short period of time (maximum 18 days). This section provides a brief summary of the human-related activities affecting the marine mammal species in the action area.

4.4.1. Climate Change

Climate change is a reasonably foreseeable condition that may result in cumulative effects to marine mammal species. The 2007 Intergovernmental Panel on Climate Change concluded that there is strong evidence for global warming and associated weather changes, and humans have “very likely” contributed to the problem through burning fossil fuels and adding other “greenhouse gases” to the atmosphere (IPCC 2007). This study involved numerous models to predict changes in temperature, sea level, ice pack dynamics, and other parameters under a variety of future conditions, including different scenarios for how human populations respond to the implications of the study.

Global climate change could significantly affect the marine resources of California. Possible impacts include temperature and rainfall changes, potentially rising sea levels, and changes to ocean conditions. These changes may affect the coastal marine ecosystem in the proposed project area by increasing the vertical stratification of the water column and changing the intensity and rhythms of coastal winds and upwelling. Such modifications could cause ecosystem regime shifts as the productivity of the regional ecosystem undergoes various changes related to nutrients input and coastal ocean process.

It is not clear how governments and individuals would respond to the effects of climate change, or how much future efforts would reduce greenhouse gas emissions. Although the intensity of climate change would depend on how quickly and deeply humanity responds, the models predict that the climate changes observed in the past 30 years would continue at the same or increasing rates for at least 20 years. Although we recognize that climate change is a concern for the sustainability of the entire ecosystem, it is unclear at this time the full extent to which climate change would affect marine mammals. However, given that the Society’s project is temporary in nature, the immediate project is not likely to result in an increase in vessel traffic or add an incremental disturbance that would cumulatively result in significant adverse impacts to marine mammals due to climate change.

4.4.2. Marine Pollution

Marine mammals are exposed to contaminants via the food they consume, the water in which they swim, and the air they breathe. Point and non-point source pollutants from coastal runoff, at-sea disposal of dredged materials and sewage effluent, marine debris, and potential hazardous material releases from commercial vessels and on-shore users are all lasting threats to marine mammals in the project area. The long-term impacts of these pollutants, however, are difficult to measure.

The persistent organic pollutants (POPs) tend to bioaccumulate through the food chain; therefore, the chronic exposure of POPs in the environment is perhaps of the most concern to high trophic level predators such as pinnipeds.

The Project activities would be temporary and are not anticipated to cause increased exposure of POPs to marine mammals in the project vicinity due to the small scale and localized nature of the activities.

4.4.3. Disease

Disease is common in many marine mammal populations and has been responsible for major die-offs worldwide, but such events are usually relatively short-lived. The Society's Project activities are not expected to affect the disease rate among marine mammals in the project vicinity.

4.4.4. Increased Vessel Traffic

Local charter, commercial passenger vessels, private boats, or rental boats may transit to areas around NWSR. While marine mammals might be exposed to vessel traffic disturbance, any disturbance to a particular individual would be limited in space and time. The Society's project will not include additional vessel traffic; therefore, there is limited potential for measurable effects to marine mammals in the project area.

4.4.5. Fisheries Interactions

State-managed commercial and sport fisheries are a reasonably foreseeable non-federal activity that may result in cumulative effects to species in Northern California. None of the activities would be directed at commercial fishing or would likely have any impact on commercial fishing in the action area. No significant direct impacts are expected from the action of issuing an IHA for the incidental take, by Level B harassment only, of small numbers of marine mammals to the SGRLPS. No significant indirect impacts are expected from the SGRLPS conducting maintenance and restoration activities at the Station.

Local anglers may charter commercial passenger fishing vessels (CPFV), private boats or rental boats to transit to fishing areas around NWSR. However, none of the activities are directed at recreational fishing. No significant direct impacts are expected from the action of issuing an IHA for the incidental take, by Level B harassment only, of small numbers of marine mammals to the Society. No significant indirect impacts are expected from the Society conducting maintenance and restoration activities at the Station.

4.4.6. Conclusion

Based on the summation of activity in the area provided in this section, NMFS determined that the incremental impact of an Authorization for the proposed St. George Reef Lighthouse Restoration, Maintenance, and Tour Operations Project On NWSR on St. George Reef in Del Norte County, CA would not be expected to result in a significant cumulative impact to the

human environment, taking into account past, present, and reasonably foreseeable future activities. The potential impacts to marine mammals, their habitats, and the human environment in general are expected to be minimal, based on the limited and temporary footprint of the proposed Project and the mitigation and monitoring requirements of the IHA.

Chapter 5 List of Preparers and Agencies Consulted

Agencies Consulted

No other persons or agencies were consulted in preparation of this EA.

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