



NOAA FISHERIES

PROPOSED ACTION: Issuance of an Incidental Harassment Authorization to Point Blue Conservation Science and Partners to Take Marine Mammals by Harassment Incidental to the Conduct of Seabird Research and Field Station Maintenance in Central California.

TYPE OF STATEMENT: Final Environmental Assessment

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

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LOCATION: Central California: Southeast Farallon Island, West End Island, Año Nuevo Island, San Francisco Bay, and Point Reyes National Seashore.

ABSTRACT: This Environmental Assessment analyzes the environmental impacts of the National Marine Fisheries Service, Office of Protected Resources issuance of an Incidental Harassment Authorization to Point Blue Conservation Science, and its partners, for the taking, by Level B harassment, of five species of marine mammals, incidental to conducting seabird research and field station maintenance in central California, annually.

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LIST OF ABBREVIATIONS OR ACRONYMS

ANI	Año Nuevo Island
Authorization	Incidental Harassment Authorization
CE	Categorical Exclusion
CFR	Code of Federal Regulations
Commission	Marine Mammal Commission
dB	decibel
DPS	distinct population segment
EA	Environmental Assessment
ESA	Endangered Species Act of 1973 (16 U.S.C. 1531 <i>et seq.</i>)
FONSI	Finding of No Significant Impact
FR	<i>Federal Register</i>
ft	feet
GFNMS	Gulf of the Farallones National Marine Sanctuary
IHA	Incidental Harassment Authorization
ITA	Incidental Take Authorization
km	kilometer
m	meter
mi	mile
MMPA	Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1631 <i>et seq.</i>)
MOE	Margin of error
μPa	micropascal
NAO	NOAA Administrative Order
NEPA	National Environmental Policy Act of 1969 (42 U.S.C. 4321 <i>et seq.</i>)
NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuaries Act (16 USC 1432 <i>et seq.</i>)
NOAA	National Oceanographic and Atmospheric Administration
NPS	U.S. National Park Service
Oikonos	Oikonos Ecosystem Knowledge
OMB	Office of Management and Budget
Point Blue	Point Blue Conservation Science
PRNS	Point Reyes National Seashore
Sanctuary	Gulf of the Farallones National Marine Sanctuary
SD	Standard deviation
SE	Standard error
SEA	Supplemental Environmental Assessment
SEFI	Southeast Farallon Islands
SRP	Scientific Research Permit
USFWS	U.S. 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.

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

Point Blue Conservation Science (Point Blue) and its private and Federal partners² (hereafter, we refer to the entire group as Point Blue) requested an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment incidental to conducting seabird research and field station maintenance in central California (*i.e.*, Southeast Farallon Island, Año Nuevo Island, and Point Reyes National Seashore).

Point Blue proposes to monitor and census seabird colonies; observe seabird nesting habitat; restore nesting burrows; and resupply a field station supplies and equipment year round. The purpose of the seabird research is to continue a 30-year monitoring program of the region's seabird populations. Point Blue's application (Point Blue, 2016) (incorporated by reference here, see page 2-4 of the application) presents more detailed information on the proposed research objectives.

Briefly, Point Blue has conducted year round wildlife research and monitoring activities at the Southeast Farallon Islands (SEFI) (part of the Farallon National Wildlife Refuge) since 1968 through a collaborative agreement with the U.S. Fish and Wildlife Service (USFWS). While some research focuses on seabirds other procedures involve the maintenance of a field station. Seabird research activities involve observational and marking (*i.e.* netting and banding for capture-mark-recapture) studies of breeding seabirds. Occasionally researchers may travel to coastal areas of the island to conduct observational seabird research which include viewing

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

² Partners include Oikonos Ecosystem Knowledge; Point Reyes National Seashore with the National Park Service; and the Gulf of the Farallones National Marine Sanctuary, within NOAA's National Ocean Service.

breeding seabirds from an observation blind or censusing shorebirds. This activity usually involves one or two observers year round.

Point Blue also conducts seabird research and monitoring activities on Año Nuevo Island (ANI), part of the Año Nuevo State Reserve, since 1992. Collaborations with Oikonos - Ecosystem Knowledge (Oikonos) began in 2001 to research seabird burrow nesting habitat quality and restoration. Nesting habitat restoration and monitoring requires sporadic visits to the island from September through November, annually. Point Blue conducts these activities through a collaborative agreement with California State Parks.

Last, the U.S. National Park Service (NPS) conducts research, resource management, and routine maintenance services at Point Reyes National Seashore (PRNS). Research along the PRNS includes monitoring seabird breeding and roosting colonies. Seabird monitoring usually involves one or two observers. Additionally, habitat restoration of the seashore includes restoration and removal of non-native invasive plants, and coastal dune habitat

Acoustic and visual stimuli generated by: (1) motorboat approaches and departures; (2) noise generated during restoration activities and loading operations while resupplying the field station; and (3) human presence during seabird research and field station maintenance, have the potential to cause marine mammals to flush into the surrounding water or cause a short-term behavioral disturbance for marine mammals in the proposed areas.

1.1.2 MARINE MAMMALS IN THE PROPOSED ACTION AREA

There are four marine mammal species with confirmed or potential occurrence in the proposed action area. These species (all pinnipeds) would most likely be harassed incidental to Point Blue conducting the proposed activities.

Pinnipeds

- California sea lions (*Zalophus californianus*)
- Harbor seals (*Phoca vitulina*)
- Northern elephant seals (*Mirounga anustirostris*)
- Northern fur seals (*Callorhinus ursinus*)
- Steller sea lions (*Eumetopia jubatus*)

1.2 PURPOSE AND NEED

1.2.1 DESCRIPTION OF THE PROPOSED ACTION

NMFS proposes to issue an IHA to Point Blue pursuant to Section 101(a)(5)(A) of the MMPA and 50 CFR Part 216. The IHA will be valid from May 16, 2016 through May 15, 2017 and authorizes takes, by Level B harassment, of marine mammals incidental to seabird research and field station maintenance activities. NMFS proposed action is a direct outcome of Point Blue requesting 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 Point Blues proposed seabird research and field station maintenance activities in central California. As noted in section 1.1.1 the acoustic and visual stimuli during seabird research and field station maintenance

activities have the potential to cause marine mammals within or near the seabird research and field station maintenance sites to be behaviorally disturbed, thus warrant an IHA from NMFS.

The IHA, if issued, would provide an exception to Point Blue from the take prohibitions contained in the MMPA. To authorize the incidental take of small numbers of marine mammals, NMFS will evaluate 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 would result in more than a negligible impact on marine mammals or stocks or would result in an unmitigable impact on subsistence uses. 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, in large part to better understand the effects of such taking on the species.

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 February 24, 2016, Point Blue submitted an adequate and complete application demonstrating the need and potential eligibility for an IHA under the MMPA. Therefore, NMFS has a corresponding duty to determine whether and how to authorize take of marine mammals incidental to the activities described Point Blues application. NMFS' responsibilities under section 101(a)(5)(A) of the MMPA and its implementing regulations establish and frame the need for NMFS proposed action.

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.

On March 22, 2016, we published the proposed IHA in the Federal Register (81 FR 15249) with our preliminary determinations. The notice included a detailed description of the proposed action resulting from the MMPA consultation process; consideration of environmental issues and impacts of relevance related to the proposed issuance of the IHA; and potential mitigation and monitoring measures to avoid and minimize potential adverse impacts to marine mammals and their habitat. The notice of the proposed IHA and the corresponding public comment period were instrumental in providing the public with information on relevant environmental issues and offering the public a meaningful opportunity to provide comments for our consideration in both the MMPA and NEPA decision-making processes. The public comment period for the proposed IHA ended on April 21, 2016. One comment was received from the Marine Mammal Commission, which stated that "The Commission concurs with NMFS's preliminary finding and recommends NMFS issue the incidental harassment authorization, subject to inclusion of the proposed mitigation, monitoring, and reporting measures."

We also received a comment letter from one private citizen who opposed the authorization on the basis that NMFS should not allow any Authorizations for harassment. We considered the commenter's general opposition to Point Blue's activities and to our issuance of an Authorization. The Authorization, described in detail in the Federal Register notice of the proposed Authorization (81 FR 15249 March 22, 2016) includes mitigation and monitoring measures to effect the least practicable impact to marine mammals and their habitat. It is our responsibility to determine whether the activities will have a negligible impact on the affected species or stocks; will have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses, where relevant; and to prescribe the means of effecting the least practicable adverse impact on the affected species or stocks and their habitat, as well as monitoring and reporting requirements. The MMPA allows U.S. citizens to request take of marine mammals incidental to specified activities, and requires us to authorize such taking if we can make the necessary findings required by law and if we set forth the appropriate prescriptions. As explained throughout the Federal Register notice (81 FR 15249 March 22, 2016) we made the necessary findings under 16 U.S.C. 1361(a)(5)(D) to support issuance of Authorization.

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 Point Blue. There are no other environmental laws, regulations, EOs, consultations, federal permits or licenses applicable NMFS issuance of an IHA to Point Blue.

1.4.1 NATIONAL MARINE SANCTUARIES ACT

The National Marine Sanctuaries Act (NMSA) authorizes the Secretary of Commerce to designate and manage areas of the marine environment with special national significance. The Office of National Marine Sanctuaries (ONMS), administered by NOAA's National Ocean Service (NOS), has the authority to permit or authorize activities that would occur within or near a National Marine Sanctuary. ONMS manages the uses of the National Marine Sanctuary System through issuing programmatic and site-specific regulations, issuing permits or authorizations for activities that are otherwise prohibited, enforcing regulations and permits, consulting with Federal agencies and recommending alternatives to activities which are likely to injure sanctuary resources, and conducting research and monitoring and education and outreach for all national marine sanctuaries. The NMSA and ONMS regulations provide three forms of approval to allow an entity to conduct an activity otherwise prohibited by ONMS regulations:

1. General permits may be issued to allow activities that are otherwise prohibited by sanctuary regulations (15 CFR Part 922). Prohibitions are sanctuary-specific but commonly include disturbance of submerged lands and discharges within or into the sanctuary. General permits are reviewed against specific permit categories and review criteria established in regulation.
2. Authorizations to implement permits granted by other federal, state, or local agencies allow otherwise prohibited activities and may include additional terms and conditions, as appropriate.
3. Special use permits may be issued to establish conditions of access to a sanctuary resource, or promote the public use and understanding of a sanctuary resource. The list of categories of activities applicable to special use permits are published in the Federal Register. Special use permits are granted only when the activity is compatible with the purpose for which the sanctuary was designated and sanctuary resources will not be injured. ONMS may assess fees associated with special use permits for administrative costs, implementation and monitoring costs, and the fair market value of the use of the sanctuary.

Section 304(d) of the NMSA requires interagency consultation on any federal action "likely to destroy, cause the loss of, or injure a sanctuary resource." "Actions" include both direct federal actions and activities authorized by federal licenses, leases, or permits. The action can occur internal or external to the boundaries of a national marine sanctuary. The purpose of section 304(d) consultation is to provide better protection sanctuary resources by requiring Federal agencies to consider alternatives to proposed actions that will protect sanctuary resources and avoid injury. ONMS works cooperatively with Federal agencies in proactively identifying actions that may require NMSA consultation and to complete sanctuary consultation at the earliest practicable time.

Most sanctuary regulations explicitly prohibit harassment of marine mammals, sea turtles and birds by any means, though additional restrictions vary across sanctuaries. NMFS consults with ONMS when proposed activities require an MMPA authorization when takes of marine mammals would occur within a sanctuary and forwards a copy of the MMPA incidental take application to ONMS. The Gulf of the Farallones National Marine Sanctuary (GFNMS) considers Point Blue’s seabird research as an authorized, land-based research project under the MMPA. Consequently, the Sanctuary’s regulations at 15 CFR §922.82(a)(11) exempt Point Blue’s research activities from the NMSA’s prohibitions and we are not required to consult under section 304(d) of the NMSA.

1.5 DOCUMENT SCOPE

This 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 Point Blue proposed seabird research and field station maintenance 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 Point Blue’s activities, and the mitigation and monitoring measures to minimize the effects of that take. For these reasons, this 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 proposed issuance of an Authorization.

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	Recreational Diving
	Federal Marine Protected Areas	National Historic Preservation Sites
	National Estuarine Research Reserves	National Trails and Nationwide Inventory of Rivers
	National Marine Sanctuaries	Low Income Populations
	Park Land	Minority Populations
	Prime Farmlands	Indigenous Cultural Resources
	Wetlands	Public Health and Safety
	Wild and Scenic Rivers	Historic and Cultural Resources
	Ecologically Critical Areas	

1.5.1 Other Factors Influencing the Scope of the Analysis

This EA provides analyses and evaluation of the potential noise impacts to the affected environment that would result from acoustic and visual stimuli during seabird research and field station maintenance activities. After conducting a review of the information and analyses for sufficiency and adequacy, NMFS incorporates by reference, previous relevant analyses from the following documents per 40 CFR 1502.21:

- *Environmental Assessment on the Issuance of an Incidental Harassment Authorization to PRBO Conservation Science to Take Marine Mammals by Harassment Incidental to Conducting Seabird Research in Central California* (NMFS, 2007b);
- *Supplemental Environmental Assessment for the Issuance of an Incidental Harassment Authorization to Take Marine Mammals by Harassment Incidental to Conducting Seabird and Pinniped Research in Central California and Environmental Assessment for the Continuation of Scientific Research on Pinnipeds in California Under Scientific Research Permit 373-1868-00* (NMFS, 2008);
- *Environmental Assessment on the Issuance of an Incidental Harassment Authorization to the U.S. Fish and Wildlife Service to Take Marine Mammals by Harassment Incidental to a Bird Mitigation Research Trial in the Farallon National Wildlife Refuge* (NMFS, 2012a);
- *Environmental Assessment on the Issuance of Incidental Harassment Authorizations to the Gulf of the Farallones National Marine Sanctuary and University of California Santa Cruz to Take Marine Mammals by Harassment Incidental to Rocky Intertidal Monitoring along the U.S. Pacific Coast*, (NMFS, 2012a); and
- *Environmental Assessment on the Issuance of an Incidental Harassment Authorization to Point Blue Conservation Science to Take Marine Mammals by Harassment Incidental to Seabird and Pinniped Research Conducted in Central California* (NMFS, 2014).

NMFS previous environmental analyses for this proposed action (NMFS, 2007b, 2008, 2014) and similar types of actions (NMFS, 2010, 2012a) concluded that the impact of this type of action:

- would have minor and transitory effects on the marine environment or marine resources;
- would not significantly impact National Marine Sanctuaries, seabirds, and ecologically critical areas; and
- would not significantly impact archaeological and traditional cultural resources.

In each case, we concluded that the proposed issuance of IHAs for seabird research and maintenance activities would not significantly affect the quality of the human environment and issued findings of no significant impact (FONSI).

CHAPTER 2 – ALTERNATIVES

2.1 INTRODUCTION

The NEPA and the implementing CEQ regulations (40 CFR §§ 1500-1508) require consideration of alternatives to proposed major federal actions and NAO 216-6 provides agency policy and guidance on the consideration of alternatives to our proposed action. An EA must consider all reasonable alternatives, including the preferred action. It must also consider the no action alternative, even if it does not meet the stated purpose and need, so as to provide a baseline analysis against which we can compare the action alternative.

To warrant detailed evaluation as a reasonable alternative, an alternative must meet our purpose and need. In this case, and as we previously explained, an alternative meets the purpose and need if it satisfies the requirements under section 101(a)(5)(D) the MMPA (see Chapter 1), which serves as the alternative's only screening criterion. We evaluated each potential alternative against this criterion. Based on this evaluation, we have identified one action alternative as reasonable and, along with the No Action Alternative; have carried two alternatives forward for evaluation in this EA.³

The Preferred Alternative includes a suite of mitigation measures intended to minimize any potential adverse effects to marine mammals. This chapter describes the alternatives and compares them in terms of their environmental impacts and their achievement of objectives. This chapter describes the alternatives and compares them in terms of their environmental impacts and their achievement of objectives.

2.2 DESCRIPTION OF THE POINT BLUE'S PROPOSED ACTIVITIES

We present a general overview of Point Blue's seabird research and field station maintenance activities in the *Federal Register* notice of the proposed Authorization. We incorporate those descriptions by reference in this EA and briefly summarize them here.

2.2.1 SPECIFIED TIME AND SPECIFIED AREAS

Point Blue's proposed seabird research and field station maintenance activities would occur year round. We plan to issue the Authorization that would be effective from May 2016 to May 2017. If Point Blue requests subsequent Authorizations for the same activities analyzed in this EA, we may issue an Authorization for the same activities effective for the period of one year from the date of issuance of the next Authorization.

South Farallones Islands: The South Farallon Islands consist of Southeast Farallon Island located at 37°41'54.32" N; 123° 0'8.33" W and West End Island. These two islands are directly adjacent to each other and separated by only a 30-foot (ft) (9.1 meter (m)) channel. The South Farallon Islands have a land area of approximately 120 acres (0.49 square kilometers (km)) and are part of the Farallon National Wildlife Refuge. The islands are located near the edge of the continental shelf 28 miles (mi) (45.1 km) west of San Francisco, CA, and lie within the waters of the Gulf of the Farallones National Marine Sanctuary.

³ For instances involving federal decisions on proposals for projects, the single action alternative would consider the effects of permitting the proposed activity which would be compared to the "No action" alternative. In this case, under the No Action Alternative, the proposed activity (*i.e.*, issuing the Authorization with mitigation, monitoring, and reporting requirements) would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity (NEPA; Section 1502.14(d)).

Año Nuevo Island: Año Nuevo Island located at 37° 6'29.25" N; 122°20'12.20" W is one-quarter mile (402 m) offshore of Año Nuevo Point in San Mateo County, CA. The Island lies within the Monterey Bay National Marine Sanctuary and the Año Nuevo State Marine Conservation Area.

Point Reyes National Seashore: Point Reyes National Seashore is approximately 40 miles (64.3 km) north of San Francisco Bay and also lies within the Gulf of the Farallones National Marine Sanctuary. The proposed research areas (Life Boat Station, Drakes Beach, and Point Bonita) are within the headland coastal areas of the National Seashore.

2.2.2 SEABIRD RESEARCH ON SOUTHEAST FARALLON ISLAND

Point Blue proposes to conduct year round: (1) daily observations of seabird colonies at a maximum frequency of three 15-minute visits per day; and (2) conduct daily observations of breeding common murre (*Uria aalge*) at a maximum frequency of one, 5-hour visit per day. These activities usually involve one or two observers conducting daily censuses of seabirds or conducting mark/recapture studies of breeding seabirds on the island. The researchers plan to access the island's two landing areas, the North Landing and the East Landing, by 14 to 18 ft (4.3 to 5.5 m) open motorboats which they hoist onto the island using a derrick system. Once on the island, the researchers travel by foot to the island's coastal areas to view breeding seabirds from behind an observation blind. Most potential for incidental harassment would occur when the researchers approach or depart the intertidal area by motorboat or when the researchers walk within 50 ft (15.2 m) of the haul out areas to enter the observation blinds to observe shorebirds.

2.2.3 FIELD STATION RESUPPLY ON SOUTHEAST FARALLON ISLAND

Point Blue proposes to resupply the field station once every two weeks at a maximum frequency of 26 visits annually. Resupply activities involve personnel approaching either the North Landing or East Landing by motorboat. At East Landing—the primary landing site—all personnel assisting with the landing would stay on the loading platform approximately 30 ft (9.1 m) above the water. At North Landing, loading operations would occur at the water level in the intertidal areas. Most potential for incidental harassment would occur when the researchers approach the area by motorboat or when the researchers load or unload supplies onshore.

2.2.4 SEABIRD RESEARCH AND FIELD SUPPLY ON AÑO NUEVO ISLAND

Point Blue proposes to monitor seabird burrow nesting habitat quality; conduct habitat restoration, and resupply the field station from April through August at a maximum frequency of 20 visits annually. Occasionally, researchers would also conduct intermittent visits to island throughout the year. These activities involve two to three researchers accessing the north side of the island by a 12 ft (3.7 m) Zodiac boat. Once onshore, the researchers will check subterranean nest boxes and restore any nesting habitat for approximately 15 minutes. Most potential for incidental harassment of Steller sea lions (*if present*) could occur at the landing beach on the north side of the island when the researchers arrive and depart to check the boxes.

2.2.5 SEABIRD RESEARCH ON POINT REYES NATIONAL SEASHORE

The National Park Service in collaboration with Point Blue monitors seabird breeding and roosting colonies; conducts habitat restoration; removes non-native plants; monitors intertidal areas; maintains coastal dune habitat. Seabird monitoring usually involves one or two observers conducting the survey by small boats (12 to 22 ft; 3.6 to 6.7 m) along the Point Reyes National Seashore shoreline. Researchers would visit the site at a maximum frequency of 20 times per

year, with an emphasis on increasing monitoring during the nesting season. Researchers would conduct occasional, intermittent visits during the rest of the year. Most of the potential for incidental harassment would occur at the landing beaches along Point Reyes Headland, boat ramps, or parking lots in the vicinity.

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 Authorization (valid for one year) to Point Blue 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 final Authorization, if issued, subject to changes based on consideration of public comments.

Our *Federal Register* notice of proposed Authorization requesting comments on the proposed Authorization analyzed the potential impacts of this Alternative in detail. We incorporate those analyses by reference in this EA and briefly summarize the mitigation and monitoring measures and reporting requirements that we would incorporate in the final Authorization, if issued, in the following sections.

PROPOSED MITIGATION AND MONITORING MEASURES

To reduce the potential for disturbance from acoustic and visual stimuli associated with the activities, Point Blue and/or its designees have proposed to implement the following monitoring and mitigation measures for marine mammals:

- (1) Postpone beach landings until pinnipeds that may be present on the beach have slowly entered the water.
- (2) Select a pathway of approach to research sites that minimizes the number of marine mammals harassed.
- (3) Avoid visits to sites used by pinnipeds for pupping.
- (4) Monitor for offshore predators and do not approach hauled out pinnipeds if great white sharks (*Carcharodon carcharias*) or killer whales (*Orcinus orca*) are in the area. If Point Blue and/or its designees see predators in the area, they must not disturb the animals until the area is free of predators.
- (5) Keep voices hushed and bodies low to the ground in the visual presence of pinnipeds.
- (6) Conduct seabird observations at North Landing on Southeast Farallon Island in an observation blind, shielded from the view of hauled out pinnipeds.
- (7) Crawl slowly to access seabird nest boxes on Año Nuevo Island if pinnipeds are within view.
- (8) Coordinate research visits to intertidal areas of Southeast Farallon Island (to reduce potential take) and coordinate research goals for Año Nuevo Island to minimize the number of trips to the island.
- (9) Coordinate monitoring schedules on Año Nuevo Island, so that areas near any pinnipeds would be accessed only once per visit.
- (10) Have the lead biologist serve as an observer to evaluate incidental take.

Point Blue proposes to sponsor marine mammal monitoring during the present project, in order to implement the mitigation measures that require real-time monitoring, and to satisfy the monitoring requirements of the incidental harassment authorization. The researchers will monitor the area for pinnipeds during all research activities. Monitoring activities will consist of conducting and recording observations on pinnipeds within the vicinity of the proposed research areas. The monitoring notes would provide dates, location, species, the researcher's activity, behavioral state, numbers of animals that were alert or moved greater than one meter, and numbers of pinnipeds that flushed into the water.

This Alternative includes mandatory requirements for Point Blue to achieve the MMPA requirement of effecting the least practicable impact on each species or stock of marine mammal and their habitat, paying particular attention to rookeries, mating grounds, and other areas of similar significance.

PROPOSED REPORTING MEASURES

Point Blue will submit a final monitoring report to us no later than 90 days after the expiration of the Incidental Harassment Authorization, if we issue it. The final report will describe the operations conducted and sightings of marine mammals near the proposed project. The final report will provide:

- (1) a summary and table of the dates, times, and weather during all seabird research activities;
- (2) the species, number, location, and behavior of any marine mammals observed throughout all monitoring activities; and
- (3) an estimate of the number (by species) of marine mammals that are known to have been exposed to acoustic or visual stimuli associated with the seabird research activities.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the proposed Authorization (if issued), such as an injury (Level A harassment), serious injury, or mortality (*e.g.*, vessel-strike, stampede, etc.), Point Blue and/or its designees shall immediately cease the specified activities and immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources. Point Blue and/or its designees may not resume activities until we are able to review the circumstances of the prohibited take.

We preliminarily determined that the mitigation measures included in our *Federal Register* notice of proposed Authorization were sufficient to reduce the effects of Point Blue's activity on marine mammals to the level of least practicable adverse impact under the MMPA. In addition, we preliminarily determined that the taking of small numbers of marine mammals, incidental to Point Blue's proposed action would constitute no more than a negligible impact on the relevant species or stocks under the MMPA.

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. This would enable Point Blue to comply with the statutory and regulatory requirements of the MMPA.

2.3.2 ALTERNATIVE 2 – NO ACTION

For NMFS, denial of MMPA authorizations 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 No Action Alternative, there are two potential outcome scenarios. One is that the seabird research and XXXX activities occur in the absence of an MMPA authorization. In this case, (1) Point Blue would be in violation of the MMPA if takes occur and (2) mitigation, monitoring and reporting would not be prescribed by NMFS. Another outcome scenario is Point Blue could choose not to proceed with their proposed activities. NMFS analyzed both possible outcomes under the No Action Alternative. We took this approach to meaningfully evaluate the primary environmental issues in light of the scope of our authority to authorize take and prescribe mitigation to minimize impacts—the impact on marine mammals from these activities in the absence of protective measures.

CHAPTER 3 – AFFECTED ENVIRONMENT

This chapter describes existing conditions in the proposed research and field station maintenance areas. Descriptions of the physical and biological environment of the action area are contained in the documents incorporated by reference (see section 1.3.1) and summarized here.

3.1 PHYSICAL ENVIRONMENT

As discussed in Chapter 1, NMFS' proposed action and alternatives relate only to the proposed issuance of our 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 section 1.3.2 - Scope of Environmental Analysis). Because of the requirements of NAO 216.6, however, we briefly summarize the physical components of the environment here.

SEFI: The Farallon Islands contain sites for resting and breeding marine mammals and seabirds, and their surrounding waters contain one of the largest concentrations of adult white sharks, as well as many fish and invertebrate species. The coastline consists of sandy beaches, steep cliffs, and marine terraces. The nearshore subtidal area contains soft bottom areas and extended areas of complex reef habitat (ONMS, 2014). Thick forests of bull kelp create a thriving nearshore ecosystem along the southern Mendocino and Sonoma coasts (ONMS, 2014).

ANI: The physical terrain is distinctive, with coastal terrace prairie, wetland marshes, dune fields, and coastal scrub hosting a high diversity of plants and animals. The surf-resistant rock that forms Año Nuevo Point is called the Monterey Formation (CDPR, 2016). ANI is part of the marine terrace that enters the sea from below the Santa Cruz Mountains (CDPR, 2016). The Island's 300- to 350-acre sand dune fields—driven from north to south by northwesterly winds—cover the terrace's westerly portion (CDPR, 2016). The dune is one of the few remaining active dune fields on the California coast and they change character as a result of decreased sand availability (CDPR, 2016).

PRNS: The PRNS preserves some of the last remaining high quality coastal dune habitat in the United States (NPS, 2015). The PRNS peninsula contains beaches, sea cliffs, and intertidal zones cascading into the Pacific Ocean and the overriding natural feature is the presence of the eastern San Andreas Fault that bisects the geologic peninsula from the rest of the California mainland (NPS, 2015). With the exception of the Pacific Ocean, the largest water bodies directly adjacent to the Seashore's dune systems are Abbotts Lagoon, Estero de Limantour, and Drake's Estero (NPS, 2015).

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, marine mammals haul out on the shorelines or in intertidal areas.

In 1993, NMFS designated critical habitat for Eastern Steller sea lions around Southeast Farallon Island and Año Nuevo Island under the ESA per regulations at 50 CFR Part 226 (58 FR 45269, August 27, 1993) (NMFS, 1993). However, with the delisting of the eastern DPS of Steller sea lions under the ESA, NMFS will undertake a separate rulemaking to consider amending the critical habitat designation as appropriate to reflect the 2013 delisting (NMFS, 2013). As it stands, Southeast Farallon Island's critical habitat for the eastern DPS of Steller sea lions extends 3,000 ft (914.4 m) seaward from a basepoint (37° 41.3' N; 123° 0.1' W) approximately 0.2 miles (mi) (321.8 m) offshore from the island. Similarly, Año Nuevo Island's critical habitat extends

3,000 ft (914.4 m) seaward from a basepoint (37° 6.3' N; 122° 20.3' W) approximately 0.56 mi (901.2 m) offshore from the island.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 MARINE MAMMALS

We provide information on the occurrence of marine mammals most likely present at the proposed research areas in section 1.1.2 of this EA. The marine mammals most likely to be harassed incidental to conducting seabird research at the proposed research areas are primarily California sea lions, northern elephant seals, Pacific harbor seals, and to a lesser extent the eastern distinct population segment (DPS) of the Steller sea lion. We provided information on the distribution, population size, and conservation status for each species in the *Federal Register* notice on the proposed Authorization and we incorporate those descriptions by reference here. We briefly summarize this information here.

California sea lions: On the Farallon Islands, California sea lions haul out in many intertidal areas year round, fluctuating from several hundred to several thousand animals. California sea lions at Point Reyes National Seashore haul out at only a few locations, but will occur on human structures such as boat ramps. The annual population averages around 300 to 500 during the fall through spring months, although on occasion, several thousand sea lions can arrive depending upon local prey resources (Lowry, unpubl. data). On Año Nuevo Island, where the average population ranges from 4,000 to 9,500 animals, California sea lions may haul out at one of eight beach areas on the perimeter of the island.

Northern elephant seals: At Southeast Farallon, the northern elephant seal population consists of approximately 500 animals (USFWS, 2013). Northern elephant seals began recolonizing the South Farallon Islands in the early 1970s (Stewart et al., 1994) at which time the colony grew rapidly. In 1983 a record 475 pups were born on the South Farallones (Stewart, et al., 1994). Since then, the size of the South Farallones colony has declined, stabilizing in the early 2000s and then declining further over the past six years (USFWS, 2013). In 2012, a total of 90 cows were counted on the South Farallones, and 60 pups were weaned (USFWS, 2013). Point Blue's average monthly counts from 2000 to 2009 ranged from 20 individuals in July to nearly 500 individuals in November (USFWS, 2013).

At Año Nuevo Island the population ranges from 900 to 1,000 adults. Observers first sighted elephant seals on Año Nuevo Island in 1955 and today the population ranges from 900 to 1,000 adults. Males began to haul out on the mainland in 1965. California State Park reports that by 1988/1989, approximately 2,000 elephant seals came ashore to Año Nuevo (Lowry, unpubl. data; NMFS, 2012b).

Pacific harbor seals: On the Farallon Islands, approximately 40 to 120 Pacific harbor seals haul out in the intertidal areas (Point Blue, 2012). Harbor seals at Point Reyes National Seashore haul out at nine locations with an annual population of up to 4,000 animals (Lowry, unpubl. data). On Año Nuevo Island, harbor seals may haul out at one of eight beach areas on the perimeter of the island and the island's average population ranges from 100 to 150 animals (Lowry, unpubl. data).

Northern fur seals: 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 distributed along the west

coast of the continental U.S. The estimated population of the California stock is 14,050 animals with a maximum population growth rate of 12 percent (Carretta et al., 2015a, 2015b).

Northern fur seals may temporarily haul out on land at other sites in Alaska, British Columbia, and on islets along the west coast of the continental United States, but generally this occurs outside of the breeding season (Fiscus, 1986).

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 74 percent of the worldwide population inhabits the Pribilof Islands in Alaska, with the remaining animals spread throughout the North Pacific Ocean (Lander & Kajimura, 1982).

Steller sea lions: The current population of Steller sea lions in the proposed research area is approximately 50 and 750 animals. Overall, counts of non-pups in California have been relatively stable since the 1980s (Carretta, et al., 2015b).

Point Blue estimates that between 50 and 150 Steller sea lions live on the Farallon Islands. On Southeast Farallon Island, the abundance of females declined an average of 3.6 percent per year from 1974 to 1997 (Point Blue, 2013; Sydeman & Allen, 1999). On Año Nuevo Island, NMFS' Southwest Fisheries Science Center estimates that approximately 400 to 600 Steller sea lions live on Año Nuevo Island (Lowry, unpubl. data). However, researchers have observed a steady decline in ground counts started around 1970 with an 85 percent reduction in the breeding population by 1987 (Trillmich et al., 1991). At Point Reyes Headland, researchers observed few Steller sea lions in haul out areas (Point Blue, 2013).

NMFS' Stock Assessment Reports (Carretta, et al., 2015a; Muto & Angliss, 2015) also provide the latest abundance and life history information about each species/stock in California.

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 proposed issuance of an Authorization. Point Blue's application, our notice of a proposed Authorization, and other related environmental analyses identified previously, facilitate 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 Point Blue's seabird research and field station maintenance 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 our Authorization.

4.1 EFFECTS OF ALTERNATIVE 1 – ISSUANCE OF AN AUTHORIZATION WITH MITIGATION MEASURES

Under the Preferred Alternative, we would propose to issue a one-year Authorization to Point Blue 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 Authorization, if issued. We would incorporate the mitigation and monitoring measures and reporting described earlier in this EA into a final Authorization.

4.1.1 IMPACTS TO MARINE MAMMAL HABITAT

Our proposed action would have no additive or incremental effect on the physical environment beyond those resulting from the seabird research activities. The proposed research areas are located within a marine sanctuary, wildlife refuge, a National Park, and other conservation areas. However, the seabird research and field station maintenance would only add limited pedestrian traffic to those areas and would not result in substantial damage to ocean and coastal habitats that might constitute marine mammal habitat. We do not anticipate that the use of small boats or the small level of pedestrian traffic would physically alter the marine environment or negatively impact the physical environment in the research areas.

In 1993, NMFS designated critical habitat for eastern DPS of Steller sea lions for Southeast Farallon Island and Año Nuevo Island. Southeast Farallon Island's critical habitat extends 3,000 ft (914.4 m) seaward from a basepoint (37° 41.3' N; 123° 0.1' W) located approximately 0.2 miles (mi) (321.8 m) offshore from the island. Similarly, Año Nuevo Island's critical habitat extends 3,000 ft (914.4 m) seaward from a basepoint (37° 6.3' N; 122° 20.3' W) located approximately 0.56 mi (901.2 m) offshore from that island. Because Point Blue's research activities take place on land and do not overlap with offshore designated critical habitat areas, their activities would have no effect on critical habitat (NMFS, 2007a) which remains in place as a transitional matter until NMFS amends the designation for the two islands in a future rulemaking (NMFS, 2013).

Point Blue plans its seabird research and field station maintenance to minimize any impacts to the physical environment of the areas by implementing mitigation protocols. The proposed issuance of an Authorization would not impact physical habitat features, such as substrates and/or water quality.

4.1.2 IMPACTS TO MARINE MAMMALS

We expect that disturbance from acoustic and visual stimuli associated with the seabird research and field station maintenance would have the potential to impact marine mammals. Acoustic and visual stimuli generated by: (1) motorboat approaches and departures; (2) noise generated during restoration activities and loading operations while resupplying the field station; and (3) human presence during seabird research activities, have the potential to cause marine mammals to flush into the surrounding water or cause a short-term behavioral disturbance for marine mammals in the action areas.

We expect that these disturbances would result, at worst, in a temporary modification in behavior, temporary changes in animal distribution, and/or low-level physiological effects (Level B harassment) of certain species or stocks of marine mammals. At most, we interpret these effects on marine mammals as falling within the MMPA definition of Level B (behavioral) harassment. We expect these impacts to be minor because we do not anticipate measurable changes to the population or impacts to rookeries, mating grounds, and other areas of similar significance. The duration and extent of the impacts would be short-term (30 minutes or less) and localized to a small area.

Under the Preferred Alternative, we would authorize incidental take, by Level B harassment only, of five species of marine mammals. 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 reports for the same activities and anecdotal observations for the same activities conducted in the proposed research area.

Point Blue proposed a number of monitoring and mitigation measures for marine mammals as part of our evaluation for the Preferred Alternative. In analyzing the effects of the Preferred Alternative, we conclude that the following monitoring and mitigation measures would minimize and/or avoid impacts to marine mammals:

- (1) Postpone beach landings until pinnipeds that may be present on the beach have slowly entered the water.
- (2) Select a pathway of approach to research sites that minimizes the number of marine mammals harassed.
- (3) Avoid visits to sites used by pinnipeds for pupping.
- (4) Monitor for offshore predators and do not approach hauled out pinnipeds if great white sharks (*Carcharodon carcharias*) or killer whales (*Orcinus orca*). If Point Blue and/or its designees see predators in the area, they must not disturb the animals until the area is free of predators.
- (5) Keep voices hushed and bodies low to the ground in the visual presence of pinnipeds.
- (6) Conduct seabird observations at North Landing on Southeast Farallon Island in an observation blind, shielded from the view of hauled out pinnipeds.
- (7) Crawl slowly to access seabird nest boxes on Año Nuevo Island if pinnipeds are within view.
- (8) Coordinate research visits to intertidal areas of Southeast Farallon Island (to reduce potential take) and coordinate research goals for Año Nuevo Island to minimize the number of trips to the island.

- (9) Coordinate monitoring schedules on Año Nuevo Island, so that areas near any pinnipeds would be accessed only once per visit.
- (10) Have the lead biologist serve as an observer to evaluate incidental take.

Injury: Point Blue did not request authorization to take marine mammals by injury (Level A harassment), serious injury, or mortality. Based on the results of our analyses, Point Blue’s environmental analyses, previous monitoring reports, and anecdotal observations for the same activities there is no evidence that Point Blue’s seabird research and field station maintenance could result in injury, serious injury, or mortality within the action area. The required mitigation and monitoring measures would minimize any potential risk for marine mammals.

Vessel Strikes: The potential for striking marine mammals is a concern with vessel traffic. Studies have associated ship speed with the probability of a ship strike resulting in an injury or mortality of an animal. However, it is highly unlikely that the use of small, slow-moving boats to access the research areas would result in injury, serious injury, or mortality to any marine mammal. Typically, the reasons for vessel strikes are fast transit speeds, lack of maneuverability, or not seeing the animal because the boat is so large. Point Blue’s researchers will access areas using slow transit speeds in easily maneuverable boats negating any chance of an accidental boat strike.

Estimated Take of Marine Mammals by Level B Incidental Harassment: Point Blue has requested take by Level B harassment as a result of the acoustic and visual stimuli generated by their proposed seabird research and field station maintenance. We expect that small boat operations and pedestrian traffic would cause a short-term behavioral disturbance for marine mammals in the proposed areas.

As mentioned previously, we estimate that the research activities could potentially affect, by Level B harassment only, five species of marine mammals under our jurisdiction. For each species, these estimates are small relative to the population size. Table 2 outlines the number of Level B harassment takes that we propose to authorize annually, the regional population estimates for marine mammals in the action area that could occur as a result of Point Blue’s research activities annually.

Table 2. Estimated marine mammal take range for the proposed authorization.

Species	Estimated Take Range	2016 Population Estimate	Percentage of Species/Stock Potentially Affected
California sea lions	up to 81,289	296,750	up to 27.3%
Northern elephant seals	up to 305	179,000	up to 0.17%
Pacific harbor seals	up to 720	30,196	up to 2.38%
Northern fur seals ⁴	up to 5	14,050	up to 0.12%
Steller sea lions (EDPS)	up to 52	60,131	Up to 0.08%

⁴ Although Point Blue has not reported encountering northern fur seals during the course of their previously authorized activities, NMFS has included take (5) for northern fur seals based on recent stranding information in the area for that species.

For four species, we created a statistical model to derive an estimate of the average annual increase of reported take based on a best fit regression analysis (*i.e.*, linear or polynomial regression) of reported take from 2007 to 2016. The sample size for each model is small (n=10) resulting in R² values that range from moderate (0.84) to high (0.99) correlation.

Table 3. Regression analysis of 2007 – 2016 monitoring data.

Species	Predicted Annual Increase of Reported Take	Best Fit Model Type	R ² Value
California sea lions	11,223	Cubic	0.96
Northern elephant seals	34	Quartic	0.92
Pacific harbor seals	107	Quartic	0.99
Steller sea lions (EDPS)	5	Cubic	0.84

Next, we added the predicted annual increase in take to a baseline of take reported for the 2015-2016 season to project the estimated take for each species for the 2016-2017 proposed Authorization. We carried through the same predicted annual increase in take for future Authorizations (2017 – 2019) to obtain a mean projected take for each species (See Table 4).

Table 4. Projected take analysis for the 2017 through 2019 research seasons.

Species	Baseline	Estimated Increase	IHA 2016-2017	IHA 2017-2018	IHA 2018-2019	IHA 2019-2020
California sea lions	36,397	11,223	47,620	58,843	70,066	81,289
Northern elephant seals	169	34	203	237	271	305
Pacific harbor seals	292	107	399	506	613	720
Steller sea lions (EDPS)	31	5	36	42	47	52

Last, we analyzed the reported take for each activity by calculating the upper bound of the 95 percent confidence interval of the mean reported take (2007 – 2016) and mean projected take (2017 – 2019) for each species (See Table 5). Our use of the 95 percent upper confidence interval for the proposed Authorization represents the best available information that supports our precautionary deliberation of how much take could occur annually.

Table 5. Statistical analysis of 2007 – 2016 monitoring data.

Species	Mean	SD	SE	MOE (t test)	Lower Bound	Upper Bound
California sea lions	30,622	32,035	10,130	22,916	7,705	53,538
Northern elephant seals	147	103	33	74	73	221
Pacific harbor seals	315	237	75	170	146	485
Steller sea lions (EDPS)	24	20	6	14	10	38

We do not expect the seabird research and field station maintenance activities to impact rates of recruitment or survival for any affected species or stock. Further, the activities would not take place in areas of significance for marine mammal feeding, breeding, or calving.

4.2 EFFECTS OF ALTERNATIVE 2– NO ACTION ALTERNATIVE

This alternative would eliminate any potential risk to the environment from the proposed seabird research and field station maintenance activities. The impacts to the human environment resulting from the No Action alternative—no issuance of the IHA— would be less than less than the Preferred Alternative.

4.2.1 IMPACTS TO MARINE MAMMAL HABITAT

Point Blue would not conduct the proposed seabird research and field station maintenance and marine mammal habitat would be unaffected. This alternative would eliminate any potential risk to the environment from the proposed activities.

4.2.2 IMPACTS TO MARINE MAMMALS

Point Blue would not conduct the proposed seabird research and field station maintenance eliminating the potential for incidentally harassment. This alternative would eliminate any potential risk to the environment from the proposed activities.

4.5 UNAVOIDABLE ADVERSE IMPACTS

Point Blue’s application, our notice of a proposed Authorization, and other environmental analyses identified previously summarize unavoidable adverse impacts to marine mammals or the populations to which they belong or on their habitats occurring in the research area. We incorporate those documents by reference.

We acknowledge that the incidental take authorized would potentially result in unavoidable adverse impacts. However, we do not expect Point Blue’s proposed seabird research and field station maintenance to have adverse consequences on the viability of marine mammals in central California 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 and 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 take resulting from the proposed seabird research and field station maintenance would have a negligible impact on the affected species or stocks of marine mammals.

The MMPA requirement of ensuring the proposed action has no unmitigable adverse impact to subsistence uses does not apply here because there are no permitted subsistence uses of marine mammals in the region.

4.6 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.

Past, present, and foreseeable impacts to marine mammal populations include the following: climate change affecting the prey base and habitat quality, fishing gear entanglement, and vessel strikes.

These activities account for cumulative impacts to regional and worldwide populations of marine

mammals, many of whom 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, available trend information indicates that most local populations of pinnipeds in the Pacific Ocean are stable or increasing (Allen & Angliss, 2015; Carretta, et al., 2015b; Muto & Angliss, 2015; ONMS, 2015). The proposed seabird research and field station maintenance would add another, albeit temporary activity to the human environment limited to small, remote, and limited-access areas in central California.

4.6.1 CLIMATE CHANGE

Climate change has the potential to indirectly impact marine mammals in central California in several different ways including: loss of suitable breeding habitat and food resources; a reduction in the foraging or breeding ranges; and a decrease in the overall population size in the region. Climate change would likely alter the ecosystem's food web which could affect marine mammals on the Farallon Islands. Increased temperatures could push populations to a more suitable climate and impact adult survival and breeding (USFWS, 2013).

The primary threat to marine mammals on the Farallon Islands is from loss of habitat and potential changes in food supply due to climate change. Sea level rise due to climate change could flood pinniped haul-out sites negatively impacting breeding success. Moreover, researchers anticipate that there would be long-term impacts to marine mammals resulting from climate change that could alter their composition and distribution on the Farallon Islands (USFWS, 2013).

The Monterey Bay Aquarium Research Institute's M1 mooring collects oceanographic data at the center of the mouth of Monterey Bay. Starting in 2014, sea surface temperatures were anomalously high all along the U.S. West Coast with reports of unusually high sea surface temperatures (2-4° C higher than usual) beginning in August 2014 and persisting into 2015 (ONMS, 2015). Decreased upwelling, warm temperatures and decreased productivity in 2014 and early 2015 have likely affected the abundance and distribution of some types of forage fish and invertebrates and resulted in mass strandings of emaciated Cassin's auklets (*Ptychoramphus aleuticus*) and California sea lions (ONMS, 2015).

Prey shortages also appear to be the cause of poor growth rates of California sea lion pups observed by the NMFS monitoring program at San Miguel Island (Harvey et al., 2014) and the unusually large number of stranded, malnourished pups that have been admitted to rehabilitation centers in southern and central California in the winter and spring of 2015. Although these events have significant health impacts on animals in these populations, it is unknown if these mass stranding events will have any lasting impacts on the overall health of these populations (ONMS, 2015).

Grellier *et al.* (1996) assessed the effect of temperature and other weather conditions on harbor seal haulout numbers at a site in Scotland. They used abundance data from a six-year study (1988–1993) to control for seasonal changes in haulout behavior. The authors observed a significant relationship between Julian day and haulout numbers consistent between years. In some years, there was also a significant relationship between ambient temperature and haulout numbers, but their examination of the residuals around the relationship between haulout numbers

and Julian day revealed no evidence for a consistent effect of temperature, wind speed, or wind-chill adjusted temperatures.

With the large degree of uncertainty on the impact of climate change to marine mammals in central California, we recognize that warming of this region could affect the prey base and habitat quality for marine mammals. Nonetheless, we expect that ongoing and future seabird research and field station maintenance activities in central California and the proposed issuance of an Authorization to Point Blue would not result in any noticeable contributions to climate change.

4.6.2 FISHING GEAR ENTANGLEMENT

Each year marine mammals, mostly seals and sea lions, strand on beaches in the action areas due to interaction with active and lost fishing gear (*e.g.*, fishing nets, crab pots, fishing hooks, monofilament line) or entanglement in other man-made debris (*e.g.*, packing straps, plastic bags, rope) (ONMS, 2015). We expect that ongoing and future seabird research and field station maintenance activities in central California and the proposed issuance of an Authorization to Point Blue would not result in any noticeable contributions to human-induced mortality of pinnipeds related to gear entanglement.

4.6.3 VESSEL STRIKES

Serious injury or mortality by boat strikes is a concern for large whales, smaller cetaceans and pinnipeds in the action area (ONMS, 2015). Each year, several marine mammals strand on California beaches with obvious signs of interactions with boats (ONMS, 2015).

4.6.4 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIVITIES

Point Blue's application, our notice of a proposed Authorization, and other environmental analyses summarize the potential cumulative effects to marine mammals or the populations to which they belong or on their habitats occurring in the research areas. We incorporate those documents and analyses by reference here and briefly summarize them here. Thus, this cumulative effects analysis focuses on the activities that may temporally or geographically overlap with Point Blue's activities and would most likely impact the marine mammals present in the proposed areas.

Current human activities within the proposed action area are limited due to the numerous marine sanctuaries, refuges, and parks designated within the action area. We consider the impact of Point Blue's presence and effects of conducting seabird research and field station maintenance in the action areas to be insignificant when compared to other human activities in the area.

4.6.5 POINT BLUE'S DIRECTED RESEARCH ON PINNIPEDS

In 2012, NMFS issued a Scientific Research Permit (Permit No. 17152-00) to Point Blue to conduct scientific research on pinnipeds in the Farallon Islands, Point Reyes Peninsula, San Francisco Bay, and Sonoma County near the Russian River. The Permit is valid for five years, effective December 2012 through December 2017 and authorizes Point Blue to take by incidental harassment, harbor seals, northern elephant seals, California sea lions, and northern fur seals (*Callorhinus ursinus*) during their research activities.

In 2012, NMFS completed a CE titled, *Issuance of Scientific Research Permit No. 17152-00 – Categorical Exclusion under the National Environmental Policy Act*. NAO 216-6, *Environmental Review Procedures for Implementing the National Environmental Policy Act*, categorically excludes permits issued under § 104(c)(3)(A) of the MMPA from the preparation of an EA. There have been numerous prior NEPA analyses describing the environmental effects of issuance of Permits under section 104 of the MMPA, exempting take of marine mammals by capture and harassment resulting from the type of research proposed by Point Blue. Those analyses considered the factors outlined in 40 CFR 1508.27 regarding potential for significant impacts, and demonstrated that issuance of Scientific Research Permits do not have significant impacts on the quality of the human environment.

In general, the authorized taking of marine mammals under Permit No. 17152-00 results in minor, short-term (recoverable) adverse effects on individual marine mammals targeted by the research. The CE's analysis focuses on the effects on individuals, populations, stocks, and species, as well as the potential for cumulative impacts on the species from the total amount of Permits issued with CEs. The CE concludes that issuing Permits would not result in individually insignificant, but cumulatively significant impacts, or in cumulative adverse effects that could have a substantial effect on the target species or non-target species. The frequency and duration of the harassment from captures should allow adequate time for animals to recover from potentially adverse effects. NMFS does not expect any additive or cumulative effects of the Permit on its own, or in combination with other permitted research.

CHAPTER 5 – LIST OF PREPARERS AND AGENCIES CONSULTED

Agencies Consulted:

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REFERENCES

- Allen, B. M., & Angliss, R. P. (2015). Alaska Marine Mammal Stock Assessments: 2014. U.S. Department of Commerce, National Marine Fisheries Service. 313 pp.
- Carretta, J. V., E.M. Oleson, D.W. Weller, A.R. Lang, K.A. Forney, J. Baker, . . . R.L. Brownell Jr. (2015a). Draft U.S. Pacific Marine Mammal Stock Assessments: 2015. U.S. Department of Commerce, National Marine Fisheries Service.
- Carretta, J. V., E.M. Oleson, D.W. Weller, A.R. Lang, K.A. Forney, J. Baker, . . . R.L. Brownell Jr. (2015b). U.S. Pacific Marine Mammal Stock Assessments: 2014. U.S. Department of Commerce, National Marine Fisheries Service. 420 pp.
- CDPR. (2016). Ano Nuevo State Park Brochure. Sacramento, CA. California Department of Parks and Recreation. 2 pp.
- Clark, C. W., Ellison, W. T., Southall, B. L., Hatch, L., Van Parijs, S. M., Frankel, A., & Ponirakis, D. (2009). Acoustic masking in marine ecosystems: intuitions, analysis, and implication. *Marine Ecology Progress Series*, 395, 201-222.
- Fiscus, C. H. (1986). Northern fur seal. In D. Haley (Ed.), *Marine Mammals of Eastern Pacific and Arctic Waters* (pp. 174-181). Seattle, Washington: Pacific Search Press.
- Grellier, K., Thompson, P. M., & Corpe, H. M. (1996). The effect of weather conditions on harbour seal (*Phoca vitulina*) haulout behaviour in the Moray Firth, northeast Scotland. *Canadian Journal of Zoology*, 74(10), 1806-1811.
- Harvey, C., Garfield, N., Hazen, E., & Williams, G. D. (2014). The California Current Integrated Ecosystem Assessment: Phase III Report, from http://www.noaa.gov/iea/Assets/iea/california/Report/pdf/A.CCIEA%20Phase%20III%20Introduction_2013.pdf
- Lander, R. H., & Kajimura, H. (1982). Status of northern fur seals *Mammals in the Seas* (Vol. 4. Fisheries Series 5, pp. 319-345). Rome: Food and Agriculture Organization of the United Nations.
- Lowry, M. S. (unpubl. data). NMFS.
- Muto, M. M., & Angliss, R. P. (2015). Draft Alaska Marine Mammal Stock Assessments: 2015. U.S. Department of Commerce, National Marine Fisheries Service.
- NMFS. (1993). "Designated Critical Habitat; Steller Sea Lion; Final Rule," 58 *Federal Register* 165 (August 27, 1993), pp. 45269-45285.
- NMFS. (2007a). Biological Opinion Permitting the Harassment of Marine Mammals Incidental to Conducting Seabird Research in Central California. Silver Spring, MD. U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Marine Fisheries Service. 21 pp.
- NMFS. (2007b). Environmental Assessment on the Issuance of an Incidental Harassment Authorization to PRBO Conservation Science to Take Marine Mammals by Harassment Incidental to Conducting Seabird Research in Central California. Silver Spring, MD. National Marine Fisheries Service. 26 pp.
- NMFS. (2008). Supplemental Environmental Assessment for the Issuance of an Incidental Harassment Authorization to Take Marine Mammals by Harassment Incidental to Conducting Seabird and Pinniped Research in Central California and Environmental Assessment for the Continuation of Scientific Research

- on Pinnipeds in California Under Scientific Research Permit 373-1868-00. Silver Spring, MD. National Marine Fisheries Service. 57 pp.
- NMFS. (2010). Environmental Assessment for the Issuance of Incidental Take Authorizations to the Sonoma County Water Agency for Russian River Estuary Management Activities. Silver Spring, MD. National Marine Fisheries Service. 36 pp.
- NMFS. (2012a). Environmental Assessment on the Issuance of an Incidental Harassment Authorization to the U.S. Fish and Wildlife Service to Take Marine Mammals by Harassment Incidental to a Bird Mitigation Research Trial in the Farallon National Wildlife Refuge. Silver Spring, MD. U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Marine Fisheries Service. 19 pp.
- NMFS. (2012b). Environmental Assessment on the Issuance of Incidental Harassment Authorizations to the Gulf of the Farallones National Marine Sanctuary and University of California Santa Cruz to Take Marine Mammals by Harassment Incidental to Rocky Intertidal Monitoring along the U.S. Pacific Coast. Silver Spring, MD. National Marine Fisheries Service. 23 pp.
- NMFS. (2013). "Endangered and Threatened Species; Delisting of the Eastern Distinct Population Segment of Steller Sea Lion Under the Endangered Species Act; Amendment to Special Protection Measures for Endangered Marine Mammals; Final Rule," 78 *Federal Register* 213 (November 4, 2013), pp. 66140-66199.
- NMFS. (2014). Environmental Assessment on the Issuance of an Incidental Harassment Authorization to Point Blue Conservation Science to Take Marine Mammals by Harassment Incidental to Seabird and Pinniped Research Conducted in Central California. Silver Spring, MD. National Marine Fisheries Service. Department of Commerce. 47 pp.
- NPS. (2015). Point Reyes National Seashore Coastal Dune Restoration Environmental Assessment. Point Reyes National Seashore. U.S. Department of the Interior. National Park Service. 528 pp.
- ONMS. (2014). Office of National Marine Sanctuaries. Cordell Bank and Gulf of the Farallones National Marine Sanctuaries Expansion Final Environmental Impact Statement. Silver Spring, MD. U.S. Department of Commerce. National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries. 450 pp.
- ONMS. (2015). Monterey Bay National Marine Sanctuary Condition Report Partial Update: A New Assessment of the State of Sanctuary Resources 2015. Silver Spring, MD. U.S. Department of Commerce. National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries. 135 pp.
- Point Blue. (2012). Application for Permit for Scientific Research to Enhance the Survival or Recovery of a Stock under the Marine Mammal Protection Act (2012 - 2017). 84 pp.
- Point Blue. (2013). Request for Marine Mammal Protection Act Incidental Harassment Authorization Seabird Research on the South Farallon Islands, Año Nuevo Island, and Point Reyes National Seashore. 20 pp.
- Point Blue. (2016). Request for Marine Mammal Protection Act Incidental Harassment Authorization Seabird Research on the South Farallon Islands, Año Nuevo Island, and Point Reyes National Seashore. 20 pp.
- Stewart, B. S., Yochem, P. K., Huber, H. R., DeLong, R. L., Jameson, R. J., Sydeman, W., . . . Le Boeuf, B. (1994). History and present status of the northern elephant seal population. *Elephant seals: Population Ecology, Behavior and Physiology* (BJ Le Boeuf and RM Laws, eds). University of California Press, Los Angeles, 29-48.

- Sydeman, W. J., & Allen, S. G. (1999). Pinniped population dynamics in central California: correlations with sea surface temperature and upwelling indices. *Marine Mammal Science*, 15(2), 446-461.
- Trillmich, F., Ono, K. A., Costa, D. P., DeLong, R. L., Feldkamp, S. D., Francis, J. M., . . . York, A. E. (1991). The Effects of El Niño on Pinniped Populations in the Eastern Pacific. In F. Trillmich & K. Ono (Eds.), *Pinnipeds and El Niño* (Vol. 88, pp. 247-270): Springer Berlin Heidelberg.
- USFWS. (2013). *South Farallon Islands Invasive House Mouse Eradication Project: Draft Environmental Impact Statement*. Fremont, California.