

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

I. INTRODUCTION

On December 15, 2006, PRBO Conservation Science (PRBO) submitted an application to the National Marine Fisheries Service (NMFS) requesting an Incidental Harassment Authorization (IHA) for the possible harassment of small numbers of California sea lions (*Zalophus californianus*), Pacific harbor seals (*Phoca vitulina richardsi*), northern elephant seals (*Mirounga angustirostris*), and Steller sea lions (*Eumetopias jubatus*) incidental to conducting seabird research operations on Southeast Farallon Island, Año Nuevo Island, and Point Reyes National Seashore (NS) in central California. The proposed research would be conducted all year round, and hauled-out pinnipeds could be disturbed as a result of visual presence of researchers in the proposed project areas. Therefore, an IHA is needed.

This Environmental Assessment (EA) is intended to address impacts on the environment that would result from the issuance this IHA.

II. PURPOSE AND NEED

Section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 *et seq.*) directs the Secretary of Commerce to allow, upon request, the incidental, but not intentional taking, by harassment, of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographical region if certain findings are made.

An IHA shall be granted if the Secretary finds that the taking will have a negligible impact on the species or stock(s); will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses. The IHA must set forth the permissible methods of taking by harassment, other means of effecting the least practicable impact on the species or stock and their habitat, and requirements pertaining to the monitoring and reporting of such taking are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Except with respect to certain activities not relevant here, the MMPA defines "harassment" as

"...any act of pursuit, torment, or annoyance which (a) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (b) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment]."

Section 101(a)(5)(D) establishes a 45-day time limit for NMFS review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of small numbers of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny issuance of the authorization.

PRBO determined that conducting seabird research on Southeast Farallon Island, Año Nuevo Island, and Point Reyes NS in central California might potentially disturb marine mammals and, accordingly, submitted an application for an IHA. If the action proposed in the IHA application will result in no more than harassment, have no more than a negligible impact on the species or stocks, will not have an unmitigable adverse impact on the availability of the species or stock for subsistence uses, and the permissible methods of taking and required monitoring are set forth, then the NMFS shall issue the authorization.

III. DESCRIPTION OF ACTIVITY COVERED BY AUTHORIZATIONS

A detailed description of the proposed activity is presented below:

A. Southeast Farallon Island

Seabird research activities on the Southeast Farallon Island (Fig. 1) would involve observational and “hands on” ecological studies of breeding seabirds. Occasionally researchers may travel to coastal areas of the island to conduct observational seabird research where non breeding marine mammals are present. These sorts of tasks include viewing breeding seabirds from an observation blind or censusing shorebirds. This activity usually involves one or two observers. Access to the refuge involves landing in small, 14 - 18 ft (4.3 - 5.5 m) open motorboats which are hoisted onto the island using a derrick system.

Research on the Southeast Farallon Island would be conducted year round. Most intertidal areas of the island, where pinnipeds are present, would be rarely visited in seabird research. Most potential for incidental take will occur at the island’s 2 landings, North Landing and East Landing. These sites would be visited approximately 1 - 3 times per day by researchers. In both locations researchers would not be approaching less than 50 ft (15 m) from any pinnipeds which may be hauled out. Most visits to these areas would be brief (approximately 15 minutes), though seabird observers would be present from 2 - 5 hours daily at North Landing from early April - early August to conduct observational studies on breeding Common Murres. Boat landings to re-supply the field station, lasting 1 - 3 hours, would be conducted once every 2 weeks at one of the these locations. Activities involve launching of the boat with one operator, with 2 - 4 other researchers assisting with the operations from land. At East Landing, the primary landing site, all personnel assisting with the landing would stay on the loading platform 30 ft (9 m) above the water. At North Landing, loading operations would occur at the water level in the intertidal.

B. Año Nuevo Island

All seabird research work on the Año Nuevo Island would be in collaborations with Oikonos - Ecosystem Knowledge and through a collaborative agreement with the California State Parks. Procedures include accessing the island by a 12 ft (3.7 m) Zodiac boat. Non-breeding pinnipeds may occasionally be present on the small beach in the center of the island where the boat would be landed. Sea lions may also occasionally be present near a small group of subterranean seabird nest boxes on the island terrace. There are usually 2 - 3 researchers involved in island visits.

Research on the Año Nuevo Island would be conducted once per week from April to August, and occasional intermittent visits would be made during the rest of the year. A component of the seabird research involves nesting habitat restoration and monitoring, which requires sporadic visits from September to November, between the seabird breeding season and the elephant seal pupping season. Most intertidal areas of the island where marine mammals are present will not be visited during seabird research, excepting the landing beach. Most likely marine mammal incidental take would occur at this location as well as just north of this beach up on the island's terrace where a small number of seabird nest boxes are located. The landing beach would be visited upon arrival and departure during the weekly visit, and the nest boxes would be checked once on the day of visit. In both locations researchers would not approach less than 50 ft (15 m) away from any pinnipeds which may be hauled out. Landings and visits to nest boxes would be brief (approximately 15 minutes).

C. Point Reyes National Seashore

The National Park Service (NPS) conducts research, resource management and routine maintenance services at Point Reyes National Seashore. Research along the seashore includes monitoring seabird breeding and roosting colonies. Seabird monitoring usually would involve one or two observers. Surveys would be conducted by small, 14 - 22 ft (4.3 - 6.7 m) open motorboats that survey along the shoreline. These activities could result in incidental take of pinnipeds. Additionally, NPS would also conduct habitat restoration of the seashore, which would include removal of non-native plants and restoration of coastal dune habitat. Non-native plant removal would be timed to avoid the breeding seasons of pinnipeds, however, on occasion non-breeding animals may be present at various beaches throughout the year.

IV. ALTERNATIVES

A. Alternative 1 (Preferred Alternative) – Issuance of IHA with Mitigation Measures

Under Alternative 1, NMFS will issue a one-year IHA to PRBO allowing the incidental take by Level B behavioral harassment of a small number of Pacific harbor seals, California sea lions, northern elephant seals, and Steller sea lions during seabird research operations on Southeast Farallon Island, Año Nuevo Island, and Point Reyes National Seashore (NS) in central California. The mitigation measures and reporting requirements described in Section VII, which include keeping hushed voices and low bodies in visual presence of pinnipeds, and coordinating among researchers to reduce site visits and potential takes, will be incorporated into the IHA.

B. Alternative 2 – No Action Alternative

Under the No Action Alternative, NMFS would not be issuing the IHA. The MMPA prohibits all takings of marine mammals unless authorized by a permit or exemption under the MMPA. If authorization to incidentally take Pacific harbor seals, California sea lions, northern elephant seals, and Steller sea lions is denied, the applicant could choose to amend the project either to avoid harassing marine mammals or forego the proposed research project entirely.

C. Alternative 3 – Issuance of IHA with No Mitigation Measures

Under this Alternative, NMFS would issue the IHA but not require the applicant to implement the mitigation and monitoring measures described in Section VII. However, because the MMPA requires holders of IHAs to reduce impacts on marine mammals to the lowest level practicable, implementation of this alternative would not be in compliance with the MMPA. For that reason, this alternative is not analyzed further in this document.

V. AFFECTED ENVIRONMENT

V.1. Physical Environment

A. Southeastern Farallon Island

The Southeast Farallon Island (Figure 1) is located 28 miles (45 km) offshore of San Francisco, California (37° 41' 55 N, 123° 00' 10" W), within the Gulf of the Farallones National Marine Sanctuary (NMS). The rocky Farallon Islands rise over 115 m from sea floor to summit with stark slopes. Beyond the islands, the gulf plunges precipitously down the continental slope into an abyss nearly 3,000 m deep.

This dramatic bottom topography creates ideal conditions for upwelling, sustaining one of the richest marine ecosystems on Earth. The sanctuary contains 26 federally listed endangered or threatened species, and is home to 33 species of marine mammals and at least 11 species of breeding seabirds. In addition, another 35 species of migrant seabirds are regularly sighted in the sanctuary (Pyle, 2001; Roletto, 2001). One fifth of California's harbor seals also breed within the sanctuary. The Farallon Islands host over a quarter million breeding seabirds, the largest rookery in the contiguous United States (NOS, 2005).

B. Año Nuevo Island

Año Nuevo Island (Figure 2) is located 0.25 mi (0.4 km) offshore of Año Nuevo Point in San Mateo County, California (37°06'N, 122°20'W).

Just offshore from Point Año Nuevo 74 kilometers (46 miles) south of San Francisco, the Año Nuevo Island Reserve is comprised of Miocene shale with remnant dune deposits and associated low, rocky islets and intertidal shelf. The island is everchanging. Two hundred years ago, it was connected to the mainland by a narrow peninsula. Currently it is separated from the mainland by a channel that grows wider with each winter storm. The island contains nesting colonies of sea birds, including the rhinoceros auklet (*Cerorhinca monocerata*), Cassin's auklet (*Ptychoramphus*

aleuticus), Brandt's cormorant (*Phalacrocorax penicillatus*), black oystercatcher (*Haematopus bachmani*), and western gull (*Larus occidentalis*). It also serves as a breeding ground for northern elephant seals, harbor seals, California sea lions, and federally endangered Steller sea lions. Northern fur seals (*Callorhinus ursinus*) and federally threatened southern sea otters (*Enhydra lutris nereis*) are occasional visitors. Año Nuevo Island Reserve is a 25-acre portion of the 4,000-acre Año Nuevo State Reserve, all of which is owned and operated by California State Parks. Due to the highly sensitive habitats and protected marine mammals at the island, reserve use is restricted (University of California Natural Reserve System, 2007).

C. Point Reyes NS

Point Reyes NS (Figure 3) is located 40 miles (64 km) north of San Francisco Bay, California.

The Point Reyes peninsula is surrounded on three sides by the Pacific Ocean which dramatically affects the daily and seasonal climates, and numerous resident and migratory marine species. Besides the El Niño/Southern Oscillation (ENSO) and Pacific Decadal Oscillation, the most significant oceanic impact on the peninsula is the seasonal upwelling phenomena (NPS, 2005). Established in 1962, Point Reyes NS serves as an important source area for pinniped populations and provides many haulouts. Jet skis are prohibited in the park, and recreational boating (including kayaking) is restricted in areas where pinnipeds are likely to be disturbed (Reeves, 2000).

V.2. Biological Environment

A. Marine Mammal Species

The proposed research areas in the central California is home to several marine mammal species, including Pacific harbor seal, California sea lion, northern elephant seal, and Steller sea lion. The eastern U.S. stock of Steller sea lion is the only species listed under the Endangered Species Act (ESA). General information on the biology and distribution of these species and others in the region can be found in NMFS' Marine Mammal Stock Assessment Reports, which are available online at <http://www.nmfs.noaa.gov/pr/pdfs/sars/po2006.pdf>. Additional information on these species within the proposed research area is presented below.

Northern Elephant Seal

The northern elephant breeding population is distributed from central Baja California, Mexico to the Point Reyes Peninsula in northern California. Along this coastline there are 13 major breeding colonies. The northern elephant seal was exploited for its oil during the 18th and 19th centuries and by 1900 the population was reduced to 20 - 30 individuals on Guadalupe Island (Hoelzel *et al.*, 1993; Hoelzel, 1999). As a result of this bottleneck the genetic diversity found in this species is extremely low (Hoelzel, 1999). The recent formation of most rookeries indicates that there is no genetic differentiation among populations. Although movement and genetic exchange occurs among colonies, most seals return to their natal site to breed (Huber *et al.*, 1991). Recolonization of their former breeding range progressed north from the San Benito and Guadalupe Islands off Baja California to the most recent northernmost breeding site at Point Reyes Headlands. In the last three decades, annual pup production has increased at the rate of $9.43 \pm 0.51\%$ per year in California and $5.19 \pm 0.33\%$ per year over the entire range (Barlow *et al.*, 1993). A complete population count of elephant seals is not possible because all age classes are not ashore at the same

time. Elephant seal population size is usually estimated by counting the number of pups produced and multiplying by the inverse of the expected ratio of pups to total animals (McCann, 1985). Stewart *et al.* (1994) used McCann's multiplier of 4.5 to extrapolate from 28,164 pups to a population estimate of 127,000 elephant seals in the U.S. and Mexico in 1991. The multiplier of 4.5 was based on a stable population. Boveng (1988) and Barlow *et al.* (1993) argue that a multiplier of 3.5 is more appropriate for a rapidly growing population such as the California stock of elephant seals. Based on the estimated 28,450 pups born in California and this 3.5 multiplier, the California stock was approximately 101,000 in 2001 (Carretta *et al.*, 2007). At Point Reyes, the population grew at 32.8% per year between 1988 and 1997 (Sydeman and Allen, 1999) and around 10% per year since 2000 (S. Allen, unpubl. data), and in 2006 around 700 pups were born at three primary breeding areas. The population on the Farallon Islands has declined by 3.4% per year since 1983, and in recent years numbers have fluctuated between 100 and 200 pups (W. Sydeman, D. Lee, unpubl. data).

Elephant seals congregate in central California to breed from late November to March. Females typically give birth to a single pup and attend the pup for up to 6 weeks. Breeding occurs after the pup is weaned by attending males. After breeding, seals migrate to the Gulf of Alaska or deeper waters in the eastern Pacific. Adult females and juveniles return to terrestrial colonies to molt in April and May, and males return in June and July to molt, remaining onshore for around 3 weeks.

Pacific Harbor Seal

Harbor seals are one of the most widely distributed northern hemisphere pinnipeds and are found in coastal, estuarine and some times fresh water of both the Atlantic Ocean and Pacific Oceans. There is considerable regional genetic differentiation between harbor seal populations as they are generally limited in migratory movements. Under the MMPA, six stocks of Pacific harbor seals are identified within the U.S. waters (Angliss and Lodge, 2007; Carretta *et al.*, 2007). Only the California stock of harbor seal is found in the proposed project area, and its abundance is estimated to be 34,233 (Carretta *et al.*, 2007). There is some question whether the San Francisco Bay population may be a separate stock based on genetic analyses (D. German, Sonoma State University, pers. com.). At Point Reyes, the harbor seal population is estimated to be 7,524 for the molt season based on a correction factor of 1.65 (Lowry *et al.*, 2005; Manna *et al.*, 2006).

In central California, harbor seals breed annually from March through May and molt in June and July. Females give birth to a single pup and attend the pup for around 30 days, at which time they wean pups. Mating occurs in the water around the time of weaning. Harbor seals are resident year round at terrestrial colonies, however, juveniles may disperse to other colonies ranging up to 500 km (311 mi). Individual adult seals may also migrate widely from breeding colonies.

California Sea Lion

California sea lions range from southern Mexico up to British Columbia and breed almost entirely on islands in southern California, Western Baja California and the Gulf of California. In recent years, California sea lions have begun to breed annually in small numbers at Año Nuevo Island and South Farallon Island, California. One abandoned pup was found at Point Reyes NS at Wildcat Beach in 2003. This species is separated into three recognized stocks based on three geographic regions (U.S. stock, Western Baja stock, and the Gulf of California stock; Lowry *et al.* 1992). Some movement has been documented between these geographic stocks, but rookeries in the U.S. are widely separated from major rookeries of western Baja California, Mexico (Barlow *et al.*, 1995). The U.S. stock of California sea lion is the only stock present in the proposed research

area. The California sea lion has the largest population of any sea lion species and is the only sea lion whose population is showing a healthy growth rate of 5 - 6.2% per annum. Annual incidental takes in fisheries is approximately 915 individuals; however, the population is growing by 8.2% per year and fishing mortality is declining (Barlow *et al.*, 1995). Current U.S. population estimates range from 237,000 and 244,000 (Carretta *et al.*, 2007).

California sea lions give birth in May through July and breeding occurs in July and August. Females and pups are resident at breeding colonies year round and males migrate north to feeding areas from central California to British Columbia, Canada. During years of low food availability (e.g., ENSO), females and juveniles may also migrate north in search of prey; and in some particularly poor years (1997 - 1998), there can be mass mortality of pups at rookeries.

On the Farallon Islands California sea lions haul out in many intertidal areas year round, fluctuating from several hundred to several thousand animals. Breeding animals are concentrated in areas where researchers would not visit (PRBO, unpublished data).

California sea lions at Point Reyes haul out at only a couple locations, but will occur on human structures such as boat ramps. The annual population averages around 300 - 500 during the fall through spring months, although on occasion, several thousand sea lions can arrive depending upon local prey resources (S. Allen, unpublished data).

Steller Sea Lion

Steller sea lions breed from the Kuril Islands and Okhotsk Sea through the Aleutian Islands and the Gulf of Alaska, and south to central California (Merrick *et al.*, 1987). Two separate stocks are recognized within U.S. waters: an eastern U.S. stock that includes animals east of Cape Suckling, Alaska (144°W), and a western U.S. stock that includes animals west of Cape Suckling. In 1990, the Steller sea lion was listed as a threatened species under the ESA, and the western stock was listed as endangered in 1997.

The eastern stock of Steller sea lions breeds on rookeries located in southeast Alaska, British Columbia, Oregon, and California (including the proposed research area). Steller sea lions give birth in May through July and breeding occurs a couple of weeks after birth. Non-reproductive animals congregate at a few haul out sites, including at Año Nuevo and Point Reyes Headland. Pups are weaned during the winter and spring of the following year. On the Farallon and Año Nuevo Islands, Steller sea lion breeding colonies are located in closed areas where researchers never visited, eliminating any risk of disturbing breeding animals.

Count of pups on rookeries conducted near the end of the birthing season are nearly complete counts of pup production. Using the most recent 2005 pup counts available by region from aerial surveys across the range of the eastern stock, the total population of the eastern stock of Steller sea lions is estimated to be 47,885. This is based on multiplying the total number of pups counted in southeast Alaska (5,519), British Columbia (3,281), Oregon (1,128), and California (713) by 4.5 (Angliss and Outlaw, 2007). Because the eastern stock of Steller sea lions is increasing within most of its range, using the 4.5 multiplier is a reasonable approach to estimating abundance from pup counts (Angliss and Outlaw, 2007).

Steller sea lion numbers in California, especially in southern and central California, have declined from historic numbers. Counts in California between 1927 and 1947 ranged between 5,000 and

7,000 non-pups with no apparent trend, but have subsequently declined by over 50%, remaining between 1,500 and 2,000 non-pups during 1980 - 2001. Limited information suggests that counts in northern California appear to be stable (NMFS, 1995). At Año Nuevo Island, a steady decline in ground counts started around 1970, resulting in an 85% reduction in the breeding population by 1987 (LeBoeuf *et al.*, 1991). In vertical aerial photographic counts conducted at Año Nuevo, pups declined at a rate of 9.9% from 1990 to 1993, while non-pups declined at a rate of 31.5% over the same time period (Westlake *et al.*, 1997). Pup counts at Año Nuevo have been steadily declining at about 5% annually since 1990 (W. Perryman, NMFS-SWFSC, pers. comm.). On Southeast Farallon Island, the abundance of Steller sea lion females declined an average of 3.6% per year from 1974 to 1997 (Sydeman and Allen, 1999). Pup counts on the Farallon Islands have generally varied from 5 - 15 (Hastings and Sydeman, 2002; PRBO unpublished data). The most recent pup counts at Año Nuevo Island and the Farallones are 349 in 2000 and 287 in 2001 (M. Lowry, NMFS-SWFSC, pers. comm.). Pups have not been born at Point Reyes Headland since the 1970s and Steller sea lions are seen in very low numbers there currently (S. Allen, unpubl. data).

B. Seabird Species

Beside four marine mammal species listed above, there are 29 species of seabirds breed in the state of California (Leet *et al.*, 2001). Many of the breeding seabirds, such as common murres (*Uria aalge*), Brandt's cormorants, and Cassin's auklets (all primarily northern species) are concentrated at national wildlife refuges.

The Farallon Islands are the most important single seabird breeding site in California. The Farallon National Wildlife Refuge (NWR) contains the largest seabird breeding colony in the contiguous United States. These islands are monitored and studied each year by the Point Reyes Bird Observatory and U.S. Fish and Wildlife Service (USFWS). Large seabird populations there are associated with a high availability of suitable and protected nesting habitat, coupled with strong and productive upwelling system that provide for large prey resources in the same general area.

Breeding species of at the proposed research areas include common murres, tufted puffins (*Fratrercula cirrhata*), rhinoceros auklets, Cassin's auklets, pigeon guillemots (*Cepphus Columba*), Brandt's cormorants, double-crested cormorants (*Phalacrocorax auritus*), and pelagic cormorants (*P. pelagicus*), black oystercatchers, western gulls, Leach's storm-petrels (*Oceanodroma leucorhoa*), and Ashy storm-petrels (*O. homochroa*). Common murres are the most numerous species within the proposed research areas, with over 200,000 breeding birds. The Southeast Farallon Island is the southern breeding range limit for tufted puffins, with about 100 birds.

Like most marine wildlife, seabirds have historically suffered severe and relentless exploitations by humans. In California this was especially true at the Farallon and other islands during and after the gold rush (from 1850 to about 1900), where common murres were heavily exploited for their eggs. There was no regulation of take and the murre populations declined severely. Numbers had declined by an order of magnitude by the 1900s, and only a few thousand individuals were left by the 1930s. The Farallon Islands murre population did not recover for several decades and even now is far below numbers of the 1800s. There has been no successful sustainable harvest of seabirds or seabird products in California or along the West Coast. Since the early days of exploitation, management has usually involved putting the nesting islands into a protection system. This is the case for all islands off California (Leet *et al.*, 2001).

After World War II, California's abundant seabird populations began to suffer from new problems. For example, populations were depleted as a result of offshore chemical pollutant discharges from industries in southern California. Most recently, populations have declined as a result of excessive mortality from entanglement in commercial gillnets.

Bird populations in central and southern California may have declined because of excessive sardine fishing. Most species of seabirds feed on or near the surface, schooling species that are also sought in commercial fisheries. The well-known decline of sardines off Monterey is thought to have had deleterious effects on some species of seabirds. It is not well known, however, how long it takes to bring about a population decline of seabirds from prey depletion. Some species are able to switch effectively to other prey species, but often there are no other appropriate prey species to switch to.

Since the 1950s, large oil spills and chronic waste oil discharges (such as slops and oily bilge waste-water) have become increasingly more frequent, and large numbers of seabirds have been killed. Rehabilitation (washing and captive care) of oiled birds has so far not been very successful. Most birds die before rehabilitation can be attempted and many birds that receive care die anyway either before or after their release. It is also not likely that most birds surviving rehabilitation will go on to breed.

Population restoration and maintenance of populations into the future are ultimate goals of wildlife managers. Historically, most seabird conservation and management measures have been through protection of critical nesting, feeding, and roosting areas from human exploitation and disturbance, eradication of small populations of introduced predators, protection and recovery of prey species, and reduction of contaminants (e.g., DDT and PCB compounds). Now, however, more proactive efforts are being utilized. For example, planned eradication of a large population of rats on Anacapa Island (by the Island Conservation and Ecology Group working with the Channel Islands National Park, USFWS, NOAA, and California Department of Fish and Game) will hopefully allow re-establishment of large populations of formerly-abundant crevice-nesting seabird populations.

VI. ENVIRONMENTAL CONSEQUENCES

The impact of Federal actions must be considered prior to implementation to determine whether the action will significantly affect the quality of the human environment. In this section, an analysis of the environmental impacts of issuing an IHA to PRBO and the alternatives to that proposed action is presented.

A. Alternative 1 (Preferred Alternative) – Issuance of IHA with Mitigation Measures

1. Impacts on Marine Mammals

The proposed seabird research operations could result in temporary disturbances by California sea lions, northern elephant seals, Pacific harbor seals, and Steller sea lions that are hauled out due to the appearance of researchers nearby. The potential disturbance might alter pinniped behavior and cause animals to flush from the area. Animals may return to the same site once researchers have

left or go to an alternate haul out site, which usually occurs within 30 minutes (Allen *et al.*, 1985). Long term affects of this disturbance is unlikely as very few breeding animals will be present in the vicinity of the proposed seabird research areas.

It is expected that approximately 2,422 California sea lions, 500 harbor seals, 273 northern elephant seals, and 14 Steller sea lions could be potentially affected by Level B harassment. This estimate is based on previous research experiences, with the same activities conducted in the proposed research area, and on marine mammal research activities in these areas. These take numbers represent approximately 1% of the U.S. stock of California sea lion, 1.5% of the California stock of Pacific harbor seal, 0.3% of the California breeding stock of northern elephant seal, and 0.03% of the eastern U.S. stock of Steller sea lion. All of the potential takes are expected to be Level B behavioral harassment only. No injury or mortality to pinnipeds is expected or requested.

Therefore, NMFS concludes that only small numbers of these pinnipeds hauled out in the project vicinity would be potentially taken by Level B behavioral harassment due to the proposed research operations. In addition, proposed mitigation measures discussed below would greatly reduce the potential takes of marine mammals due to the proposed research activities.

2. Impacts on Marine Environment

The proposed research operations would only use small watercraft to assess the islands where the research sites are located. After landing on the islands, all seabird research activities, such as bird observation and sensusing, would be carried out by researchers on foot. Therefore, the proposed seabird research operations would not result in the physical altering of marine mammal habitat. No marine mammal habitat is expected to be affected by the proposed action. No marine mammal critical habitat is found within the proposed research area.

3. Cumulative Impacts

Cumulative effects are defined 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).

The proposed research operations would all occur within the federal or state protected areas, such as the Nantional Marine Sanctuary, National Wildlife Refuge, National Seashore, or California State Natural Reserve. These areas are mostly restricted from commercial activities and offer limited public access. However, human activities outside the proposed research areas may indirectly adversely affect and result in cumulative impacts to the enviroment. These effects include, but not limited to, offshore oil spill, marine debris and pollution, overfishing and decline of prey species, and introduction of non-native species. Nonetheless, the proposed seabird research operations would only add limited pedestrian traffic to the proposed research areas. These research operations are well planned to minimize any impacts to the biological and physical environment of the areas by implementing mitigation and monitoring protocols. Therefore, NMFS has determined that the proposed research activities would not have a significant cumulative effect on either the human or marine environment. In addition, NMFS has determined that the proposed action would not be likely to have significant cumulative effects on California sea lions, northern

elephant seals, Pacific harbor seals, and Steller seal lions.

B. Alternative 2 – No Action Alternative

If an IHA were not issued, any takes of marine mammals resulting from the proposed seabird research operations would not be authorized and any incidental take of marine mammals would be a violation of the MMPA. If PRBO does not conduct seabird research operations at the Southeast Farallon Island, Año Nuevo Island, and Point Reyes NS in central California, the previously described potential impacts to marine mammals would be eliminated. PRBO would thus be unable to conduct any research, which is to collect critical information on seabirds for recovery and restoration of their populations.

C. Alternative 3 – Issuance of IHA with No Mitigation Measures

Under this Alternative, the applicant would be conducting seabird research with no monitoring or mitigation measures that would reduce potential impacts to marine mammals within the proposed project area. This Alternative would not be in compliance with the MMPA, therefore, this alternative is not analyzed further in this document.

VII. MITIGATION MONITORING AND REPORTING

The researchers would take all possible measures to reduce marine mammal disturbance for the activities described above. Researchers would keep their voices hushed and bodies low in the visual presence of pinnipeds. Seabird observations at North Landing on Southeast Farallon Island would be conducted in an observation blind where researchers are shielded from the view of hauled out pinnipeds. Beach landings on Año Nuevo Island would only occur after any pinnipeds that might be present on the landing beach have entered the water. Researchers accessing seabird nest boxes would crawl slowly if pinnipeds are within view. These activities and disturbances are not in breeding areas and reproductive animals will likely not be affected.

Visits to intertidal areas of Southeast Farallon Island during research activities would be coordinated to reduce potential take. All research goals on Año Nuevo Island would be coordinated to minimize the necessary number of trips to the island. Once on Año Nuevo Island, researchers would coordinate monitoring schedules so areas near any pinnipeds would be accessed only once per visit. The lead biologist would always serve as an observer to evaluate incidental take and halt any research activities should the potential for incidental take be too great.

Researchers would take notes of sea lions and seals observed within the proposed research area during studies. The notes would provide dates, time, tidal height, species, numbers of sea lions and seals present, and any disturbances. PRBO would submit a final report, including these notes, to NMFS within 90 days after the expiration of the IHA, if it is issued.

VIII. COMPLIANCE WITH ENDANGERED SPECIES ACT

NMFS is conducting a Section 7 consultation under the ESA to make a determination whether the proposed research project would cause jeopardy to the eastern U.S. stock of Steller sea lions and

adversely affect the survival of the existence of this population.

IX. COMPLIANCE WITH OTHER FEDERAL AND STATE REGULATIONS

The proposed research is a joint project with the California State Park for Año Nuevo Island and the National Park Service there and at the Point Reyes NS. PRBO has a co-operative agreement with USFWS Farallon NWR for the proposed research on Southeast Farallon Island. The applicant has secured all permits needed for conducting seabird studies within these protected areas.

XI. CONCLUSION

Based on the information contained in the application prepared by PRBO Conservation Science, the best available scientific information, and information contained in this document, NMFS has preliminarily determined that the impact of seabird research operations on Southeast Farallon Island, Año Nuevo Island, and Point Reyes NS in central California will result, at most, in Level B behavioral harassment of small numbers of Pacific harbor seals, California sea lions, northern elephant seals, and Steller sea lions. In addition, no take by injury or death is anticipated or authorized, and harassment takes would be at the lowest level practicable due to incorporation of the mitigation measures mentioned previously in this document. NMFS will make a final determination whether to issue the IHA to PRBO under section 101(a)(5)(D) of the MMPA, pending public review and comments of this document and the application.

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FIGURE 1. MAP OF SOUTHEAST FARALLON ISLAND WITH PINNIPED HAULOUT AREAS AND LOCATION OF NORTH AND EAST LANDING

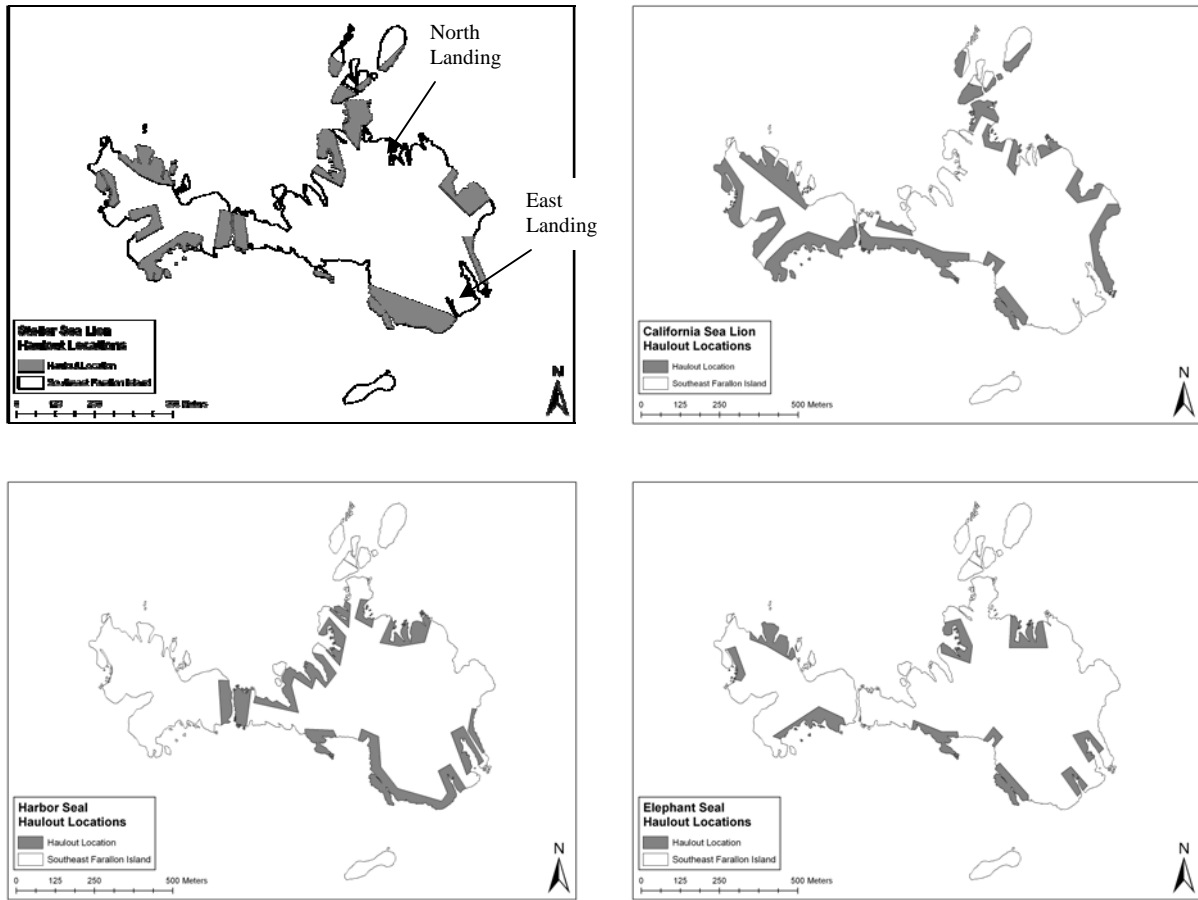


FIGURE 2. MAP OF AÑO NUEVO ISLAND WITH PINNIPED HAULOUT AREAS, STELLER SEA LION BREEDING AREA, AND LOCATION OF RESEARCHER TRAILS AND LANDING BEACH

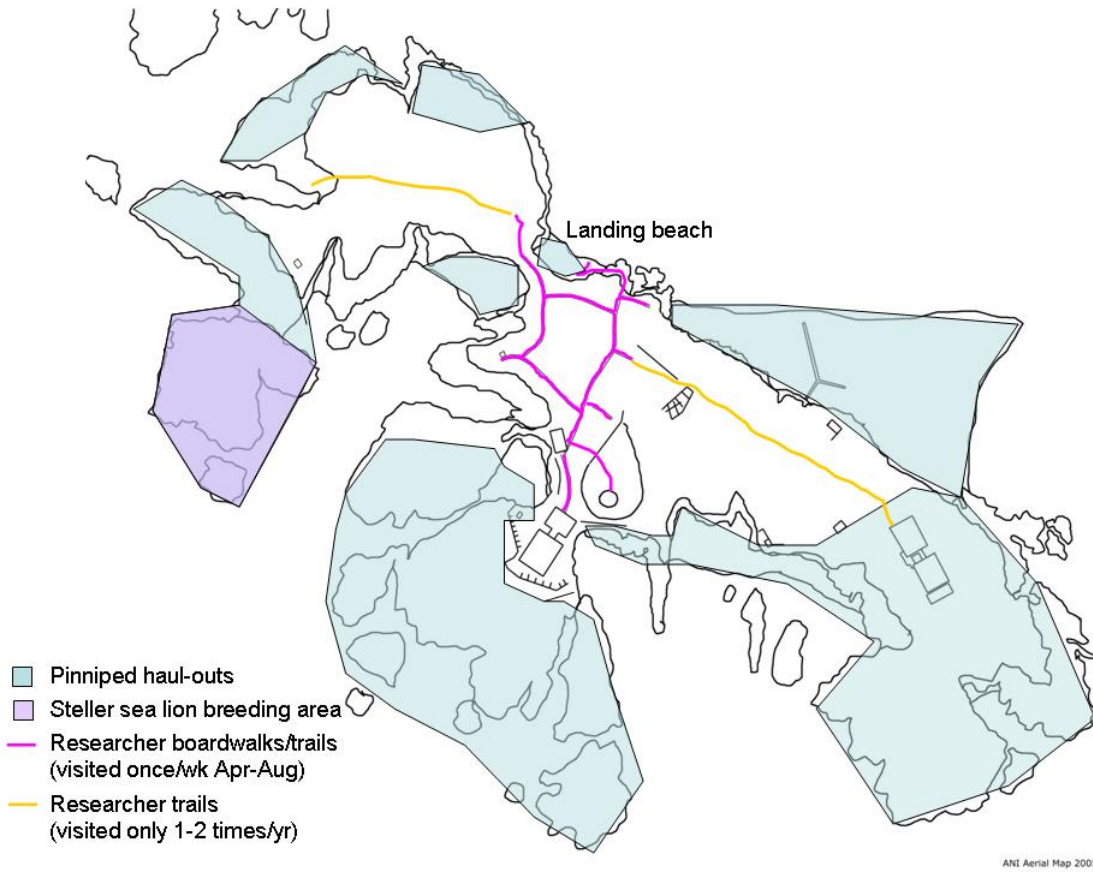


FIGURE 3. MAP OF POINT REYES NATIONAL SEASHORE (ADOPTED FROM THE NATIONAL PARK SERVICE)



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