Request for Marine Mammal Protection Act
Incidental Harassment Authorization

Seabird Research on the South Farallon Islands, Año Nuevo Island, and Point Reyes National Seashore
Submitted 3 March 2017

Submitted by:
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To:
Permits, Conservation, and Education Division
National Marine Fisheries Service (NMFS)
Office of Protected Resources
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Silver Spring, MD 20910-3226

I. Locations:

Numerous marine sanctuaries, refuges, and parks are designated within the action area. These include the Monterey Bay and Greater Gulf of the Farallones National Marine Sanctuaries; Point Reyes National Seashore, Farallones National Wildlife Refuge; and Anõ Nuevo State Park and Reserve.

The action area consists of the following 3 locations:

1. **South Farallon Islands** (SFI) (37^0 41'55 / 123^0 00'10") – consists of Southeast Farallon Island (SEFI) and West End Island (WEI). These two islands are directly adjacent to each other and separated by only a ~30ft channel. The SFI have a land area of approximately 120 acres (49 ha) and are part of the Farallon National Wildlife Refuge. The islands are located near the edge of the continental shelf 28 miles west of San Francisco, California. SFI lie within the waters of the Greater Gulf of the Farallones National Marine Sanctuary. These waters have been designated as EFH for numerous groundfish species (Farallon Island /Fanny Shoal area), salmon species (Chinook and Coho Salmon), and pelagic species (Northern Anchovy and Pacific Sardine). These waters constitute foraging areas for all species of pinnipeds listed in this application.

2. **Anõ Nuevo Island** (ANI) is located 1/4 mile offshore of Anõ Nuevo Point in San Mateo County, California (37°06' N, 122°20' W). This small 25 acre island is part of the 4000 acre Anõ Nuevo State Reserve, all of which is owned and operated by California State Parks. ANI lies within the Monterey Bay National Marine Sanctuary and the newly established Anõ Nuevo State Marine Conservation Area. Like SFI, the waters adjacent to ANI are foraging areas for pinnipeds and represent EFH for many groundfish, salmon, and pelagic forage fish species.

3. **Point Reyes National Seashore** (PRNS) is located 40 miles north of San Francisco Bay. The affected area for the purposes of this document are the headland coastal areas of this large National Park. Waters adjacent to PRNS are foraging areas for pinnipeds and represent EFH for many groundfish, salmon, and pelagic forage fish species. In addition, PRNS lies within close proximity (6 miles) of the Cordell Bank National Marine Sanctuary.

1 and 2. Detailed Description of the Activities and Dates, Duration, and Region of Activity

South Farallon Islands

Point Blue Conservation Science has conducted year round wildlife research and monitoring activities at the SFI, part of the Farallon National Wildlife Refuge, since 1968. This work is conducted through a collaborative agreement with the USFWS. While some research focuses on marine mammals, see NMFS Scientific Permit 1575-00, other research focusing on seabirds, and some procedures involved in maintaining the SEFI field station may involve incidental take of marine mammals.

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 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 boats, 14-18-ft open motorboats which are hoisted onto the island using a derrick system. These activities can also result in incidental take of pinnipeds.

Research on SEFI is conducted year round. Most intertidal areas of the island, where marine mammals are present, are rarely visited in seabird research. Most potential for incidental take will occur at the island's 2 landings, North Landing and East Landing (Figure 1). These sites are visited ~ 1-3 times per day by researchers for a maximum of 500 visits per year. In both locations researchers are located >50 ft above any pinnipeds which may be present. These pinnipeds are primarily California Sea Lions or Northern Elephant Seals, to a lesser extent Harbor seals, and very rarely Steller Sea Lions. Most visits to these areas are brief (~15 minutes), though seabird observers are present from 2-5 hours daily at North Landing from early April – early August each year to conduct observational studies on breeding Common Murres. Boat landings to re-supply the field station, lasting 1-3 hours, are 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 stay on the loading platform 30 ft above the water. At North Landing, loading operations occur at the water level in the intertidal.

Anõ Nuevo Island

Point Blue has also conducted seabird research and monitoring activities on Año Nuevo Island (ANI), part of the Año Nuevo State Reserve, since 1992. Collaborations with Oikonos - Ecosystem Knowledge began in 2001 to research seabird burrow nesting habitat quality and restoration. All work is conducted through a collaborative agreement with California State Parks. Some procedures involved in accessing the island (by 12' Zodiac boat) or seabird research may involve incidental take of marine mammals. Non-breeding pinnipeds may occasionally be present on the small beach in the center of the island where the boat is landed. California 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 ANI is conducted once/week April-August, and occasional intermittent visits are made during the rest of the year. The maximum number of visits per year would be 20. A component of the seabird research involves nesting habitat restoration and monitoring which requires sporadic visits from September-November, between the seabird breeding season and the elephant seal pupping season. Most intertidal areas of the island where marine mammals are present are not ever visited during seabird research, excepting the landing beach. (Figure 2) Most potential for incidental take will 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 is visited upon arrival and departure during the weekly visit, and the nest boxes are checked one time that day. In both locations researchers are located >50 ft away from any pinnipeds which may be hauled out. Landings and visits to nest boxes are brief (~15 minutes).

Point Reyes

The National Park Service conducts research, resource management and routine maintenance services at Point Reyes National Seashore. This involves both marine mammal research, see NMFS Scientific Permit 373-1575, and seabird research involving maintaining the facilities around the Seashore. Both types of work may involve incidental take of marine mammals. Additionally, habitat restoration of the seashore includes restoration and removal of non-native invasive plants, and coastal dune habitat. Non-native plant removal is timed to avoid the breeding seasons of pinnipeds; however, on occasion non-breeding animals may be present at various beaches throughout the year. Additionally, elephant seals will haul out on human structures and block access to facilities. For example, they haul out on a boat ramp at the Life Boat Station and in various car parking lots around the seashore.

Research along the Seashore includes monitoring seabird breeding and roosting colonies. Seabird monitoring usually involves one or two observers. Surveys are conducted by small boats, 14-22 ft open motorboats that survey along the shoreline. These activities can also result in incidental take of pinnipeds.

Research at PRNS is conducted year round, with an emphasis during the seabird nesting season with occasional intermittent visits the rest of the year. The maximum number of visits per year is 20. A component of the seabird research involves habitat restoration and monitoring which requires sporadic visits from September-November, between the seabird breeding season and the elephant seal pupping season. Most areas where research occurs and where marine mammals are present are not ever visited, excepting the landing beaches along Point Reyes Headland. In all locations researchers are located >50 ft away from any pinnipeds which may be hauled out. Elephant seals may haul out on boat ramps and parking lots year round. To maintain access of the boat ramps for park enforcement rangers and researchers, we will need to move seals from the boat ramp and adjacent parking lot for safety to seals and people. Removal will use the minimum tool which includes shaking a blue tarp or using plywood boards created by the Marine Mammal Center for moving seals. Both methods are effective in moving all age classes of elephant seals (F. Gulland MMC; R. DeLong, NMFS, pers. com.). Intermittent visits to areas of PRNS where pinniped takes may occur also conducted for 1) research on other species such as seabirds, sharks, and subtidal mapping and 2) resource management activities such as non-native plant management and intertidal monitoring.

These activities are currently covered by an IHA expiring May 15 2017, we are seeking renewal of these activities and requested take levels for another year.

3. Species and current population size of affected Marine Mammals in Area

California stock of:
Northern elephant seal (*Mirounga angustirostris*)
Harbor seal (*Phoca vitulina richardii*)
Steller sea lion (*Eumetopias jubatus*)
California sea lion (*Zalophus californianus*)

Farallon Islands populations (approximate annual range, Point Blue unpublished data)

Northern elephant seal (*Mirounga angustirostris*) (~50-750)
Harbor seal (*Phoca vitulina richardii*) (~40-120)
Steller sea lion (*Eumetopias jubatus*) (~50-150)
California sea lion (*Zalophus californianus*) (~1,000–11,000)

Año Nuevo Island populations (approximate annual range, UCSC and NOAA- Mark Lowry, Southwest Fisheries Science Center, La Jolla, CA, unpublished data)

Northern elephant seal (*Mirounga angustirostris*) (~900-1000)
Harbor seal (*Phoca vitulina richardii*) (~100-150)
Steller sea lion (*Eumetopias jubatus*) (~400-600)
California sea lion (*Zalophus californianus*) (~4,000–9,500)

Point Reyes populations (approximate annual range, NPS unpublished data)

Northern elephant seal (*Mirounga angustirostris*) (~100-2,000)
Harbor seal (*Phoca vitulina richardii*) (~20-4,000 at nine locations)
California sea lion (*Zalophus californianus*) (~100–500)

4. Status and Distribution of the Affected Species

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 ± 0.51% per year in California and 5.19 ± 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. 2002). 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. Northern elephant seals recolonized the South Farallon Islands in 1972 (LeBoeuf et al. 1974). From 1973-1983 the number of pups born increased at an average rate of 56% per annum (Sydeman and Allen 1999). The Farallon pup population declined from 1984 to 2014 at an overall rate of 5.5% per annum. Over the last decade (2006-2015) the rate has seen a 6.6% decline per annum. The decrease has been mostly attributed to the reduction in pup production on West End Island (16.1% drop over the last decade) while production on SEFI has dropped less severely at 2.6%. During this period there was a brief increase at an average rate of 7.7% from 2003 to 2006. Overall, the northern elephant seal population is reported to have grown at 3.8% annually since 1988 (Lowry et al. 2014).

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 sometimes 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. Presently, there are three recognized stocks (California, Oregon and Washington Coast, and Inland Washington). 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.). There is some limited movement among stocks; however, only a small portion of harbor seals move outside state waters (Lamont et al., 1996).

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. Individual adult seals may also migrate widely from breeding colonies.

Given the wide distribution of harbor seals it is not surprising that their population trends vary widely. Harbor seal populations in the Eastern North Pacific along the West Coast of the United States are all increasing. Along the coast of Washington and Oregon harbor seals increased in number at a rate of between 4 to 7% per annum with an estimated population of over 30,000 (Jefferies et al., 1997). Additionally, along the California coast harbor seal numbers have increased at 3.5% per year from 1982 to 1995 with a minimum population of approximately 28,000 (Hanan and Beeson 1994, Carretta et al. 2001). Brown et al. (2005) estimated a population of 10,087 harbor seals in Oregon. There is evidence that the population may have

reached equilibrium off Oregon and Washington and central California (Barlow et al. 1998, Sydeman and Allen 1999, NOAA Stock Assessment 2003). Harvey and Goley (2011) calculated a correction factor of 1.54 based on 180 seals radio-tagged in California. Based on the most recent harbor seal counts (20,109 in May-July 2012; NMFS unpublished data) and the Harvey and Goley (2011) correction factor, the harbor seal population in California is estimated to number 30,968 seals. The maximum statewide count in the 1981-2009 time series occurred in 2004 and the population has been on a sharp decline in 2009 and 2012 after surveys were conducted but no report available on current data to 2015 (NMFS California HS Stock Assessment 2014; unpublished data updated July 2015). The report states that the population appears to be stabilizing at what may be its carrying capacity and mortality due to fisheries is declining. There are no known habitat issues that are of particular concern for this species.

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 National Seashore 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). Commercial harvest of the species in southern California and Mexico reduced the population to approximately 1,500 individuals by the 1920s. Since the passage of the Marine Mammal Protection Act in 1972, the California sea lion population has steadily increased along the West Coast of the United States (Carretta et al. 2002). 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% to 6.2% per annum. Net production between 1980 and 2001 averaged 15.1%. 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). According to the CSL stock assessment compiled by NMFS and updated in 2014, the estimated total population size is 296,750 with a minimum U.S. stock at 153,337 (NMFS unpubl. data 2014). The 2014 assessment includes all CSL counted during the July 2011 census at the Channel Islands in southern California and at haul out sites located between Point Conception and Point Reyes, California. Trends in pup counts from 1975 through 2008 are from four rookeries in southern California and for haul outs in central and northern California. Studies indicate that some characteristics representative of El Niño years result in higher pup and juvenile mortality rates (DeLong et al. 1991, NMFS unpublished data) which affect future recruitment into the adult population for the affected cohorts.

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 (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 do not visit (Point Blue unpublished data).

California sea lions at Point Reyes haul out at only a couple locations, but individuals will haul out throughout the area and will occur on human structures such as boat ramps. The annual population averages around 300-500 during the fall through spring months, but 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). The Steller sea lion was hunted during the sealing era for fur, hides, blubber, and other organs. More recently, Steller sea lions were harvested during a modern pup hunt that lasted from 1959-1972 in which approximately 45,000 pups were taken (Pasquel and Adkison 1994). At the cessation of the modern commercial hunting the Steller sea lion was found along the Pacific Rim from California to Japan with approximately 70% of the population in Alaskan waters. Two separate populations are recognized within US waters: an eastern population that includes animals east of Cape Suckling, Alaska (144° W), and a western population that includes animals' west of Cape Suckling. Despite the cessation of the commercial hunt, the Steller sea lion population has experienced a rapid decrease since the mid-1980s with the western population declining by >64% in the last 30 years (Loughlin et al. 1992). The number in 1989 was estimated at 68,094 individuals. This total includes 10,000 in Russia, 47,960 in Alaska, 6,109 in British Columbia, 2,261 in Oregon, and 1,764 in California (Loughlin et al 1992). Numbers in Alaska have been declining by 7.8 % since 1994 (National Marine Mammal Laboratory 1995) and have declined by 3% in California (Le Boeuf et al. 1991, Ono 1993).

On Southeast Farallon Island, California, the abundance of females declined an average of 3.6% per year from 1974 to 1997 (Sydeman and Allen, 1999). Pup counts at Año Nuevo declined 5% annually through the 1990s (NOAA Stock Assessment 2003), and have apparently stabilized between 2001 and 2005 (M. Lowry, SWFSC unpublished data). In 2000, the combined pup estimate for both islands was 349. In 2005, the pup estimate was 204 on Año Nuevo. Pup counts on the Farallon Islands have generally varied from 5-15 (Hastings and Sydeman, 2002, Point Blue unpublished data), though recent years have shown strong increases ouf greater than 30 pups seen per year (Berger 2016). 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).

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.

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. In the 1960s and 70s the number of sea lions caught in trawl nets peaked, while present day numbers are low. California fisheries target several of the most important prey items for Steller sea lions and millions of metric tons of prey have been removed by fisheries in recent decades. Incidental mortality of Steller sea lions in fisheries was very low between 1990 and 2001 in California. Shooting of adults during fisheries interactions in central California have been documented by the Marine Mammal Stranding Network and one adult male was found shot at Point Reyes, California in the 1990s. In Alaska, there are also several processes that have been debated as contributing to the decline of the Steller sea lion

population, including global climate change and killer whale predation (Springer et al. 2003). Pitcher et al. (2007) has documented a northward shift in the overall breeding distribution, with a contraction of the range in southern California and new rookeries established in southeastern Alaska. As SEFI is one of two breeding colonies at the southern end of the SSL range we will continue to monitor the population year round in order to document variation among years, despite recent delisting of the eastern stock.

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.

5. Type of Incidental Taking Authorization Requested

The proposed research and associated activities may result in "take by incidental harassment only" (Level B Harassment). An Incidental Harassment Authorization (IHA) is requested. All takes will involve incidental human presence near pinniped haulout areas.

6. Number of Marine Mammals that may be Affected

Point Blue Take Estimation

	Reported Take Observations for Seabird Research Activities Only						95% CI	Alpha 95% CI
Species	IHA 1	IHA 2	IHA 3	IHA 4	IHA 5	IHA 6	Lower Bound	Upper Bound
California Sea Lions	744	747	3,610	2,254	4,646	36,397	7,705	53,538
Northern Elephant Seals	44	44	67	30	97	169	73	221
Harbor Seals	39	75	109	141	259	292	146	485
Steller Sea Lions (E-DPS)	5	4	4	12	6	31	10	38

Note that our current IHA, IHA 7 is still active until May 15, 2017 so results have not been compiled. Therefore we are requesting the upper bound 95% CI level of take we are currently authorized for.

7. Anticipated Impact of the Activity upon the Species or Stock

The only anticipated impacts would be temporary disturbances caused by pinnipeds observing humans on land. All measures will be taken to ensure that flushes do not result in a stampede of pinnipeds heading to the sea. From our experience, if extra caution is taken to conduct slow movements and stay close to the ground – a stampede is extremely rare. This might alter behaviors 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 effects of this take are likely minimal as very few breeding animals will be present in areas where takes may occur.

It is expected that any incidental disturbance to pinnipeds from both types of research would have minimal, short-term effects and no long-term effects on the individuals. Incidental disturbance is believed to have minimal impacts because pinnipeds usually return to a site or a nearby site within 30 minutes upon conclusion of research activities (Allen et al., 1985). Numerous Incidental Harassment Authorizations and Letters of Authorizations under the MMPA, Incidental Take Permits under Section 10(a)(1)(b) of the ESA, issued by NMFS (e.g. 72 FR 124), and reports on more localized areas (e.g., Demarchi and Bentley 2004) have analyzed the potential effects of incidental disturbance to pinnipeds from various sources. Based on these reports, the effects to pinnipeds appear, at the most, to displace the animals temporarily from their haul out sites. Based on previous research reports from Point Blue, maximum disturbance to Steller sea lions would result in the animals flushing into the water in response to presence of the researchers. It is not expected that pinnipeds would permanently abandon a haul-out site during Point Blue's research, as precautions would be taken to not disturb the same haul-out site on frequent occasions. No research would occur on pinniped rookeries; therefore, mother and pup separation or crushing of pups is not a concern. Harassment may occur as researchers approach the haul out sites with vessels and during capture and sampling activities. In Point Blue's final report of activities conducted from 2000-2005 under permit No. 373-1575, they reported disturbing less than 16 Steller sea lions during all elephant seal surveys on West End Island in the Farallones. In general, the minimization measures taken by the staff are effective. No other disturbance to Stellers was reported from any other location.

8. Anticipated Impact on Subsistence Uses

As there is no subsistence hunting of the stocks in question, no impacts on subsistence uses are expected as the result of the proposed project.

9. Anticipated Impact of the Activity upon the Habitat of the Marine Mammal Populations, and the Likelihood of Restoration of the Affected Habitat

Incidental marine mammal takes will not result in the physical altering of marine mammal habitat. No survey or sampling equipment will be left in habitat areas, no toxic chemicals will be present, and all state and federal marine regulations, including those from National Marine Sanctuaries, will be followed in regards to boat emissions. No major breeding habitat will be affected by this activity.

10. Anticipated Impact of the Loss or Modification of Habitat

There is no anticipated loss or modification of habitat.

11. Impact Minimization/Mitigation Methods

Seabird Research
All possible measures will be taken to reduce marine mammal disturbance for the activities described above. Actions are conducted as quickly and unobtrusively as possible, to reduce the length of time on haul outs and number of animals disturbed. Researchers keep a low, hunched profiles, speak softly, and generally minimize actions that might startle non-target species.

Seabird observations at North Landing on SEFI will be conducted in an observation blind where researchers are shielded from the view of hauled out pinnipeds. Beach landings on ANI will only occur after any pinnipeds that might be present on the landing beach have entered the water. ANI researchers accessing seabird nest boxes will crawl slowly if pinnipeds are within view. These activities and takes are not in breeding areas and reproductive animals will likely not be affected.

If seals need to be moved away from human facilities at Point Reyes, the "minimum tool" will be used. For example, waving a blue tarp at 20-30 feet distance or holding plywood boards and walking towards elephant seals can cause elephant seals to move. Physical touch is not required to cause elephant seals to move away from structures and would not occur.

Point Blue will suspend the research operations immediately if a dead or injured marine mammal is found in the vicinity of the project area and the death or injury of the animal could be attributable to the research activities.

12. Arctic Subsistence Uses, Plan of Cooperation

Not applicable. No activities will take place in or near a traditional Arctic subsistence hunting area.

13. Monitoring and Reporting

Researchers will collect information on number and species of animals flushed, and number of flushing events. These will be reported annually to NMFS.

Researchers shall take notes of sea lions and seals observed within the proposed research area during studies. The notes shall provide dates, time, tidal height, species, numbers of sea lions and seals present, and any behavior changes.

Point Blue shall submit a final report, including these notes, to NMFS within 90 days after the expiration of the IHA.

14. Coordinating Research to Reduce and Evaluate Incidental Take

Visits to intertidal areas of SEFI during research activities will be coordinated to reduce potential take. Point Blue is the sole research organization on the SFI, but all efforts will be made to minimize unnecessary trips to areas where pinnipeds may be encountered i.e. completing seabird observations in North Landing in one session and conducting seabird and pinniped research simultaneously. All research goals on ANI will be coordinated internally to accomplish all work goals in a single day and to minimize the necessary number of trips to the island. Once on ANI, researchers will coordinate monitoring schedules so areas near any pinnipeds will be accessed only once per visit. The lead biologist will always serve as an observer to evaluate incidental take and halt any research activities should the potential for incidental take be too great.

15. References

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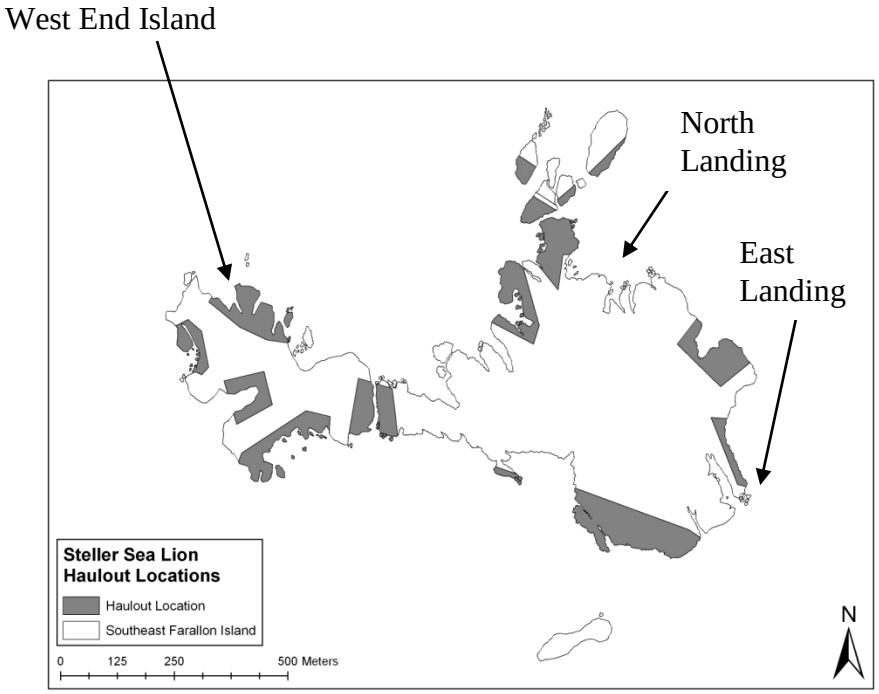
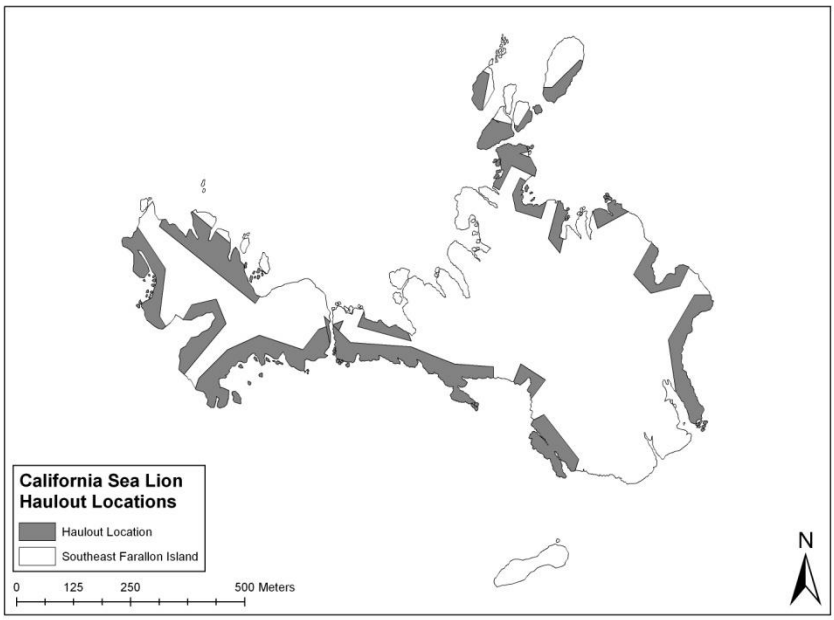
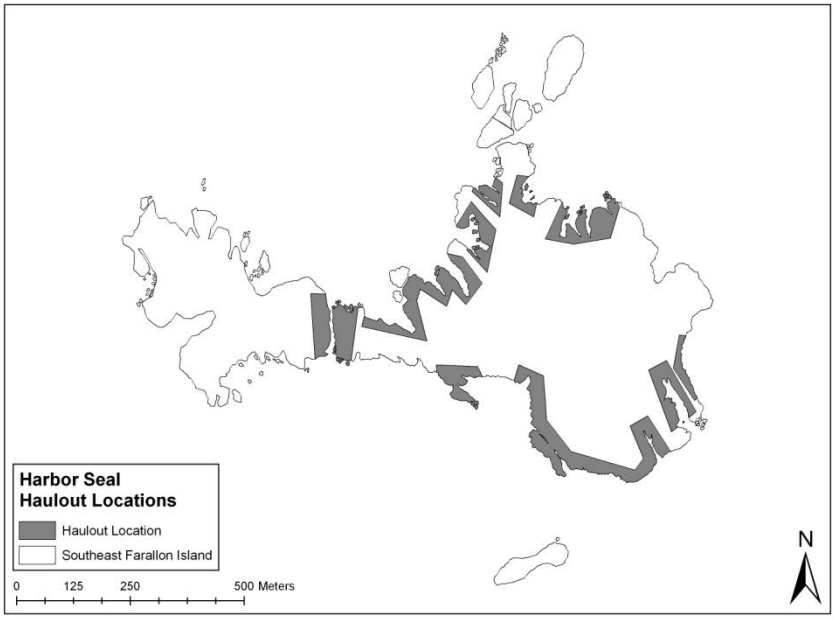
16. Figures

Fig 1. Map of SEFI with pinniped haulout areas and location of North and East Landing






Harbor Seal
Haulout Locations
Haulout Location
Southeast Farallon Island
0
125
250
500 Meters
N

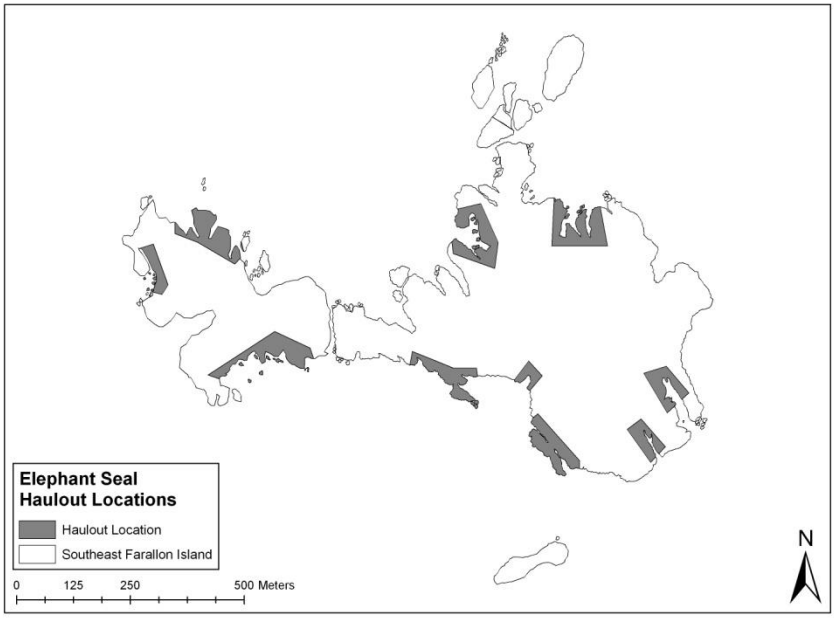

Elephant Seal
Haulout Locations
Haulout Location
Southeast Farallon Island
0
125
250
500 Meters
N

Fig 2. Map of ANI with pinniped haulout areas, Steller sea lion breeding area, and location of researcher trails and landing beach.