

**ST. GEORGE REEF  
LIGHTHOUSE RESTORATION, MAINTENANCE, AND TOUR  
OPERATIONS**



**NATIONAL MARINE FISHERIES SERVICE  
OFFICE OF PROTECTED RESOURCES**

**APPLICATION FOR MARINE MAMMAL PROTECTION ACT  
REGULATIONS AND LETTERS OF AUTHORIZATIONS**

**Applicant: St. George Reef Lighthouse Preservation**

**JULY 2021**



## **PROJECT DESCRIPTION AND BACKGROUND**

The Saint George Reef Lighthouse is located on a small rocky islet known as Northwest Seal Rock (41° 50'24" N, 124° 22'06" W), which is part of the St. George Reef, in Del Norte County, California. The island is about 7 km offshore and peaks at 17 feet above mean sea level. The lighthouse covers much of the surface of the island. Original construction of the lighthouse was completed in 1892 and it was operated by the U.S. Coast Guard (USCG) until 1975. The Coast Guard decommissioned the light and ceased to maintain the historic building, which rapidly deteriorated and became subject to vandalism. The St. George Reef Lighthouse Preservation Society (Society) was founded in 1986 with the goals of restoring the lighthouse and increasing recognition of its important historical role in maritime and regional history. In 1996, the Society entered into an agreement with the federal and local government to manage and renovate the lighthouse on site.

Wildlife use of the island apparently increased following abandonment by the USCG. Seabirds were first documented nesting on the window ledges of the lighthouse in 1989 (Carter et al. 1992). A restriction in the deed to the Society precluded access to the lighthouse from March 15-September 30, for any purpose. This restriction was placed by the U.S. Fish & Wildlife Service (USFWS) with the intent of protecting breeding seabirds and other wildlife from disturbance. Due to requests from the Society for increased access during the closure period, USFWS recommended that the Society conduct a study of wildlife use of the island. The Society funded surveys of marine birds and mammals that spanned a four year period, 1997 to 2000 (Crescent Coastal Research, 2001). No seabirds were found nesting at the lighthouse during that period; the most significant wildlife use of the island was by non-breeding sea lions.

Following a review of the wildlife study, the USFWS revised its restriction to no visits from June 1 to October 15, primarily to limit disturbance to pinnipeds, and advised the Society that a permit was needed to comply with the Marine Mammal Protection Act. The Society contacted the National Marine Fisheries Service (NMFS), Long Beach, by telephone, but was not informed of any necessary compliance action at that time (Guy Towers, Society, pers. comm.). When the Society applied to the USCG to operate the lighthouse as an aid to navigation in 2004, NOAA, NMFS confirmed the requirement to have authorization for take of marine mammals if any Society activities caused harassment of pinnipeds hauling out on the island. The society will apply for a deed restriction modification with the USFWS to eliminate the restriction from June 1 through October 15 for access to the lighthouse.

Monitoring results from the Society's 2019 activities are summarized in Table 3 in this application and described in greater detail in the monitoring report submitted separately to NMFS. The Society is now requesting regulations and a Letter of Authorization (LOA) for Level B harassment of a small number of pinnipeds incidental to the restoration, tours, and maintenance of the lighthouse.

**(1) A detailed description of the specific activity or class of activities that can be expected to result in incidental taking of marine mammals**

A. Restoration:

The Society initiated physical restoration of the historic lighthouse on Northwest Seal Rock in 1996. Restoration activities include removal of peeling paint and plaster, restoration of interior plaster and paint, refurbishing structural and decorative metal, reworking original metal support beams throughout the lantern room and elsewhere, replacing glass as necessary, and upgrading the present electrical system. Power to the island is provided by an air compressor and gas generator. The beacon light is powered by solar energy. Because Northwest Seal Rock has no safe landing area for boats, work crews and equipment will be transported from the mainland to the Lighthouse by a light helicopter that lands on top of the engine room at the Lighthouse, about 48 feet above the rock island. Materials are transported by a basket attached to the underside of the helicopter. When the helicopter with the basket arrives at the Lighthouse, the helicopter hovers over the island and the basket is placed on the engine room of the Lighthouse. When the helicopter flies with the basket, it is unable to land at the platform and thus, hovers at least 150 feet above Northwest Seal Rock. Volunteers remove the materials from the basket and the helicopter returns to the mainland with the basket in tow. In the past, trips normally lasted three days. Typically, volunteers remain at the Lighthouse overnight the first two days of the trip and return to the mainland on the third day. Even though the helicopter is primarily used to transport volunteers and materials on the first and last days of the three day activity, the helicopter may fly to and from the Lighthouse on all three days of the restoration and maintenance activities.

The helicopter is owned and operated by Air Shasta Rotor and Wing, LLC, Redding, CA. It is a compact-sized helicopter with two-bladed main and tail rotors; it seats up to four passengers, but comfortably seats only three, and one pilot. Volunteers involved in restoration are taken out three at a time. On Fridays, there could be up to a potential of four flights to the Lighthouse bringing up to 12 crew members and equipment/material and four flights back to the mainland for a total of eight flights on day one. The first flight would depart from Crescent City Airport (Latitude: 41°46'48" N; Longitude: 124°14'11" W) no earlier than 8:30 am for a six- minute flight to Northwest Seal Rock. The helicopter would land and take-off immediately after offloading personnel and equipment every 20 minutes (min). The total duration of the first day's aerial operations would last for approximately four hours (hrs) and would end at approximately 12:30 p.m. Once the restoration crew is transported to the Lighthouse, the majority of the crew would remain overnight (Friday and Saturday) and return the last day of restoration and maintenance activities (Sunday). Even though the Society would use the helicopter to transport work crew members and materials on the first and last days of the three-day activity, the helicopter would likely fly to and from the Lighthouse on all three days of the restoration and maintenance activities.

For the second day (Saturday), the Society proposes a flight plan comparable to, but likely less than, what is described above for Friday (up to two arrivals and two departures) flight activities to Northwest Seal Rock. The first flight would depart from Crescent City Airport at 9:00 a.m. for a six-minute flight to Northwest Seal Rock. The total duration of the second day's aerial operations would last for no more than three hrs, depending on the number of crew members transported to and off Northwest Seal Rock.

For the final day of operations, the Society proposes to conduct a maximum of eight helicopter flights (four arrivals and four departures) to transport the remaining crew members and equipment/material back to the Crescent City Airport. The total duration of the last day's aerial operations for restoration and maintenance would last for approximately two hrs. So the total number of flights for restoration work on a three day trip is 20 (8 Friday, 4 Saturday, 8 Sunday).

We are proposing to add some occasional (up to 8 annually) longer duration trips in addition to the typical three day trips. For more involved projects we propose trips of one to two weeks duration. The number of flights and days of flights on a one to two week restoration trip would be similar to a three day trip. That is eight flights on the first and last days of the trip plus 4 flights potentially on 1 day in the middle of the trip as needed.

#### B. Tours:

The Society also began conducting public tours to the lighthouse by helicopter in 1998 in conjunction with restoration activities and proposes to conduct public tours at the Lighthouse during the last day of the proposed restoration schedule, including on longer trips. Lighthouse visitors would be transported by helicopter during the Sunday work window period for three-day trips. The tours would be scheduled on a weekend day on the beginning and or the end of the work party for the one to two week duration restoration trips. Additional flights would be conducted solely for the transport of tourists to and from the Lighthouse, but those flights would be conducted in the later hours of the morning, when most, of the sea lions have habituated to the helicopter (see below). The maximum number of expected tourists is 36 people per tour day. Thus the number of helicopter flights needed for tourists is 18 (9 arrivals and 9 departures). The total number of helicopter trips on a tour day (Sunday) is thus no more than 26, all between the hours of 8:30 a.m. to 2:00 p.m. It is expected that each flight would land every 15-20 minutes. Thus, the total duration of the last day's aerial operations, including the restoration and maintenance activities described previously (two hour duration) would last for approximately five hours and 30 minutes. The scheduled duration of each visit is 1 hour per tour group (the 3-4 people from a single flight). The last tour group would leave the Lighthouse before 2:00 p.m. Return trips from the Lighthouse to the mainland would include construction workers, some equipment, and some tourists. The corresponding return flights would transport tourists, construction equipment, or remaining construction workers. Although some of these flights would be conducted solely for the transportation of tourists, those flights would be flown at a time when pinnipeds are expected to have habituated to the helicopter. See Table 1 for an example of a Lighthouse tour in conjunction with restoration activities.

## B. Light Maintenance:

As required by the United States Coast Guard, in order to maintain St. George Reef Lighthouse as a Private Aid to Navigation, the Society needs to conduct annual, and at most biannual, maintenance of the light (during restoration and post-restoration). During restoration, this maintenance will coincide with restoration trips during the year. To access Northwest Seal Rock, the same helicopter used for restoration activities will be employed. Light maintenance is expected to take no longer than three hrs and would coincide with the helicopter flights described earlier. Should the beacon light fail during other parts of the year, a trip to the Lighthouse will be made by helicopter by one crew of 2-3 people. Only 1-2 helicopter landings at the Lighthouse are anticipated to service the light during an emergency situation for a maximum of four flights. The helicopter may remain on site or transit back to shore and make a second landing to pick up the repair personnel. We request allowance for 2 light maintenance trips per year lasting no more than 1 day with no more than 4 flights (2 arrivals and 2 departures).

## C. Emergency Light Maintenance:

If the beacon light fails during the time when our deed or LOA otherwise restricts access, a trip to the lighthouse will be made by helicopter by one crew of 2-3 people. Only 1-2 helicopter landings are anticipated to service the light during an emergency situation. Should emergency light maintenance need to occur outside of the time allowed by our deed or LOA, the Society will contact the NMFS West Coast Regional office immediately and prior to beginning any emergency work to discuss minimization measures to reduce potential impacts to marine mammals. We request allowance for 2 emergency light maintenance trips per year lasting no more than 1 day with no more than 4 flights (2 arrivals and 2 departures).

## **(2) The date(s) and duration of such activity and the specific geographical region where it will occur**

### A. Restoration and Tours:

Work trips are to be carried out during the year except for periods not approved by NOAA or our deed restrictions. The duration of each visit would vary. The number of tours and restoration flights per year and per trip are dependent on funding and weather. Work parties of a week to two weeks in conjunction with tours would be at most 8 times per year. The tours would be scheduled on a weekend day on the beginning and or the end of the work party. Three day work parties would have a Sunday only tour. Three day work parties are projected to occur 14 times per year.

### B. Tours

Tours out to the lighthouse are weather dependent. Flights out in December, January and February are less likely due to inclement weather conditions. Week or two week work parties are

more likely April through September. Under the best scenario, 4 work parties of two weeks would be optimal during these months. The first day, Sunday, would be a tour and bringing a crew to the lighthouse for restoration work. The final Sunday, one to two weeks later, a second tour would occur with the restoration crew returning to shore from the lighthouse. On three day work trips, the restoration crew would go out to the lighthouse on Friday and return on Sunday before the tours. Two to 4 work parties lasting two weeks or less would occur in the months of November and March. During December, January and February weekend work party and tours be scheduled.

### C. Light Maintenance

As required by the United States Coast Guard, in order to maintain St. George Reef Lighthouse as a Private Aid to Navigation, the Society needs to conduct annual, and at most biannual, maintenance of the light. Maintenance trips are expected to last no longer than 3 hours. Light maintenance trips can be necessary any time during the year when access is allowed by our deed, currently from October 16 through May 31.

### D. Emergency Light Maintenance

Emergency trips to the light may be necessary during the year when our deed otherwise restricts visits from June 1 through October 15 or as it may be modified in the future. Landings at the lighthouse would only take place in the event that the light failed to operate and thus, ceased to serve as an aid to navigation. Trips to the island during the summer and early fall are expected to be very rare, and not needed each year. While estimating trips are difficult, 2 visits per year may be advised to inspect the solar array and battery system.

**Table 1 - An example of a Lighthouse tour in conjunction with restoration activities (Sundays only) at St. George Reef Lighthouse, Crescent City, CA.**

Flight No.	Time	Crew Out	Crew at Lighthouse	Tourists In	Tourists Out	Tourists at Lighthouse
	Before 08:30	0	12	0	0	0
1	08:30	0	9	3	0	3
2	08:50	3	6	3	0	6
3	09:10	3	3	3	0	9
4	09:30	3	3	3	0	12
5	09:50	0	3	3	3	12
6	10:10	0	3	3	3	12
7	10:30	0	3	3	3	12
8	10:50	0	3	3	3	12
9	11:10	0	3	3	3	12
10	11:30	0	3	3	3	12
11	11:50	0	3	3	3	12
12	12:10	0	3	3	3	12
13	12:30	0	3	0	3	9
14	12:50	0	3	0	3	6

15	13:10	0	3	0	3	3
16	13:30	0	3	0	3	0
17	13:50	3	0	0	0	0

### (3) The species and numbers of marine mammals likely to be found within the activity area

Four species of marine mammals have been observed on Northwest Seal Rock, the Steller sea Lion (*Eumatopias jubatus*), California sea lion (*Zalophus californianus*), Pacific Harbor Seal (*Phoca vitulina richardii*), and Northern fur seal (*Callorhinus ursinus*). No breeding by any of the species has ever been documented on the island. Post breeding and non-breeding sea lions of both species use the site regularly in summer, harbor seals infrequently haul out there, and fur seals are rare visitors; only one has ever been detected on the island (CCR, 2001).

#### Steller sea lions:

Steller sea lions are present on Northwest Seal Rock from at least April through mid-October with greatest numbers in June and July (CCR, 2001). During the 1997-2000 study, numbers of Steller sea lions were very low in April, but increased during May to a mean of 87 animals (range = 20-186, N= 4 counts). Maximum counts are 355 animals in late June (CCR, 2001) and 354 in July. Numbers apparently drop back to relatively low levels by early fall. In September-October, 1998, 55-56 Steller sea lions were present. Winter use is presumed to be minimal, due to inundation of the natural portion of the island by large swells.

There is a Steller sea lion rookery at the southern end of the St. George Reef on an island known as Southwest Seal Rock, about 4 km south of the project site. Wright et al, (2017) reported total counts of live pups at Southwest Seal Rock ranging from approximately 350-450 pups during the study period (2002 and 2004), with low and variable survival rates. Despite these findings, St. George Reef rookeries have shown sustained population growth for decades (Pitcher et al. 2007). Portions of the sea lion population using the lighthouse island in the spring are adult males, females (including pregnant females) and juveniles. In the fall all age classes are likely present, including females and pups that have presumably dispersed from the rookery at Southwest Seal Rock. Up to 19 pups were observed at Northwest Seal Rock in October 1998. Pups have not been detected on Northwest Seal Rock during the July aerial photo surveys (M. Lowry, NMFS, SWFSC, unpubl. data). Occasional birthing appears to take place at the haulout at St. George Reef Lighthouse. One recently born pup was seen on the island in 1991 (*in* CCR, 2001) and one newborn was observed from the lighthouse during the site visit by NMFS on 13 May 2005 (M. DeAngelis, NMFS, pers. comm.). The pup was abandoned by its mother and later died.

#### California sea lions:

California sea lion abundance at Northwest Seal Rock appears to be highly variable, with populations building in May and declining by August. The highest count was 541 individuals in June, but this was during the 1998 El Nino event, and is probably not representative of more normal conditions. During May, numbers have ranged from 10-154 (mean= 81; N= 4). Counts by NMFS in July (2000-2004) have been very low. The total numbers of California sea lions recorded in 2000 and 2003 were 3 and 11, respectively (M. Lowry, NMFS, SWFSC unpubl. data). California sea lions have been observed during Society's monitoring efforts as listed in

Table 3.

Harbor Seals:

Harbor Seals were observed on Northwest Seal rock only once in 20 surveys during 1997-2000 (CCR, 2001). Six individuals were counted in August 1998.

Northern fur seals:

One northern fur seal was seen on the island in October 1998 (CCR, 2001).

**Table 2 - General information on marine mammals that could potentially haul out on Northwest Seal Rock.**

Species	Stock	Regulatory Status <sup>1, 2</sup>	Stock Abundance <sup>3</sup>	Occurrence and Seasonality
California sea lion ( <i>Zalophus californianus</i> )	U.S.	MMPA - NC ESA - NL	257,606	Year-round presence
Northern fur seal ( <i>Callorhinus ursinus</i> )	California Breeding	MMPA - D ESA - NL	14,050	Rare
Pacific harbor seal ( <i>Phoca vitulina</i> )	California	MMPA - NC ESA - NL	30,968	Occasional, spring
Steller sea lion ( <i>Eumetopias jubatus</i> )	Eastern Distinct Population Segment	MMPA - D ESA - DL	43,201	Year-round presence

<sup>1</sup> MMPA: D = Depleted, S = Strategic, NC = Not Classified.

<sup>2</sup> ESA: EN = Endangered, T = Threatened, DL = Delisted, NL = Not listed.

<sup>3</sup> 2019 NMFS Draft Stock Assessment Reports: Carretta *et al.* (2018) and Muto *et al.* (2019).

**Table 3 – Total number of marine mammals observed annually from the 2010-2018 Monitoring Reports from previous Incidental Take Authorizations to the Society.**

Species	2010	2011	2012	2013-2016 <sup>1</sup>	2017	2018	2019
California Sea Lions	0	162	0	NA	32	40	18
Northern Fur Seal	0	0	0	NA	0	0	0
Harbor Seals	0	0	2	NA	0	0	0
Steller Sea Lions	0	164	0	NA	0	3	22
Days with Flights	2	2	1	0	5	4	3

<sup>1</sup> The Society did not conduct any operations during the 2013, 2014, 2015, or 2016 seasons.

**(4) A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities**

**A. Steller Sea Lion (*Eumetopias jubatus*).**

Steller sea lions consist of two distinct population segments: the western and eastern distinct population segments (DPS) divided at 144° West longitude (Cape Suckling, Alaska). The western segment of Steller sea lions inhabit central and western Gulf of Alaska, Aleutian Islands, as well as coastal waters and breed in Asia (e.g., Japan and Russia). The eastern segment

includes sea lions living in southeast Alaska, British Columbia, California, and Oregon. The eastern DPS includes animals born east of Cape Suckling, AK (144° W) and the latest abundance estimate for the entire stock, including Canada, is 77,149. The U.S. portion of the eastern stock is 43,201 (Muto *et al.*, 2019).

The nearest Steller sea lion breeding area relative to the project site is at Southwest Seal Rock (41° 49'00" N, 124° 21'00" W). The rookery comprises a significant portion of the California total, and numbers of pups born there have ranged from 293 to 444 (CCR, 2001).

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

For the 2010 season, the Society reported that no Steller sea lions were present in the vicinity of Northwest Seal Rock during restoration activities (SGRLPS, 2010). Based on the monitoring report for the 2011 season, the maximum numbers of Steller sea lions present during the April and November 2011 work sessions was 2 and 155 animals, respectively (SGRLPS, 2012). During the 2012 season, the Society did not observe any Steller sea lions present on Northwest Seal Rock during restoration activities. The Society did not conduct any operations for the 2013-2014, 2014-2015, and 2015-2016 seasons. The Society did not observe any Steller sea lions present on Northwest Seal Rock in 2017 but did observe three Steller sea lions on a flight in November 2018 (SGRLPS 2018a, b, 2019).

## **B. California Sea Lion (*Zalophus californianus*)**

The estimated population of the U.S. stock of California sea lion is approximately 257,606 animals and the current maximum population growth rate is 12 percent (Carretta *et al.*, 2019).

California sea lion breeding areas are on islands located in southern California, in western Baja California, Mexico, and the Gulf of California. During the breeding season, most California sea lions inhabit southern California and Mexico. Rookery sites in southern California are limited to the San Miguel Islands and the southerly Channel Islands of San Nicolas, Santa Barbara, and San Clemente (Carretta *et al.*, 2019). Males establish breeding territories during May through July on both land and in the water. Females come ashore in mid-May and June where they give birth to a single pup approximately four to five days after arrival and will nurse pups for about a week before going on their first feeding trip. Females will alternate feeding trips with nursing bouts until weaning between four and 10 months of age (NMML, 2010).

Adult and juvenile males will migrate as far north as British Columbia, Canada while females and pups remain in southern California waters in the non-breeding season. In warm water (El Niño) years, some females range as far north as Washington and Oregon, presumably following prey. Warmer sea surface temperatures (SST) associated with El Niño events are attributed to

lower survival rates for pups and yearlings due to limited prey availability to pregnant and lactating females. In contrast, the absence of SST anomalies led to higher survival rates (DeLong *et al.*, 2017).

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

Based on the monitoring report for the 2011 season, the maximum numbers of California sea lions present during the April and November 2011 work sessions was 2 and 90 animals, respectively (SGRLPS, 2012). There were no California sea lions present during the March 2012 work session (SGRLPS, 2012). The Society did not conduct any operations for the 2013-2014, 2014-2015, and 2015-2016 seasons. On two occasions in 2017, the Society observed 16 California sea lions on Northwest Seal Rock, for a total of 32 California sea lions (SGRLPS 2018a). In February of 2018, the Society observed 14 California sea lions on Northwest Seal Rock. Eight California sea lions were observed in April of 2018, nine California sea lions were seen on flights in March and November 2018, and 18 were seen in October 2019 (SGRLPS 2018b, 2019).

### **C. Harbor Seal (*Phoca vitulina richardii*)**

The estimated population of the California stock of Pacific harbor seals is approximately 30,968 animals (Carretta *et al.*, 2018). They are not listed under the Endangered Species Act (ESA) and are not considered “depleted” or “strategic” under the MMPA.

Breeding takes place at many locations and rookery size varies from a few to many hundreds of pups at rookeries. The nearest pupping location relative to the project site is at Castle Rock shoals.

Northwest Seal Rock is not an important haul out site for harbor seals, and it is not a rookery. This is likely due to its distance offshore, relatively steep topography and full exposure to swells and seas. Harbor seals were seen on only one of 20 CCR surveys of the island (CCR, 2001).

CCR noted that harbor seal use of Northwest Seal Rock was minimal, with only one sighting of a group of six animals, during 20 observation surveys. They hypothesized that harbor seals may avoid the islet because of its distance from shore, relatively steep topography, and full exposure to rough and frequently turbulent sea swells. For the 2010 and 2011 seasons, the Society did not observe any Pacific harbor seals present on Northwest Seal Rock during restoration activities (SGRLPS, 2010; 2011). During the 2012 season, the Society reported sighting a total of two harbor seals present on Northwest Seal Rock (SGRLPS, 2012). The Society did not conduct any operations for the 2013-2014, 2014-2015, and 2015-2016 seasons. No harbor seals were observed on Northwest Seal Rock in 2017, 2018 or 2019 (SGRLPS 2018a, b, 2019).

#### **D. Northern Fur Seal (*Callorhinus ursinus*)**

Northern fur seals breed in Alaska and migrate along the west coast during fall and winter. Due to their pelagic habitat, they are rarely seen from shore in the continental United States, but individuals occasionally come ashore on islands well offshore (*i.e.*, Farallon Islands and Channel Islands in California). One male was seen on Northwest Seal Rock in October 1998. It is possible that a few animals may use the island more often than indicated by the CCR surveys, if they were mistaken for other otariid species. The population estimate for the California stock is 14,050 (Caretta *et al.*, 2018).

CCR observed one male northern fur seal on Northwest Seal Rock in October, 1998 (CCR, 2001). It is possible that a few animals may use the island more often than indicated by the CCR surveys, if they were mistaken for other otariid species (*i.e.*, eared seals or fur seals and sea lions) (M. DeAngelis, NMFS, pers. comm.). For the 2010, 2011, and 2012 work seasons, the Society did not observe any northern fur seals present on Northwest Seal Rock during restoration activities (SGRLPS, 2010; 2011; 2012). The Society did not conduct any operations for the 2013-2014, 2014-2015, and 2015-2016 seasons. No northern fur seals were observed on Northwest Seal Rock in 2017, 2018, or 2019 (SGRLPS 2018a, b, 2019).

#### **(5) The type of incidental taking authorization that is being requested (*i.e.*, takes by harassment only; takes by harassment, injury and/or death) and the method of incidental taking**

This is an application for regulations and a LOA for take of pinnipeds by the Society's activities at St. George Reef Lighthouse on Northwest Seal Rock. The type of take expected is Level B harassment of pinnipeds during helicopter landings and takeoff from the island. Harassment may be caused by pinnipeds temporarily moving from the rocks and lower structure of the lighthouse into the sea due to the noise and appearance of helicopters during approaches and departures. No injury or death is expected, due to controlled helicopter approaches (see below) and the small size of the island, which gives the animals relatively instant access to the water.

For those pinnipeds that return to the lighthouse island during restoration activities, no disturbance response has been observed due to the presence of people on or in the lighthouse structure. In addition, people cannot access the platform at the base of the lighthouse or the natural rock of the island, unless there is an emergency situation.

#### **(6) By age, sex, and reproductive condition (if possible), the number of marine mammals (by species) that may be taken by each type of taking identified in paragraph (a)(5) of this section, and the number of times such takings by each type of taking are likely to occur**

- A. During the year from October 16 to May 31st, 0 - 155 Steller sea lions may be disturbed in varying degrees by helicopter activity at the lighthouse as this is the range of observations of numbers of sea lions on Northwest Seal Rock on trips since 2010. In the event of an emergency trip to the lighthouse for repairs in summer, or if deed restrictions are changed, more Steller sea

lions may be present (up to 350-400 animals based on CCR (2001)). A portion of these are expected to respond to helicopter disturbance. An observed range of 0-40% of all pinnipeds present on the island were temporarily displaced due to helicopter landings in 1998. Data suggested that the majority of these animals returned to the island, once helicopter activities ceased, over a period of minutes to 2 hours (Figure 2).

An estimated maximum of up to 25 older, but still nutritionally dependent, Steller sea lion pups and their mothers may be present at Northwest Seal Rock and affected by helicopter trips in the fall. Pups are mobile on land and fully capable of swimming to and from the island once they are at Northwest Seal Rock. No long term separations between mothers and pups are anticipated due to the brief nature of the disturbance events. A female was observed nursing a pup during one landing in 1998 (CCR, 2001). All other age and sex classes present may also be temporarily affected.

California sea lions, primarily sub-adult males, are likely to be disturbed by some of the helicopter activities on the island. A range of 0-160 non-breeding animals may be present and potentially disturbed in a given day during normal (non-El Nino) years (CCR, 2001). Should deed restrictions be altered to allow access during summer months, numbers could be somewhat higher.

Harbor seals rarely occur on the project site and no pupping takes place on the island. No harbor seals have been seen during the normal window of operations, thus no impact is expected from restoration, tours or light maintenance. An emergency visit to the island in summer to repair the light could affect up to six adult Harbor seals.

The presence of a Northern Fur Seal on the project site is expected to be very rare. Helicopter activities may disturb up to one adult, migrating, fur seal per year in the unusual case that there was overlap of a fur seal and human activity at the island.

We estimate take assuming a maximum of 70 days with flight activity per year (22 restoration/tour trips with 3 flight days per trip, plus 4 days for regular or emergency light maintenance trips. Based on previous monitoring of the marine mammals at Northwest Seal Rock from 2010- 2019, we estimate that approximately 11,200 California sea lions (calculated by multiplying the maximum single-day count of California sea lions present on Northwest Seal Rock (160) by 70 days of the restoration and maintenance activities); 10,850 Steller sea lions (calculated by multiplying the maximum single-day count of Steller sea lions that could be present (155) by 70 days of the restoration and maintenance activities); 140 Pacific harbor seals (calculated by multiplying the maximum single-day count of harbor seals present on Northwest Seal Rock (2) by 70 days); and 70 Northern fur seals (calculated by multiplying the maximum number of northern fur seals present on Northwest Seal Rock (1) by 70 days) could be potentially affected by Level B behavioral harassment each year of this LOA (Table 4). Should deed restrictions be altered to allow access during summer months, numbers of California sea lions and Steller's sea lions could be somewhat higher during a couple of those months.

**Table 4 – Requested Take Numbers for Each Species on Northwest Seal Rock**

<b>Species</b>	<b>Estimate of Take Per Year</b>	<b>Estimate of Take 2022-2026</b>
California sea lion ( <i>Zalophus californianus</i> )	11,200	56,000
Northern fur seal ( <i>Callorhinus ursinus</i> )	70	350
Pacific harbor seal ( <i>Phoca vitulina</i> )	140	700
Steller sea lion ( <i>Eumetopias jubatus</i> )	10,850	54,250

B. Number of times that each type of taking is likely to occur.

The type of take expected ranges from small movement to temporary flushing into the water. The pinnipeds on Northwest Seal Rock appear to show rapid habituation to helicopter landing and departure (CCR 2001, G. Towers, Society, pers. comm.). While up to 40% of the sea lions present on the rock have been observed to enter the water on the first of a series of helicopter landings, as few as 0% have flushed on subsequent landings on the same date (Fig. 2). Data collected in 1998 indicated that relatively few animals responded to the disturbance when helicopter landings occurred at short intervals (Fig. 3). The estimated 10 landings, at relatively short intervals, on a given restoration or tourism date may be considered as one bout of “taking” with variable impacts on each landing; however, since they occur on the same day as restoration activities, no additional take should occur. Observations from monitoring to date for this work confirms the above pattern of partial flushing at initial landing and increasing habituation thereafter.

**(7) The anticipated impact of the activity upon the species or stock**

It is expected that a portion of the marine mammals hauled out on the island will depart the rock and move into the water upon initial helicopter approaches (CCR, 2001). The movement to the water is expected to be gradual, as opposed to a stampede, due to the disturbance minimization approach technique (see Section 11), small size of the aircraft, relatively quiet rotors, and behavioral habituation on the part of the animals, as helicopter trips continue throughout the day. During bouts of helicopter activity some animals may be temporarily displaced from the island and either raft in the water or relocate to other haul outs. Most animals are expected to return soon after helicopter activities cease for that day. Additionally, the number

of takes per species is small compared to the overall stock abundance (Table 5). Therefore, the long term effect on the island as a non-breeding haul out is expected to be negligible.

**Table 5. —The percentage of the stock affected by the number of takes per species.**

Species	Requested Take 2022-2026	Stock Abundance	Percent of stock/Year
California sea lion ( <i>Zalophus californianus</i> )	11,200	257,606	4.3
Northern fur seal ( <i>Callorhinus ursinus</i> )	70	14,050	0.5
Pacific harbor seal ( <i>Phoca vitulina</i> )	140	30,968	0.5
Steller sea lion ( <i>Eumetopias jubatus</i> )	10,850	43,201	25.1

**(8) The anticipated impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses**

Not Applicable.

**(9) The anticipated impact of the activity upon the habitat of the marine mammal populations, and the likelihood of restoration of the affected habitat**

There are no long or short term physical impacts on the habitat. All restoration activities occur on the upper levels of the lighthouse that are not used by marine mammals. All waste and discarded materials and equipment are removed from the island after each visit.

**(10) The anticipated impact of the loss or modification of the habitat on the marine mammal populations involved**

There will be no physical impact on habitat.

**(11) The availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat, and on their availability for subsistence uses, paying particular attention to rookeries, mating grounds, and areas of similar significance**

A copy of any issued LOA must be in the possession of the Society, supervisory personnel, pilot, protected species observers (PSOs), and any other relevant designees of the Holder operating under the authority of this LOA at all times that activities subject to this LOA are being conducted.

A. Window of normal operations limitation as determined by NOAA harassment impacts will affect a lower number of pinnipeds. Also, it is expected that any Steller sea lion pups present at

the site will be at least three months of age and agile on land and in the ocean, thereby minimizing the risk of injury.

#### B. Helicopter approach and timing techniques.

- 1) The most severe impacts (stampede) are precipitated by rapid and direct helicopter approaches. By making the initial approach to one side of the island at higher altitude (e.g., 800-1,000 ft), then circling lower, and making the final approach from the northwest, where density of pinnipeds tends to be lower, adverse impacts can be minimized.
- 2) Sea lions have shown habituation to helicopter flights within a day at the project site. By clustering helicopter arrival/departures within a short time period, animals are expected to show less response to subsequent landings. Steller sea lion female-pup pairs were observed nursing during takeoff and landing activities subsequent to the initial landing (CCR 2001).
- 3) The pilot will ensure that helicopter approach patterns to the NWSR shall be such that the timing and techniques are least disturbing to marine mammals. To the extent possible, the helicopter should approach NWSR when the tide is too high for marine mammals to haul out on NWSR. Avoid rapid and direct approaches by the helicopter to the station by approaching NWSR at a relatively high altitude (e.g., 800 - 1,000 ft; 244 - 305 m). Before the final approach, the helicopter shall circle lower, and approach from an area where the density of pinnipeds is the lowest. If for any safety reasons (e.g., wind conditions or visibility) such helicopter approach and timing techniques cannot be achieved, the Society must abort the restoration and maintenance session for the day

C. Avoidance of visual and acoustic contact with people on the island. Tourists, Society members, and restoration crews will be instructed to avoid unnecessary noise and not expose themselves visually to pinnipeds around the base of the lighthouse. No impacts from these activities were seen during the CCR study and prior year monitoring, it is relatively simple to avoid this potential impact.

D. The door to the lower platform (which is used at times by pinnipeds) will remain closed and barricaded to all tourists and other personnel. The door will only be opened when necessary and at a time when no animals are present on the lower platform.

E. Automation of light station equipment. Complete automation of the light generating system and automatic backup system will minimize maintenance and emergency repair visits to the island. The light is solar powered using one solar panel; an installed second panel serves as a backup which is automatically activated if needed. A second smaller bulb in the lantern is activated if the primary bulb fails. Use of high quality, durable materials and thorough weatherproofing is planned to minimize trips for maintenance and repair in the future. All tools and supplies are stored on the island so that a minimal number of transport trips will be necessary.

F. Avoid direct physical interaction with marine mammals during activity. If a marine mammal comes within 10 m of such activity, operations must cease until the animal leaves of its own accord;

G. Conduct training between construction supervisors and crews and tourists and the marine mammal monitoring team and relevant SGRLPS staff prior to the start of all visits and when new personnel join the work, so that responsibilities, communication procedures, monitoring protocols, and operational procedures are clearly understood

**(12) Where the proposed activity would take place in or near a traditional Arctic subsistence hunting area and/or may affect the availability of a species or stock of marine mammal for Arctic subsistence uses, the applicant must submit either a plan of cooperation or information that identifies what measures have been taken and/or will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses.**

Not Applicable

**(13) The suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species, the level of taking or impacts on populations of marine mammals that are expected to be present while conducting activities and suggested means of minimizing burdens by coordinating such reporting requirements with other schemes already applicable to persons conducting such activity. Monitoring plans should include a description of the survey techniques that would be used to determine the movement and activity of marine mammals near the activity site(s) including migration and other habitat uses, such as feeding. Guidelines for developing a site-specific monitoring plan may be obtained by writing to the Director, Office of Protected Resources**

To describe the abundance, species composition, and age/sex categories of pinnipeds using Northwest Seal Rock and to measure the amount and severity of any impacts from the Society's activities, an experienced biologist will be present as NOAA requires during the activity. This observer will be able to identify all species of pinnipeds expected to use the island, and qualified to determine age and sex classes when viewing conditions allow.

The Society must monitor the project area to the maximum extent possible based on the required number of Protected Species Observers (PSOs), required monitoring locations, and environmental conditions. For all helicopter flights at least one PSO must be used. Monitoring must take place for all take-offs and landings.

PSOs must record all observations of marine mammals as described in Section 5 of any LOA, regardless of distance from the activity. PSOs shall document any behavioral reactions in concert with distance from the activity. The following monitoring locations are identified. For the first flight of the day a PSO with high definition camera will be on the first flight to the station. During all other takeoffs and landings a PSO will be stationed on the platform of the lantern room gallery or on the last departing helicopter.

Aerial photographic surveys may provide the most accurate means of documenting species composition, age and sex class of pinnipeds using the project site during human activity periods. Aerial photo coverage of the island will be completed by an observer using a high definition camera on the first flight of the day. Photographs of all marine mammals hauled out on the island will be taken at an altitude greater than 300 meters, during the first landing on each visit included in the monitoring program. Photographic documentation of marine mammals present at the last flight of the day will be taken from the helicopter or from the lantern room gallery just before the last flight of the day, will also be made for a before and after comparison. The Society and/or its designees must forward the photographs to a biologist capable of discerning marine mammal species if one is not present on the trip. The Society must provide the data to NMFS in the form of a report with a data table, any other significant observations related to marine mammals, and a report of restoration activities. These photographs will be made available to NMFS or other marine mammal experts for inspection and further analysis.

Monitoring frequency is expected to be determined through consultation with NMFS as a condition of this requested permit. After the first landing, the observer will proceed to the lantern room gallery to make observations of pinnipeds on and near the island during each subsequent take off and landing during the day. This requirement may be modified once enough data is gathered to understand patterns in animal use and response to the helicopters.

If at any time injury, serious injury, or mortality of the species for which take is authorized should occur, or if take of any kind of any other marine mammal occurs, and such action may be a result of the Society's activities, the Society would suspend survey activities and contact NMFS immediately to determine how best to proceed to ensure that another injury or death does not occur and to ensure that the applicant remains in compliance with the MMPA.

The Society would submit a draft report to NMFS' Office of Protected Resources after every trip initially and then as rarely as annually. The report will include: Dates and times (begin and end) of all marine mammal monitoring. Activities occurring during each daily observation period. PSO locations during marine mammal monitoring. Environmental conditions during monitoring periods (at beginning and end of PSO shift and whenever conditions change significantly), including Beaufort sea state and any other relevant weather conditions including cloud cover, fog, sun glare, and overall visibility to the horizon, and estimated observable distance.

Upon each flight, the following information will be recorded: Name of PSO who sighted the animal(s) and PSO location and activity at time of sighting; Time of sighting; Identification of the animal(s) (e.g., genus/species, lowest possible taxonomic level, or unidentified), PSO confidence in identification, and the composition of the group if there is a mix of species; Distance and bearing of the nearest marine mammal observed relative to the activity for each flight; Estimated number of animals (min/max/best estimate); Estimated number of animals by cohort (adults, juveniles, neonates, group composition, etc.); Animal's closest point of approach to activity; Description of any marine mammal behavioral observations (e.g., observed behaviors such as feeding or traveling), including an assessment of behavioral responses thought to have resulted from the activity (e.g., no response or changes in behavioral state such as ceasing

feeding, changing direction, flushing) using pinniped disturbance scale; Number of marine mammals detected, by species; Detailed information about any implementation of any mitigation triggered, a description of specific actions that ensued, and resulting changes in behavior of the animal(s), if any.

**(14) Suggested means of learning of, encouraging, and coordinating research opportunities, plans, and activities relating to reducing such incidental taking and evaluating its effects.** The Society's visits to the Northwest Seal Rock site provide an opportunity for research and coordination of effort with research and management entities. Population data from aerial surveys, evaluation of helicopter impacts, and means of minimizing effects on pinnipeds can be shared with the Oregon Department of Fish and Wildlife (ODFW), USFWS, NMFS and others. If additional funding is obtained, further research objectives may be achieved. Examples of this include potential use of remote cameras to help with regional assessments of seasonal pinniped distribution, movement patterns, and habitat use, in coordination with long-term monitoring being conducted at Southwest Seal Rock by ODFW and NMFS.

## REFERENCES

- Carretta, J.V., K.A. Forney, E.M. Oleson, D.W. Weller, A.R. Lang, J. Baker, M.M. Muto, B. Hanson, A.J. Orr, H. Huber, M.S. Lowry, J. Barlow, J.E. Moore, D. Lynch, L. Carswell, and R.L. Brownell Jr. 2018. U.S. Pacific Draft Marine Mammal Stock Assessments: 2018. U.S. Department of Commerce. NOAA-TM-NMFS-SWFSC-XXX. 102 p. Available at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessment-reports-region>.
- Carter, H.R., G.J. McChesney, D.L. Jaques, C.S. Strong, M.W. Parker, J.E. Takekawa, D.L. Jory, and D.L. Whitworth. 1992. Breeding populations of seabirds in California, 1989-1991. Draft Final Report to the USFWS.
- Crescent Coastal Research. 2001. Wildlife use of the Saint George Reef Lighthouse: An assessment of potential impacts and recommendations for lighthouse visitation. Unpubl. report to the St. George Reef Lighthouse Society. 14 p.
- DeAngelis, Monica. Personal communications. National Marine Fisheries Service.
- DeLong, R.L., S.R. Melin, J.L. Laake, P. Morris, A.J. Orr and J.D. Harris. 2017. Age- and sex-specific survival of California sea lions (*Zalophus californianus*) at San Miguel Island, California. *Marine Mammal Science* 33(4): 1097–1125.
- Lowry, Mark. Unpubl. Data. NOAA, NMFS, Southwest Fisheries Sciences Center, La Jolla, California.
- Muto, M.M., V.T. Helker, R. P. Angliss, P. L. Boveng, J. M. Breiwick, M. F. Cameron, P. J. Clapham, S. P. Dahle, M. E. Dahlheim, B. S. Fadely, M. C. Ferguson, L. W. Fritz, R. C. Hobbs, Y. V. Ivashchenko, A. S. Kennedy, J. M. London, S. A. Mizroch, R. R. Ream, E. L. Richmond, K. E. W. Shelden, K. L. Sweeney, R. G. Towell, P. R. Wade, J. M. Waite, and A. N. Zerbini. 2018. Alaska Marine Mammal Stock Assessments, 2018. US Department of Commerce, NOAA Tech Memo. NMFS-AFSC-XXX. 177 p. Available at: <https://www.fisheries.noaa.gov/resource/document/alaska-marine-mammal-stock-assessments-2018>.
- Muto, M.M., V.T. Helker, B.J. Delean, R. P. Angliss, P. L. Boveng, J. M. Breiwick, B.M. Brost, M. F. Cameron, P. J. Clapham, S. P. Dahle, M. E. Dahlheim, B. S. Fadely, M. C. Ferguson, L. W. Fritz, R. C. Hobbs, Y. V. Ivashchenko, A. S. Kennedy, J. M. London, S. A. Mizroch, R. R. Ream, E. L. Richmond, K. E. W. Shelden, K. L. Sweeney, R. G. Towell, P. R. Wade, J. M. Waite, and A. N. Zerbini. 2019. Alaska Marine Mammal Stock Assessments, 2019. US Department of Commerce, NOAA Tech Memo. NMFS-AFSC-XXX. 177 p. Available at: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>.

Pitcher, K., Peter Olesiuk, R. Brown, M. Lowry, Steven Jeffries, J. Sease, Wayne Perryman, C. Stinchcomb, and Lloyd Lowry. 2007. "Abundance and distribution of the eastern North Pacific Steller sea lion (*Eumetopias jubatus*) population." Fishery Bulletin- National Oceanic and Atmospheric Administration 107:102-115.

SGRLPS(St. George Reef Lighthouse Preservation Society). 2010. St. George Reef Lighthouse Restoration and Tour Operation Final Monitoring Report for Incidental Harassment Authorization #1: January 27, 2010, through April 30, 2010.

SGRLPS. 2011. St. George Reef Lighthouse Restoration and Tour Operation Final Monitoring Report for Incidental Harassment Authorization #2: February 18, 2011, through April 30, 2011; November 1, 2011, through December 31, 2011.

SGRLPS. 2012. St. George Reef Lighthouse Restoration and Tour Operation Final Monitoring Report for Incidental Harassment Authorization #3: February 10, 2012, through April 30, 2012; November 1, 2012, through December 31, 2012.

SGRLPS. 2018a. St. George Reef Lighthouse Restoration and Tour Operation Final Monitoring Report for Incidental Harassment Authorization #7: February 18, 2017, through April 30, 2017; November 1, 2017, through December 31, 2017.

SGRLPS. 2018b. St. George Reef Lighthouse Restoration and Tour Operation Final Monitoring Report for Incidental Harassment Authorization #8: February 18, 2018, through April 30, 2018; November 1, 2018, through December 31, 2018.

SGRLPS. 2019. St. George Reef Lighthouse Restoration and Tour Operation Final Monitoring Report for Incidental Harassment Authorization 2019.

Towers, Guy. Personal Communications. President, St. George Reef Lighthouse Preservation Society. Crescent City, CA.

Wright, Bryan E., Robin F. Brown, Robert L. DeLong, Patrick J. Gearin, Susan D. Riemer, Jeffrey L. Laake, and Jonathan J. Scordino. 2017. "Survival rates of Steller sea lions from Oregon and California." Journal of Mammalogy 98 (3):885-894.  
<https://doi.org/10.1093/jmammal/gyx033>.

Figure 1. St. George Reef Lighthouse.



Figure 2. Numbers of pinnipeds hauled out at Northwest Seal Rock throughout a series of helicopter landings at the lighthouse during restoration activities on October 17, 1998; 0925-1515. Data are from CCR (2001). Shown are the number of sea lions present immediately before a landing and the number of those that moved into the water, apparently in response to the helicopter, during the landing. Most of the animals present were California sea lions.

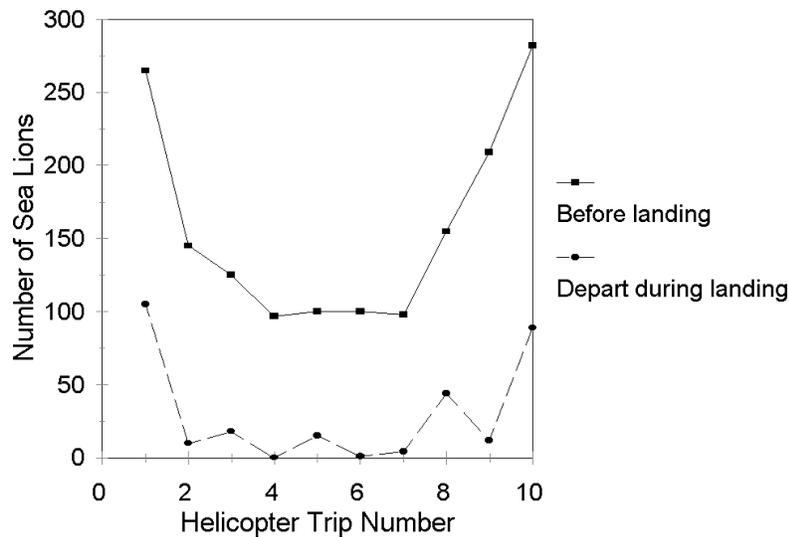


Figure 3. Relationship between numbers of pinnipeds departing in response to helicopter landings and minutes between landings. Data are from CCR (2001).

