

## **Application for an Incidental Harassment Authorization under the Marine Mammal Protection Act; Section 101(a)(5).**

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### **1. Detailed Description of the Activities**

#### *Rat Eradication Project*

Rats were first introduced to Alaska over 200 years ago at Rat Island in the western Aleutian Island archipelago. Prior to this introduction, the island likely supported significant populations of breeding seabirds and other ground nesting birds which evolved in the absence of mammalian predators. Since their introduction, rats and foxes have extirpated breeding seabirds and had detrimental impacts on vegetation and intertidal life on the island. Alaska Maritime National Wildlife Refuge eradicated foxes on Rat Island in 1984. Working with others, the U.S. Fish and Wildlife Service proposes to eradicate rats from the island using removal techniques based on successful island rat eradications elsewhere in the US and globally.

The purpose of eradicating rats from Rat Island is to conserve, protect and enhance habitat for native wildlife species, especially nesting habitat for seabirds, and to restore the biotic integrity of the island. The overarching goal in a successful rodent eradication is to ensure the delivery of a lethal dose of toxicant to every rodent on the island. The primary method for eradicating rats from Rat Island is delivery of compressed-grain bait pellets containing rodenticide to every rat territory on the island through aerial broadcast. The bait pellets will contain 25 ppm brodifacoum and will be applied according to Environmental Protection Agency approved label directions.

The need for caution near the marine and freshwater environments requires a buffer when broadcasting the rodenticide. As a result, some areas may not receive the optimal bait coverage with helicopter broadcast. In cases where it is evident or suspected that any land area on Rat Island or offshore islets did not receive full coverage, there will be supplemental systematic hand broadcast either by foot, boat, helicopter, or any combination of the above. All bait application activities will be conducted by, or under the supervision of, a Pesticide Applicator certified by the State of Alaska.

#### *Staging and Preparation*

Field crews will visit Rat Island in the summer prior to the rat eradication to install temporary infrastructure and storage sites. These will include:

- A camp site capable of supporting 20 people for up to seven weeks;

- Three bait staging areas, where bait will be contained in up to 200 storage units at each staging area; and
- A fuel storage site that will comply with all appropriate safety standards and regulations.

Additional material may be brought to the island at that time and staged for the fall application of bait. Helicopters will deliver most of the necessary materials to each site on the island from a vessel anchored nearby. Staging procedures in summer will be conducted using a helicopter capable of lifting a 700 kg (1,543 lb) payload. Helicopter operations during project staging will be localized to discrete flight paths and landing sites servicing the camp, three bait staging locations, and a fuel storage site.

It is possible that some of the material needed for the eradication project will not be available in the summer. In this case, that material will be staged on the island during the week prior to the fall application of bait.

### *Bait Application*

Bait application operations will be conducted using two single-primary-rotor/single tail-rotor helicopters. Bait will be applied from specialized bait hoppers slung 15 – 20 m (49 – 66 ft) beneath the helicopter. Helicopter operations for the bait application will necessitate low-altitude overflights of the entire land area of Rat Island and adjacent vegetated islets. The helicopter will fly at a speed ranging from 25 – 50 knots (46 – 93 km/hr or 29 – 58 mph) at an average altitude of approximately 50 m (164 ft.) above the ground.

To make bait available to all possible rat home ranges on the island, bait will need to be applied evenly across emergent land area, with every reasonable effort made to prevent bait spread into the marine environment. The baiting regime will follow common practice in which parallel, overlapping flight swaths are flown across the interior island area and overlapping swaths with a deflector attached to the hopper (to prevent bait spread into the marine environment) flown around the coastal perimeter. Flight swaths will be defined by the uniform distance of bait broadcast from the hopper, ranging from 50 – 75 m (164 – 246 ft). Flight swaths will be flown in a parallel pattern, with subsequent flight swaths overlapping the previous by approximately 25-50% to ensure no gaps in bait coverage.

### *Special Treatment of the Islet off Ayugadak Point*

The islet located 1.6 km (1 mi) off Ayugadak Point is a Steller sea lion rookery, qualifying as Critical Habitat under the Endangered Species Act (ESA). The islet is also potential rat habitat and the thick kelp beds between the main island and this islet make rat migration to and from the islet possible. Bait will be delivered to the islet off Ayugadak Point with an adaptive alternative-baiting strategy designed to minimize helicopter disturbance.

During the month of August, project crews will attempt to access the islet by boat, landing on a beach that is out of view of the Steller sea lion rookery. Personnel will install multiple enclosed bait stations on the islet, which will be designed to provide easy access to the bait inside for rats while minimizing bait access by non-target species that may be present on the islet, including song sparrows. Stations will be anchored securely in place, and filled with enough bait to ensure that any rats on the island will have bait available for many weeks.

During the major bait application operation in the fall, project crews will attempt to access the islet by boat again, although the sea state during this season may make access more difficult than earlier in the season. If personnel can access the island by boat, they will check the bait stations installed earlier for signs of bait consumption or other rat activity. Bait stations will be refilled as necessary during this visit. If rats are detected or suspected, personnel may additionally hand-broadcast bait pellets on the islet according to label instructions.

If project crews are unable to access the islet by boat at any time during fall operations, it will be necessary to aerially treat the island.

### *Demobilization*

Once the eradication has been completed, operational demobilization and clean-up will commence. A charter vessel will be employed to transport all crew and equipment off the island. Demobilization and clean-up will include deconstructing and removing:

- Field camp
- Garbage and human waste
- Staging areas
- Fuel

All tents, weatherports and other field camp equipment will be disassembled, packed, and returned to the vessel by helicopter. All equipment will be removed from bait staging areas and transported off the island. The wooden storage boxes will be disassembled, bound, and transported by helicopter back to the vessel. Excess fuel will also be transported back to the vessel by helicopter.

Additional details regarding the proposed rat eradication can be found in the attached Environmental Assessment: “*Restoring Wildlife Habitat on Rat Island*”, USFWS 2007 (EA). The EA can also be found on-line at: <http://alaskamaritime.fws.gov/news.htm>

## **2. Dates, Duration and Region of Activities**

Rat Island is located in the western Aleutian Islands at approximately 51° 80' North, 178°30' West, approximately 1200 miles west of Anchorage, Alaska.

The Ayugadak Point rookery is located on an islet approximately one mile southeast of Rat Island at 51°45.5' North, 178°24.5' East.

## **Rat Island**

### *Staging and Preparation*

The summer staging and preparation activities for Rat Island are expected to take 5 days during the week of July 7 -11. Helicopter support during this period is estimated to take two days. Wooden storage boxes and platform construction materials will be staged at three areas, as indicated in Figure 1. Fuel and all other camp materials will be delivered to the Gunner's Cove field camp location.

All materials not available during the summer staging and preparation period will be transported to Rat Island during the week of September 22- 27. Helicopter support during this period is estimated to take two days.

**Figure 1. Rat Island field camp and staging areas.**



### *Bait Application*

Bait application will commence once staging and preparation have been accomplished as planned. The application will occur during a 45 day time period from September 28 – November 11. The bait application is estimated to take approximately 35 hours total flight time, however the implementation will likely be interrupted by typical fall weather patterns in the central Aleutians, which are notoriously unsettled. Therefore a maximum of 45 days will be allotted to achieve the 35 hour operation window.

### *Demobilization*

Demobilization and clean-up activities will commence once the eradication operation is complete. The demobilization is estimated to take five days and is scheduled for the week of November 1-7. If favorable weather conditions allow the eradication operation to be completed prior to October 31<sup>st</sup>, demobilization could begin during the month of October.

### **Ayugadak Point Rookery**

#### *Bait Application*

During the first week of August, a project crew will attempt to access the islet by boat to install bait stations containing rodenticide. The installation will take approximately four hours.

If weather and sea conditions allow the installation of bait stations in August, a project crew will attempt to access the islet by boat again during the major bait application operations in October. Sea state during this season may make access more difficult than the August attempt. If personnel can access the island by boat, they will check the bait stations installed earlier for signs of bait consumption or other rat activity and refill stations as necessary. Personnel may also hand-broadcast bait pellets on the islet if rats are detected or suspected. This work is estimated to take between four and six hours.

If project crews are not able to access the islet in August or during the Rat Island bait application in October, it will be treated by aerial broadcast. This would take place during the October 1 – November 11 time frame and require approximately 15 minutes of helicopter flight time.

### **3. Species and Number of Marine Mammals Affected in Area**

Western Alaska stock of:

Steller sea lion (*Eumetopias jubatus*)

Harbor seal (*Phoca vitulina*)

The most recent survey results for the Rat Island area are summarized in Table 1.

**Table 1. Recent survey results for pinnipeds in the Rat Island area.**

| Species          | Number          | Year | Source                | Comments  |
|------------------|-----------------|------|-----------------------|---|
| Harbor Seal      | 93              | 1999 | Small et al. in press | Aerial survey   |
|                  | “Fairly common” | 2007 | Buckelew et al. 2007  | Often seen in water, not seen hauled out                    |
| Steller sea lion | 45              | 2004 | NMFS database         | Aerial survey for Rat Is. (adults and juveniles)            |
|                  | 254             | 2005 | NMFS database         | Aerial survey for Ayugadak Point Rookery (includes 83 pups) |
|                  | present         | 2007 | Buckelew 2007         | Seen from boat offshore at Rat Is. And Ayugadak Pt.         |

#### 4. Status and Distribution of Affected Species

##### *Steller Sea Lion*

Steller sea lions range along the North Pacific Rim from northern Japan to California. They are most abundant in the Gulf of Alaska and Aleutian Islands (NMFS 2006). Two separate stocks of Steller sea lions are recognized in U.S. waters; an eastern U.S. waters stock that includes animals east of Cape Suckling, Alaska (144° W), and a western U.S. stock which includes animals west of Cape Suckling. The western Distinct Population Segment (DPS) of Steller sea lions has experienced a major decline of 75% over the past 20 years (Calkins et al. 1999; USFWS 1997; NMFS 2007). Consequently, the western DPS of Steller sea lions were listed as Endangered under the Endangered Species Act (ESA) in 1997. The reasons for this decline are not entirely known and currently under investigation.

Aerial survey data from 2004-2005 were used to calculate a minimum population estimate of 39,988 animals for the western U.S. waters stock. The Bering Sea/Aleutian Islands area population estimate for the same period is 20,578 (NMFS 2006).

Steller sea lions are considered non-migratory with dispersal generally limited to juveniles and adult males. In the Aleutian Islands, Steller sea lions generally breed and give birth from late May to early July (Pitcher and Calkins 1981), and pups remain at rookeries until about early to mid-September (Calkins et al. 1999). Non-reproductive animals congregate at haul out sites.

At Rat Island, a persistent haul-out site is known at the west end of the island near Krysi Point and a rookery is known from the islet off Ayugadak Point (NMFS database, Table 1). Both sites were active in 2007 (Buckelew et al. 2007).

### *Pacific Harbor Seal*

In the Pacific Ocean, harbor seals occur in coastal waters and estuaries from Baja California north along the west coast of the U.S. and Canada to Alaska including the Aleutian Islands, southern Bristol Bay and the Pribilof Islands. Harbor seals living in the Aleutian Islands are part of the Gulf of Alaska stock. The Gulf of Alaska stock has experienced significant declines ranging from 50 – 85% over the past 30 years (NMFS 2006). Limited information suggests some modest recovery from initial declines and the stock has not been listed under the ESA. The current statewide population estimate for Alaska harbor seals is 180,017 (NMFS 2006).

Harbor seals are generally non-migratory with some local movements related to season, weather and food availability (NMFS 2006). In Alaska, harbor seals typically give birth to a single pup between May and mid-July. Pups are generally weaned within one month and separate from their mother. Harbor seals in the Gulf of Alaska stock undergo an annual molt which peaks between the first week in August and the first week in September (Daniel et al. 2003)

Harbor seals are found in scattered locations along the shores and of Rat Island and some offshore islets.

## **5. Type of Incidental Taking Authorization Requested**

The proposed rat eradication effort and associated operations may result in the taking of marine mammals by incidental harassment only. An Incidental Harassment Authorization for Level B harassment is requested. Most takes would be related to aircraft operations during the bait application period. A small number of takes could also occur as a result of human presence and boat operations during the course of the project. The use of a rodenticide is not expected to result in any marine mammal take.

## **6. Number of Marine Mammals That May Be Affected**

### *Rat Island*

Most of the disturbance associated with the Rat Island eradication will be a result of aircraft noise. The helicopters used to apply bait to the island will make two passes across most of the island to ensure success of the project. This could result in two takes of Steller sea lions and harbor seals that are hauled out at that time. The area surrounding a known Steller sea lion haul out at Krysi Point will be avoided by all activities other than bait application. Harbor seals use many parts of the Rat Island shoreline and could also be affected by boat operations and personnel movements. Thus the number of takes was estimated at 2.5 each for this species.

Steller sea lions at Rat Island were counted during an aerial survey in 2004. The number of animals recorded during that survey was increased to allow for potential population growth and then used to calculate the total take in Table 2.

The composition of Steller sea lions which haul out away from rookeries shifts between seasons and is not well understood. Although no pups are expected at Rat Island, determining the age and sex ratio of animals using the known haul out near Krysi Point in October is difficult at best. For this reason the number is calculated as adult and subadult animals without reference to the sex of these animals.

Harbor seals at Rat Island were counted by an aerial survey in 1999. The number of animals recorded during that survey was increased to allow for potential population growth and then used to calculate the total take in Table 2. Information regarding the demographics of harbor seals on Rat Island is not available. The number of animals recorded in the 1999 survey was used to calculate a total number of harbor seal takes.

**Table 2. Estimated number of marine mammals affected by aircraft operations on Rat Island.**

**M= male, F= female**

| Species             | # of Animals | # of take events per animal | Pups |   | Subadults |   | Adults |   | Total # of Takes |
|---------------------|--------------|-----------------------------|------|---|-----------|---|--------|---|------------------|
|                     |              |                             |      |   | M         | F | M      | F |                  |
| Steller sea lion    | 65           | 2                           | 0    | 0 | ?         | ? | ?      | ? | 130              |
| Pacific harbor seal | 100          | 2.5                         | ?    | ? | ?         | ? | ?      | ? | 250              |

*Ayugadak Point Rookery*

Project crews will attempt to access the Ayugadak Point islet by boat in early August. Landing will be attempted on a beach that is out of view of the rookery. The topography of the islet will allow bait stations to be installed without detection by animals on the rookery. The installation of bait stations will be conducted in a manner that will not disturb animals (adults and pups) on the rookery itself. Previous surveys at the islet have sometimes encountered one or two non-breeding bulls outside of the rookery area near the landing area. These were young or old bulls unable to hold a territory at the rookery. If weather allows a visit in August, a follow-up visit will be attempted in October and could result in a similar take event. A female with a dependent pup has not been encountered outside the rookery area on the islet. However, marine mammals can be unpredictable and this remote possibility cannot be completely discounted. A survey of Steller sea lions was conducted by NMFS in 2005. This survey data was increased to



allow for potential population growth and then used to calculate the number of animals anticipated to be affected by this operation plan in Table 3. The numbers in Table 3 also reflect the remote possibility of encountering a female with a dependent pup outside the rookery area.

There are no location-specific population estimates available for harbor seals on the islet off Ayugadak Point. However, the total take estimate of harbor seals in Table 2 above already takes personnel activities, such as boat operation and bait station installation, into account. The harbor seal take estimate from Table 2 above should be construed to include any harbor seals present on the islet.

**Table 3. Estimated number of Steller sea lions affected by bait station installation visits to the islet near Ayugadak Point, August and October.**

| Species          | # of animals | # of take events per animal | Pups | Subadults |   | Adults |   | Total # of takes |
|------------------|--------------|-----------------------------|------|-----------|---|--------|---|------------------|
|                  |              |                             |      |           |   |        |   |                  |
| Steller sea lion | 320          | 2                           | 1    | 10        | 0 | 9      | 1 | 42               |

If project crews are not able to visit the islet off Ayugadak Point during either of the planned visits for August and October, the islet would be aurally treated at the same time as Rat Island in October. The aerial broadcast would require approximately 15 minutes of flight time, but would likely disturb all animals present at that time. Survey numbers from the NMFS survey in 2005 indicate the presence of 83 pups. By October, the pups will be of an adequate size to avoid being trampled by other animals and largely independent of their mothers. NMFS survey data was increased to allow for potential population growth and then used to calculate the number of animals affected by an aerial treatment of the islet in Table 4.

**Table 4. Estimated number of Steller sea lions affected by possible aerial broadcast of the islet near Ayugadak Point, October.**

| Species          | # of animals | # of take events per animal | Pups | Subadults | Adults | Total # of takes |
|------------------|--------------|-----------------------------|------|-----------|--------|------------------|
|                  |              |                             |      |           |        |                  |
| Steller sea lion | 320          | 1                           | 100  | 0         | 220    | 320              |

## 7. Anticipated Impact of the Activity on the Species or Stock

### *Steller sea lions*

The response of pinnipeds like Steller sea lions to aircraft overflights varies from no discernable reaction to completely vacating haul-outs after a single overflight (Calkins

1979; Efroymsen and Suter 2001). Approaching aircraft generally flush animals into the water. In one case, Withrow et al. (1985 in Richardson et al. 1995) reported Steller sea lions left a beach in response to a Bell 205 helicopter >1.6 km away, but the noise from a helicopter is typically directed down in a “cone” underneath (Richardson et al. 1995) so disturbance at such great distance is probably uncommon.

At Rat Island, known persistent haul-out sites will be avoided during staging operations as will any other haul sites discovered prior to helicopter operations. In spite of these precautions, sea lions encountered unexpectedly during helicopter operations could be flushed from land temporarily. An individual sea lion’s exposure to peak noise from the helicopter will be limited to animals that remain ashore, and is likely to be of short duration, as the elevation and speed of the helicopter will limit the time that any single location is exposed to maximum noise.

It will be more difficult to avoid known haul sites on Rat Island with the helicopter during bait application because of the need for thorough coverage. No pups are expected on Rat Island. The impacts of disturbance to sea lions during molting (a sensitive period to disturbance, Richardson et al. 1995) will be minimized by timing overflights after the peak molting period is over.

Installation of bait stations on the islet off Ayugadak Point in August is likely to result in short-term displacement of some non-breeding animals from the islet. This disturbance is likely to be limited to the few-hour period when personnel are present on the island. Sea lion pups will likely be present on the islet during installation of bait stations. To prevent disturbance to the rookery, the islet will be approached slowly in a small boat, from the side of the island opposite and out of sight of the rookery. While on the islet personnel will remain out of sight of the rookery.

In October, the bait stations on the islet will need to be replenished. Again, the approach to the island will be slow, and opposite the rookery. This may result in displacing a few non-breeding animals for a few hours when personnel are present on the islet. If it is not possible to land a skiff on the islet, the island will be baited with the helicopter as described in the EA, in the fall after the pupping and primary molting season. This is likely to result in flushing sea lions from the islet resulting in short-term displacement. However, as helicopter baiting will be a very short process (approximately 15 min), disturbance to Steller sea lions is likely to be very short-term.

Risks to Steller sea lions from personnel camps on Rat Island will be minimal as camps and storage sites will be located well inland away from possible Steller sea lion haul out areas.

Overall, the effects of the operations described in the EA on Steller sea lions will vary depending on the number of disturbance events. However, the short-term displacement from haul-outs that is likely to occur as a result of helicopter noise and personnel is not anticipated to have any effect on overall energy balance or fitness of any individual animals.

It is not likely that any Steller sea lions will suffer injury or the significant potential for injury as a result of the activities described in the EA. The potential disturbance associated the project would result in Steller sea lions entering the water; which they do as part of their normal pattern of behavior. This analysis concludes that implementation of rat eradication activities as described in the EA is not likely to adversely affect individual Steller sea lions on an individual or population level.

### *Harbor Seals*

The response of pinnipeds to aircraft overflights varies from no discernable reaction to completely vacating haul-outs after a single overflight (Calkins 1979; Efroymsen and Suter 2001). Approaching aircraft generally flush animals into the water.

During staging operations, project managers will plan helicopter flight lines and boat travel to minimize the potential for disturbance to harbor seal haul-outs known from existing databases and surveys conducted prior to the operations. However, in spite of these precautions, seals encountered unexpectedly during helicopter operations could be flushed from land temporarily. An individual seal's exposure to peak noise from the helicopter will be limited to animals that remain ashore, and is likely to be of short duration, as the elevation and speed of the helicopter (see Section 1: Description of Activities, above) will limit the time that any single location is exposed to maximum noise.

It will be more difficult to avoid known haul sites on Rat Island with the helicopter during bait application because of the need for thorough coverage of the entire island. No young pups are expected on Rat Island during fall. The impacts of disturbance to seals during molting (another sensitive period) will be minimized by timing overflights after the peak molting period is over.

The sporadic personnel presence and temporary infrastructure installations that may be necessary near seal haul-outs during both staging and bait application operations may result in localized disturbances, although this is much less likely to disturb animals than helicopter overflights. The camps and staging areas themselves will be well inland and will have negligible impacts on seals hauled out on the coastline.

Overall, the short-term displacement from haul-sites that is likely to occur as a result of helicopter noise and personnel is not anticipated to have any significant effect on overall energy balance or fitness of any individual animals.

It is not likely that any harbor seals will suffer injury or the significant potential for injury as a result of project activities. Therefore this analysis concludes that implementation of rat eradication activities is not likely to result in significant effects to harbor seals at an individual or population level.

## **8. Anticipated Impacts to Subsistence Users**

In the Aleutian Islands, rural residents use a variety of plant and animals resources for subsistence purposes. The Marine Mammal Protection Act of 1972 provides for a subsistence take of marine mammals by Alaska Natives. Steller sea lions and harbor seals are harvested for subsistence purposes in the Aleutian region. The proposed rat eradication operations described in the EA should have no effect on subsistence uses or needs. Rat Island is uninhabited and is located more than 322 km (200 mi) from the nearest rural community of Adak, Alaska. The subsistence resources used by rural residents in the Aleutian Islands are harvested near the islands where the communities are located. Rat Island is not known to have been used for subsistence purposes since the 1800's.

Section 810(a) of the Alaska National Interest Lands Conservation Act (ANILCA) requires that an evaluation of subsistence uses and needs be completed prior to the use, occupancy or disposition of public lands by a Federal agency. An ANILCA 810 evaluation for the proposed rat eradication has been completed can be found as an appendix to the EA.

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

The rat eradication operations described in the EA are not anticipated to affect the habitat of marine mammals in the Rat Island area. Helicopter and personnel operations will occasionally need to occur within the Steller sea lion "no-entry zones" established by 50 CFR 223.202. Although Level B harassment is expected to occur in some instances, these activities will not result in the physical alteration of habitat or lead to any effects on the prey base of Steller sea lions or harbor seals.

## **10. Anticipated Impact of the Loss or Modification of Habitat**

There proposed rat eradication should not result in the loss or modification of marine mammal habitat.

## **11. Impact Minimization Methods**

### *Timing*

The proposed rat eradication will take all measures possible to minimize marine mammal disturbance. This will be especially critical during periods when Steller sea lions and harbor seals are giving birth, mating, rearing young and molting.

The reproductive period for Steller sea lions is generally late May through early July, with a peak in the second and third weeks of June (Pitcher and Calkins 1981; Gisiner 1985). Pups stay on land for about two weeks after which they spend increasing time in nearshore marine waters until they begin to disperse from rookeries to haul-outs with females at about 2.5 months of age (Raum-Suryan et al. 2004; Maniscalco et al. 2002, 2006). In the Aleutian Island area most pupping is complete by the last week of June and dispersal should occur by mid-September. Molting in Steller sea lions varies by age and sex of the animal and is known to last about 45 days. Juveniles molt first, followed by adult females, bull and pups (Daniel 2003). The molt should be nearly completed during the planned bait application period.

Harbor seals typically give birth during May and June. Pups are usually weaned within a month and no longer need to be close to their mothers. The peak molting period occurs between August and September (Jemison and Kelly 2001; Daniel et al. 2003).

Conducting aerial bait application operations after marine mammal breeding and molting is complete reduces the potential for disturbance to these species during the sensitive periods of breeding, pup rearing, and molting.

### *Operations*

Steller sea lions have a persistent haul-out at Krysi Point at the west end of Rat Island and a rookery on the islet off Ayugadak Point. Steller sea lions likely haul-out at other locations on Rat Island as well. During staging operations, helicopter flight lines will avoid the rookery, the known haul-out site and any other haul-out sites discovered prior to helicopter operations. Unlike during staging, it will be more difficult to avoid known haul sites on Rat Island with the helicopter during bait application because of the need for thorough coverage of the island.

Installation of bait stations on the islet off Ayugadak Point is likely to result in short-term disturbance of a small number of non-breeding animals. This disturbance is likely to be limited to the few-hour period when personnel are present on the island. To prevent disturbance to the rookery, the islet will be approached slowly in a small boat, from the side of the island opposite and out of sight of the rookery. This will prevent any possibility of a stampede. While on the islet personnel will remain out of sight of the rookery and conduct the installation as quickly as possible.

If a successful installation is completed in August, the bait stations on the islet will need to be replenished in October. Again, the approach to the island will be slow, and opposite the rookery. A few non-breeding animals could be displaced during the bait station check. If it is not possible to land a skiff on the islet, the island will be baited with the helicopter as described in the EA. The helicopter baiting will likely be completed in approximately 15 minutes and disturbance to Steller sea lions is likely to be very short-term.

Harbor seals will also be avoided to the greatest extent possible during helicopter operations. During staging operations, project managers will plan helicopter flight lines and boat travel to minimize the potential for disturbance to harbor seal haul-outs known from existing databases and surveys conducted prior to the operations. Unlike during staging, it will be more difficult to avoid known haul sites on Rat Island with the helicopter during bait application because of the need for thorough coverage of the entire island.

### *Personnel*

The Steller sea lion haul-out at Krysi Point on Rat Island will be avoided by personnel involved with this project. The sporadic personnel presence and temporary infrastructure installations that may be necessary near harbor seal haul-outs during both staging and bait application operations may result in localized disturbances, although this is much less likely to disturb animals than helicopter overflights. The camps and staging areas themselves will be well inland and will have negligible impacts on Steller sea lions and harbor seals hauled out on the coastline.

## **12. Arctic Subsistence Uses, Plan of Cooperation**

This issue is not applicable to the proposed rat eradication. The project area is south of 60° north latitude. General subsistence issues are addressed in question number eight.

## **13. Monitoring and Reporting**

During the course of the proposed project every effort will be made to minimize disturbance to marine mammals. However, when marine mammals are encountered during the project, personnel will record information regarding species, distribution, behavior and number of animals. When conditions permit, information regarding sex, age (pup, subadult, adult) and any marked animals will also be recorded. Upon completion of the project, this information will be compiled and provided to NMFS Protected Resources Division.

## **14. Coordinating Research to Reduce and Evaluate Incidental Take**

Aircraft and personnel activities related to the proposed project will be coordinated to reduce potential take. The staff of AMNWR and their partners will evaluate incidental take and stop any operations should the potential for incidental take be too great.

## **15. Literature Cited**

Buckelew, S., G. Howald, D. Croll, S. MacLean, and S. Ebbert. 2007. Invasive rat eradication on Rat Island, Aleutian Islands, Alaska: biological monitoring and operational assessment. Report to USFWS.

Calkins, D.G. 1979 [publ 1983]. Marine mammals of Lower Cook Inlet and the potential for impact from outer continental shelf oil and gas exploration, development, and transport. Environ. Assess. Alaskan Cont. Shelf, Final rep. Princ.Invest., NOAA, Juneau, AK 20:171-263. NTIS PB85-201226

Calkins, D.G., D.C. Mallister, K.W. Pitcher, and G.W. Pendleton. 1999. Steller sea lion status and trend in southeast Alaska: 1979-1997. *Marine Mammal Science* 15: 462-477.

Daniel, R.G., L.A. Jemison, G.W. Pendleton, and S.M. Crowley. 2003. Molting phenology of harbor seals on Tugidak Island, Alaska. *Marine Mammal Science* 19:128-140.

Daniel, R.G. 2003. The timing of moulting in wild and captive Steller sea lions. Master's Thesis. University of British Columbia.

Efroymson, R.A. and G.W. Suter, II. 2001. Ecological risk assessment framework for low-altitude aircraft overflights: II. Estimating effects on wildlife and estimating exposure. *Risk Analysis* 21(2): 263-274.

Gisiner, R.C. 1985. Male territorial and reproductive behavior in the Steller sea lion, *Eumetopias jubatus*. Ph.D.Thesis, University of California, Santa Cruz. 145 pp.

Jemison, L.A. and B.P. Kelly. 2001. Pupping phenology and demography of harbor seals (*Phoca vitulina richardsi*) on Tugidak Island, Alaska. *Marine Mammal Science* 17:585-600.

Maniscalco, J., Parker, P., Atkinson, S. 2006. Interseasonal and interannual measures of maternal care among individual Steller sea lions (*Eumetopias jubatus*). *Journal of Mammalogy* 87: 304-311.

National Marine Fisheries Service. 2007. Draft Revised Recovery Plan for Steller sea lion (*Eumetopias jubatus*). NMFS, Silver Spring, MD.

National Marine Mammal Lab. Database. National Marine Fisheries Service, Seattle, WA.

National Marine Mammal Laboratory. 2006. Steller sea lion biology. <http://nmml.afsc.noaa.gov/AlaskaEcosystems/sslhome/StellerDescription.html>. Accessed 22 August 2007 .

Pitcher, K.W., and D.G. Calkins. 1981. Reproductive biology of Steller sea lions in the Gulf of Alaska. *Journal of Mammalogy* 62: 599.

Raum-Suryan, K.L., M.J. Rehberg, G.W. Pendleton, K.W. Pitcher, and T.S. Gelatt. 2004. Development of dispersal, movement patterns, and haul-out use by pup and juvenile Steller sea lions (*Eumetopias jubatus*) in Alaska. *Marine Mammal Science* 20(4): 823-850

Richardson, W. J., C.R. Greene, Jr., C.I. Malme, D.H. Thomson (eds). 1995. *Marine Mammals and Noise*. Academic Press. San Diego, CA

US Fish and Wildlife Service. 1997. Threatened fish and wildlife; change in listing status of Steller sea lions under the Endangered Species Act. *Federal Register* 62: 24345-24355.

Withrow, D.E., G.C. Bouchet and L.L. Jones. 1985. Response of Dall's porpoise (*Phocoides dalli*) to survey vessels in both offshore and nearshore waters: Results of 1984 research. Int. N. Pacific Fish. Comm. Doc. U.S. Natl. Mar Mammal. Lab., Seattle, WA