



MARINE MAMMAL COMMISSION

27 May 2014

Dr. Tammy Adams, Acting Chief
Permits and Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3225

Re: Permit Application No. 18537
(Alaska Department of Fish and Game)

Dear Dr. Adams:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the above-referenced permit application with regard to the goals, policies, and requirements of the Marine Mammal Protection Act (the MMPA). Alaska Department of Fish and Game (ADFG) is seeking to renew permit 14325 to conduct research activities on Steller sea lions in Alaska during a five-year period.

BACKGROUND AND RATIONALE

ADFG proposes to conduct research on Steller sea lions in Alaska year-round to continue investigating (1) abundance, distribution, and stock structure, (2) survival and reproductive success, (3) movement patterns and habitat use, (4) foraging ecology and fisheries interactions, (5) disease and health, and (6) effects of natural and anthropogenic factors on Steller sea lions.

Aerial surveys

To estimate the abundance and distribution of Steller sea lions, ADFG would conduct aerial surveys using fixed-wing aircraft year-round at haul-out sites and outside the breeding season (August–April) at rookeries throughout coastal Alaska. ADFG also would take advantage of flights that are being conducted for purposes of collecting other data (e.g., marine debris, herring, and salmon surveys) or transport staff to/from study sites. None of the aerial overflights would replace or duplicate the population surveys conducted by the National Marine Mammal Laboratory (NMML) but would complement ADFG's ground surveys and would be used to investigate movements of sea lions between the western and eastern Distinct Population Segments (wDPS and eDPS).

In addition, researchers would use unmanned aerial systems (UASs) to supplement and replicate some of the aerial surveys. Researchers also would use UASs to observe branded and tagged individuals. UASs could be launched down-wind of the animals either from a vessel or land. A hexacopter that weighs less than 2 kg could be used, as could other types of rotary- or fixed-wing

vehicles¹. The UAS pilot would fly the vehicles slowly and would avoid hovering over animals and a dedicated observer would monitor sea lion reactions.

Steller sea lions of any age class and either sex could be harassed incidental to manned and unmanned aerial surveys (see the Take Tables). Northern fur seals, California sea lions, harbor seals, spotted seals, bearded seals, ribbon seals, and ringed seals also could be harassed incidental to those surveys.

Vessel-based surveys

To augment resightings and document reproductive rates, researchers would conduct vessel-based surveys using small boats generally from May–August, but those surveys could occur year-round. They would approach the site no closer than 200 m, after which the skiff would remain stationary or would move at less than 8 km/hour. If animals are behaving naturally and do not appear disturbed by the boat's presence, it would move closer. If animals appear disturbed, the skiff would back off slowly until few or no animals are agitated. Steller sea lions of any age class and either sex could be harassed incidental to the vessel surveys (see the Take Tables). Northern fur seals, California sea lions, and harbor seals also could be harassed incidental to those surveys.

Ground-based surveys

Ground-based surveys are conducted to collect scat samples, placenta, aborted fetuses, and fresh-dead Steller sea lion tissue samples or whole carcasses. Scat would not be collected during the pupping season unless sea lions on the rookery have already been disturbed by other activities, and scat would be collected only in the area of disturbance. In addition, researchers could install or retrieve instruments or fixed cameras during ground surveys. To minimize disturbance during ground surveys, researchers would (1) conduct the surveys at sites with low densities of animals and a low probability of young seals being present and (2) approach the sea lions cautiously and slowly to avoid stampedes. Steller sea lions of any age class and either sex could be harassed incidental to the ground surveys (see the Take Tables). Northern fur seals, California sea lions, and harbor seals also could be harassed incidental to those surveys.

Capture activities

ADFG would harass, capture, handle, restrain, administer drugs to², measure, weigh, photograph, sample, mark/tag, conduct other procedures on (i.e., ultrasound, bioelectrical impedance, metabolic chamber, and administration of deuterium oxide, sodium bromide, and Evans blue dye with serial blood sampling), and/or attach instruments to numerous Steller sea lions each year (see the Take Tables). In general, researchers capture (1) younger pups (< 2 months of age) by hand and using hoop nets or other nets, (2) older pups (\geq 2 months of age to 1 year of age) by hand and using hoop nets, other nets, underwater noose, and noose by pole, and (3) juveniles, subadults, and adults using hoop nets, other nets, underwater nooses, nooses by pole, and remotely-delivered

¹ Quadcopters and fixed-wing vehicles (with a 25-cm wingspan) have been used to survey Steller sea lions in the Aleutian Islands previously. Steller sea lions were less prone to react to the UAS than to manned aircraft and vessels.

² An experienced marine mammal veterinarian would be present to anesthetize or direct on-site supervision of all activities involving anesthetics.

anesthetics. Groups of pups are rounded up and at least one researcher ensures that the pups do not become overheated or pile up and either crush one another or suffocate. Handling time is kept to a minimum. Researchers would anesthetize pups greater than 20 kg and without an attached umbilicus to mark them with a distinct brand. Pups are observed closely after anesthesia to ensure full recovery prior to release and are released near large aggregations of pups away from the water.

Researchers could immobilize sea lions other than pups using remotely-delivered darts from a projector rifle. They would only approach hauled out sea lions that are away from the shoreline or pools of standing water. Generally, researchers use a combination of medetomidine-butorphanol-midazolam but could use other sedatives, as discussed in the application. Researchers approach the sea lions after sedation to intubate and supplement with isoflurane. After the activities, the sedative effects are reversed with various medications depending on the anesthetic used. Darted animals that escape across land or into the water prior to handling are followed by boat or land to verify their survival. When feasible, animals are darted with the reversing agent. The success of recent studies using remotely-delivered darts has been thought to suggest that capturing and handling Steller sea lions may be significantly safer than originally predicted based on problems associated with captures during the 1990s. However, the sample sizes from the recent studies are quite small (ten adult females³). Accordingly, the Commission believes that the National Marine Fisheries Service (NMFS) should continue to take a precautionary approach, as it has with authorizing those activities under the current Steller sea lion permits. Therefore, the Commission again recommends that NMFS condition the permit to include requirements to monitor darted animals and report (1) their behavioral response and any activities that place them at heightened risk of injury or death, (2) whether they entered the water and their fate could not be determined, and (3) the number of dependent pups of those darted animals and their behavior. The Commission further recommends that NMFS condition the permit to halt the use of this darting technique and consult with NMFS and the Commission if three or more animals are darted and suffer unanticipated adverse effects, including entering the water and either drowning or disappearing so that their fate cannot be determined.

Depending on the age class and sex of the animal, researchers would collect blood, skin, swabs, feces, blubber, muscle, milk (via lavage for pups⁴ and manual palpation and/or oxytocin administration for adult females), urine, vibrissae, nails, hair, and/or teeth⁵. Researchers also may affix flipper tags to the foreflippers or use non-toxic paint or hair dye to mark individuals. Researchers could use ultrasound to determine blubber depth and image internal organs and bioelectrical impedance to determine body condition. They would administer deuterium oxide, sodium bromide, and/or Evans blue dye to and collect serial blood samples from animals at least 2 months of age to assess body condition and overall blood volume. In addition, researchers would use a metabolic chamber to measure metabolic rates of animals at least 2 months of age.

In addition, researchers may attach instruments to the pelage of the head, between the shoulders, or on the back with epoxy or attach the instruments using flipper tags to numerous Steller sea lions per year (see the Take Tables). The instruments would weigh less than 5 percent of the

³ Based on information provided by ADFG.

⁴ Greater than 20 kg and lacking an umbilicus.

⁵ A single pre-molar tooth would be collected from individuals at least two years of age. Any sample could be exported for analyses and re-imported if samples remain post-analyses for archiving purposes.

seal's body mass and could include VHF transmitters, satellite transmitters, GPS transmitters, time-depth recorders, satellite-linked dive recorders, satellite-linked time-depth recorders, satellite-relay data loggers, physiological tags (e.g., to monitor heart rate and stomach temperature), video cameras, and acoustic tags. Instruments either would be removed when the animals are recaptured at a later time or would be allowed to fall off during the next molt. Researchers would not instrument pups less than 2 months of age but could instrument females with those pups.

During capture activities, all animals are monitored carefully for signs of stress. If a captured animal shows signs of acute or protracted alarm reaction that could lead to serious injury or death, researchers would cease their activities immediately to treat the animal. Veterinarians and veterinary technicians would participate in the capture activities and would administer aid to any compromised individual. Researchers also would cease activities immediately if there is evidence that the activity may be life-threatening. Reasonable steps would be taken to identify pups of lactating females before attempting to immobilize the female.

Researchers could harass non-target Steller sea lions unintentionally during the capture activities (see the Take Tables). ADFG also is requesting authorization to kill (intentionally via euthanasia or unintentionally) up to 5 Steller sea lions per year from the wDPS and 10 from the eDPS. If a lactating female is seriously injured or dies as a result of the research activities and her dependent pup can be identified, researchers would transport the pup to a rehabilitation facility. If the pup cannot be placed at a rehabilitation facility, it would be euthanized. Necropsies would be conducted on any sea lions that die, if feasible.

ADFG has indicated that its Institutional Animal Care and Use Committee has reviewed and approved the proposed procedures. ADFG would collaborate with researchers at NMML, Alaska SeaLife Center, University of Alaska, University of British Columbia, Department of Fisheries and Oceans Canada, and researchers in Russia and Japan. In addition, ADFG may develop agreements with wDPS co-management groups to increase access to tissues from animals taken for subsistence in those areas, similar to past agreements with the Aleut Community of St. Paul Island.

The Commission believes that the activities for which it has recommended approval are consistent with the purposes and policies of the MMPA.

The Commission appreciates the opportunity to comment on this permit application. Kindly contact me if you have any questions concerning the Commission's recommendations.

Sincerely,



Rebecca J. Lent, Ph.D.
Executive Director