



MARINE MAMMAL COMMISSION

21 April 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. 18528
(National Marine Mammal Laboratory)

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). The National Marine Mammal Laboratory (NMML) is seeking to renew permit 14326 to conduct research activities on Steller sea lions in Alaska (AK) and along the U.S. west coast during a five-year period.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service issue the requested permit, but condition it 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; and
- halt the use of the darting technique and consult with the National Marine Fisheries Service (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.

RATIONALE

NMML proposes to conduct research on Steller sea lions in AK and Washington, Oregon, and California (WA/OR/CA) year-round. The objectives are to continue long-term research 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 determine the abundance of Steller sea lions, NMML would conduct aerial surveys using fixed-wing aircraft at a minimum altitude of 213 m at haul-out sites and rookeries throughout the Aleutian Islands, Gulf of Alaska (GoA), and Southeast AK. Those surveys generally would be conducted in late June and early July when the greatest proportion of adults is onshore to breed and before pups routinely enter the water. Researchers would conduct the surveys in GoA and Southeast AK up to two times in a given year to investigate transboundary movements of sea lions from the western and eastern Distinct Population Segments (wDPS and eDPS). In WA/OR/CA, researchers also would conduct aerial surveys using fixed-wing aircraft but at a minimum altitude of 152 m. Surveys generally are flown in the breeding season but could occur during any month. To minimize disturbance during manned aerial overflights, aircraft would approach sites without banking so that the aircraft is within the hearing range of sea lions for no more than 1 to 2 minutes.

In addition, researchers would use unmanned aerial systems (UASs) to supplement and replicate some of the aerial surveys. UASs could allow for surveys of areas that otherwise have not been surveyed due to bad weather, fog, and lack of landing sites for manned aircraft. Researchers also would use UASs to observe or resight branded and tagged individuals. UASs could be launched down-wind of the animals either from a vessel or land and would be flown at an altitude of no less than 45 m. The primary UAS is a hexacopter that weighs less than 2 kg, but other types of rotary- or fixed-wing vehicles may be used¹. The UAS pilot would fly the vehicles slowly² and would avoid hovering over animals. A dedicated observer would monitor sea lion reactions to advise the pilot of appropriate changes to the flight operations, if necessary.

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, northern elephant seals, and harbor seals also could be harassed incidental to those surveys.

Vessel-based surveys

To augment resighting of branded animals, researchers would conduct vessel-based surveys using small boats generally from May–August and October–November in AK, but those surveys could occur year-round. Vessel surveys are conducted several times per month from spring to fall in WA/OR/CA. Researchers would approach the haul-out site at an average distance of 50 m down-wind or from the right side to increase the chances of seeing brands before the sea lions go into the water. Observations would be continued until the researchers are satisfied that the vast majority of the sea lions were observed or until all the animals have entered the water, if disturbed. Researchers then would collect scat and spew samples, if feasible.

To minimize disturbance, researchers would approach the animals slowly. Further, in WA/OR/CA, researchers would slowly back the vessel away from the haul-out site to allow the sea lions to settle if they begin to move into the water. Steller sea lions of any age class and either sex

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 inclined to react to the UAS than both manned aircraft and vessels. UASs that weigh up to 20 kg could be used.

² At 3 to 5 m/s.

could be harassed incidental to the vessel surveys (see the Take Tables). Northern fur seals, California sea lions, northern elephant seals, and harbor seals also could be harassed incidental to those surveys.

Ground-based surveys

Ground-counts are required only for the Billings Head rookery on Akun Island in AK. Researchers conduct pup counts once between 20 June and 7 July. Only those researchers experienced in herding sea lions slowly would separate the pups from other animals. Once separated, counts of live and dead pups would be obtained for those pups on the beach and in the water. After the counts are completed, researchers would collect scat and spew samples. To minimize disturbance during ground-counts, researchers would (1) conduct the surveys at the end of the pupping season after female-pup bonds are well-established, (2) use experienced biologists to complete the surveys as quickly as possible and within a 2-hour timeframe, (3) attempt to prevent pups from entering the water, (4) attempt to retrieve those pups that do enter the water and return them to the rookery, and (5) attempt to prevent aggressive interactions amongst animals.

Ground-surveys in WA/OR/CA occur via remote-camera monitoring activities and during resightings of branded/marked sea lions and scat collection. Automated cameras are installed at Pyramid Rock in OR in April or May prior to the arrival of pregnant females and territorial males. Researchers conduct up to two maintenance trips per season and remove the cameras in September or October. Maintenance trips are conducted outside the peak pupping times. 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, northern elephant seals, and harbor seals also could be harassed incidental to those surveys.

Capture activities

NMML would harass, capture, handle, restrain, administer drugs to³, measure, weigh, photograph, sample, mark/tag, conduct other procedures on (i.e., ultrasound, bioelectrical impedance, and administration of deuterium oxide with serial blood sampling), and/or attach instruments to numerous wDPS Steller sea lions each year in AK, WA, and OR (see the Take Tables). In general, researchers capture (1) pups (> 5 days old to 2 months of age) by hand and using hoop nets, (2) juveniles (> 2 months of age to 3 years old) by hand and using hoop nets and underwater lassoes, and (3) subadults and adults using hoop nets, floating traps (only in WA and OR), and remotely-delivered chemical anesthetics. Pups would be captured no earlier than the second week of July when they are approximately 2 weeks to 2 months of age. 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 for up to 10 minutes to mark them with a distinct brand. They would brand only pups greater than 20 kg and without an attached umbilicus. Pups are observed closely after anesthesia to ensure full recovery prior to release and are released near a large aggregation of pups away from the water.

³ An experienced marine mammal veterinarian would be present to anesthetize or direct on-site supervision of all activities involving anesthetics.

Researchers may immobilize sea lions other than pups with anesthetics delivered remotely using darts⁴. The darter and observer would approach the animals from a distance of 5 to 20 m on land. They would only approach sea lions that are away from the shoreline or pools of standing water. Using a carbon dioxide-powered projector rifle they would fire the darts into the hips and tibia lumbar muscle or into the muscles over the shoulders. 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 about 12 minutes post-darting, 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, these animals are darted with the reversing agent. The success of recent studies in which remotely-delivered darts were used suggests 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 size is quite small (nine adult females and one adult male⁵). Accordingly, the Commission believes that 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 the 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, milk (via lavage in pups and manual palpation and/or oxytocin administration in adult females), vibrissae, nails, hair, and/or lesions. If a sea lion was not branded already, researchers would brand it as specified previously. If branding is not feasible, researchers would affix flipper tags to the foreflippers of the sea lion. They also could use non-toxic paint or hair dye to mark individuals. Researchers could use ultrasound to determine blubber depth and image internal organs (including determining pregnancy and ovulation rates in adult females) and bioelectrical impedance to determine body condition. They would administer doubly-labeled water to and collect serial blood samples from non-pup sea lions to assess body condition and overall blood volume.

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 wDPS Steller sea lions per year (see the Take Tables). The instruments would weigh less than 5 percent of the seal's body mass and could include VHF/UHF transmitters, satellite transmitters, GPS transmitters (including cell phone tags), time-depth recorders, satellite-linked dive recorders, satellite-linked time-depth recorders, fluorometers, physiological tags (e.g., to monitor heart rate, jaw motion, and stomach temperature), video cameras, and acoustic tags. Instruments would be removed when the animals are recaptured at a later time or would be allowed to fall off during the next molt. In general, animals would be instrumented once in any given year but if recapture is

⁴ If a female is anesthetized during the breeding season, her dependent pup could be captured and held during the female's procedures.

⁵ Based on the information provided by NMML.

possible, an individual may be instrumented twice in a year. 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 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 wDPS and eDPS (WA/OR only) Steller sea lions during the capture activities (see the Take Tables). They also are requesting up to five Steller sea lion mortalities (including euthanasia and unintentional deaths) per year from the wDPS in AK and two mortalities per year from the eDPS in WA, five in OR, and two in CA. 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, if feasible, on any sea lions that die.

NMML has indicated that its Institutional Animal Care and Use Committee has reviewed and approved the proposed research protocols⁶. NMML would collaborate with researchers at Alaska Department of Fish and Game, Alaska SeaLife Center, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, North Pacific Wildlife Consortium, Department of Fisheries and Oceans in Canada, Marine Mammals Laboratories in Moscow and Petropavlosk-Kamchatskii, and the Far Seas Fisheries Research Laboratory in Japan. In addition, NMML has entered into co-management agreements to foster cooperation and communication between federal agencies and Alaska Native Organizations (ANOs), hunters, and subsistence users of Steller sea lions. Those ANOs include the Aleut Community of St. George Island/St. George Traditional Council, Aleut Community of St. Paul Island/Tribal Government of St. Paul Island, and Aleut Marine Mammal Commission.

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

⁶ Although the protocols have been approved, the numbers of takes for the new permit have changed from those research activities that are currently approved. NMML is submitting a modified protocol with those changes.