



# MARINE MAMMAL COMMISSION

31 May 2012

Mr. P. Michael Payne, Chief  
Permits and Conservation Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910-3225

Re: Request for Amendment, Permit No. 14325  
(Alaska Department of Fish and Game)

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the above-referenced permit amendment request with regard to the goals, policies, and requirements of the Marine Mammal Protection Act. Permit 14325 authorizes the Alaska Department of Fish and Game to conduct research on Steller sea lions throughout their range in Alaska. The current permit expires on 31 August 2014. The Department is requesting numerous amendments to the current permit.

## RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service issue the permit amendment, provided that—

- the conditions contained in the current permit remain in effect and that the permit is further conditioned 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 darted animals with dependent pups and the response/behavior of the pups; and
- the permit is conditioned to require the Department to halt the use of the remote immobilization technique and consult with the Service and the Commission if three or more animals are darted and suffer life-threatening adverse effects, including entering the water and either drowning or disappearing so that their fate cannot be determined.

## RATIONALE

Permit No. 14325 authorizes the permit holder to harass, observe, photograph, capture, restrain, sedate, measure, sample, collect digestive contents from, inject Evan's blue dye and deuterium oxide, conduct ultrasound on, mark/tag/brand, and instrument Steller sea lions in the North Pacific Ocean. It also authorizes incidental harassment of northern fur seals, California sea lions, and harbor seals. Finally, it authorizes the unintentional deaths of up to five Steller sea lions per year from the western distinct population segment and 209 Steller sea lions per year from the eastern distinct population segment (hereafter referred to as populations). The purpose of the

research is to study Steller sea lion population status, vital rates, foraging ecology, habitat requirements, and effects of natural and anthropogenic factors on Steller sea lions.

The Department requests that the permit be amended to authorize additional research activities that include—

- obtaining authorization to capture, restrain, measure (including ultrasound), sample (including blood, skin, hair, vibrissae, swabs, and milk via lavage), and mark 100 pups per year from both the western and eastern populations in June and July to investigate contaminant concentrations, disease prevalence, and feeding habits;
- allowing the permit holder to dart remotely adults of either sex from both the western and eastern populations to immobilize the animals with a combination of medetomidine, butorphanol, midazolam, and/or telazol;
- increasing the number of adult sea lions of either sex that can be captured, restrained, sampled, marked, and instrumented from 5 to 20 per year in the western population and from 10 to 20 per year in the eastern population to compare contaminant concentrations, health, and feeding habits between the two populations;
- allowing blood collection from and catheter insertions into the jugular vein in adults from both the western and eastern populations to avoid problems related to vasoconstriction of peripheral blood flow after chemical immobilization;
- allowing injection of deuterium oxide in the intraperitoneal cavity in all age classes of sea lions from both the western and eastern populations to minimize tissue damage from large or multiple intramuscular injections needed to measure total body fat in large juveniles and adults;
- complementing ground surveys by adding two aerial surveys and 700 takes of individuals from the western population at Cape Newenham from May through early July to understand sea lion distribution in the northern Bering Sea;
- complementing ground surveys by adding three aerial surveys and 9,000 takes of individuals from the western population in the northern Bering Sea (e.g., Nunivak Island, St. Lawrence Island, Penuk Island) from mid-July through December to understand sea lion distribution in the northern Bering Sea;
- extending the timeframe from February through May to January through May for conducting aerial surveys at the Alsek and Akwe Rivers because of the increase of individuals from the eastern population in that area; and
- increasing the number of aerial surveys that may be conducted at the Alsek and Akwe Rivers from 10 to 15 per year and increasing the number of individuals from the eastern distinct population segment accordingly (i.e., by allowing the same number of takes per survey).

Following procedures outlined in its original permit application, scientists from the Department and the National Marine Mammal Laboratory conducted pilot studies in Southeast Alaska in November 2010 and Southwest Alaska in November 2011 to refine capture and handling techniques. The results of those studies not only indicate that some risk to the animals still arises

from capturing and handling adult females, but also suggest that the risk may be lessened if the researchers are prepared to respond when darted animals enter the water. During the 2010 pilot study, researchers darted six adult females, all accompanied by dependent pups. Three of the females were successfully immobilized using a combination of medetomidine, butorphanol, and midazolam and subsequently were handled, instrumented, and sampled successfully. Following these procedures, the sea lions were injected with sedative reversal agents and monitored during recovery and release. One of those three animals initially entered the water after being darted but hauled back onto land before the immobilization drugs took effect. The three other animals that researchers darted entered the water and were not captured. One of those sea lions hauled back onto a rock and was monitored throughout the course of a full recovery. Of the two that remained in the water following darting, one subsequently was observed for over an hour until it had recovered from the effects of the sedative. The other animal was followed and eventually darted from a skiff to administer the reversal agent. However, the sea lion reacted strongly to the second of three reversal darts and swam away prior to receiving the third dose. This animal was observed later hauled on land and calling for her pup. In November 2011, the Department and Laboratory darted and released four additional adult females. Three of those sea lions were not successfully sedated because the drug dose was based on individuals from the eastern population, which are smaller than individuals from the western population. The attending veterinarian adjusted the drug dosage and the last sea lion was safely darted, successfully immobilized, anesthetized using isoflurane, and sampled. For the three sea lions that were not successfully sedated, it is unclear if those animals did enter the water after being darted based on the information provided.

Based on its experience with those sea lions, the Department believes that sea lions entering the water after immobilization drugs have been administered are able to maintain buoyancy and respiration until the sedative effect wears off and remain responsive enough to avoid capture from a skiff. It also believes that the sedative combination of the drugs appears to be sufficiently well-tolerated to buffer against possible excess dosages, if weight-estimation is inaccurate. The sedative combinations also allowed for rapid recovery after reversal agents were administered. For those reasons, the Department believes this sedation method to be a useful and safe technique for capturing adult females and it also believes it should be safe for capturing adult males.

In addition, the Department has proposed to dart only animals that are not close to the ocean shoreline or pools of standing water. Researchers would deploy the immobilization dart from a distance of 5–20 m to facilitate (1) more accurate estimates of mass to determine drug dosages and (2) quicker access to the sea lions after induction has occurred. The Department also believes that darting from a shorter distance would allow the researchers to fire the darts with less energy and speed, thus reducing the likelihood of startling the darted animal.

The Commission agrees that those measures are prudent but questions if a sample size of 10, of which 3 are known to have entered the water shortly after darting and 3 more also could have entered the water, is an adequate basis for concluding that remote immobilization of animals close to the water is safe. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service issue the permit amendment provided that the conditions contained in the current permit remain in effect and that the permit is further conditioned to include requirements to

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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 darted animals with dependent pups and the response/behavior of the pups. The Commission further recommends that the Service condition the permit to halt the use of the remote immobilization technique and consult with the Service and the Commission if three or more animals are darted and suffer life-threatening adverse effects, including entering the water and either drowning or disappearing so that their fate cannot be determined. The Commission made similar recommendations in its 6 May 2011 letter regarding amendments to the Laboratory's permit and continues to believe that the remote immobilization needs careful and thorough assessment before it is assumed to be safe.

The Department indicated that its Institutional Animal Care and Use Committee has reviewed and approved the revised research protocols.

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

Please contact me if you have any questions concerning the Commission's recommendations.

Sincerely,

A handwritten signature in blue ink that reads "Timothy J. Ragen". The signature is written in a cursive style with a long horizontal line extending from the start of the name.

Timothy J. Ragen, Ph.D.  
Executive Director