



MARINE MAMMAL COMMISSION

21 October 2009

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

Re: Permit Application No. 14535
(Colleen Reichmuth, Ph.D.)

Dear Mr. Payne:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the above-referenced permit application with reference to the goals, policies, and requirements of the Marine Mammal Protection Act.

The applicant is requesting authorization to continue psychological and physiological studies to evaluate the perceptual and cognitive capabilities of up to six pinnipeds (i.e., two California sea lions, two Pacific harbor seals, and two northern elephant seals) at Long Marine Laboratory in Santa Cruz, California. The Laboratory currently houses one California sea lion, one harbor seal, and one northern elephant seal. Additional animals would be obtained from captive and rehabilitation facilities. The permit is requested for a five-year period. The applicant's current permit (No. 1072-1771) expires on 31 December 2009.

RECOMMENDATION

The Marine Mammal Commission recommends approval of the requested authorization provided that—

- the permit, if issued, require that the applicant not re-initiate research on temporary threshold shifts unless approved by the Service after it has reviewed the additional measures the applicant will take to avoid inducing any lasting changes on hearing sensitivity in the subject marine mammals; and
- the permit, if issued, require that the study be immediately discontinued, pending consultation with the Service and authorization to proceed, if any of the marine mammals used in the study exhibit undue stress or otherwise show signs of unanticipated adverse effects as a result of the authorized activities.

RATIONALE

The purpose of the proposed research is to improve knowledge of pinniped sensory adaptations, examine cognitive mechanisms for acquiring and processing sensory information, and developing procedures for rapidly and humanely studying marine mammal hearing and the effects of

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anthropogenic noise. The research is a continuation of that authorized under the applicant's current permit (Permit No. 1072-1771). The subject animals would be trained to participate voluntarily in behavioral stimulus detection and discrimination studies that would be conducted in air or under water. The behavioral studies would, at times, be augmented using non-intrusive electrophysiological methods to monitor the animals' passive neuronal responses. The application states that the Laboratory's Institutional Animal Care and Use Committee has reviewed and approved the proposed activities.

By letter of 17 September 2008 the applicant notified the Service that, during a temporary threshold shift study conducted under Permit No. 1072-1771, an adult harbor seal unexpectedly experienced a small but persistent or permanent threshold shift as a result of exposure to a fatiguing stimulus (202 dB re $1\mu\text{Pa}^2$'s sound exposure level, based on a 60-second stimulus duration with a 184 dB re $1\mu\text{Pa}$ sound pressure level). The applicant stated that she had no immediate plans to continue studies of temporary threshold shifts with the captive marine mammals at their facility. She also noted that "[p]rior to initiating such work again, we will put in place additional measurements that give some indication of very short term, recoverable hearing effects and will continue to use highly conservative noise exposure regimes in order to avoid inducing any lasting changes on hearing sensitivity in our animals." Given the subject animal's unexpected adverse reaction during the study, the Marine Mammal Commission recommends that the permit, if issued, require that the applicant not re-initiate research on temporary threshold shifts unless approved by the Service after it has reviewed the additional measures that the applicant will take to avoid similar adverse reactions in the future. The Marine Mammal Commission also recommends that the permit, if issued, require that the study be immediately suspended, pending consultation with the Service and authorization to proceed, if any of the marine mammals used in the study exhibit undue stress or otherwise show signs of unanticipated adverse effects as a result of the authorized activities.

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 this recommendation.

Sincerely,



Timothy J. Ragen, Ph.D.
Executive Director

