



MARINE MAMMAL COMMISSION

18 June 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: Permit Application No. 14856
(Bruce Mate, Ph.D.,
Oregon State University)

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 regard to the goals, policies, and requirements of the Marine Mammal Protection Act. Dr. Mate is requesting authorization to conduct research on 83 cetacean and pinniped species in U.S., foreign, and international waters worldwide during a five-year period. Some of these activities currently are authorized under permit 369-1757, which Dr. Mate is seeking to renew and amend.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service issue the permit but—

- condition it to require that Dr. Mate make observations regarding possible short- and long-term effects of tagging on all age and sex classes, but particularly on female-calf pairs, and report the effort made and the information collected to the Service;
- condition it to require that Dr. Mate notify the Service's regional stranding network coordinators of the number and species of animals tagged, location of the tag on the animal, and type of tag used for animals instrumented along their coastline within a given year;
- condition the permit to prohibit the use of deeply penetrating tags (e.g., the Telonics ST-15 and Wildlife Computers SPOT5 tags, as described in Dr. Mate's application) on killer whales until the true risks of applying those instruments to that species have been better characterized; and
- ensure that tagging activities to be conducted under this permit and those of other permit holders who might be tagging the same species in the same areas are coordinated and, as possible, data and samples are shared to avoid duplicative research and unnecessary disturbance of animals.

RATIONALE

Dr. Mate proposes to conduct research on cetaceans and pinnipeds year-round in the Pacific Ocean, Atlantic Ocean (including the Gulf of Mexico), Arctic Ocean (including the Bering, Chukchi and Beaufort Seas), Indian Ocean, Southern Ocean, and Mediterranean Sea. The purposes of the proposed research are to continue a long-term study to (1) identify migration routes and feeding and breeding grounds; (2) characterize local movements and dive habits during migration and in feeding and breeding grounds; (3) investigate movements and dive patterns and their relationships with prey distribution, time of day, geographic location, or physical and biological oceanographic conditions; and (4) characterize whale vocalizations and sound pressure levels to which whales are exposed.

Observing, photographing, videotaping, recording, and prey mapping

Dr. Mate seeks authorization for himself and other researchers working under the requested permit to observe, photograph, videotape, and acoustically record numerous individuals of various species of cetaceans and pinnipeds each year (see the take table in the application). Individuals of all age classes and either sex could be harassed. Researchers under this permit would use small and large vessels to observe, photograph, and videotape cetaceans at distances of no less than 5 and 10 m, respectively. On occasion researchers under this permit also would use single or twin-engine aircraft to locate animals, collect data, and track animals. Aircraft typically would be flown at 300 m altitude but could fly as low as 150 m altitude to determine if an animal is tagged. The aircraft then could circle an individual or group of whales for up to one hour until a vessel is sufficiently close to find the whale(s). Researchers would collect environmental and standard survey data (i.e., species, number, distance/heading, behavior, tag information, etc.) during both aerial and vessel-based surveys. In addition, they would monitor cetaceans acoustically using a hand-held hydrophone or a 400-m hydrophone array deployed from a vessel. They also would use an echosounder, towed nets (e.g., bongo nets or otter trawls), or optical plankton counters to characterize prey near large cetaceans.

Collecting samples from large cetaceans

Researchers working under this permit would biopsy sample large cetaceans using a crossbow, rifle, or pistol. The approach distance for biopsy sampling would be no less than 5 m. They would not biopsy sample calves of blue whales estimated to be less than six months of age or calves of all other large cetacean species estimated to be less than one year of age, but would biopsy sample females with such calves. Biopsy samples would be collected only from adult minke and killer whales (all stocks but the southern resident). They would photograph killer whales prior to biopsy sampling or tagging them to confirm that they are not part of the southern resident stock. Researchers also would collect sloughed skin from all whales. Dr. Mate requests authorization to import samples collected in foreign or international waters into the United States and export some samples for analysis by foreign facilities. He plans to obtain the relevant permits under the Convention on International Trade in Endangered Species of Wild Fauna and Flora prior to importing or exporting parts from marine mammals listed in the Convention's appendices.

Tagging large cetaceans

Researchers would instrument 14 species of large cetaceans using suction-cup and/or dart tags (see the take table). Suction-cup tags may include a VHF transmitter, hydrophone, pressure transducer, temperature sensor, light meter, accelerometer, and acoustic transmitter. They would use two types of dart tags: (1) a location-only transmitter and (2) GPS transmitter, time-depth recorder, acoustic dosimeter, and/or 3-axis accelerometer/compass system. Dart tags would be anchored in the skin at minimal depths for tag retention on the order of months (dart tags for location only) or weeks (other dart tags). Researchers would attach the tags using a pole or modified air-powered line-thrower at a distance of no less than 1 m. They could instrument individuals with two different types of tags simultaneously or at two different times, but an individual whale would be instrumented with no more than two tags within one year. Repeated tagging allows tracking of a whale for longer periods and has proven very useful for characterizing long migration routes over multiple seasons. Here, too, researchers would not tag blue whale calves estimated to be less than six months of age or calves of all other large cetacean species if they are estimated to be less than one year of age, but they propose to tag females with such calves. Researchers also would tag only adult minke and killer whales (all stocks but southern resident). In all cases they would terminate an approach if an animal exhibits an acute behavioral response (e.g., repeated, prolonged, or excessive instances of disturbance or disruption of normal behavior patterns). They would not separate female-calf pairs by purposefully positioning the vessel between the female and calf. They would stop tagging efforts if their activities appear to be interfering with pair-bonding or nursing.

The Service considers any animal approached within a certain distance as having been taken, regardless of whether the animal reacts to the approach or related research activities. Therefore, Dr. Mate estimated the total number of takes per species for tagging activities based on all anticipated approaches, including successful tagging of an individual, tagging misses (i.e., the tag misses the animal and hits the water), and unsuccessful tagging attempts (i.e., the suction-cup tag does not adhere to the animal or the animal dives before the tag can be attached). Thus, the number of individuals successfully tagged would comprise a subset of the requested takes.

Data regarding the behavior of females accompanied by calves would be useful, but such data should not be collected at the expense of the calves. In the past few years, the Commission has recommended that the Service adopt a policy authorizing a slow and graduated increase in activities involving female-calf pairs, coupled with careful monitoring and reporting of potential adverse effects. To date, the Commission is not aware of instances involving strong adverse reactions when researchers have studied female-calf pairs. Therefore, the Commission considers it reasonable to allow some added flexibility in working with those pairs, provided that the researchers monitor and report their effects.

Although the Commission believes that female-calf pairs warrant special attention, it also believes that it is important to document short- and long-term effects of tagging on all age and sex classes. For that reason, the Marine Mammal Commission recommends that the National Marine Fisheries Service issue the permit, but condition it to require that Dr. Mate make observations regarding possible short- and long-term effects of tagging on all age and sex classes, but particularly

on female-calf pairs, and report the effort made and the information collected to the Service. To help detect long-term effects of tagging, the Commission also recommends that the Service condition the permit to require that Dr. Mate notify the Service's regional stranding network coordinators of the number and species of animals tagged, location of the tag on the animal, and type of tag used for animals instrumented along their coastline within a given year. Similar information is given to stranding network participants for tagged pinnipeds so that the fate of those pinnipeds can be provided to the relevant researcher if they strand.

Choice of dart tags

Dr. Mate proposes to use Telonics ST-15 and Wildlife Computers SPOT5 dart tags on the various cetaceans he would study. He has used those tags on large cetacean species and, to his credit, has made considerable effort to monitor those animals to detect both short- and long-term effects. To date, he has not found evidence indicating that the tags pose a significant risk to large whales. That being said, this topic remains controversial in the field of marine mammal science and scientists are still conducting studies and collecting information to characterize the true risk.

Dr. Mate's application includes tagging killer whales, and the risk to them (even large adults) is likely greater than the risk to large cetaceans using a tag of fixed size because killer whales are smaller and have a thinner blubber/fat layer. The concern is that the tags, as described in his application, may penetrate 24 to nearly 30 cm, passing through skin, blubber/fat, and then either striking a vertebra or cutting deeply into the muscle layer. As described in Dr. Mate's application, the ST-15 and SPOT5 tags are intended to penetrate into the muscle layer, which anchors them in the muscle or surrounding fascia. They must cause some damage to the muscle layer, but the extent of that damage is not known. However—killer whales being smaller—the tags are likely to penetrate the muscle layer more deeply and therefore are likely to cause more damage. Dr. Mate has tagged one smaller cetacean (a humpback whale calf) without evidence of such effect, but the degree of injury to that whale was not readily apparent and a sample size of one is not sufficient to characterize the true risk.

Dr. Mate's research has been very productive and informative, and the Commission does not wish to impede his planned studies. At the same time, the Commission believes that the risks associated with research methods need to be evaluated and that scientists should be cautious until such evaluations are completed. In this case, Dr. Mate has several options available to him. One option would be to gather the existing information from stranding network coordinators to evaluate the depth of the blubber/fat layer and use that information as a basis for resizing his tags so that they do not penetrate the muscle layer more than necessary to anchor the tag. Another option would be to consult with captive facilities (e.g., Sea World) that house killer whales to see if they have such information. A third option would be to use a different kind of tag until scientists are better able to characterize the risk of tagging killer whales with such deeply penetrating tags. For example, Dr. Mate might use LIMPET tags. Those tags do not include the acoustic dosimeter or 3-axis accelerometer/compass system, but also penetrate only about 7 cm. So while they do not provide all the information Dr. Mate seeks, they are less likely to result in unacceptable injury because of deep tag penetration.

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Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service condition the permit to prohibit the use of deeply penetrating tags (e.g., the Telonics ST-15 and Wildlife Computers SPOT5 tags, as described in Dr. Mate's application) on killer whales until the true risks of applying those instruments to that species have been better characterized.

Other considerations

Dr. Mate indicates that he would be collaborating with numerous international researchers and some federal agencies. However, it is unclear if he would be coordinating with other U.S. researchers that tag large cetaceans. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service ensure that tagging activities to be conducted under this permit and those of other permit holders who might be tagging the same species in the same areas are coordinated and, as possible, data and samples are shared to avoid duplicative research and unnecessary disturbance of animals.

Dr. Mate has not requested unintentional mortalities associated with the proposed activities but may harass Steller sea lions, Hawaiian monk seals, bearded seals, ringed seals, and Guadalupe fur seals incidental to the vessel surveys. Dr. Mate's Institutional Animal Care and Use Committee (IACUC) has reviewed and approved the proposed research protocols. He also indicated that he would obtain the appropriate National Marine Sanctuary permits and foreign permits prior to conducting the proposed 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 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 stroke at the beginning.

Timothy J. Ragen, Ph.D.
Executive Director