



MARINE MAMMAL COMMISSION

20 May 2013

Mr. Timothy J. Van Norman
Chief, Branch of Permits
Division of Management Authority
Fish and Wildlife Service
4401 North Fairfax Drive
Arlington, VA 22203

Re: Permit Application No. 056326
(Graham A.J. Worthy, Ph.D.,
University of Central Florida)

Dear Mr. Van Norman:

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. Worthy is requesting authorization to conduct research on West Indian manatees during a five-year period. Most of the proposed activities currently are authorized under the same permit number, which the applicant is seeking to renew and amend.

RECOMMENDATION

The Marine Mammal Commission recommends that the Fish and Wildlife Service issue the permit, as requested.

RATIONALE

Dr. Worthy proposes to conduct research primarily on captive manatees on a year-round basis. Those manatees are either permanently or temporarily held in captivity at seven public display and/or rehabilitation facilities. The proposed research would continue long-term studies of physiology and foraging ecology of manatees.

Dr. Worthy seeks authorization to conduct thermoregulatory studies using a metabolic chamber on up to five captive manatees per year. Individuals could be of either sex and any age class except nursing calves, lactating females, and pregnant females. The studies would require metabolic measurements taken at various water temperatures. For any given animal, the studies would involve one 2-hour session per day and up to five sessions per year. Ideally, the sessions would be conducted on five consecutive days.

Dr. Worthy also would conduct studies of osmotic regulation on up to five captive manatees per year, again excluding nursing calves and pregnant and lactating females. Those studies would be to investigate the effects of ambient salinity and salt loading that occurs with the ingestion of seagrass. The study would be divided into three phases, each of two weeks duration. Veterinary staff

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would collect blood samples once per week while the manatees are on a mixed diet (i.e., phase 1), collect additional samples when the manatees are put on a diet comprised of seagrass only (i.e., phase 2), and finally collect one more set of samples after the manatees again are fed a mixed diet (i.e., phase 3). Throughout the study period staff also would collect urine samples on an opportunistic basis. The samples would be analyzed for electrolytes, blood chemistries (blood only), and hormone concentrations.

In addition, each year Dr. Worthy would investigate the digestive efficiency and feeding habits of up to 20 manatees, excluding nursing calves. He would conduct captive feeding trials and then apply the same technique to free-ranging manatees to determine their assimilation efficiency. Veterinary staff would collect fecal samples from captive manatees consuming known mixed forage diets. They would use those samples to assess the accuracy of two genetic techniques for identifying the vegetation types consumed and their relative proportions. On an opportunistic basis they would then collect similar samples from free-ranging manatees consuming marine or freshwater vegetation as part of standard health assessments, either after capture for rehabilitation purposes or during unusual mortality events. They could collect fecal samples from the same individual up to 10 times per year. Capture and handling of free-ranging manatees would be authorized under permits to the Florida Fish and Wildlife Conservation Commission.

Finally, veterinary staff would collect skin samples from up to 10 captive manatees per year for stable isotope analysis. Once again, they would not sample dependent calves, lactating females, or pregnant females but could collect samples from other individuals up to four times per year. In addition, stomach contents, blubber, skin, bone, teeth, hair, and fecal samples could be collected from up to 100 freshly dead, boat-killed manatees by either the Florida Fish and Wildlife Conservation Commission or Sea World Orlando. Dr. Worthy would analyze those samples for stable isotope signatures to investigate foraging ecology and determine tissue-specific turnover rates.

The University of Central Florida's Institutional Animal Care and Use Committee (IACUC) currently is reviewing the proposed research protocols. Dr. Worthy's application indicated that the IACUC has approved similar protocols in the past. The Marine Mammal Commission believes that this work is necessary to understand various aspects of manatee physiology and foraging ecology and therefore recommends that the Fish and Wildlife Service issue the permit, as requested.

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 recommendation.

Sincerely,



Timothy J. Ragen, Ph.D.
Executive Director