



# MARINE MAMMAL COMMISSION

27 June 2016

Mr. Timothy J. Van Norman, Chief  
Branch of Permits, MS: IA  
Division of Management Authority  
U.S. Fish and Wildlife Service  
5275 Leesburg Pike  
Falls Church, Virginia 22041-3803

Re: Permit Application No. 90060B  
(Laura Graham, Ph.D.,  
University of Guelph)

Dear Mr. Van Norman:

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). Dr. Graham is requesting authorization to conduct research on 13 captive polar bears during a two-year period.

Dr. Graham proposes to measure the core body temperature of 13 captive polar bears<sup>1</sup> up to two times each. The purpose of the study is to validate the use of thermal imaging as a method for assessing core body temperature in polar bears and to investigate their thermoregulatory responses to various ambient environmental conditions. Each bear would be fed a meatball<sup>2</sup> containing an iButton<sup>3</sup> at least 12 hours prior to the start of an 8-hr thermal imaging session. During that session, bears would be videotaped and thermograms would be taken using forward looking infrared cameras. The iButton would be passed in the feces 36 to 48 hours following ingestion based on trials conducted on polar bears housed at zoos in Canada (13 iButtons in 8 bears). Facility personnel would collect the feces.

The iButton has been used previously in polar bears with no apparent health or behavioral complications. The Canadian Council for Animal Care, the Canadian equivalent to an Institutional Animal Care and Use Committee, also has reviewed and approved the research protocols. For these reasons, the Commission believes that the proposed activities are consistent with the purposes and policies of the MMPA and recommends that the U.S. Fish and Wildlife Service issue the permit, as requested.

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<sup>1</sup> Subadult and adult males and females held at the Oregon Zoo, Cincinnati Zoo, Brookfield Zoo, Louisville Zoo, SeaWorld, and ABQ BioPark.

<sup>2</sup> Some facilities also may feed markers (e.g., non-toxic glitter, seeds, food coloring) to identify the source bear and its associated feces.

<sup>3</sup> By Thermoacron® to record core body temperature.

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Kindly contact me if you have any questions concerning the Commission's recommendation.

Sincerely,

A handwritten signature in blue ink that reads "Rebecca J. Lent". The signature is written in a cursive style with a large initial "R" and a long horizontal flourish.

Rebecca J. Lent, Ph.D.  
Executive Director