



# MARINE MAMMAL COMMISSION

9 March 2020

Ms. Jolie Harrison, 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. 23273  
(Michelle Shero, Ph.D.,  
Woods Hole Oceanographic Institute)

Dear Ms. Harrison:

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. Shero proposed to conduct research on Weddell seals in the Ross Sea during a five-year period<sup>1</sup>.

The purpose of the research is to investigate (1) energy dynamics, (2) dive behavior, (3) genetics, and (4) health of Weddell seals to understand the mechanisms underlying reproductive rates of female seals. Dr. Shero would harass, observe, photograph/videotape<sup>2</sup>, handle, restrain, measure/weigh, conduct ultrasound and photogrammetry on, mark, sample<sup>3</sup>, and instrument Weddell seal pups of either sex and adult females (see the take table for specifics). Dr. Shero requested up to five unintentional or intentional<sup>4</sup> mortalities<sup>5</sup> per year, not to exceed 15 mortalities during the five-year period. She would use various measures to minimize impacts on Weddell seals and other pinnipeds and also would be required to abide by the National Marine Fisheries Service's (NMFS) standard permit conditions. Dr. Shero's Institutional Animal Care and Use Committee has reviewed and approved the proposed research protocols.

## **Sedation protocols**

To conduct research activities on pups as young as five days of age, Dr. Shero proposed to physically restrain or sedate them using midazolam, a combination of midazolam and butorphanol, or a combination of midazolam and ketamine. Although Dr. Shero informally indicated that she expects 5-day-old pups would need only physical restraint or sedation with midazolam or midazolam

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<sup>1</sup> Dr. Shero also is authorized to conduct research on Weddell seals, in collaboration with the New Zealand Antarctic Program, under permit 22183.

<sup>2</sup> Including using unmanned aircraft systems.

<sup>3</sup> Including importing and exporting samples for analysis.

<sup>4</sup> Via euthanasia for humaneness purposes.

<sup>5</sup> For both pups and adult females.

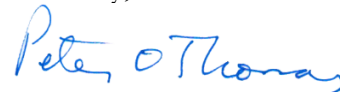
and butorphanol, she included the option of using midazolam and ketamine for flexibility based on the recommendation of NMFS's veterinarian. The Commission understands that veterinarians and researchers want flexibility in the drugs that they use. However, as the Commission has noted informally<sup>6</sup> and formally<sup>7</sup> for other research permits, ketamine is not reversible. As such, it poses a risk to very young animals that have not been handled or sedated previously and for which their reaction to sedation is unknown. In addition, the Commission is not convinced that the use of ketamine is necessary for the types of procedures<sup>8</sup> that Dr. Shero plans to conduct. The Commission continues to contend that researchers should be authorized to sedate pups, particularly very young ones, only with the types and quantities of drugs that are absolutely necessary to conduct the procedures successfully and safely and recommends that NMFS prohibit Dr. Shero from sedating five-day-old Weddell seal pups or pups at their first handling<sup>9</sup> with ketamine.

### **Hair sample collection protocols**

During its informal review of Dr. Shero's application, the Commission inquired whether hair samples would be collected at all handlings of an individual seal, as the application did not specify how often samples could be taken from a given individual. In her response, Dr. Shero indicated that hair samples would be collected at each handling but again omitted that information from the application text. In response to the Commission's request to include the information in the application, NMFS replied that insertion of those details in the application was unnecessary because the information was already included in the take table, which was sufficient. The Commission disagrees. NMFS's 2016 application instructions stipulate that the methods section of an application must specify the number of times an animal could be sampled in a year for each intrusive sampling activity<sup>10</sup>. Moreover, Dr. Shero specified in the application how often all other types of sample would be collected from each seal. Thus, the Commission recommends that NMFS specify in Dr. Shero's final permit application that hair samples would be collected at each handling of a Weddell seal in a given year.

The Commission believes that the proposed activities are consistent with the purposes and policies of the MMPA. Please contact me if you have any questions regarding the Commission's recommendations.

Sincerely,



Peter O. Thomas, Ph.D.,  
Executive Director

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<sup>6</sup> e.g., its comments on Dr. Heather Liwanag's permit application 18879.

<sup>7</sup> e.g., its [13 September 2018 letter](#) on Dr. Linnea Pearson's amendment request under the Antarctic Conservation Act and its [1 July 2019 letter](#) on Dr. Pearson's amendment to permit 21006 under the MMPA.

<sup>8</sup> And the duration of those procedures.

<sup>9</sup> Including pups more than five days of age.

<sup>10</sup> Including collecting samples under physical or chemical restraint.