

Bay 26.8 Shawna Karpovich Validation of a novel method using claws to create a temporal map of reproductive and stress-related hormones for bearded and ringed seals

In the Alaskan Arctic, bearded seals (*Erignathus barbatus*) and ringed seals (*Pusa hispida*) are found in the Beaufort, Chukchi, and Bering Seas. These seals may be vulnerable to already occurring changes in climate and sea ice, which are predicted to intensify in the future. We will examine stable isotopes (SI) as a proxy for diet in conjunction with reproductive and stress-related hormones, comparing samples collected in the 1960s and 1970s to recent seal samples. A better understanding of the physiological responses of individuals over time will allow us to assess how seals react to changes in diet. As ice seal claws grow, paired dark and light bands are deposited annually, creating a record of up to 10 years. SI have been examined in ice seal claws, and steroid hormones have been extracted from dog and turtle claws, but not yet from ice seal claws. Laboratory methods for sample collection, extraction and validations of commercially available enzyme immunoassay kits including recovery of added mass, parallelism, and dilution linearity were performed for progesterone, cortisol, and aldosterone (Arbor Assay). Claw material was removed using a Dremel from proximal and distal halves of each band, powder was collected with deionized water and dried at 60 °C for 48-72 hrs. Powdered claw material was weighed and hormones extracted with methanol. A subsample of extract was dried under forced air and reconstituted in assay buffer. For both ringed and bearded seals, pools of extracted methanol were made from multiple claws. The influence of sample mass (1-20 mg), extraction duration (24, 48, and 72 hrs), and temperature (22 and 37 °C) was examined on extraction efficiency. This work sets the stage to assess the long-term changes in diet and stress-related and reproductive hormones using paired stable isotope and steroid hormone concentrations in claws.



// 2017: A Marine Mammal Odyssey, Eh!

ABSTRACT BOOK

Main Conference // October 22-27, 2017

Workshops // October 28-29, 2017

World Trade and Convention Centre
Halifax, Nova Scotia, Canada



The Society for Marine Mammalogy's
22nd Biennial Conference on the
Biology of Marine Mammals

Photo: © Damian Lidgard