

Baseline Measures of Health for Ice-Dependent Arctic Seals

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Abstract

Bearded (*Erignatus barbatus*), ringed (*Pusa hispida*) and spotted (*Phoca largha*) seals rely on seasonal sea-ice in Arctic and sub-Arctic regions. At present, it is difficult to predict how large-scale loss of sea ice will affect the health status of these species. Many aspects of their biology and physiology are poorly known, and species-typical health parameters are not available. Such information has proven difficult to obtain due to the challenges of studying Arctic seals in the wild and their minimal historic representation in aquaria. Long Marine Laboratory (LML) at the University of California in Santa Cruz and the Alaska SeaLife Center (ASLC) in Seward, Alaska are collaborating on a comprehensive research program to better understand these species and how they are impacted by environmental changes using a captive collection of bearded (n = 2), ringed (n = 3), and spotted (n = 4) seals housed at both facilities. We have compiled veterinary data (hematology, serum chemistry, serology, parasitology, urinalysis, and microbiology) for the captive ice seals in this project, combined it with veterinary data from other stranded ice seals admitted to ASLC (an additional 11 ringed seals, 5 spotted seals, 1 bearded seal, and 1 ribbon seal), and have begun collecting data from the other few facilities that house ice seals to establish reference ranges for the animals under our care. By providing essential baseline health and physiological parameters for healthy seals throughout development and critical life history stages, we will improve the ability of wildlife managers to identify and respond to risks posed to wild spotted, ringed, and bearded seals as a result of disease exposure, environmental disasters, and climate change.

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