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P1-218 HERMANN-SORENSEN, H.*; RUSCHER-HILL, B.; TENGLER, M.; BRYAN, A.; REICHMUTH, C.; THOMETZ, N.M.; University of California Santa Cruz, Alaska Department of Fish and Game, University of San Francisco; *hhermann@ucsc.edu*
Aerobic and Anaerobic Properties of Bearded Seal Locomotor Muscle

The physiological properties of skeletal muscle in marine mammals play a key role in defining species-specific limits to diving and foraging. Given the fundamental separation of air at the surface and prey at depth, marine mammals must store and efficiently use oxygen within skeletal muscles to fuel aerobic metabolism, as well as manage the build-up of anaerobic byproducts within locomotor muscles, while foraging. For many Arctic species, navigation beneath sea ice presents an additional challenge. In this preliminary study, we examined aerobic and anaerobic properties of locomotor skeletal muscle in an Arctic phocid, the bearded seal (*Erignathus barbatus*). Samples from the longissimus dorsi muscle (n=7) were taken from bearded seals harvested by subsistence hunters in Point Hope, Alaska. Samples were analyzed for both myoglobin content and non-bicarbonate buffering capacity. Our results show that bearded seal locomotor muscle has a comparatively low myoglobin content (4.09 ± 0.45 g Mb/100 g wet tissue), but high buffering capacity (96.66 ± 3.23 slykes), for a phocid seal. We suggest this unique muscle physiology may be an adaptation to foraging under sea ice. These data provide insight into the foraging capacities of bearded seals and can be used to inform predictions as to the resilience or sensitivity of this species to changing conditions.