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Meeting Abstract

P3-113 Monday, Jan. 6 **Fiber-type profile of bearded seal (*Erignathus barbatus*) longissimus dorsi muscle** FLETCHER, ML*; BARRETT, LM; DEAROLF, JL; THOMETZ, NM; BRYAN, A; REICHMUTH, C; Hendrix College, Conway, AR; Univ. of San Francisco, CA; Alaska Department of Fish and Game, Fairbanks; Univ. of California, Santa Cruz fletcherml@hendrix.edu

Bearded seals (*Erignathus barbatus*) are benthic-feeding, Arctic pinnipeds that typically do not dive past 100 meters. Knowing the physiology of their locomotor muscles could increase our understanding of how they dive, feed on the bottom, and swim between their feeding grounds and haul-out sites. Thus, the goal of this project was to quantify the percentages of slow- and fast-twitch fibers in the longissimus dorsi (LD) muscle of bearded seals. To achieve this goal, 9 and 11 μm thick sections of bearded seal LDs were cut with a cryostat and stained for their myosin ATPase activity after basic incubation. Additional sections were stained for two different myosin heavy chain antibodies: SC-71 (anti-fast-twitch type 2A myosin) and A4951 (anti-slow-twitch type 1 myosin). All of the stained sections were then imaged, and images of the three stains were taken from identical regions in each section. The images of the ATPase-stained tissue were used to identify and count darkly (fast-twitch) and lightly (slow twitch) staining fibers, as well as intermediately staining fibers. These data were used to determine the average percentages of these fibers in the LDs of bearded seals. We also used ImageJ software to measure the diameter of each type of fiber. The fiber-type profile of the bearded seal LDs, as well as the sizes of the fibers, will be compared to those of the LDs of two other Arctic seals, ringed and spotted. This comparison will allow us to identify any differences in these features between their locomotor muscles that may underlie the differences in swimming and diving abilities that exist between these three Arctic seal species.