

GROUP B: PHYSIOLOGY - BAYS 25, 26, 29

Bay 25.1 Mandy Keogh Tracking reproductive histories in whiskers of Steller sea lions and northern fur seals

Keratinized tissues including whiskers have proven ideal for acquiring a record of physiological parameters, such as dietary stable isotope signatures. Unlike other tissues that provide a snapshot of hormones, whiskers could track reproductive histories determined by progesterone concentrations over multiple years in both Steller sea lions (SSLs) and northern fur seals (NFSs). SSLs and NFSs whiskers were obtained from three sources: live-captured animals during field research, bio-sampled carcasses, and animals housed in aquariums. Whiskers were serially sectioned with a hand chisel, pulverized, and steroid hormones extracted with methanol at room temperature with slow rotation for 24 hours. Standard methods including recovery of added mass, parallelism and dilution linearity were used to validate enzyme immunoassay kits (Arbor Assay) for progesterone and 17 β -estradiol. Progesterone and 17 β -estradiol were detectable in serial sections of SSL and NFS whiskers and multiple hormones could be measured from the same methanol extract. Progesterone detection required less whisker tissue compared to 17 β -estradiol. Therefore, whiskers were sectioned and hormones extracted based on the mass requirement for progesterone and the methanol extract from multiple sections were combined to measure 17 β -estradiol. Whiskers collected from females with known reproductive histories were used to compare hormone concentrations during reproductive events including full-term pregnancy and estrous without pregnancy. Whiskers showed cyclical patterns in progesterone concentrations (SSL: 3.3-136.9 pg/mg whisker; NFS: 1.2-817.5 pg/mg whisker) along the length of the whisker which appears to signify previous pregnancies or luteal phases. However, estradiol concentrations (SSL: 0.25-0.77 pg/mg whisker; NFS: 0.87 - 15.58 pg/mg whisker) did not show the expected patterns and may not be as informative as progesterone. These results indicate otariid whiskers retain reproductive hormones, progesterone and 17 β -estradiol, throughout the length of the whisker and possibly give insights into multi-year reproductive histories of SSLs and NFSs.



// 2017: A Marine Mammal Odyssey, Eh!

ABSTRACT BOOK

Main Conference // October 22-27, 2017

Workshops // October 28-29, 2017

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The Society for Marine Mammalogy's
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