

*POSTER Session: Steller Sea Lion Biology and Ecology  
Feeding and Diving Ontogeny*

**Stable isotope fluctuations in Steller sea lion (*Eumetopias jubatus*) vibrissae  
indicating weaning events**

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Current hypotheses for the decline of Steller sea lion populations have focused on nutritional stress and its effect on juvenile survival. The potential effect(s) of nutritional stress may be expressed in neonate cohorts as shorter nursing times, changes in times of weaning, and related foraging shifts by young. This study examined the fluctuations in stable isotope ratios contained within vibrissae, and relates those changes to parturition, the onset of nursing, and the shift from milk to live prey. Stable-carbon ( $\delta^{13}\text{C}$ ) and nitrogen ( $\delta^{15}\text{N}$ ) isotope ratios were examined in serum, milk, and longitudinally in vibrissae collected from free-ranging Steller sea lions ranging in age from 1 month to 2 years. Vibrissae samples for seven animals (2 pups and 5 juveniles) from Prince William Sound have been analyzed. Pup vibrissae were partitioned into in-utero and ex-utero sections. In-utero vibrissae sections exhibited depletion of both  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  of 1.5‰ and 1.7‰, respectively. Ex-utero,  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  immediately became enriched by 2.1‰ and 3.0‰, respectively, suggesting the occurrence of nursing. The  $\delta^{15}\text{N}$  nursing signature was a trophic level higher (enriched 4.4‰) than the mean  $\delta^{15}\text{N}$  value of milk (n=36) at  $15.3 \pm 1.1$ , further supporting the finding of a nursing signature. Isotope values along the length of the juvenile vibrissae show a depletion in  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  (2.0-2.7‰ and 4.0-4.9‰, respectively) and suggests a diet shift from nursing. The nitrogen isotope values at the base of the vibrissae (composed of living tissue at the time of collection) did not differ from blood ( $17.8 \pm 1.6$  and  $17.7 \pm 1.4$ , respectively). Additional analyses will increase sample size and compare values between the endangered and threatened Steller sea lion populations of Alaska.

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## Abstracts



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