

- (1) Alaska Sealife Center, PO Box 1329, Seward, AK, 99664, United States
- (2) University of Alaska Fairbanks
- (3) Alaska Dept. of Fish and Game

As the investigation into the decline of the western Steller sea lion population continues, it is increasingly important to develop simple techniques that can act as indicators of health and body condition. The objective of this study was to measure a combination of hormones that are involved in the regulation of metabolism in Steller sea lions ranging in ages, including four week olds (n=59), four months to a year (n=60), five year olds (n=9) and seven year olds (n=3). The specific hormones examined include free and total thyroid hormones and cortisol. Total and free thyroxine (T4) ranged from non-detectable to 47.3 ng/ml and 0.4 to 8.0 pg/ml, respectively, while total and free triiodothyronine (T3) ranged from 0.2 to 1.4 ng/ml and non-detectable to 2.2 pg/ml, respectively from all animals sampled. Cortisol ranged from 3.1 to 283 ng/ml. Concentrations of total T3 and T4 decreased with age, and fasting in the five year olds dramatically suppressed total T4 but not total T3. Cortisol concentrations were variable with age and were not elevated with fasting. Free-ranging Steller sea lions four to 12 months had higher cortisol concentrations than did free-ranging pups or captive five and seven year old animals. These results indicate that the metabolism of Steller sea lions is regulated ontogenetically and is suppressed as a function of fasting. Cortisol concentrations of the free-ranging four to 12 month olds suggests these animals are experiencing more challenges (*i.e.* stress) than are neonatal pups or captive Steller sea lions.

Thyroid and Cortisol Hormone Concentrations in Steller Sea Lions (*Eumetopias jubatus*)

Atkinson, S.¹; Myers, M.²; Rea, L.³

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