Gulf of Alaska — Marine Mammals

Health Assessment of Steller Sea Lions

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One hypothesis for the decline in the endangered western stock of Steller sea lions (*Eumetopias jubatus*) as compared to the threatened eastern stock is decreased pup survival rate. In conjunction with surveys for population dynamics, infectious disease prevalence and toxicologic exposure, methods for evaluating individual and population health are important evaluation tools. An objective, quantitative method of comparing individual and population health was developed as part of an epidemiological assessment of Steller sea lion health in Alaska, USA. Utilizing samples collected between 1998 and 2005, from sea lions aged one to 30 months, "normal" ranges for hematology and blood chemistry parameters (hematocrit, white blood cell counts, total protein, albumin/globulin ratio, total bilirubin, BUN, creatinine, liver enzymes (ALT, AST, GGT), alkaline phosphatase, calcium, chloride, sodium, potassium, phosphorus, CO2 and glucose) were determined. These ranges were used to score different parameters, incorporating expected age differences and physiological associations (e.g. renal function score based on both BUN and creatinine). A total health score was calculated combining the blood parameters with physical examination findings. Overall, scores did not vary significantly (p>0.05) with age and sex, but scores did vary significantly by rookery, with a significant collection year/rookery interaction. No significant difference in pup and juvenile health was noted between the western and eastern stock. In addition to the development of method to evaluate health, results derived from this project will be used to identify parameters most important for future monitoring of the Steller sea lion populations.
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