

individual pups, Tugidak Is. yielded 8 individual outliers (28%), whereas PWS yielded 5 (20%). There appears to be significant population level differences in mean blood chemistry values between Tugidak Island and PWS. However, the differences in mean blood parameters may be natural perturbations and may not reflect physiological or environmental stress. Most individual "outlier" harbor seal pups revealed elevated liver enzymes, which may be a function handling stress. Combining the technique of cluster analysis with population chemistry differences may provide more insight on the overall physiological health of populations.

#### **A COMPARISON OF BLOOD CHEMISTRY AND HEMATOLOGY VALUES FOR HARBOR SEAL PUPS ON TUGIDAK ISLAND AND WITHIN PRINCE WILLIAM SOUND, ALASKA**

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Populations of marine mammals and seabirds in the Gulf of Alaska and Bering Sea have experienced significant declines over the past two decades. Recent data suggest that the harbor seal population within PWS continues to decline while Tugidak Island population appears to be increasing or stable at decreased numbers (Small 1998). Changes in prey availability can be reflected in body condition or nutritional status of harbor seals and thus reflected in blood chemical and hematological parameters (Thompson et al. 1997). A total of 77 harbor seal pups were captured between June and July 1997-1998 within PWS (n=32) and on Tugidak Island (n=45). Reference ranges were calculated for each population. Mean blood chemistry and hematology parameters were used to determine potential health or physiological differences between areas, whereas individual "outliers" within each population were determined using hierarchical cluster analysis plotted against reference ranges +2 SD. Among sites, 50% of blood chemistry parameters were significantly different with nine elevated for harbor seal pups on Tugidak Island (Na, K, PO<sub>4</sub>, Ca, BUN, BUN:Creatinine, total protein, albumin, alkaline phosphatase) whereas two were elevated for the pups captured within PWS (haptoglobin and alanine aminotransferase). Hematology values among sites yielded significantly increased monocyte and MCHC values for PWS pups. Using 31 blood chemistry and hematology parameters for

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**ABSTRACTS**

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