Remote Monitoring of Vital Rates in Harbor Seals (*Phoca vitulina*)

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Harbor seals (*Phoca vitulina*) declined by >63% in Prince William Sound (PWS) since ~1980 and continue declining at 2.4%/yr (1990-2005). Declining populations can be evaluated by estimating long-term survival and reproduction and quantifying effects of proximate factors on those vital rates. In 2003, we initiated a vital rates study in PWS; 122 harbor seals (70.5% females, 61.5% <1 year old) received subcutaneously-implanted 5-yr VHF transmitters with mortality sensors. We conduct a comparable study (155 5-yr VHF implants) in the rapidly declining seal population in Glacier Bay (GLBA). At capture/tagging we collect samples to assess age, genetics, body condition and health, diet, immunocompetency, reproductive condition, disease status and contaminant load. In 2005, with NPRB funding, we established six remote-monitoring stations in PWS that transmit presence/survival data from radio-tagged harbor seals via GOES. Survival data from VHF implants paired with health-related data for those individuals may identify variables that differentiate between seals that survive and non-surviving/censored seals; potentially elucidating factors contributing to seal declines. Code was written to automatically download GOES-transmitted data and sort/filter data, eliminating false positives (~25% of data). Preliminary results (log-linear models) for telemetry-resight data from remote stations indicate that resight rate was highest in year tagged, with possible age*mark*year effects. Both sexes had equal resight probability. Area comparison (females only) showed weak evidence of higher resight probability in GLBA; pups were less likely to be resighted in subsequent years. Estimates of survival rates and multivariate analysis of health data, relative to survival, will be conducted in the future.
Book of Abstracts

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