
A HEALTH ASSESSMENT APPROACH TO STELLER SEA LION RESEARCH IN ALASKA

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Abstract

Since 2000, the Alaska Department of Fish and Game has incorporated a health assessment approach to the study of the population decline and failure of stock recovery for the western stock of the Steller sea lion (*Eumetopias jubatus*). The declining western stock of the Steller sea lion (SSL), listed as “endangered”, ranges from the central Gulf of Alaska westward through the Aleutian Islands and has declined by 80% since the last 1970s. The eastern stock, which is listed as “threatened” and ranges from the eastern Gulf of Alaska southward to California, is steadily increasing.

The main question is: Has a single or combination of endemic or new epidemic diseases or organic or inorganic contaminants resulted in decreased survival or births of sea lions through direct mortality or reduction of individual fitness? The main objectives of the health assessment approach in attempting to answer this question are to 1) determine if there have been any new disease agents introduced into the populations, 2) determine if there are differences in exposure to select disease agents between stocks, 3) identify and describe the endemic agents, 4) determine whether these agents are pathogenic 5) determine what levels of select contaminants are present in the different stocks and 6) determine whether any of these factors affect the health of individuals by relating this data to parameters of growth, condition and potentially survival.

Utilizing collaborative research opportunities with several agencies, data has been collected on over 400 SSL pups and juveniles during live-capture/release. Morphometrics and foraging studies examine differences between sexes, ages, regions, stocks, etc. Health and disease information is collected concurrently on the same individuals as well as pathologic examinations on dead animals. Samples on each live-captured animal are collected for hematology, serology, clinical chemistries, organochlorine and heavy metal analysis, histopathology of lesions, bacteriology (culture and PCR), virology (culture and PCR), mycology, parasitology, and selected immune function studies. Disease agents currently under surveillance by culture, PCR, or serology include: *Chlamydophila psittaci*, poxviruses, caliciviruses, phocid herpesvirus-1, *Toxoplasma gondii*, morbilliviruses, *Leptospira interrogans*, *Salmonella* sp., pathogenic *E coli*,

influenza A, *Brucella* spp., canine parvovirus, canine adenovirus 1 + 2, *Sarcocystis neurona*, and *Uncinaria* sp.