

Intestinal Hookworm (*Uncinaria sp.*) Burdens and Egg Shedding in Declining and Increasing Stocks of Steller Sea Lions in Alaska

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Recent disease surveys in Steller sea lions (SSLs) in Alaska have detected the presence of a hookworm, *Uncinaria lucasi*. Our objectives were to determine hookworm prevalence and potential adverse effects on pup health in two populations of SSLs. We documented *Uncinaria* in the small intestines of dead pups (n=14) and egg shedding in feces of live and dead pups (n=225) collected on 6 rookeries from 2003-2005. Samples were collected per rectum from live pups, 2-4 weeks of age, at branding during the last week of June/first week of July. We compared the prevalence of patent *Uncinaria* infections between stocks and individual rookeries. Prevalence was higher in the eastern (52%) versus western (16%) stock and varied by rookery. Prevalence was lowest in the farthest west rookery, Ugamak, (10%) and highest at the farthest southeast rookery, Lowrie Island (50%). Prevalence varied between eastern rookeries but the two western rookeries were not significantly different (10% and 12%). Egg counts ranged from 25 to 9333 eggs/g. Mean egg counts differed by stock with higher shedding in the eastern stock. Within the eastern stock, mean egg counts also varied by rookery with the lowest at the most recently established rookery in Glacier Bay. Eggs counts and hematocrit were negatively correlated in 2-4 week old pups while there was no correlation in the 2 month olds. Total intestinal worm burdens ranged from 1 to 3477 (mean=490) with 93 % of the intestines examined containing worms but only 21% were patent infections. In patent infections, there was an increasing trend in egg shedding with worm burden. Increased prevalence with increasing population density is consistent with density-dependent parasite transmission. Further studies on hookworm-associated pathology are critical considering that parasite loads encountered are well above those associated with significant mortalities in other pinniped species.

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