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Assessment of anadromous salmon resources in the diet of the Alexander Archipelago wolf using stable isotope analysis

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Oecologia (1999)

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Abstract

The Alexander Archipelago wolf (*Canis lupus ligoni*) is unique to southeast Alaska, occurring on islands south of Frederick Sound and along the mainland between Dixon Entrance and Yakutat Bay. Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) are an important prey species for wolves across the southern part of the region. Spawning salmon (*Onchorynchus* sp.) are seasonally available but their presence in wolf diets has not previously been quantified. We examined the range of bone collagen $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values for wolves throughout southeast ($n = 163$) and interior ($n = 50$) Alaska and used a dual-isotope mixing model to determine the relative contribution of salmon-derived marine protein in the diet. Southeast Alaska wolves consumed significantly more salmon (mean SE: 18.3 1.2%) than did wolves from interior Alaska (9.1 0.6%, $P < 0.001$). Wolves on the southeast Alaska mainland appeared to have higher marine isotopic signatures than island wolves, although this difference was not significant. Variation among individual wolf diets was higher for southeast than for interior Alaska wolves, and variation was highest in coastal mainland wolf diets ($P < 0.001$). Marine resources may augment the diet of southeast Alaska wolves during seasonal or annual fluctuations in the availability of deer, particularly in those areas on the mainland where densities of terrestrial ungulates are relatively low.

Author-supplied keywords

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