

ability to determine the sex that the scat came from, researchers have a tool that enables the analysis of nutritional data from free-ranging pinnipeds. This facilitates our ability to compare data across years and from both sexes, providing insights regarding the role of nutrition in evaluating changes in pinniped populations. Identification of the components of harbor seal diets also allows for the detection of potential competition between pinnipeds and fishermen in the Tugidak Island area.

Evaluation of diet composition and plane of nutrition of free-ranging harbor seals (*Phoca vitulina*) from Tugidak Island, Alaska

Geiger, Gretchen L.¹; Atkinson, Shannon¹; Blundell, Gail M.²; Carpenter, James R.³; Waite, Jason¹; Wynne, Kate^{4,1}

(1) University of Alaska, Fairbanks: SFOS, 17101 Pt. Lena Loop Road, Juneau, Alaska, 99801, USA

(2) Alaska Department of Fish & Game, P.O. Box 115526, Juneau, Alaska, 99801, USA

(3) Department of Human Nutrition, Food, & Agricultural Sciences, University of Hawaii at Manoa, 1955 East-West Road, Honolulu, Hawaii, 96822, USA

(4) Alaska Sea Grant Marine Advisory Program, 118 Trident Way, Kodiak, Alaska, 99615, USA

Corresponding author: glgeiger@alaska.edu

Oscillating cool and warm periods during the sample collection time series have the ability to drastically alter the basic structure and components of an ecosystem which can impact the dietary base of a predator. Changes to diet can have significant impacts to predator populations. Harbor seal scat samples were collected from Tugidak Island, Alaska during the summer and early fall from 2001 to 2009. Hard-part remains from harbor seal scats were isolated, identified to the lowest possible taxon, and approximate prey composition of the diet was determined from the frequency of occurrence and biomass calculations. The nutritional profile of the estimated diets was determined using a prey nutritional database developed from proximate analyses of various prey found in Alaskan waters. Using prey proportions of pinniped diets from the scats, the nutritional value of the diet was evaluated. Fecal corticosterone profiles were used to assess what sex the scats came from. Hard-parts analysis identified Irish lord species as the dominant prey item throughout collection years, with rock sole species, greenling species, halibut, and Pacific cod also occurring frequently. Biomass estimations demonstrate that Irish lords contributed a large portion of the diet, while halibut and salmon were shown to be much more important prey items. Combining the prey database and the plane of nutrition with the



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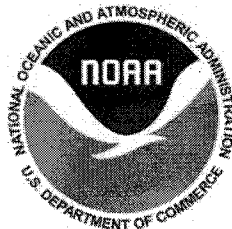
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