

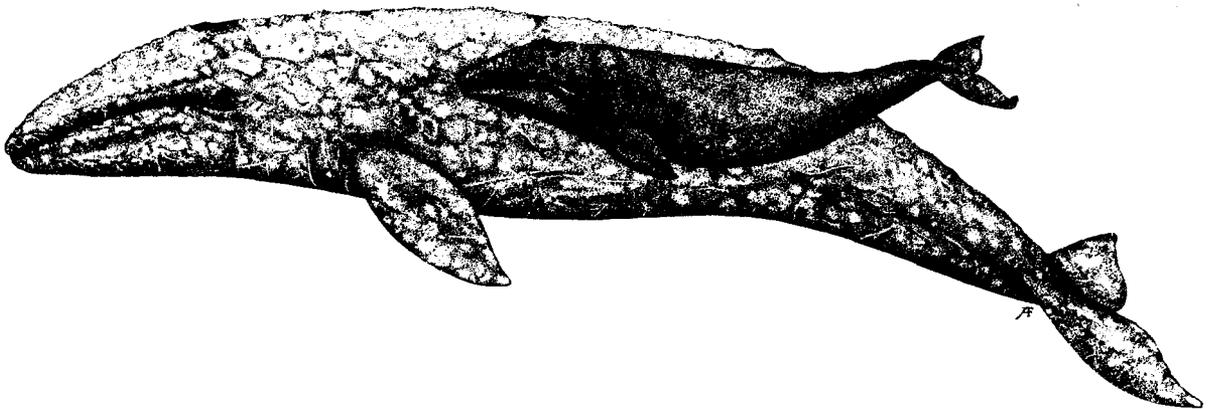
FEEDING AND TROPHIC RELATIONSHIPS OF BOWHEAD WHALES AND OTHER VERTEBRATE CONSUMERS IN THE BEAUFORT SEA. Kathryn J. Frost\* and Lloyd F. Lowry, Alaska Department of Fish and Game, Fairbanks, Alaska 99701

This study examined trophic relationships among major vertebrate consumers in the Alaskan Beaufort Sea. Included were: 1) a synthesis of data on feeding of bowheads, 2) field studies of foods of ringed seals and arctic cod in an area where bowheads were known to feed, and 3) an assessment of food requirements of populations of bowheads and potential trophic competitors. Based on stomachs examined to date (n=17), bowheads in Alaska eat about 30% copepod and 65% euphausiid. In late summer, ringed seals eat mostly euphausiids and/or arctic cod, while arctic cod eat mainly copepods and euphausiids. In aggregate, vertebrate consumers in the study area were estimated to eat about 2 million t of food annually, comprised of about 54% copepod, 9% euphausiid, 1% hyperiid amphipod, 2% arctic cod and 34% other organisms. Arctic cod, which comprise 65% of the total estimated biomass and are present year-round, are by far the major consumers, accounting for 96% of the estimated total food consumed. Although this study does not conclusively indicate whether competition for food is affecting populations of consumers, particularly recovery of the bowhead whale stock, the available information does suggest that competition and food limitation are very real possibilities.

Aberrant humpback songs recorded in Hawaii over three consecutive seasons were analyzed. These unusual songs deviate from the typical progressively changing structure of Hawaiian humpback song. Three distinct types of aberrant song structure are found. The analysis of aberrant songs yields insight into the "rules" of humpback song structure and the limits of song variability.

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**ABSTRACTS**



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