

FEEDING ECOLOGY OF DOMINANT GROUND FISH IN THE NORTHERN BERING SEA DETERMINED BY STOMACH CONTENTS AND STABLE ISOTOPE ANALYSIS

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BACKGROUND:

The Bering Sea is one of the most productive areas in the sub-Arctic region including commercial fisheries in the southeastern Bering Sea, and it is also an important foraging area for seabirds and mammals (Loughlin et al. 1999, Aydin & Mueter 2007). With the ongoing, but variable climate change influence on the reduction of sea ice extent and coincident increases in seawater temperatures, it is likely that the Arctic biological community will be affected (Overland & Stabeno 2004, Grebmeier et al. 2006, Serreze et al. 2007, Mueter & Litzow 2008). The benthic dominated ecosystem on this shallow northern Bering shelf may well transition to a more pelagic-dominated system over time as sea ice and zooplankton grazing patterns change with continued climate warming (Grebmeier et al. 2006b, Grebmeier & Barry 2007). Ultimately trophic structure and coincident energy pathways of dominant organisms would also likely change.

To examine the diet of dominant groundfish communities in the northern Bering Sea, stomach contents were used. Stable isotope analyses were also used to strengthen food web studies, since the stable isotope abundances of carbon (C) and nitrogen (N) in tissues are determined in part by the isotopic content in the diet (Fry & Sherr 1984, Michener & Schell 1994).

METHODS:

Most of the fish used in this study were collected in the northern Bering Sea around St. Lawrence Island (SLI) during two cruises on the USCGC *Healy* in spring 2006 and 2007 using otter and beam trawls. Additional groundfish samples were collected during a survey supported by the Norton Sound Economic Development Corporation summer 2006 on R/V *Pandalus*, and on a T/S *Oshoro-Maru* research cruise