



Title: SHELFZ – connections between nearshore and offshore fish habitats on the Chukchi Sea shelf

Authors: *Sousa L., Pinchuk A., Logerwell E., Danielson S., Parker-Stetter S., Horne J., Vollenweider J., Heintz R.*

Presentation Type: Oral presentation

Theme: Grand Challenges - Polar estuaries and coasts

Session: Connectivity between Arctic lagoons and adjacent ecosystems: nutrients to nekton

Abstract

The Arctic nearshore habitat is an important region used by native communities to harvest marine mammals and fish. Because the nearshore region is inaccessible to most research vessels, there is a limited understanding of fish and zooplankton ecology in the transition area between nearshore and offshore habitats. The Shelf Habitat and EcoLogic of Fish and Zooplankton SHELFZ project collected concurrent data on fish, zooplankton, fisheries acoustics, and water mass properties in the nearshore (< 20 m isobath) and offshore (> 20 m isobath) habitats of the Chukchi Sea. Marked differences between the nearshore and offshore habitats were detected in the fish and invertebrate epibenthic communities but not in the pelagic realm where fish and zooplankton communities appeared to be influenced by water mass distributions including cold and saline water masses within Barrow Canyon from the near bottom layer of the Arctic shelf, warmer waters close to shore, and cool, dilute, waters influenced by sea ice melt offshore. Benthic invertebrates dominated the catches in the nearshore and offshore bottom trawls. Pelagic midwater trawls were dominated by Arctic cod, Arctic staghorn sculpin, and jellyfish. High acoustic densities were observed very near shore and along the north side of Barrow Canyon. Fish occupied more of the water column compared to zooplankton. In the beach seines the most abundant fish and invertebrates were Arctic staghorn sculpin, sand lance fourhorn sculpin and mysids. The concurrent sampling of the nearshore and offshore habitats during this study allowed us to identify authentic spatial patterns without the confounding factor of temporal miss-match in sampling the nearshore and offshore communities.