

Study of Northern Alaskan Coastal System (SNACS)

SNACS is an NSF-funded program addressing vulnerability of natural, human, and living systems of the coastal zone to current and future environmental changes and the role of biogeochemical and biogeophysical feedback in amplifying or dampening change from local to global levels. Of the six projects funded, the study below deals primarily with oceanographic processes.

Environmental Variability, Bowhead Whale Distributions, and Iñupiat Subsistence Whaling— Whaling Linkages and Resilience of an Alaskan Coastal System

This portion of the program seeks to identify and understand complex linkages between the atmosphere, ocean, and Native populations within the Northern Alaskan Coast, specifically the area near Barrow. The work is highly interdisciplinary and uses four distinct yet highly interrelated approaches to understanding the system: 1) Biological and physical ocean modeling to identify mechanisms of frontal and eddy formation and plankton aggregation, to describe the effects of environmental forcing from outside on the local ocean, and to understand longer term, past and future variability in outside forcing on whaling success, 2) High resolution field sampling to demonstrate presence of physical features and associated biological concentrations and to validate modeling, 3) Assessment of the resilience and vulnerability of the subsistence hunting economy and culture in Barrow, and 4) Retrospective analysis synthesizing modeled ocean and climate conditions with available information on whale location, feeding, and harvest success to assess the resilience and vulnerability of the whale-ocean-human system to environmental change.

Principal Investigators:

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Latitude/Longitude Boundaries:

The study area includes the coastal area of the Chukchi and Beaufort seas, centered on Barrow out to Barrow Canyon, approximately 25 nautical miles, in a quadrant described by Latitude 71 deg. 20' N to 72 deg. 0' N and Longitude 158 deg. 0' W to 153 deg. 30' W.

Field Season Dates:

08/19/2005-09/13/2005; 08/19/2006-09/11/2006;