

Benthic Ecosystem Response to Changing Ice Cover in the Bering Sea

(Funded by the National Science Foundation)

Patch Dynamics

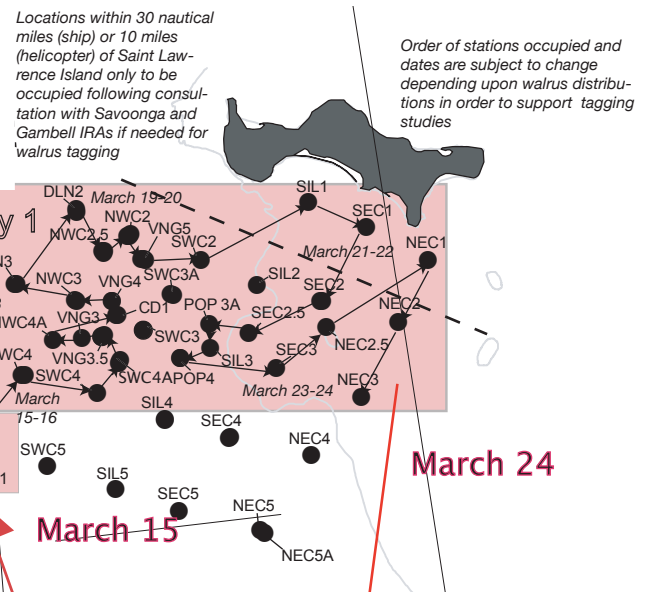
(Funded by the North Pacific Research Board)

USCGC Healy (HLY0801), March 13-March 26, 2008

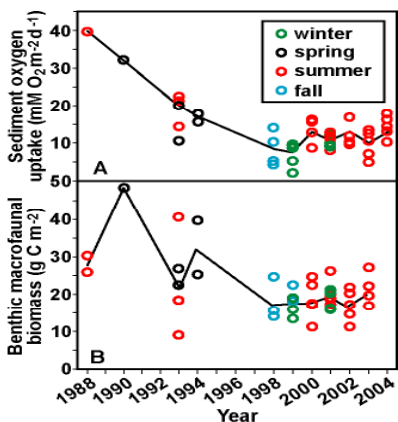
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The icebreaker Healy will be visiting waters near Saint Lawrence Island three times in 2008. In this first short research cruise in March, we are continuing work on benthic (sediment-based) food webs. Our past work has shown that the number and weight of organisms present in the sediments is in decline and the species present have also changed. One of the main scientific questions is whether this change is due to the recent shifts in sea ice cover and associated apparent climate warming, and how these changes in food supply will affect animals that dive to the bottom to feed, including walrus, bearded seals, and eiders. Of concern also are whether fish are becoming more critical competitors in the food web as water temperatures warm and fish become present in greater numbers. All of our work relates to these general questions and involves chemical and biological sampling. On this cruise, a research team will also be studying the distributions of walrus in relation to the food resources on the sea floor. Tagging of walrus for tracking by GPS will be done from by walking out over the ice from a helicopter or the ship. We will also be surveying numbers of marine mammals and birds to better understand the distributions of the animals using the rich waters near Saint Lawrence Island. We are very much committed to sharing our research results with local communities. Mr. Perry Pungowiwi of Savoonga will participate in the cruise as part of the walrus tagging team and we hope to find some other ways to share information with both Savoonga and Gambell about what we learn as well as receive locally generated knowledge in return.

A tentative ship track has been worked out (far right), but will probably be adjusted depending upon walrus distributions.



Walrus use of habitat in 2007 (right)



Benthic biomass and sediment metabolism declines during the last decade in the Bering Strait region. From a paper published in Science, March 10, 2006

We will occupy many of the same areas sampled during the Healy cruises in May 2006 and 2007. During our upcoming work we expect to continue consulting with Gambell and Savoonga to insure that the ship operations have no significant impact on any subsistence hunting operations. The consultations with the villages will be through their IRA Councils by electronic mail and satellite phone from the ship. In particular we will consult if there are scientific needs for the ship to approach closer than 30 miles to Saint Lawrence Island.