

Sea-ice and weather outlooks for indigenous hunters to ensure safe hunting and a sustainable walrus population.

Gary L. Hufford, NOAA/NWS, Anchorage, AK; and G. C. Ray

The Alaska Eskimo Walrus Commission has requested information on sea ice and weather outlooks for four northern Bering Sea indigenous native villages to insure the safety of the hunters during the 2010 spring walrus hunt. Their concern also extends to the long-term sustainability of the walrus population, now under threat from sea-ice diminishment and structural change. Consequently, a partnership has been established to provide relevant information among the National Weather Service, Alaska Region, the Pacific Marine Environmental Laboratory, University of Alaska Fairbanks, NOAA Office of Science and Technology, the Arctic Research Consortium of the U.S (ARCUS), and academic biologists and ecologists as a SEARCH activity. During 2010, a proof-of-concept project (the Sea Ice Walrus Outlook, SIWO) has provided five and ten day forecasts and outlooks for sea ice conditions and weather every Friday from the beginning of April to the end of the hunting season (June 25). The main source of information involved a combination of NOAA Climate Prediction Center numerical model guidance, high resolution satellite imagery (250 m MODIS, and 10 and 100m RadarSat), and local forecasts from the NWS Fairbanks Forecast Office. A web site has also been created and maintained by ARCUS (www.arcus.org/search/siwo) to make these weekly forecasts and outlooks available to the villages, providing a forum for two-way collaboration and information flow between forecasters and village hunters. The key factor in the success of this project has been the sharing of local/indigenous knowledge of environmental conditions around each of the villages.

In order to build upon these accomplishments, it is the intent to expand SIWO to take the biology and ecology of the walrus population further into account through application of "seascape" ecology. It is well known that walrus are dependent on sea ice for reproduction, rest, and access to their benthic food supply. However, the application of a multiscaled, integrated approach involving local, seascape (habitat), and regional dynamics of sea ice has been lacking. Lack of understanding of species habitat preferences, based on spatially- and temporally-explicit environmental relationships, can result in serious errors, including unreliable population assessment, misinterpretation of environmental relationships, and consequences of structural change and diminishment of walrus sea-ice habitat. The future application of seascape concepts and tools, together with enhanced and coordinated environmental and walrus information, has considerable potential to shed light on these problems