

AOOS

The Eye on Alaska's Coasts and Oceans

www.aos.org

Update
Winter 2013

More Real Time Weather to Reach Alaska Mariners

Imagine you are at the helm of your vessel, 10 miles from cell phone coverage, and the wind is picking up. You can't see the waters around the peninsula, and have poor reception of the VHF weather report. Would you like to have real-time weather conditions for your surrounding area right on your AIS chart plotter? AOOS is partnering with the Marine Exchange of Alaska (MXAK) to provide just that.

The Coast Guard's "Ready for Sea" initiative ranks having good weather information available to a mariner as a primary safety factor. This AIS/WX initiative focuses on this.

Many vessels transiting Alaska's coast are equipped with AIS (Automatic Identification System), which provides map-based information on other vessels in the area. This information is transmitted through shoreside stations scattered across Alaska's coasts, more than 95 at this time. In a ground-breaking effort, AOOS and the MXAK are developing a system capable of sending real-time weather conditions over this same frequency so that parameters such as wind speed, temperature, precipitation, and in some cases wave heights could also show up on captains' AIS screens, even when they are out of internet or cell phone coverage areas. As AIS sends data digitally, the range of AIS transmissions is far greater than VHF and cell.

To begin the effort, the MXAK installed three new stations containing joint AIS transmitters and weather sensors in 2012. Two are on islands in Southeast Alaska (Portland and Marmion Islands) and one is in Homer. A fourth will be installed in the Juneau area in early 2013. Once the technology behind the system is fully functional, boaters with AIS capabilities in these regions will be able to see real time weather conditions in most coastal areas.

So far, this partnership has helped advance the hardware and software required to build and operate an AIS/Weather network in Alaska. Refinements to data transmission and renewable power systems continue to be made, and the capability to expand this system throughout Alaska looks promising. Next steps include working with NOAA and the FCC to acquire the appropriate permits to transmit weather data over AIS. Stay tuned for future developments on this exciting project. ■



Photo by Ed Page



Marmion Island station.

Photo by Ed Page

Alaska Ocean Observing System

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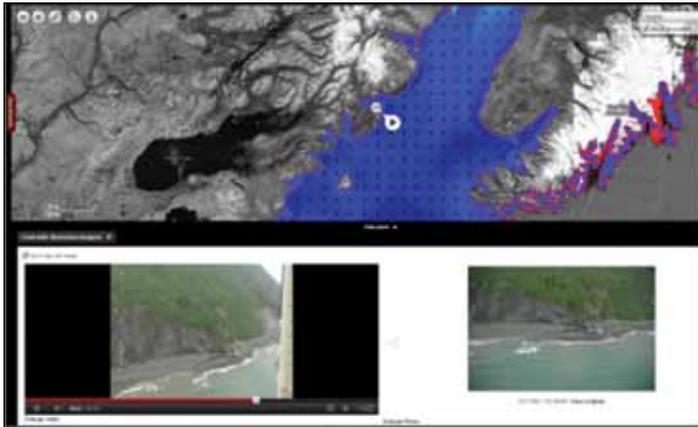
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AOOS Launches New Portals for Cook Inlet and the Arctic

What happens when you combine GIS layers + forecast models + satellite imagery + real-time sensors? With the launch of the new AOOS Arctic Portal and Cook Inlet Response Tool, you can find the answer at your own desk. In early January, AOOS publicly launched two new map-based data portals designed to help users find, access, and analyze data for planning, research, decision making and emergency response.

Both portals are equipped with a “Data Catalogue” to identify available datasets, and a portal interface to view and overlay the data layers on a map. The new systems include thumbnail views of the geographic extent of each layer, the metadata, and links back to the data provider.

Cook Inlet Response Tool (CIRT)



By clicking on the flight line in an area of interest, CIRT allows users to “fly the coast,” view ShoreZone video (left) and still photos (right).

Known as CIRT, this project was developed in partnership with the Cook Inlet Regional Citizens Advisory Council (CIRCAC) to assist oil spill responders and planners, as well as provide information for researchers, managers, and the general public.



A variety of forecast models are available through CIRT, including this ROMS salinity model funded by AOOS.

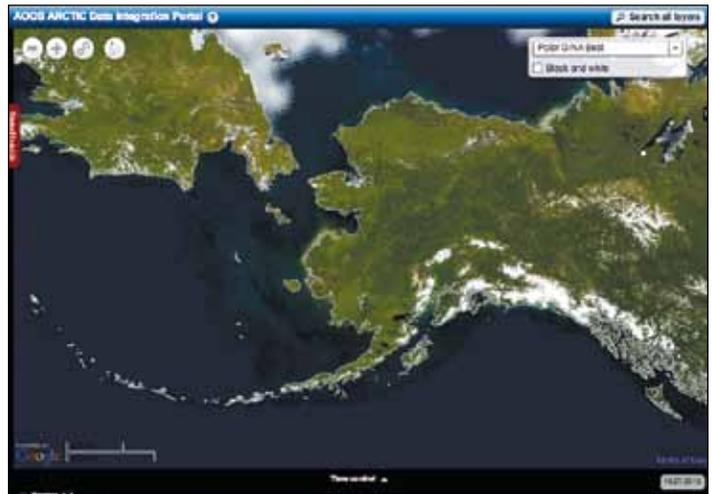
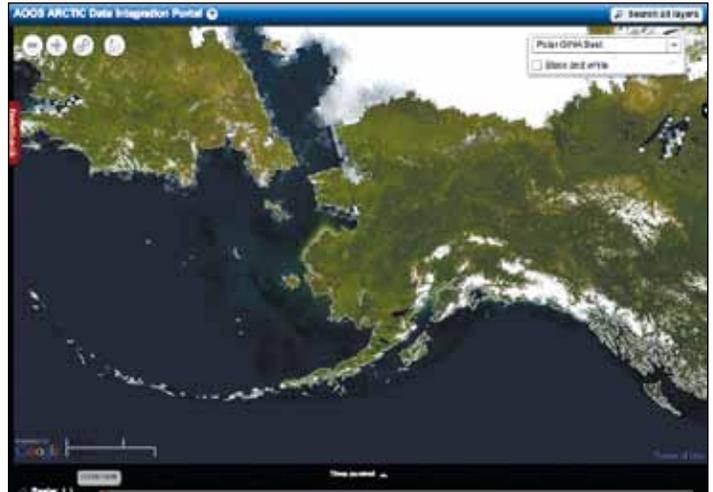
Special features:

- Fly the coast and stream high definition video from the Shorezone program
- Tap into conditions from over 100 real-time sensors
- Visualize forecast models across time and depth
- Access geographic response strategies, oil persistence and hundreds of other GIS data sets including information for sensitive areas.



Photo courtesy of Alaska ShoreZone Project

AOOS Arctic Portal



The Arctic portal includes the capacity to see changes in the environment over time. This NSIDC sea ice dataset shows the marked decrease in sea ice between October 1978 (top) and October 2012 (bottom).

This portal assimilates a broad variety of Arctic data layers for research, planning, and management to meet a variety of stakeholder needs.

Special features:

- Access to 200 data layers so far; more added weekly
- Find a spectrum of layer types including administrative boundaries, sampling areas, model forecasts, important fish habitat, and more
- Scroll through or graph 34 years of daily sea ice extent and thickness from NSIDC

Visit <http://www.aos.org/aos-data-resources/>. We are looking for feedback! ■

Gulf Watch AK and Herring Programs Initiate 20-year Monitoring of Gulf of Alaska

Scientists with Gulf Watch Alaska and the Herring and Research Program (HRMP), both long-term monitoring programs of the Exxon Valdez Oil Spill Trustee Council, kicked off their first full field seasons of what is anticipated to be two decades of monitoring activities in Prince William Sound, the outer Kenai coast and lower Cook Inlet.

PIs for both programs met in Anchorage in December to reflect on highlights of the first comprehensive field season and consider logistical and scientific challenges of creating integration among a variety of individual monitoring activities.

The AOOS data team is providing data management support for both programs, and AOOS Executive Director serves as program lead on the senior management team for the Gulf Watch program.

Some key findings from the first field season:

Herring Program:

- *Aerial surveys are finding a larger number of forage fish now than in the 1990s.*
- *The project has begun to digitize the PWS ADF&G herring scale library, which includes over 70 thousand scales from fish dating back to 1973, and will be used to examine maturation and growth patterns of herring over the past few decades.*
- *25 adult fish implanted with acoustic tags were observed to move with the tides near the spawning grounds. All detections of the fish occurred at a receiver very near to the shore, which indicates the fish did not move to deeper water while migrating out of the spawning grounds.*

Gulf Watch Alaska

- *Seabird diet monitoring provides a biological indicator for forage fish dynamics in the Gulf of Alaska and surrounding waters. Results indicate that capelin have returned to Middleton Island after a long absence.*
- *Researchers identified a strong relationship between pink salmon survival and spring copepod bloom strength in the northern Gulf of Alaska.*
- *Novel tagging methods allowed researchers to observe killer whale foraging and movement behavior in detail. Results indicate that Killer whales can regularly dive much deeper than previously thought (>500m) and regularly travel great distances in search of food (>125km/day).*

PIs also said farewell to two retiring researchers who have made significant contributions to post-spill science: NOAA's Jeep Rice and USGS's Jim Bodkin. ■



Photo by Mary Anne Bishop

Researchers take measurements for the Herring Research Project.

National Ocean Observing Supporters Gather for IOOS Summit

More than 200 scientists, agency managers and ocean information stakeholders gathered for four days in Herndon, Virginia in November to reflect on the successes of the past decade in developing global, national and regional integrated ocean observing systems and develop a strategy for moving forward during the next decade. AOOS was represented by Executive Director Molly McCammon and Board member Amy Holman.

The summit was especially timely given the accelerated pace of climate change, especially in the Arctic, and increased use of ocean resources for fishing, energy, shipping and recreation, and new technologies for observing the ocean.

It was also timely given that the summit followed on the heels of Hurricane Sandy. Sandy's impact was a powerful demonstration of the need for continued and improved ocean condition observations and predictions.

Summit participants closed the session with adoption of a community declaration that concluded:

A system for ocean observing has been established over the past several decades. IOOS will continue to evolve by revising, enhancing and integrating current and planned observation systems in order to meet user requirements, emerging challenges, and to achieve societal goals. The opportunity is set for moving forward for the next ten years.

All IOOS components under-observe their target phenomena. IOOS will seek to encompass deep ocean observations, nearshore and estuarine observations, biological and chemical variables, and ecosystem variables; to better integrate remote sensing; and to meet spatial (including sub-surface) and temporal requirements for ocean data, addressing user needs. This will build on the successes of the coordinated global ocean, terrestrial and atmospheric observing systems. ■



Arctic Build-Out Plan

In anticipation of possible increased funding for Arctic observing, AOOS has developed a conceptual plan for observing and predicting ocean and coastal variables in the Chukchi and Beaufort Seas to meet stakeholder needs.

The draft plan is based on the 10-year build out plan developed by AOOS in fall 2011 as part of a larger build-out plan for the regional component of the national Integrated Ocean Observing System and addresses the broad priorities of:

- Marine Operations
- Coastal, Beach and Nearshore Hazards
- Water Quality
- Ecosystems and Fisheries
- Long Term Change and Variability

The draft plan describes priorities for a bare-bones core system using both fixed and mobile platforms and nowcasts and forecasts for weather, sea and ice conditions. The plan also describes enhancements to the system that could be made to meet priority stakeholder needs with funding from government agencies or private industry.

To comment on the draft plan, go to www.aos.org. ■

STAMP Update

The STAMP project (Spatial Tools for Arctic Mapping and Planning) has covered new ground in the latter half of 2012. STAMP is designed to integrate and visualize Arctic data to assist managers and planners for decision-making on Arctic issues, including potential future commercial fisheries. Over the summer, STAMP wrapped up a scoping effort which included key informant interviews and an online survey. The purpose was to better understand the processes currently used to make decisions, identify data priorities, and learn about the way people would like to interact with the data tools. The final report can be found on the STAMP website (www.aos.org/stamp/).



In September, the 9-member STAMP advisory group met to get an update on progress, review data tools developed in other regions, and help guide next steps in shaping the tool. At present, around 200 data layers have been loaded into the AOOS Arctic Portal which serves as the data platform of the STAMP. This data ingestion will continue in upcoming months, including layers from STAMP partners:

- Social and economic data from UAA's Institute for Social and Economic Research
- Downscaled climate change projections from UAF's Alaska Center for Climate Assessment and Policy
- NOAA fisheries and marine mammal researchers
- Many more

STAMP's data wish list continues to grow. If you know of relevant and available spatial data for the region, or have suggestions, please contact AOOS. ■



Photo by Tom van Pelt

A view of Arctic horizon from aboard the Research Vessel Healy.

Farewell Rosa Meehan

After spending her final year on an interagency exchange with AOOS, Rosa officially retired from the U.S. Fish and Wildlife Service on December 27. AOOS would like to thank Rosa for all her help at AOOS and wish her good luck with her future endeavors. ■



Welcome Ellen Tyler

We are excited to announce the addition of Ellen Tyler to the AOOS team. Ellen is a recent Sea Grant Knauss Marine Policy Fellow in the Washington D.C. office of Congressman Sam Farr, and began working for AOOS as Program Coordinator on January 4. Ellen received her master's degree in nutrition science and policy (fisheries related) from Tufts University in Boston. She's a native of Maine, and is looking forward to her Alaska experience and working with AOOS partners to increase observing capacity in the state. ■

