

IOOS® in Action: Alaska

Improving Lives and Livelihoods In Alaska

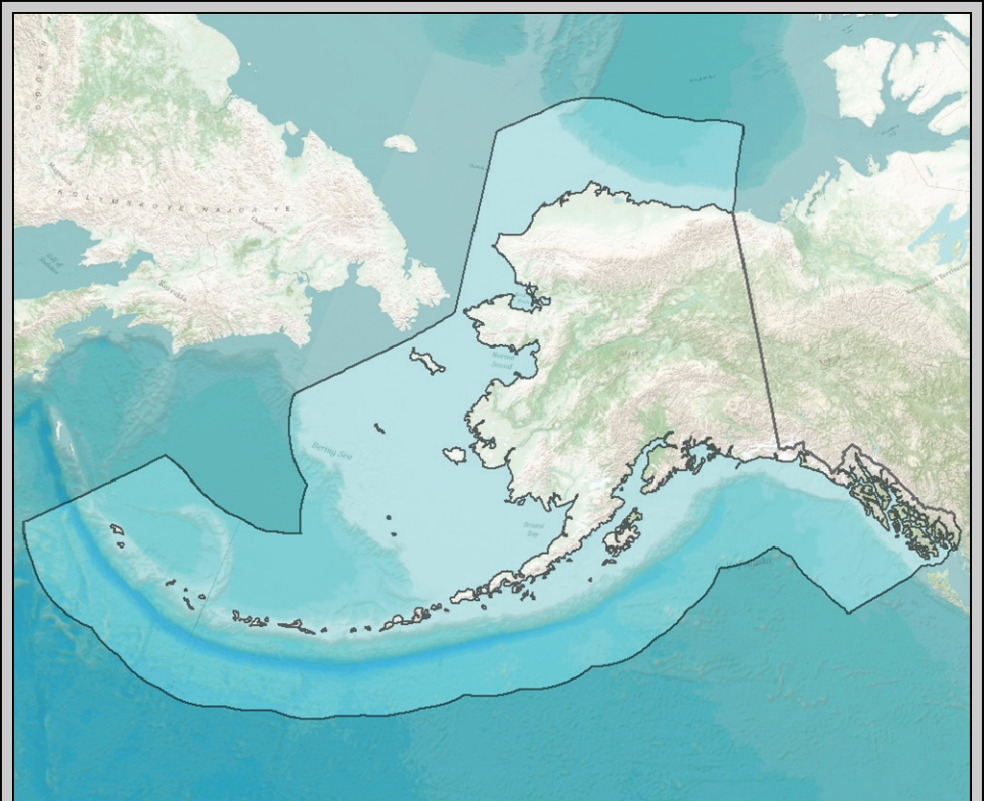
Overview:

Thousands of tools – from satellites above Earth to sensors below the water – continuously collect ocean and coastal data. The Integrated Ocean Observing System (IOOS) is expanding this network of data and making it easier to access and use.

The Alaska Ocean Observing System (AOOS) is the largest of the IOOS regions, spanning 44,000 miles of coastline and covering more than twice the coastline.

Developing an integrated ocean observing system at high latitudes creates unique challenges. Some of these challenges include climate extremes, coverage of significant geographic distances, and limited observing infrastructure.

AOOS represents a network of ocean and coastal observations, data, and information products that focus on Alaska's oceans and coasts and marine ecosystems. With more than 80% of Alaska residents living near the water, the state's coasts provide the basis for traditional subsistence hunting and fishing, nature-based tourism, oil and gas development, shipping and transportation, and some of the world's most productive fisheries.



The Alaska region of IOOS encompasses the coastal waters of the state of Alaska.

Resources for Real-Time Data:

AOOS focuses on providing real-time data and creating user-friendly applications through its web portal. You can access the three mapping resources described below by visiting www.ioos.gov and clicking on the regional tab at the top.

Real-time Sensor Map:

AOOS maintains a Real-Time Sensor Map for Alaska that pulls in more than 3,000 real-time sensor readings from across the state. These include air temperature, wind, waves, and other information useful to people on the water. Using a Google map interface, the map is searchable by parameter or

sponsoring entity. AOOS partners with NOAA, the U.S. Geological Survey, the Federal Aviation Administration, universities and other data providers to make this possible.

Arctic Research Assets Map:

Who's working in the Arctic? With the dramatic increase in Arctic marine research in the past several years, resource managers and industry expressed the need for a visual inventory of research instruments in the water. AOOS responded by producing an interactive online map displaying locations and details of seasonal oceanographic instruments in the

Chukchi and Beaufort Seas. The map also includes vessel tracks and aerial transects to provide a holistic view of Arctic research. Researchers from across the country use the map to increase collaboration, reduce duplication, avoid vessel collisions with equipment, and leverage assets.

Model Explorer:

A variety of nowcast and forecast models help predict conditions for wind, waves, ocean circulation, and other parameters in Alaska. To help make the results more accessible to the public, AOOS developed a "Model Explorer" application which allows viewers to visualize model output. This tool enables users to compare modeled data to real-time sensors, and drop "virtual sensors" into the models to track conditions at a specific location. Users can also download data to assist with fisheries research, perform analyses for coastal engineering projects, or monitor climate change trends.

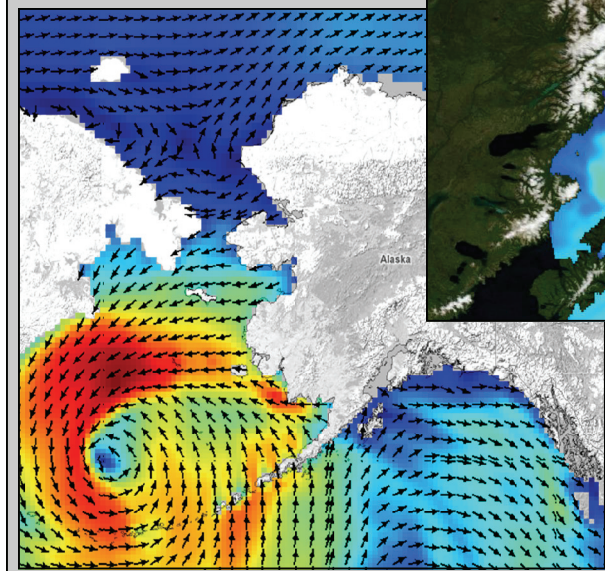
Increasing Ocean Observations: Arctic Glider:

Climate change is affecting Alaska at a more rapid rate than the rest of the country. To help track changing ocean conditions, AOOS supports an underwater autonomous vehicle to monitor trends in the Arctic. The glider, operated by University of Alaska researchers, started regular runs in the Chukchi and Beaufort Seas in summer 2010 and is collecting data on temperature, salinity, and currents for several months at a time.

Monitoring Ocean Acidification:

AOOS also initiated a time series of ocean acidification monitoring in the Gulf of Alaska, and helped fund ocean acidification sensors in the Chukchi Sea to kick-start an ocean acidification monitoring program in Alaska's Arctic.

Sensors gather data and information that AOOS turns into useful tools and products decision makers use to improve safety, our economy, and our environment.



Above: Gulf of Alaska salinity modeled by the NASA Jet Propulsion Laboratory.

Left: AOOS developed the Model Explorer to allow viewers to visualize nowcasts and forecasts for winds, waves, ocean circulation, and other parameters.

Tracking Waves for Safe Boating:

In 2011, AOOS worked with partners to deploy a new wave buoy in Cook Inlet, where 95% of the state's goods transit en route to the Port of Anchorage. The buoy transmits real-time information on wave height and direction, as well as sea surface temperature, and addresses a stakeholder-identified gap in ocean observing in Alaska. The boating community has been especially excited. "Local mariners can benefit immediately", said Captain Bob Ward, head of the Homer Charter Association. "This data provides every mariner, commercial, sport charter and private sport vessel operator the opportunity to determine what the sea conditions are before venturing out into these waters. This is one resource that every mariner can access and understand."

Other AOOS Initiatives:

- Supporting regional modeling efforts for wind, waves, and ocean conditions, with special focus on Prince William Sound and Cook Inlet.
- Developing the Alaska Harbor

Observation Network with real-time monitoring in the harbor environment.

- Streaming ocean conditions through the AIS system to better disseminate updated information to vessels.
- Constructing an interactive electronic sea ice atlas displaying historic sea ice since 1950.

For More Information:

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