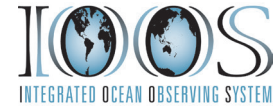


Northwest Association of Networked Ocean Observing Systems

The IOOS Regional Association Serving the Pacific Northwest



Legislative Priority Fact Sheet, March 2015

Mission

The U.S. coastal Integrated Ocean Observing System (IOOS) is a congressionally established, stakeholder driven, and science based “ocean analog” of the National Weather Service. It provides and enhances our nation’s access to data from the oceans, coasts, and estuaries. NANOOS is one of eleven IOOS regional associations serving Washington and Oregon. It coordinates and supports the development, implementation, and operation of a Pacific Northwest coastal ocean observing system providing ocean data and data products to diverse end users in a timely fashion in customized ways to meet their needs.

NANOOS is a growing partnership of over 50 entities in the PNW — industry, tribes, state agencies, local governments, non-governmental organizations, and educational and research institutions. NANOOS also involves and serves a wider community of groups with specific interests (e.g., fishers, educators, environmental health and safety groups, and recreational boaters).

IOOS stimulates U.S. jobs and technology innovation. Federally authorized in 2009 by the ICOOS Act, IOOS is administered by NOAA. With NOAA funds, NANOOS implements IOOS regionally through its diverse partnerships supporting the PNW citizenry, environment, and economy.

Increasing Data Delivery & Efficiency

The NANOOS Visualization System (NVS) is an online portal that gives easy access to real-time observations and forecasts as well as historical and baseline conditions from a wide range of ocean observational assets and from many providers, including local, state, federal and tribal agencies, academia, and private industry. NVS provides user-friendly data displays, sophisticated yet accessible capabilities such as comparisons of forecasts with real-time observations, and customized presentations based on community feedback. This product is viewed over 3,000 times a month.



In addition to the online NVS applications, the NVS mobile apps give easy access to observations and forecasts from a range of assets including buoys, shore and tidal stations, high-frequency radar, wave and current forecasts, and satellites. Buttons for different user groups link to apps that have been tailored for specific user group’s data needs. NVS mobile apps are available for Apple and Android devices.

Focus

Regional stakeholders identified these high-priority areas:

**Maritime Operations • Coastal Hazards • Fisheries
Ecosystem Assessment • Climate & Weather**

To address these, NANOOS sustains observing and modeling efforts, and provides free public access to observational data, model forecasts, decision-making tools, and new applications for regional coastal oceans, shorelines, and estuaries.

Sustaining NANOOS

Investments in NANOOS have resulted in additional high-technology jobs, better-informed decisions, and new innovation. Increasingly, decision-makers from industry, resource management, and other stakeholders are depending on NANOOS for high-quality data and data products, as well as forecasts.

NANOOS has the basic observing infrastructure, data analysis and delivery systems, and human interfaces to make a difference in the PNW. The NANOOS Visualization System allows data access from a wide variety of sources, saving substantial time and money currently wasted. Continued funding will sustain current efforts and improve the system.

NANOOS data and services are contributing to the resiliency of the Pacific Northwest.

Innovative Technology for Safe & Profitable Resource Use

NANOOS won two competitive grants from NOAA to transfer ocean technology, aiding the health and economy of the PNW. One is to develop a lower cost sensor technology through an industry-academia partnership that will be sited at shellfish hatcheries. It will enable effective shellfish growing (an industry worth more than \$70 million annually in OR and WA) despite changing ocean chemistry. NANOOS has established a community of practice among shellfish growers and scientists to ensure high-quality data collection and grower operation. Live data are available through NVS and mobile apps.



"Oysters have been an essential part of Pacific NW communities for over a century. During this time farming techniques have evolved in response to environmental conditions and market demands. This current generation of shellfish farmer is reliant upon data and services from NANOOS. Checking the NANOOS app before seeding a beach or filling a setting tank has become standard practice." — Margaret Barrette, Pacific Coast Shellfish Growers Association Director

Another will put a sophisticated undersea robot on the NANOOS buoy at La Push to detect toxins from harmful algal blooms (HABs). Long a health threat to coastal tribes, recreational clam diggers, and rural coastal communities, this early warning system will help tribal and state governments monitor HAB risk, avert economic losses, protect health, and maintain sustenance of cultural practices.

"The coastal tribes of Washington State are shellfish harvesters and at the mercy of changing winds that transport HABs from incubation sites offshore. Harvesters seldom get warning before HABs are already on the shores where tribal HAB samplers spot them and managers can take action to restrict harvest of shellfish should toxins be present. Having the NANOOS automated HAB sampler, with toxin assessment capability, offshore between our harvest beaches and the HAB generation sites will give tribes the forewarning they need to adjust sampling protocols and better protect the health of coastal residents, tribal and non-tribal." — Joe Schumacker, Quinault Department of Fisheries

Information to Aid Coastal Resiliency & Hazard Response

Pacific Northwest storms are notorious for producing damaging winter waves, which erode ocean beaches and dunes, damage jetties that protect the mouths of ports important for commerce, and when combined with high ocean water levels result in periodic flooding of homes built atop dunes and bluffs. To mitigate these hazards and build community resilience, the Oregon Department of Geology and Mineral Industries (DOGAMI), a NANOOS partner, is in the final stages of completing an entirely new suite of coastal flood hazard maps for the



photo courtesy of Theresia Hewitt

Federal Emergency Management Association (FEMA) that project the extent of extreme wave runoff and backshore flooding, while state partners are funding the development of new erosion hazard maps that account for future changes in sea level and storms for Oregon coastal counties (Tillamook County). NANOOS integrates these actions and diverse data sources yielding efficient government via partnerships. To model the impact of extreme storms, DOGAMI uses U.S. IOOS data that include the heights and periods of ocean waves collected by the NOAA National Data Buoy Center, tide levels and storm surges measured by the National Ocean Service, land elevation data measured using lidar by NASA/USGS/NOAA, and regional NANOOS data streams like the OSU (a NANOOS partner) nearshore bathymetric surveys and the DOGAMI beach and shoreline elevations. Both the national and regional IOOS efforts

feature strongly in the measurement and dissemination of critical data streams being used to keep businesses and homeowners safe from dangerous storm conditions, while building resilience against future conditions.

Support for Maritime Operations, Safety & Fishing Commerce

Through IOOS, NANOOS supports high-frequency radars in Oregon that provide real-time data on surface currents. These data have been shown to decrease the size of search and rescue areas by two-thirds. NANOOS data products allow mariners to choose efficient routing. Two NVS apps were developed this year, one for maritime commerce operators and one for recreational boaters. Each presents a composite of the data products needed by those groups at the click of a button. NANOOS also continues to provide information products to the fishing community, an \$800 million annual regional enterprise. Just like the weather, forecasts of ocean conditions over the coming three days are produced that are then updated by the measured data produced by NANOOS. The Pacific Northwest, home to more than 20 ports and countless harbors supporting commercial, fishing, transportation, security, and recreational activities, greatly benefit from this information service.



"Ships crossing the Columbia River Bar face one of the most dangerous harbor entrances in the world. The Columbia River Bar Pilots rely on weather forecasts, real time buoy data along with wave and current models when determining safe times for ships to cross the bar. NANOOS provides an excellent location for us to see and compare all the available data sources."

— Capt. Dan Jordan, Columbia River Bar Pilots