

IOOS® in Action: The Pacific Northwest

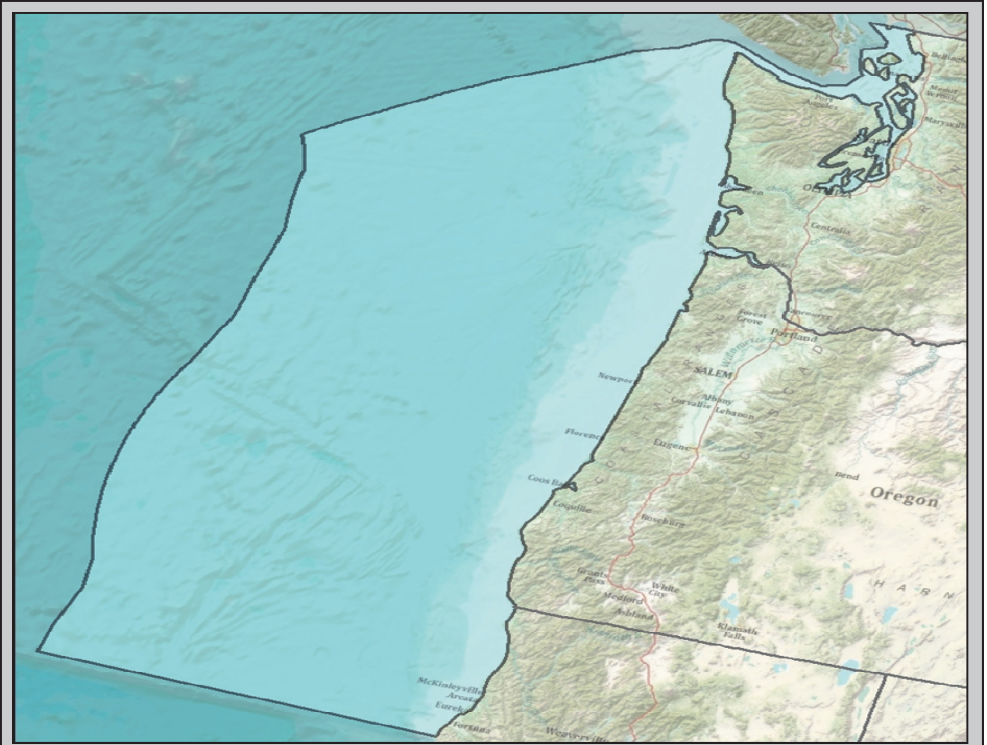
Improving Lives and Livelihoods in the Pacific Northwest

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 Northwest Association of Networked Ocean Observing Systems (NANOOS) addresses ocean observing and prediction needs in Washington, Oregon, and northern California. This IOOS region consolidates and delivers diverse data types from various providers in a unified manner that means easy access to important data and products. Easing data access improves understanding of and supports decisions regarding regional ocean and coastal waters.

NANOOS goals are to enable safe and effective maritime operations; support viable fisheries; monitor ecosystem health (hypoxia, ocean acidification, and harmful algal blooms); mitigate coastal hazards; and understand coastal impacts of climate change and variation. As a stakeholder-driven organization, NANOOS provides users with data and tools needed to make responsive and responsible decisions.



The Northwest region includes Washington, Oregon, and northern California.

Increasing Data Efficiency:

In 2009, NANOOS launched its “NANOOS Visualization System”. The Google Map-based tool is a web portal that can also be downloaded in app form to Apple and Android platform phones to provide easy access to observations and forecasts from a wide range of ocean observational assets. The portal integrates data from many providers, including local and federal government, academia, and private industry. Improved technologies in newer versions allow for more complex datasets, improved software architecture and user interface, and the ability to compare forecasts with real-time data. This product is viewed about 2,000 times a month.

Supporting Shellfish Industry:

Oysters and other shellfish are essential to ecosystem health and culture in the Pacific Northwest and form an important component of the regional economy. The oyster farming industry in Oregon and Washington is worth more than \$70 million annually.

The farmed shellfish industry depends on adequate and timely environmental information. NANOOS works with industry and tribal growers and regional shellfish managers to provide vital data. In 2007, regional IOOS members worked with the National Estuarine Research Reserve System to develop a website allowing easy access to real-time water quality

data from 12 sites in Alaska, Washington, and Oregon. This provides shellfish growers and oyster restoration managers with better and more information for decision making.

In 2010, NANOOS relocated a buoy closer to oyster hatcheries in Hood Canal, Washington, after a state declared “oyster emergency.” This buoy collects data on current conditions. It is critical for understanding earlier what types of water conditions – such as increased ocean acidity – could kill shellfish larvae so the industry has time to secure this economic resource.

Improving Maritime Safety:

The Pacific Northwest is home to more than 20 ports that support industries such as commerce, fishing, transportation, security, and recreation. This region is also home to some of the nation’s most hazardous bar crossings. With vital West Coast ports connecting the U.S. with foreign markets and with a fishing industry worth roughly \$800 million in personal income annually, there is a need for accurate and timely ocean observations and predictions.

The regional IOOS supports commercial shipping by providing real-time wave information near the Columbia River bar—a key port of entry with potentially hazardous currents and large waves. To support the fishing industry, NANOOS developed a tool supplying nowcasts and forecasts of surface and bottom currents, temperature, and salinity along the Oregon coast. It is part of a suite of maps and data products allowing fishers to effectively and safely plan their trips. The page recorded more than 225 views per day during its first commercial fishing season between July and October of 2010.

Tools for Today’s Beachgoer:

The NANOOS Visualization System (NVS) provides easy access to observations and forecasts from a wide range of ocean observational assets—buoys, shore and tidal stations, high frequency radar and satellites. It is available as a mobile phone app for iPhone and other Apple and Android platform devices (seen right).



NVS
iPhone
App

Enabling Safe Decisions:

Weather and sea conditions in the Pacific Northwest can be challenging (seen left) and change rapidly, highlighting the importance of access to real-time information.

Coastal Hazards Mitigation:

Oregon and Washington have some of North America’s most dynamic coastal landscapes, evident in their long wave-swept beaches, sheer coastal cliffs, dramatic headlands and rugged vistas. Ultimately, the power of the Pacific Ocean shapes that landscape and creates hazards through flooding and erosion, seasonal changes in beach sand, interactions with man-made engineering structures, and, potentially, the coupled effects of an off-shore earthquake and subsequent tsunami.

To adequately prepare and plan for such contingencies, NANOOS spearheaded the transfer of beach mapping techniques and technologies between the states of Washington and Oregon. This allows seamless data sharing so decision makers can better prepare for coastal hazard events that cross political boundaries.

NANOOS provides beach and

nearshore observations and decision support tools for coastal managers, planners, community members and engineers to improve planning and response to coastal hazards; assist engineering design; aid climate change research; and track shoreline change.

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