



# FY2013: Regional Integrated Ocean Observing System (IOOS<sup>®</sup>) Development

U.S. IOOS is an operational system and a network of regional partners responsible for regional observations, data management, modeling and analysis, education and outreach, and research and development. The overarching purpose of U.S. IOOS is to address regional and national needs for ocean data and information. NOAA continued to provide merit-based funding in 2013 to further develop the IOOS regional network. IOOS regional partners provide coordination with regional stakeholders while contributing data and other outputs to the national system – supporting regional priorities while advancing national objectives.

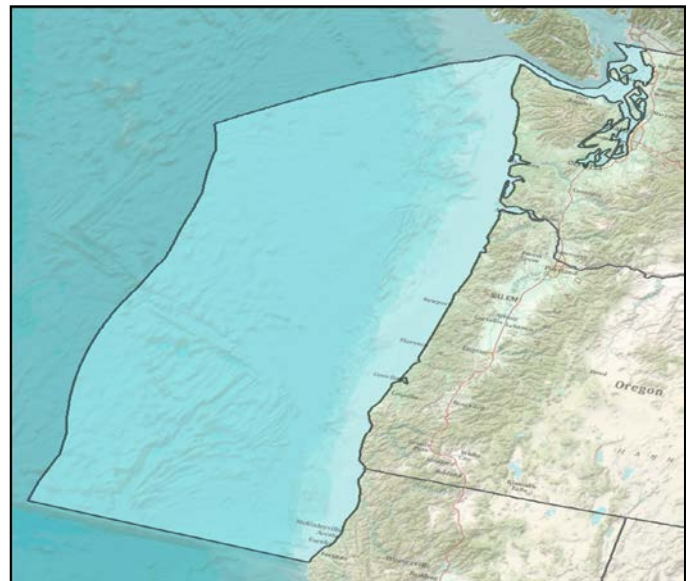
## PACIFIC NORTHWEST REGION

The Northwest Association of Networked Ocean Observing Systems (NANOOS) provides coverage for the Pacific Northwest (PNW), primarily Washington and Oregon. NANOOS has strong ties with other west coast observing systems, particularly the Alaska Ocean Observing System (AOOS), the Central and Northern California Ocean Observing System (CeNCOOS), the Southern California Coastal Ocean Observing System, and observing programs in British Columbia (e.g., the Victoria Experimental Network Under the Sea, or VENUS) through common purpose and the occasional overlap of data and products.

### NOAA Funding:

Prior to FY 2011, IOOS regional partners received two awards – one for development of the Regional Coastal Ocean Observing System (RCOOS), and one for planning and stakeholder engagement by a Regional Association (RA). Starting in FY 2011, IOOS made a single multi-year award to each region for management of these activities. Funds awarded by NOAA since establishment of the U.S. IOOS Program Office are as follows:

FY 2013 - \$3,089,477  
FY 2012 - \$2,428,291  
FY 2011 - \$2,070,000  
FY 2010 - \$1,700,000 RCOOS, \$400,000 RA.  
FY 2009 - \$1,500,000 RCOOS, \$400,000 RA  
FY 2008 - \$1,500,000 RCOOS, \$400,000 RA  
FY 2007 - \$1,500,000 RCOOS, \$400,000 RA



### Regional Priorities:

NANOOS is a partnership of more than 40 entities, including industry, state agencies, local governments, tribes, non-government organizations, and educational institutions. Established in 2003, NANOOS has used results of nearly three years of NOAA-funded planning efforts and ongoing regional contributions to build partnerships in the Pacific Northwest (PNW) and to identify high priority user needs and requirements.

To progress on the NANOOS regional priorities of maritime operations, fisheries, ecosystem impacts, climate, and coastal hazards, this project will continue to develop the essential subcomponents of the Pacific Northwest RCOOS: observing systems, modeling and products, data management and communications (DMAC), and education and outreach. The work will be applied in four observational domains: coastal ocean shelf, coastal ocean surface currents, estuaries, and shorelines.

NANOOS key activities for the FY13 project period are:

- Maintain surface current and wave mapping capability providing a portion of the critical national capacity.
- Sustain existing buoys and gliders in the Pacific Northwest (PNW) coastal ocean, in coordination with national programs. Maintain these essential assets providing regional observations, with focus on hypoxia, harmful algal blooms (HABs), ocean acidification (OA), climate change detection, and modeling input.
- Maintain observation capabilities in PNW estuaries, in coordination with local and regional programs to aid sustainable resource management, water quality assessment and sub-regional climate change evaluation.
- Maintain core elements of beach and shoreline observing programs and contribute to hazard mitigation by providing essential observations and better decision support tools for coastal managers, planners and engineers.
- Maintain NANOOS' Data Management and Communications (DMAC) system for routine operational distribution of data and information, including the NANOOS Visualization System (NVS) which provides dynamic and distributed data access and visualization for IOOS.
- Contribute to the operation of a community of complementary numerical PNW regional models, and the tools and products they support.
- Deliver existing user-defined products and services for PNW stakeholders.
- Foster ocean literacy and facilitate use of NANOOS products for IOOS objectives, the core task for which the entire NANOOS RCOOS is constructed, via existing approaches for engaging users.
- Support NOAA's Ocean Acidification Program by providing observational data from the La Push, Washington mooring.
- Provide technical support to U.S. IOOS' efforts with Microsoft and the European Environmental Agency to provide U.S. IOOS data and information to the Eye on Earth Application.

NANOOS places a priority on sustaining the leveraged coastal observations that it has integrated and on developing the most informative and useful products for regional users, as advised by its Governing Council and its active Standing Committees (DMAC, User Products, Education & Outreach) that prioritize work efforts.

In late 2009, NANOOS launched its online system-wide data viewing and access tool, known as the NANOOS Visualization System (NVS). NVS, available at <http://www.nanoos.org/nvs>, allows easy access to ocean observing data in the Pacific Northwest. NVS gathers data across a wide range of sources (federal and non-federal) including buoys, shore and land-based stations throughout the NANOOS region. NVS is continually being improved and refined as new data streams are brought in and as the NVS development team receives feedback from users. Today's NVS 2.6 includes features such as places, markers, a tsunami evacuation zones product, access to surface currents from high frequency radars, temperature and ocean color from satellites. Users can also find data from research cruises and forecast information on water levels and waves for many locations.

NANOOS developed a wide variety of user products and educational materials centered on its regional priorities. Examples include forecast information products developed for commercial and recreational albacore tuna fishers, real-time water quality information optimized for shellfish growers, blended tide, current, weather conditions forecasts for mariners, and on-line "theme pages" for issues of regional interest, such as ocean acidification and

hypoxia, with direct links to data, educational content, and regional activities. A variety of lesson plans, some using real-time data, and learning resources are available and being used and evaluated by teachers at various levels.

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