NANOOS: Linking observations to provide safe maritime applications to Pacific Northwest stakeholders as part of U.S. IOOS

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What is IOOS?

• The Integrated Ocean Observing System (IOOS) is a national-regional partnership working to provide new tools and forecasts to improve safety, enhance the economy, and protect health.

• Integrated ocean information is available in near-real-time, as well as retrospectively.

• Easier and better access to this information is improving our ability to understand and predict coastal events (e.g., storms, waves).

• Such knowledge is widely used and needed... including for maritime operations!
Coastal IOOS:
17 Federal Agencies; 11 Regional Associations
Regional Associations engage DIVERSE LOCAL STAKEHOLDERS assure CONSISTENT NATIONAL CAPABILITY

- Observations
- Forecasts/Modeling
- Data Management
- User Products
- Outreach and Education

Leverage and Link
Northwest Association of Networked Ocean Observing Systems

The Integrated Ocean Observing System (IOOS)
Regional Association for the Pacific NW

www.nanoos.org
Started by defining the region, the users, their needs:

**Coastal ocean:**
Northern extent of California Current  
Winds, topography, freshwater input, ENSO & other climate cycles

**Major inland basins:**
Puget Sound-Georgia Basin, Columbia River  
Urban centers, nearshore development, climate variation

**Coastal estuaries:**
Willapa Bay, Grays Harbor, Yaquina Bay, Coos Bay, +20  
Resource extraction, development, climate

**Shorelines:**
Rocky to sandy, dynamic: storms, erosion  
Winds, development, climate

**Major rivers:**
Columbia River (~75% FW input to Pacific from US WC)  
many rivers (e.g., Fraser, Skagit) via Strait Juan de Fuca  
Dredging, water regulation, climate change

**NANOOS Region User Groups:**
Maritime: shipping, oil transport/spill remediation  
Fisheries: salmon, shellfish, crab, groundfish, aquaculture  
Environmental management: HABs, hypoxia  
Shoreline: erosion, inundation  
Hazards: Search and rescue, national security  
Educators: formal, informal, research  
Marine recreation: boating, surfing, diving
The PNW maritime community needs real time data and accurate forecasts of waves, wind, tides and currents:

"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.**"

- Captain Dan Jordan, Columbia River Bar Pilots

"**NANOOS provides critical life safety information** to the public, aiding coastal communities to reduce risk."

- Jonathan Allan, Coastal Geomorphologist
  Oregon Department of Geology and Mineral Industries
NVS for specific user groups with targeted subsets of the data.
The “kitchen sink” Data Explorer
Welcome to NANOOS, the Northwest Association of Networked Ocean Observing Systems. NANOOS is part of IOOS and provides information and products related to weather and ocean data.

Data Explorer
Tsunami Evacuation Zones
Boaters
Tuna Fishers
Shellfish Growers
Beach and Shoreline Changes

Maritime Operations
Climatology
High Frequency Radar
Cruises
Giders
Help

Additions & Updates

- **CMOP Saturn04**
  - Sensor configuration updated on NVS. Station now serving only temperature and salinity, at the two depths.
  - Updated on 7 Apr 2017

- **CMOP Saturn02**
  - Currently offline. Redeployment is being planned for late Spring or Summer.
  - Updated on 6 Apr 2017

- **CMOP Saturn07**
  - Currently offline. Redeployment is being planned for late Spring or Summer.
  - Updated on 6 Apr 2017
NOS Charts as NVS overlays
See current conditions
See current conditions in context of chart information.
Or see both current conditions and forecasts
And pull up data from NDBC, CDIP, etc. assets for other real-time info.
Other features include: surface currents...
which data scale to size of map projection
with real-time data at buoys or land stations
Allows critical comparison of observations with forecasts
and wave forecasts at virtual stations along the coast.
Helps operators to know conditions at dangerous bars
See a simplified list for recreational boaters
Visualize tidal forecasts in spatial context
Figure out a route!
See conditions on a route from Oak Harbor to Victoria.
See how forecasts and current conditions for wind compare.
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Find safe and effective journeys for fishing

SST & HFR Surface Currents and Forecasts
Regional PNW Wave and Wind Forecasts

See animated forecasts from NOAA WaveWatch III

Forecast fields provided courtesy of the National Centers for Environmental Prediction
Thank you!

As always, we value your feedback ...

Visit us at:

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