

Advancing the implementation of a National Water Quality Monitoring Network (The Network) for U.S. Coastal Waters and their Tributaries

Dr. Jan Newton, UW & Northwest Association of Networked Ocean Observing Systems (NANOOS)



Northwest Association of Networked Ocean Observing Systems

The Integrated Ocean Observing System (IOOS®)

Regional Association for the Pacific NW

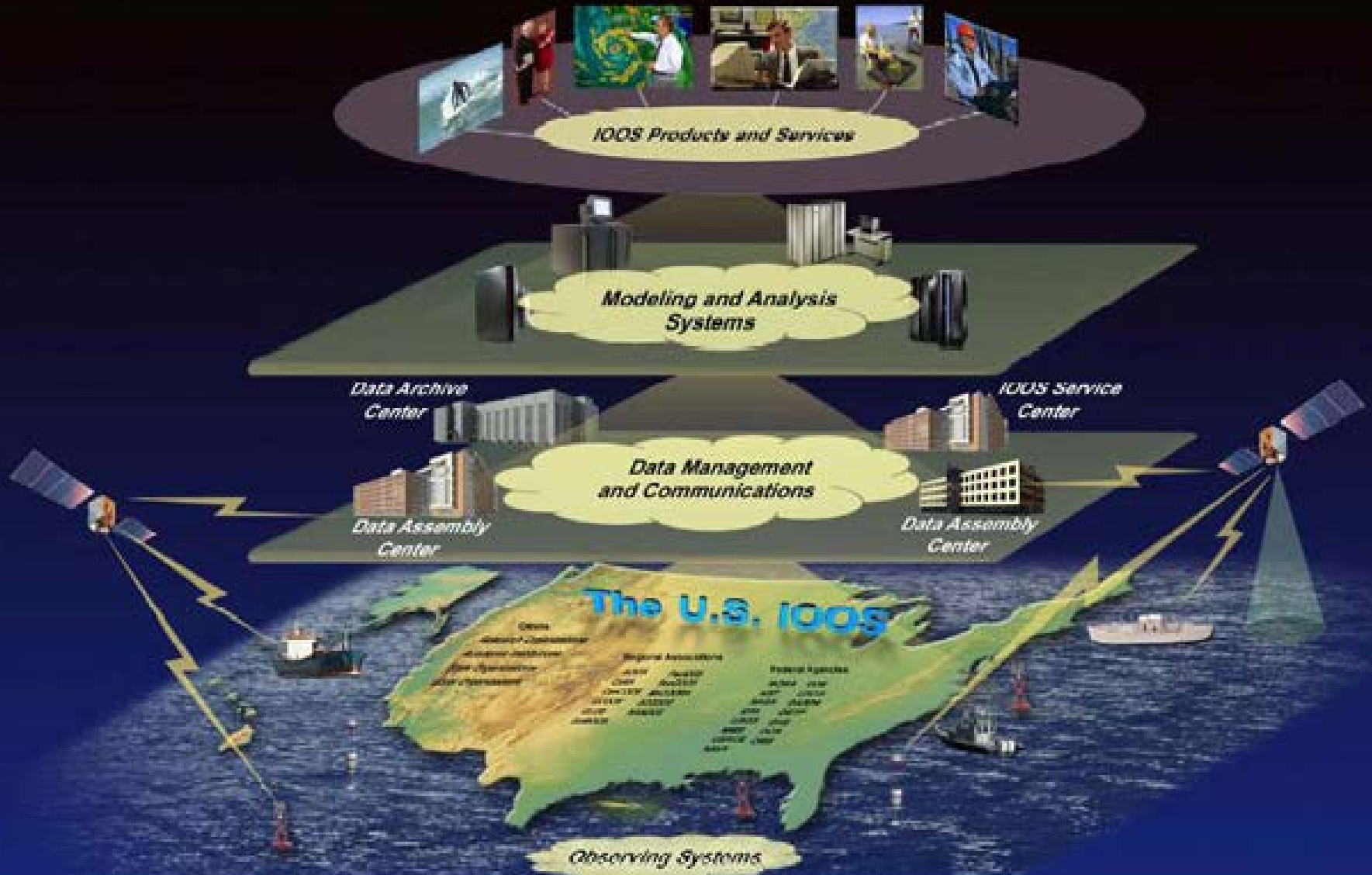


www.nanoos.org

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IOOS[®]

INTEGRATED OCEAN OBSERVING SYSTEM



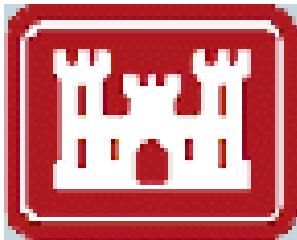
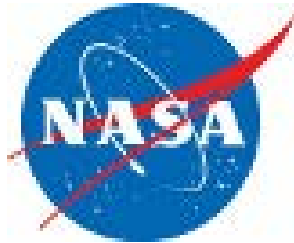
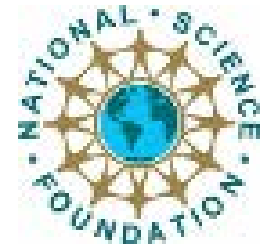
Integrated Coastal & Ocean Observation System Act of 2009

Created IOOS, with NOAA as lead Federal agency

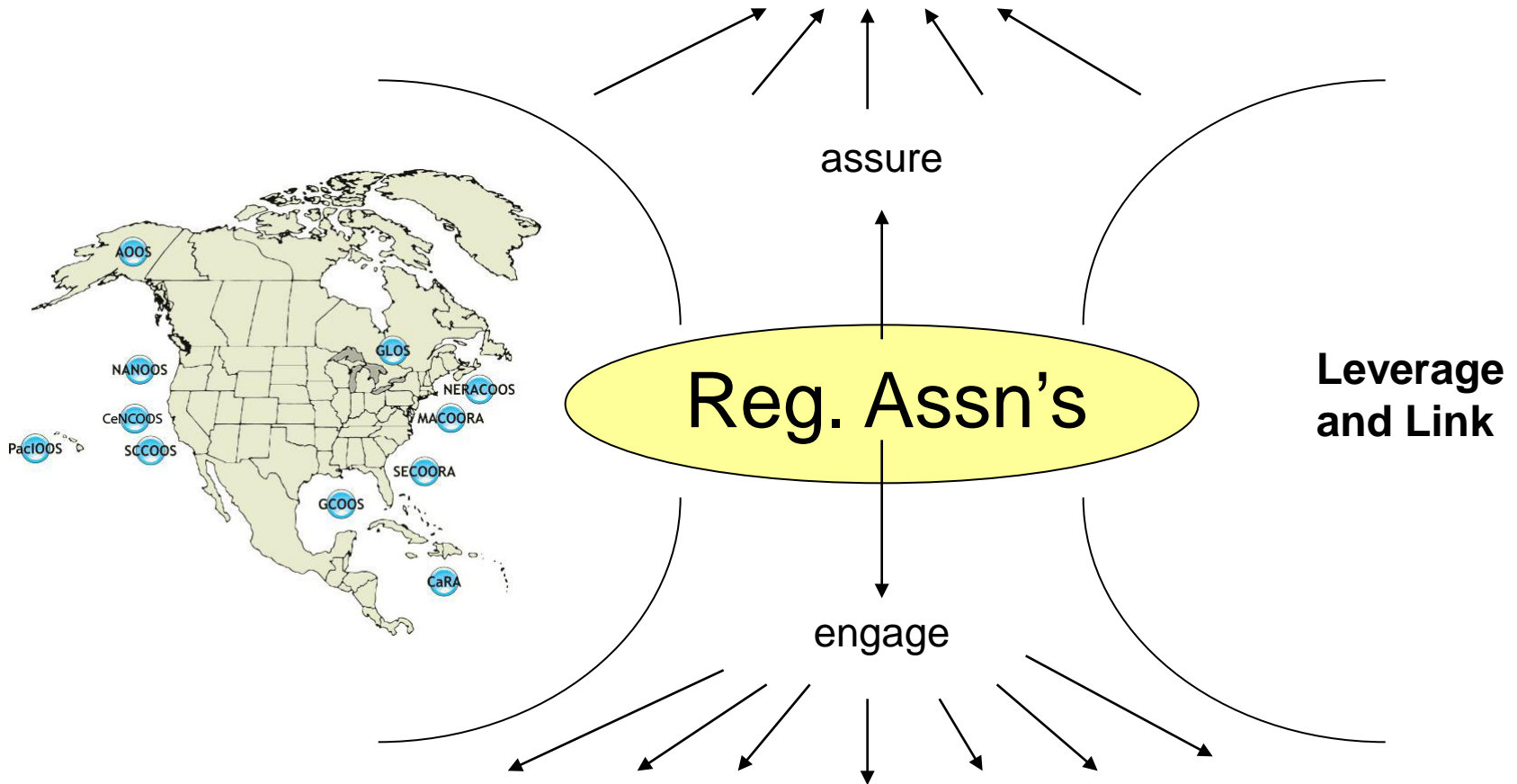
“The purposes of this subtitle are to--

- (1) establish a **national integrated System** of ocean, coastal, and Great Lakes observing systems, comprised of **Federal and non-Federal** components coordinated at the national level by the National Ocean Research Leadership Council and at the regional level by a network of regional information coordination entities, and that includes in situ, remote, and other **coastal and ocean observation, technologies, and data management and communication systems**, and is **designed to address regional and national needs** for ocean information, to gather specific data on key coastal, ocean, and Great Lakes variables, and to ensure timely and sustained dissemination and availability of these data...”

IOOS FEDERAL PARTNERS:



CONSISTENT NATIONAL CAPABILITY



DIVERSE LOCAL STAKEHOLDERS

Integrated Coastal & Ocean Observation System Act of 2009

“In order to fulfill the purposes of this subtitle, the System shall be national in scope and consist of--

- (A) Federal assets to fulfill national and international observation missions and priorities;
- (B) non-Federal assets, including a network of regional information coordination entities identified under subsection (c)(4), to fulfill regional observation missions and priorities;
- (C) **data management, communication, and modeling systems for the timely integration and dissemination of data and information products from the System;**”

The Regional Associations of IOOS





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NANOOS

NORTHWEST ASSOCIATION OF NETWORKED OCEAN OBSERVING SYSTEMS



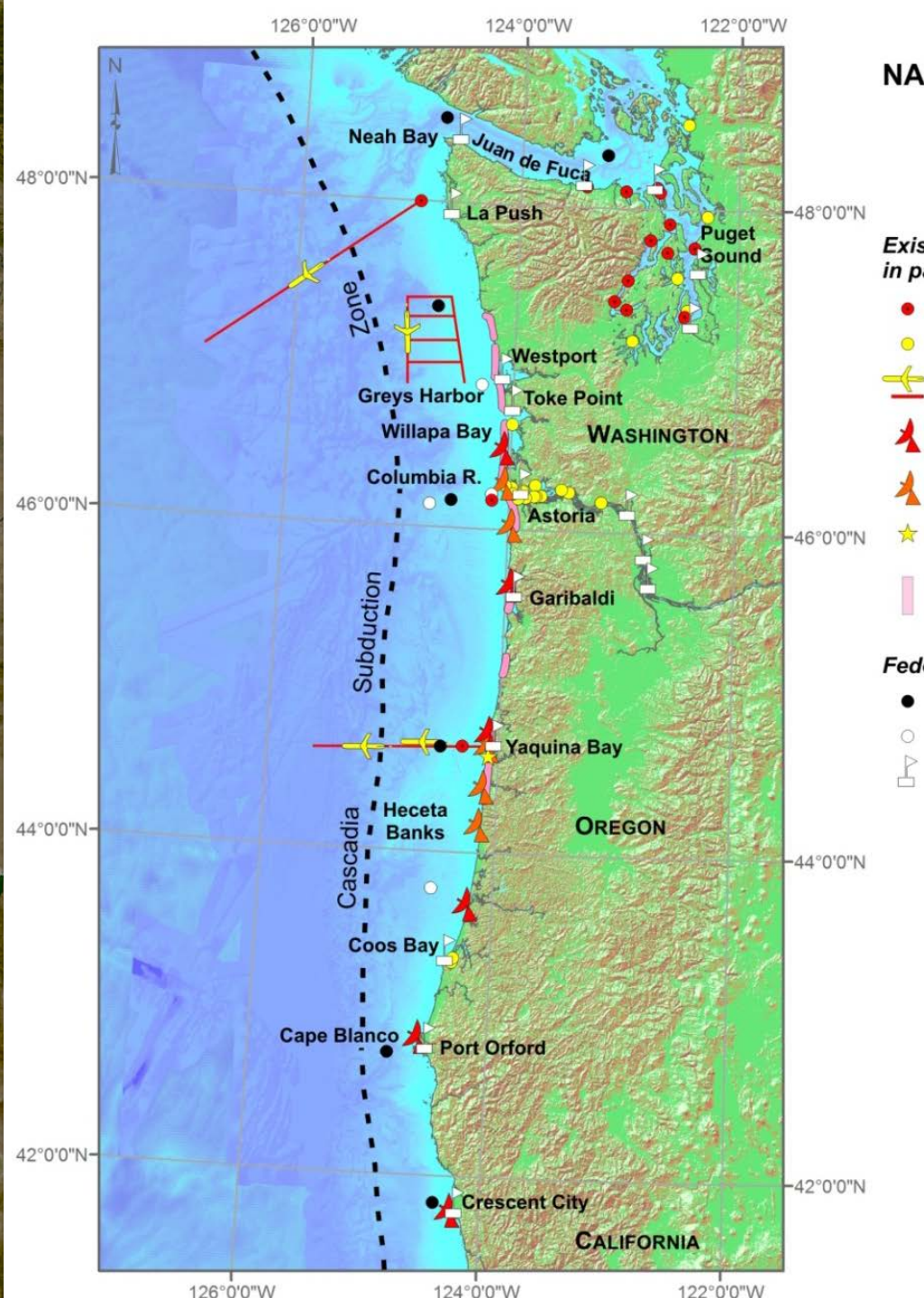
WASHINGTON - OREGON - NORTHERN CALIFORNIA

Strategy to develop a PNW Observing System

1. Integrate what we have (assets, people, technologies)

= federal, state agency, academic, local, tribal, and industry

2. Be strategic regarding what we need, based on priorities





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NVS ▸ Assets

Map List Help


-  myNANOOS
-  Map
-  Regions
-  Filters
-  Assets
-  Overlays
-  Places
-  Settings
-  Legend

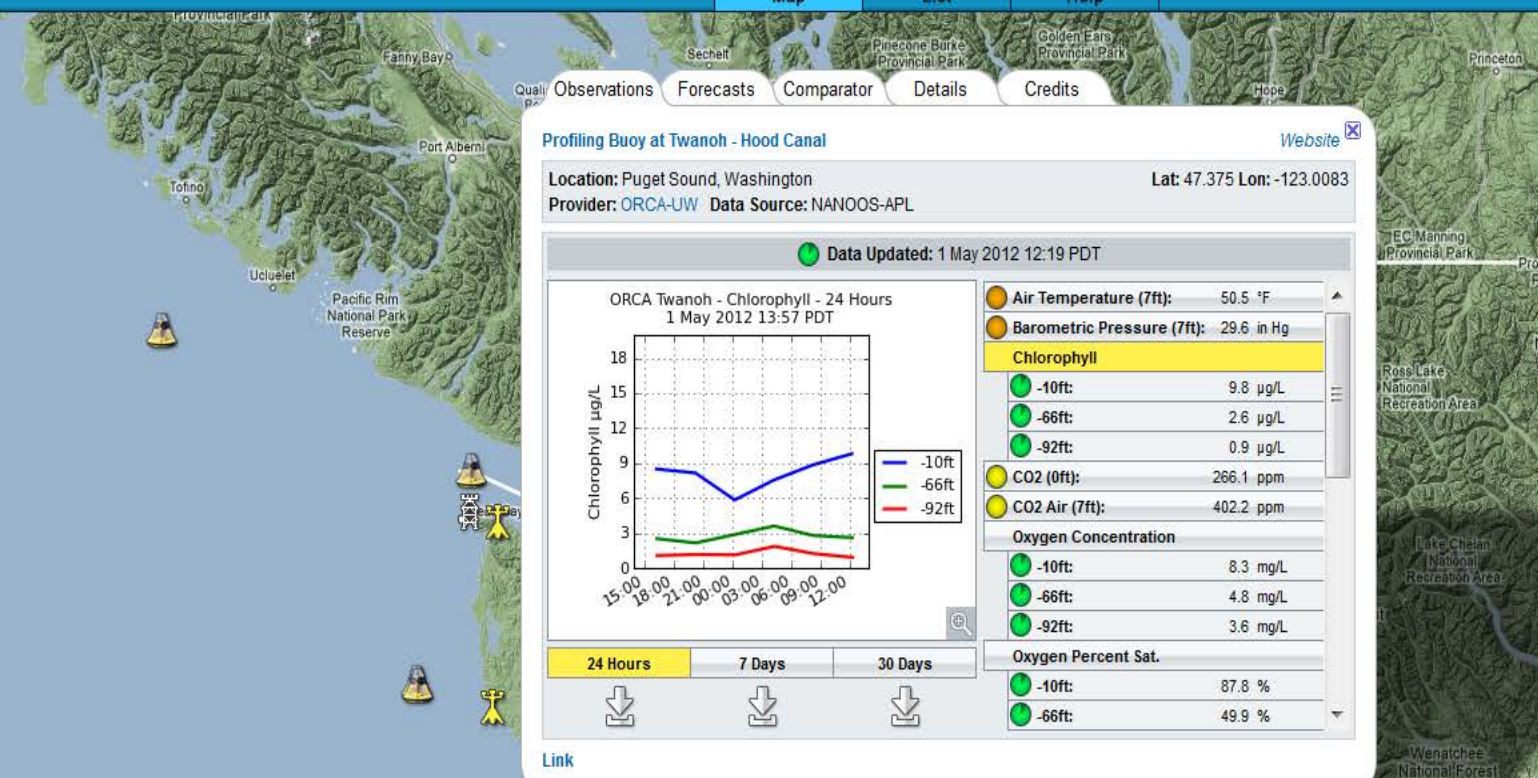
Map navigation controls: compass, zoom in (+), zoom out (-)

NANOOS funds:
 UW, WA State Dept. Ecology, OHSU, OSU, OR Dept State Lands assets, 
~19 in total

NANOOS displays:
 Federal, Tribal, State, University, Private assets,
167 in total



POWERED BY  50 mi / 100 km

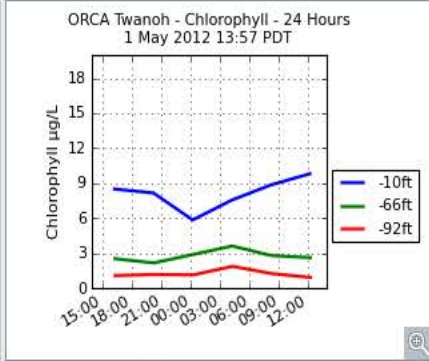


Observations Forecasts Comparator Details Credits

Profiling Buoy at Twanoh - Hood Canal [Website](#)

Location: Puget Sound, Washington Lat: 47.375 Lon: -123.0083
Provider: ORCA-UW Data Source: NANOOS-APL

Data Updated: 1 May 2012 12:19 PDT



Air Temperature (7ft):	50.5 °F
Barometric Pressure (7ft):	29.6 in Hg
Chlorophyll	
-10ft:	9.8 µg/L
-66ft:	2.6 µg/L
-92ft:	0.9 µg/L
CO2 (0ft):	266.1 ppm
CO2 Air (7ft):	402.2 ppm
Oxygen Concentration	
-10ft:	8.3 mg/L
-66ft:	4.8 mg/L
-92ft:	3.6 mg/L
Oxygen Percent Sat.	
-10ft:	87.8 %
-66ft:	49.9 %

24 Hours 7 Days 30 Days
Download icons

[Link](#)

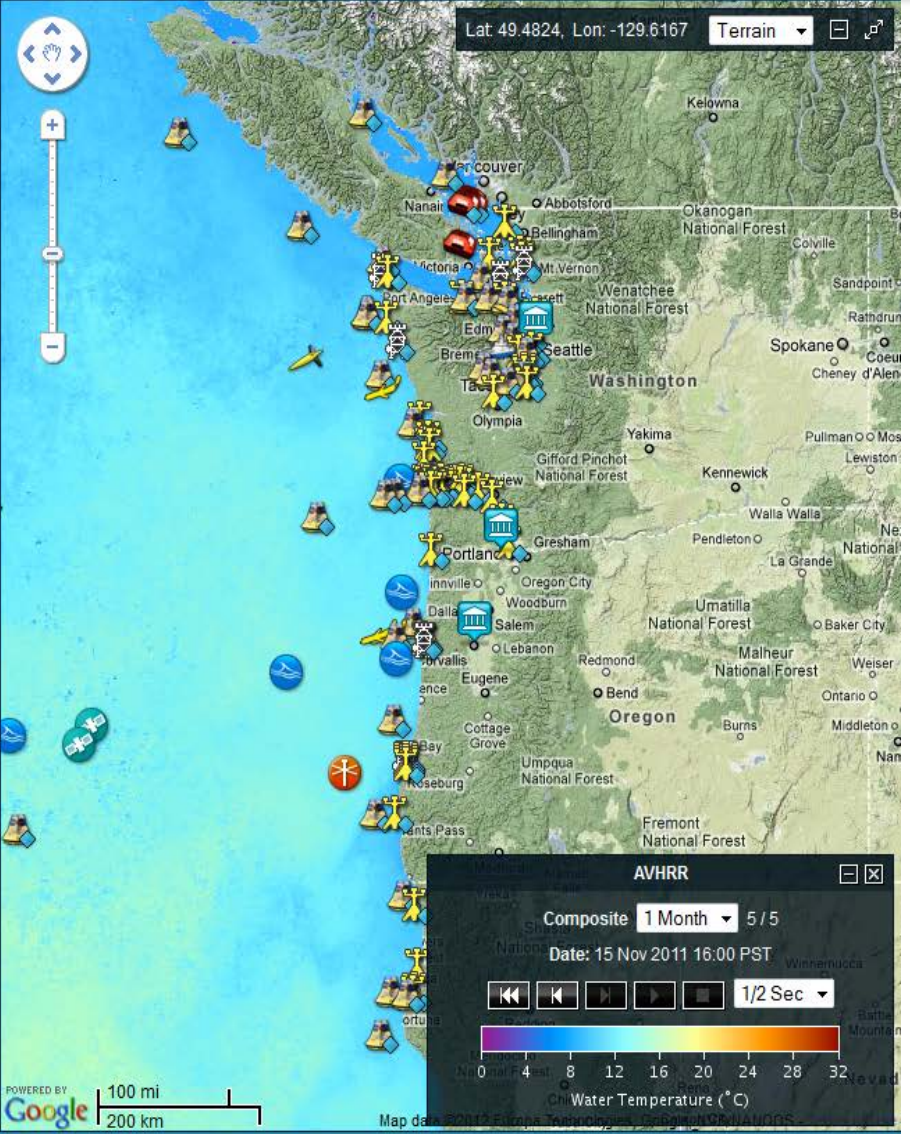




- myNANOOS
- Map
- Regions
- Filters
- Assets
- Overlays
- Places
- Settings
- Legend

- ### Assets
- PSI Nahcotta
 - PSI Bay Center
 - WADOE Manchester
 - WADOE Mukiteo
 - WADOE Squaxin
 - WADOE Willapa
 - Land Station**
 - NDBC CAR03
 - NDBC DESW1
 - NDBC NWPO3
 - NDBC SISW1
 - NDBC TTIW1
 - NDBC WPOW1
 - NERRS PDBFMET
 - NERRS SOSMMET
 - River Gage**
 - CMOP Saturn06
 - USGS Alesia
 - USGS Chehalis
 - USGS Chetco
 - USGS Columbia BAT
 - USGS Columbia BD
 - USGS Elwha
 - USGS Elwha Source
 - USGS Green
 - USGS Hoh
 - USGS Klamath
 - USGS Nehalem
 - USGS Nestucca
 - USGS NF Stillaguamish
 - USGS Nisqually
 - USGS Nooksack
 - USGS Puyallup
 - USGS Queets
 - USGS Quinalt
 - USGS Rogue
 - USGS SF Coquille

- ### Overlays
- Show Overlay Icons on Map **On**
- Observations (4)**
 - Expand All Collapse All
 - Radar**
 - HF Radar
 - OSU X-Band Radar
 - Satellite (Composite)**
 - AVHRR
 - Water Temperature
 - MODIS
 - Chlorophyll a
 - Forecasts (6)**
 - Expand All Collapse All
 - Model**
 - CMOP Columbia
 - Salinity
 - Water Temperature
 - N. Amer. Mesoscale (NAM)
 - Air Temperature
 - Barometric Pressure
 - Relative Humidity
 - Wind Speed
 - WAVEWATCH III
 - Dom. Wave Period (North Pacific)
 - Waves (North Pacific)
 - Winds (North Pacific)
 - Dom. Wave Period (N.E. Pacific)
 - Waves (N.E. Pacific)
 - Winds (N.E. Pacific)
 - NOS/CO-OPS Tides
 - OSU ROMS
 - Water Temp. & Currents
 - Water Temp. & Currents - Tuna
 - OSU Wave Forecasts



“Gulf of Mexico Data Portal”

Welcome to GCOOS Data Portal

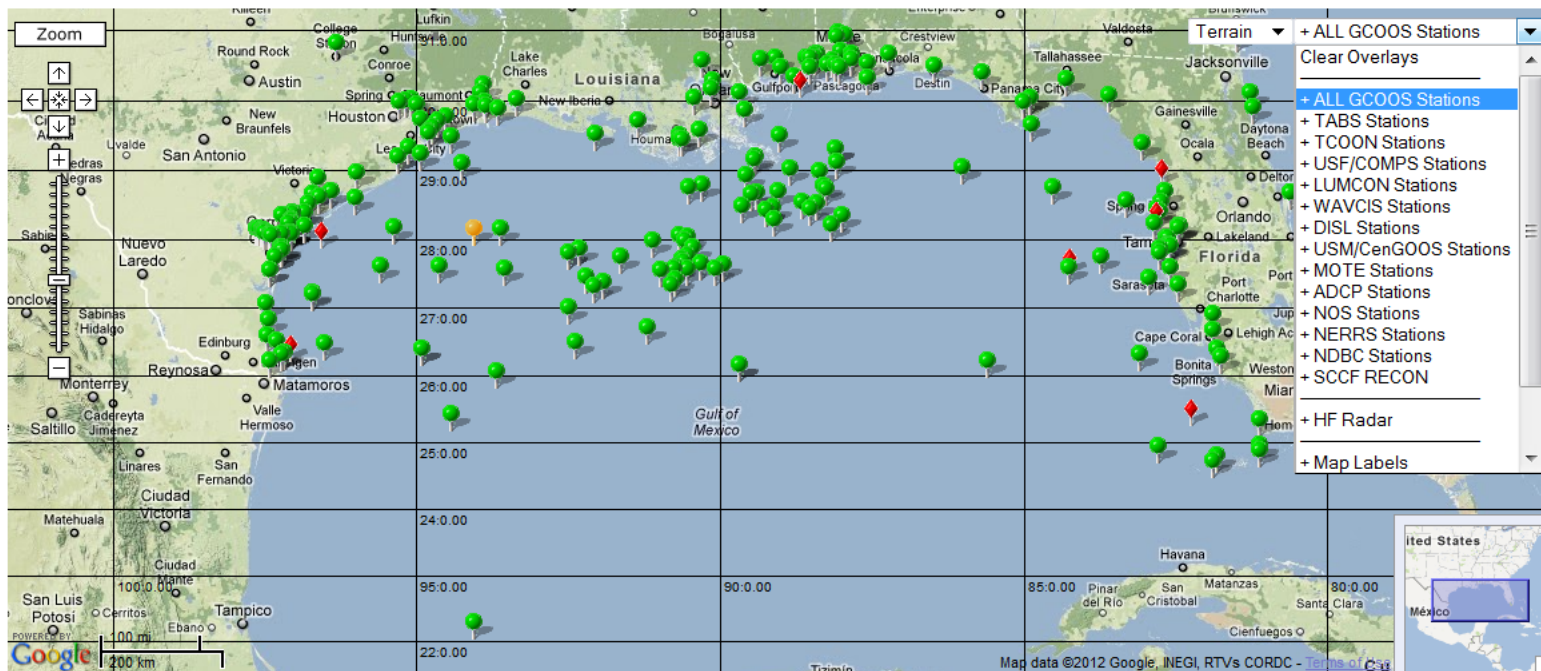
This **Data Portal** provides timely information about the environment of the United States portion of the Gulf of Mexico and its estuaries for use by decision-makers, including researchers, government managers, industry, the military, educators, emergency responders, and the general public. Observing stations in the region are monitored constantly. Please visit the GCOOS main web site at <http://www.gcoos.org/> for more information on this regional association.

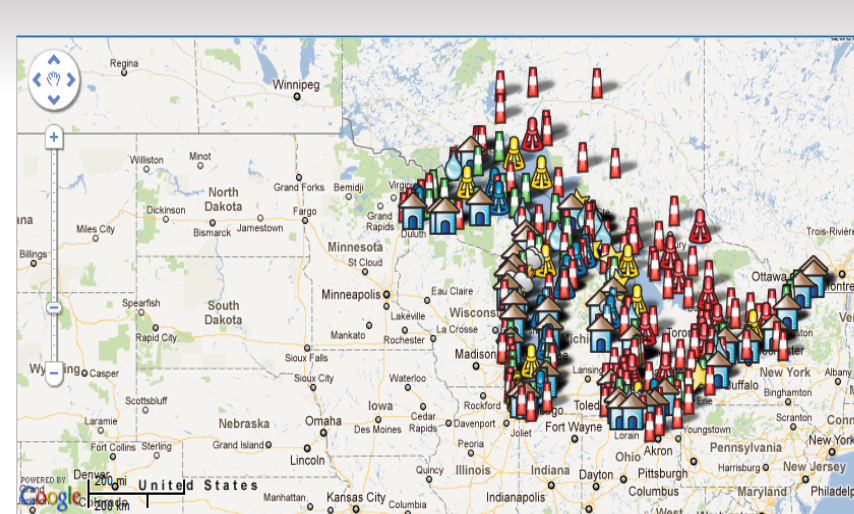
Region's Current Condition

The following is an interactive map to display resources and status of coastal and ocean observing stations. **Green** markers represent stations in full operation, **orange** markers are those with defective sensors and **red**-marked stations are those that are currently not transmitting data. Click on the station to view station details. Not all stations may be visible at the current scale. Zoom-in on an area to reveal all the stations. The HF Radar overlay uses Coastal Observing Research and Development Center (CORDC) published [HF RADAR API](#). [Click here](#) to toggle back to 2D mapping from 3D display.












WHAT'S NEW!

- (2011-11-22) A new plot module that can be embedded on any site is now available. Check the [Download](#) page for more on this.
- (2011-11-04) GCOOS data portal is now harvesting data from NERRS stations using their new





Station Type	Station Info	Available Data	Record of The Day	Search Station	Ship Report
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- [Uncheck all](#)
-  C-Man Stations(53)
 -  Weather Station(5)
 -  Water Level Station(27)
 -  GLOS Buoy(15)
 -  USGS Water Gauge(41)
 -  GLOS Weather Station(3)
 -  3-meter Discus Buoy(14)
 -  Canadian Buoy(14)
 -  NERRS Weather Station(1)
 -  ASOS Station(138)
 -  Other Marine Reports(9)

Pick a parameter from the Available Data tag to get a quick view on the latest data(up to 7 days)

Disclaimer: All products published on this website are prototype products and are not intended to be used for navigational or operational purposes. Due to atmospheric or other conditions, latest data may not always be available. [View full disclaimer](#)

NERACOOS

Northeastern Regional Association of Coastal and Ocean Observing Systems

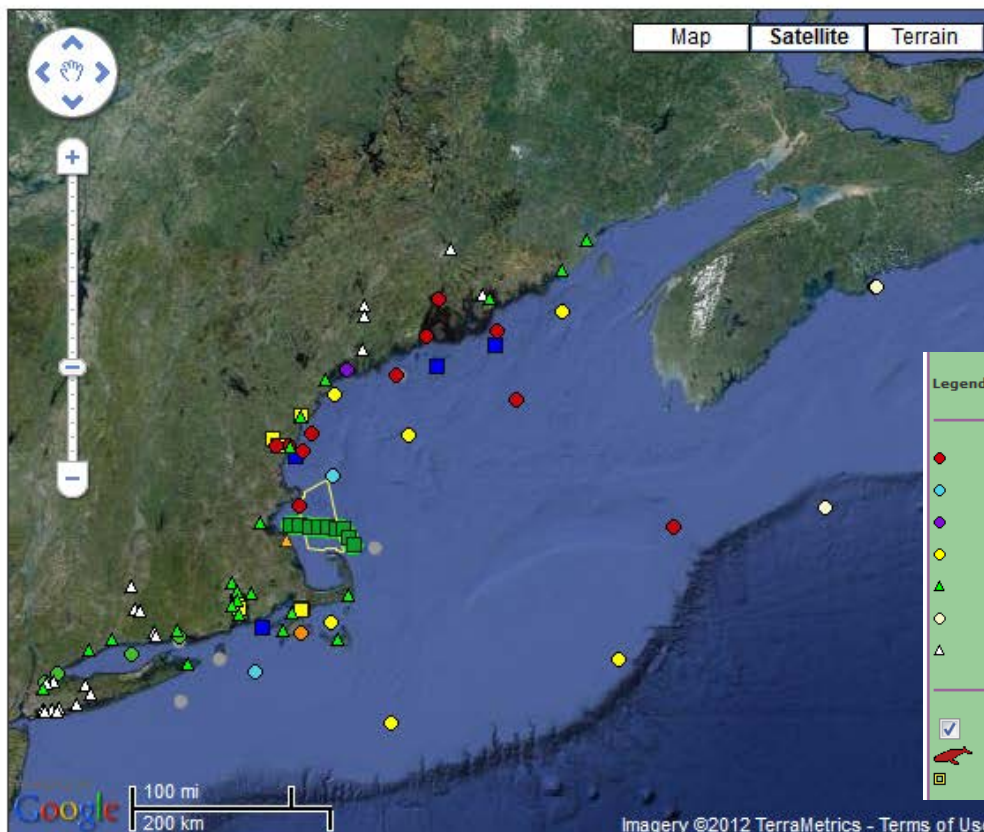
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Real-Time Data Portal



Map Satellite Terrain

Zoom to location:

NERACOOS Region ▼

NERACOOS Gulf of Maine M - Jordan Basin

Lat: 43.49 Lon: -67.87

Latest Observation: 05/01 4:00 PM EDT

Variable	Value
Wind speed	17 knots (20 mph, 32 kph)

Legend Deselect all

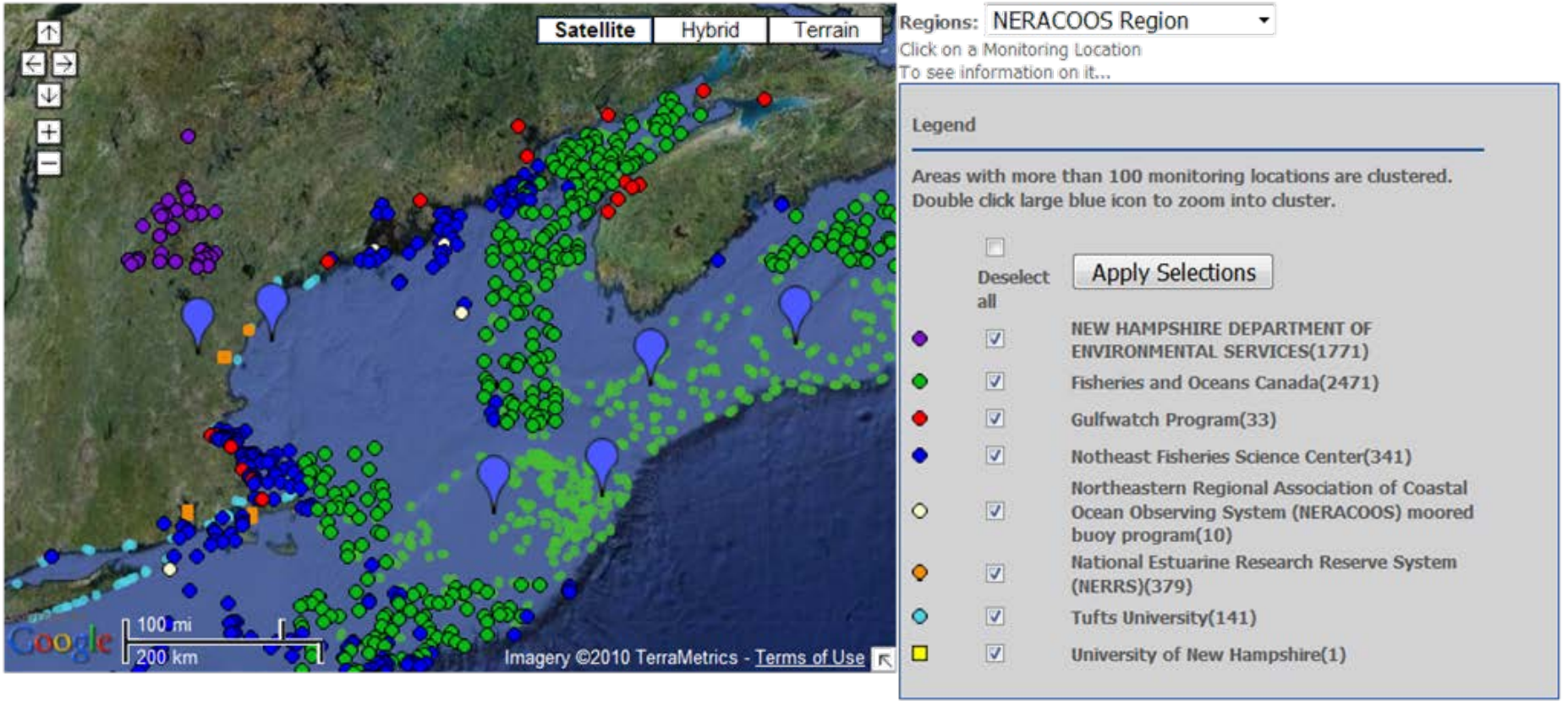
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Gulf of Maine Buoys <input checked="" type="checkbox"/> CDIP Buoys <input checked="" type="checkbox"/> Bowdoin Buoy <input checked="" type="checkbox"/> NOAA Buoys <input checked="" type="checkbox"/> NOS Stations <input checked="" type="checkbox"/> Environment Canada Buoys <input checked="" type="checkbox"/> USGS Stations 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Long Island Sound Buoys <input checked="" type="checkbox"/> MVCO Sea Node <input checked="" type="checkbox"/> NERRS Stations <input checked="" type="checkbox"/> NOAA CMAN <input checked="" type="checkbox"/> Scituate Tides <input checked="" type="checkbox"/> SmartBay Buoys <input checked="" type="checkbox"/> Inactive Buoys
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- Cornell Whale Array
- Recent detections No recent detections
- Stellwagen Bank National Marine Sanctuary

Imagery ©2012 TerraMetrics - [Terms of Use](#)

“Northeast Data Management and Portal”

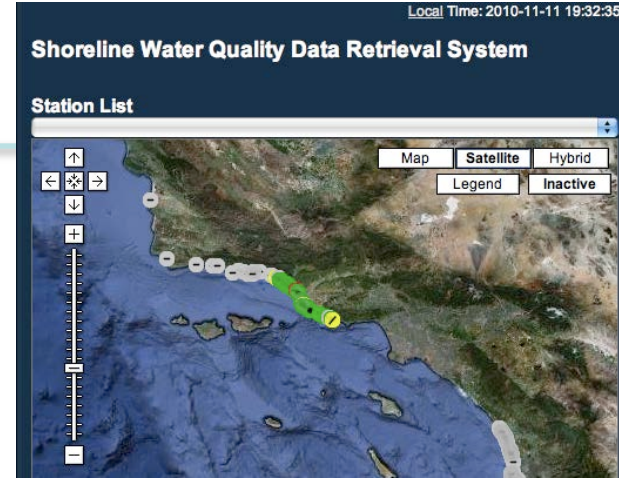
(<http://odpdx.neracoos.org>)



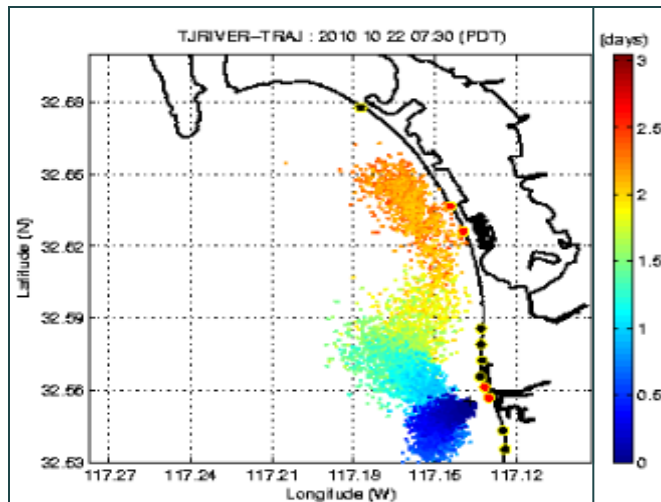


Observations, including support for partners

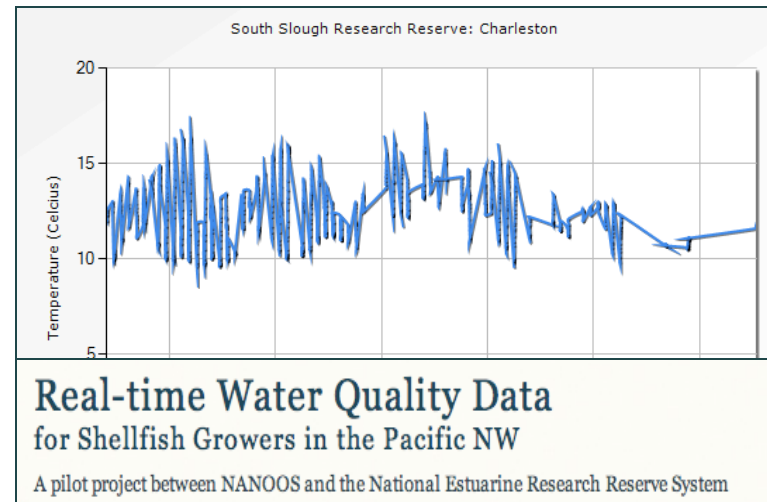
IOOS RA's Involvement in Water Quality



Data Services: Simplifying access to data



Plume Tracking



Real-time Water Quality Data
for Shellfish Growers in the Pacific NW

A pilot project between NANOOS and the National Estuarine Research Reserve System

Customized Products

Take home messages

- IOOS has a federal mandate to integrate coastal ocean observations and data from federal and non-federal sources.
- IOOS and its RAs are critical building blocks of the National Water Quality Monitoring Network.
- IOOS RAs have integrated data access to federal, tribal, state, local, academic, NGO, and private sector monitoring assets and have designed their observing systems based on regional stakeholder input.
- Essential to optimize interoperability.