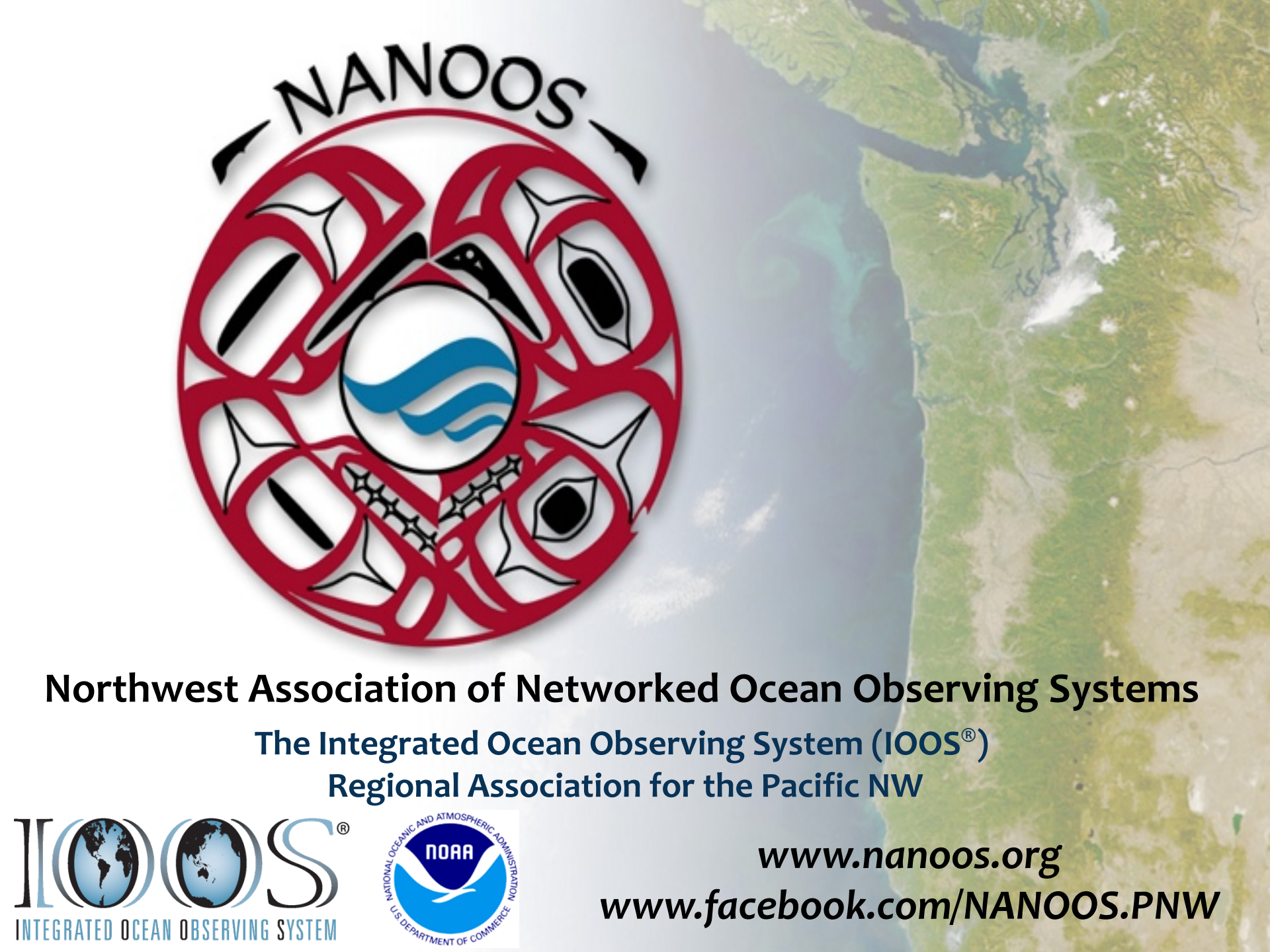
Advancing the implementation of a National Water Quality Monitoring Network (The Network) for U.S. Coastal Waters and their Tributaries

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

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NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

www.nanoos.org
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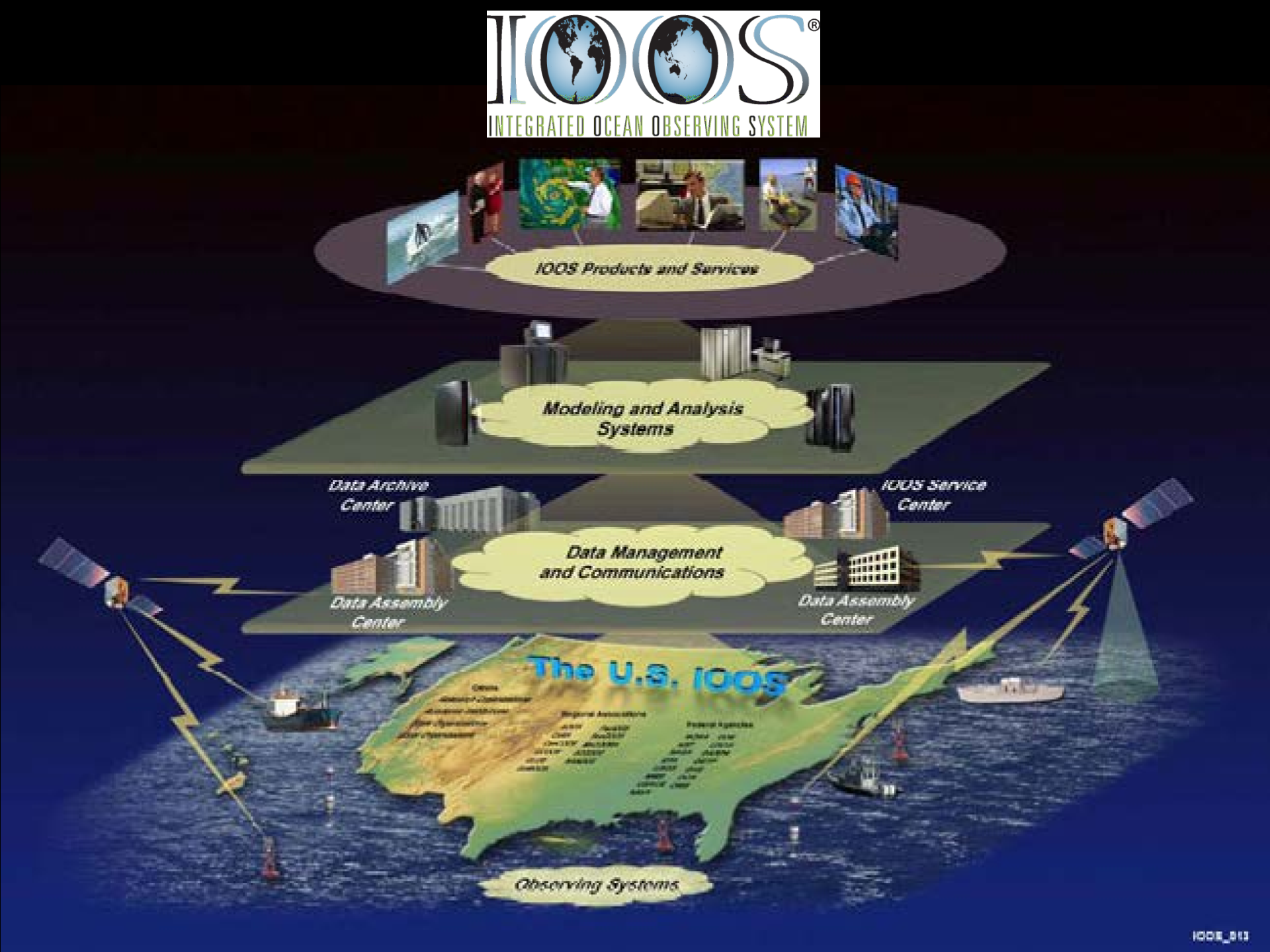
IOOS®
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IOOS Products and Services
Modeling and Analysis Systems
Data Archive Center
IOOS Service Center
Data Management and Communications
Data Assembly Center
Data Assembly Center
The U.S. IOOS
Observing Systems
IOOS_313

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…"

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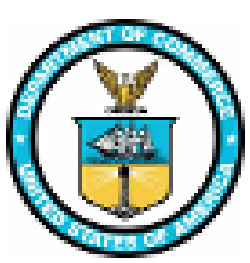
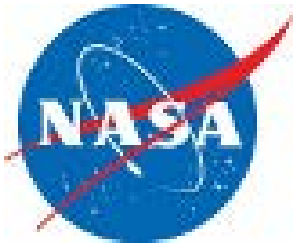
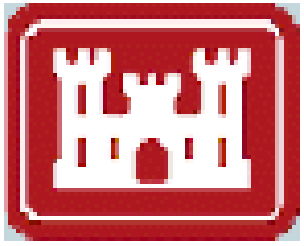
IOOS FEDERAL PARTNERS:







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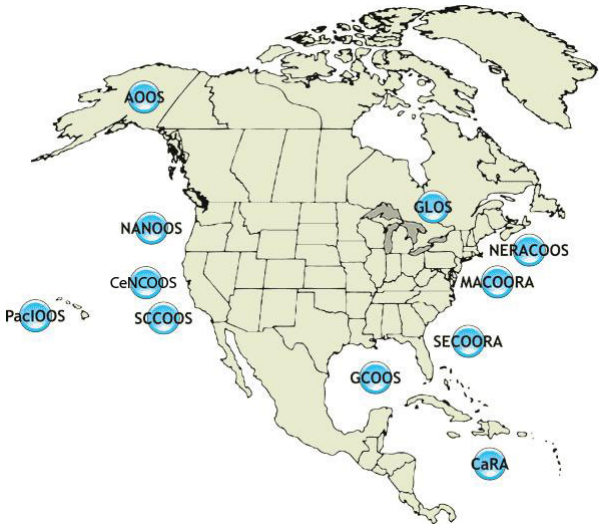
CONSISTENT NATIONAL CABABILITY



assure

Reg. Assn's

Leverage and Link

engage

DIVERSE LOCAL STAKEHOLDERS

Integrated Coastal & Ocean Observation System Act of 2009

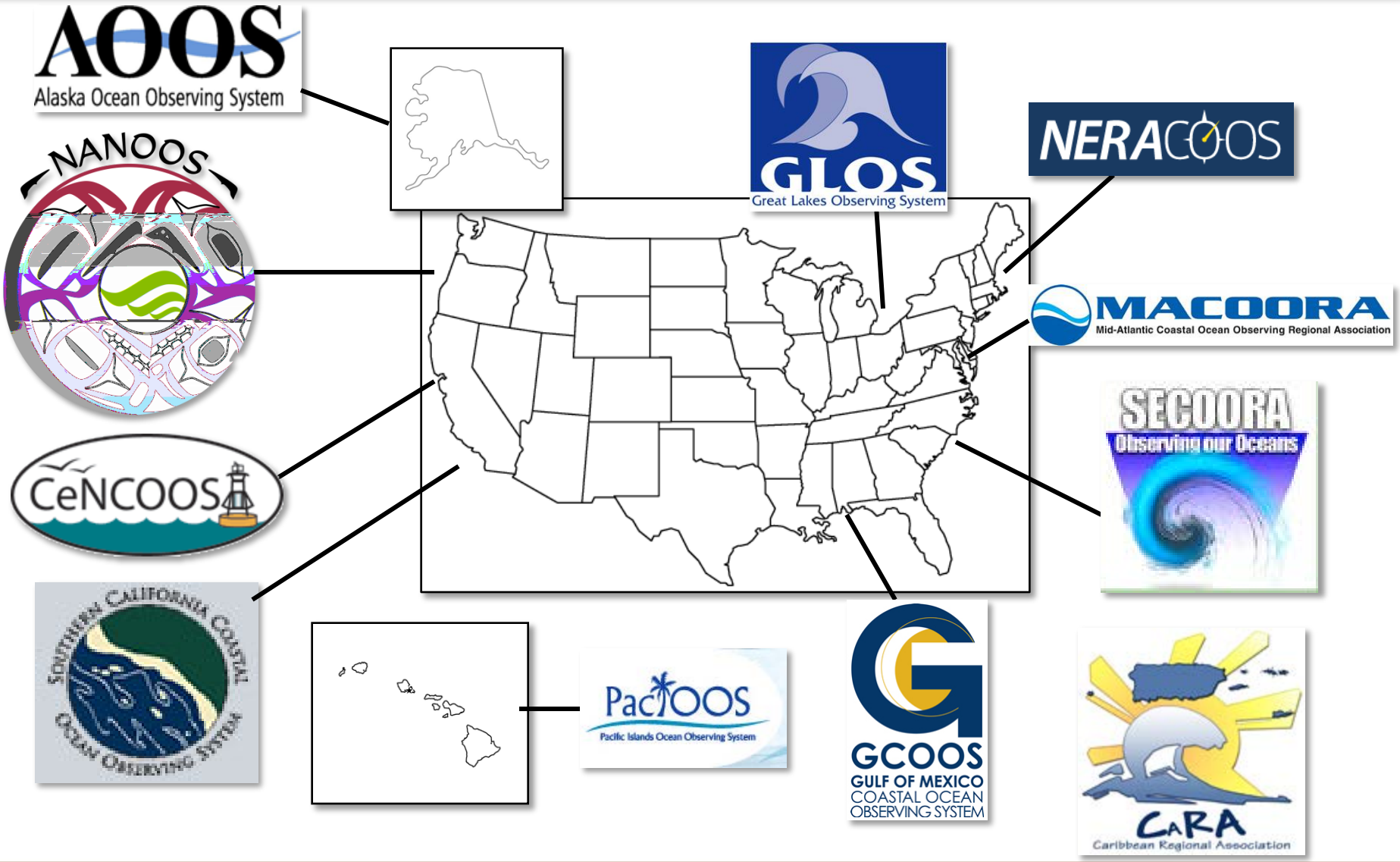
"In order to fulfill the purposes of this subtitle, the System shall be national in scope and consist of--

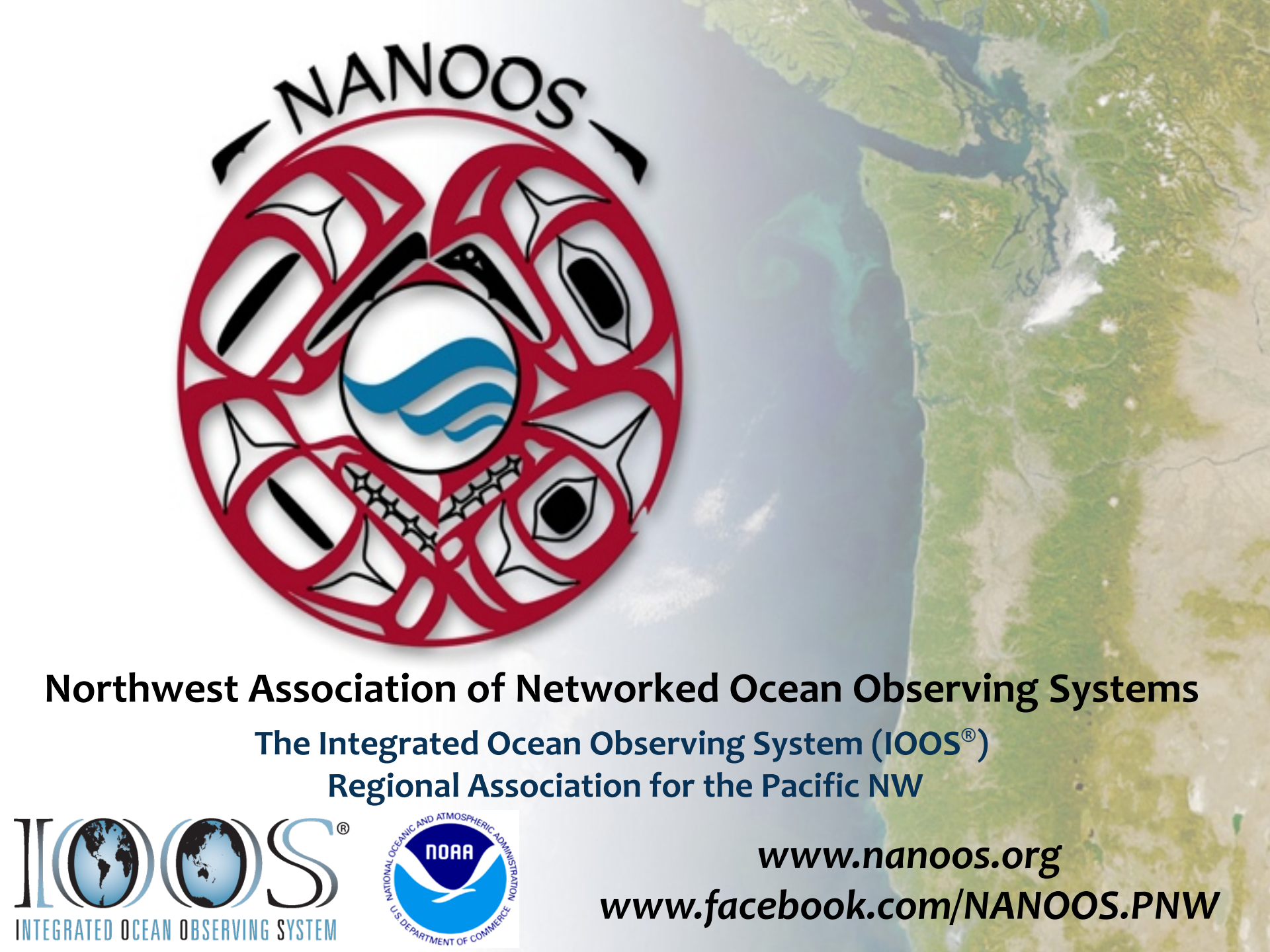
(A) Federal assets to fulfill national and international observation missions and priorities;

(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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www.nanoos.org
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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

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, and 20 more

Resource extraction, 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


www.nanoos.org/nvs/nvs.php?section=NVS-Assets
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NVS ▸ Assets
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Assets
Overlays
Places
Settings
Legend
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
Surrey
Victoria
Everett
Bothell
Bellevue
Renton
Kent
Puyallup
Olympia
Aberdeen
Ocean Shores
Forks
Seaside
Centralia
Yakima
Vancouver
Portland
Gresham
Olympic National Park
Olympic National Forest
North Cascades National Park
Mt Baker-Snoqualmie National Forest
Wenatchee National Forest
Snoqualmie National Forest
Gifford Pinchot National Forest
Washington
POWERED BY Google
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100 km
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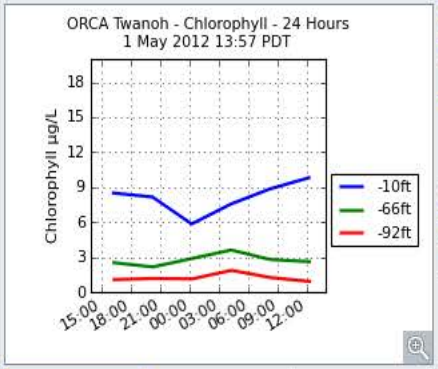
Map
Regions
Filters
Assets
Overlays
Places
Settings
Legend

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

Link

IOOS®

“Gulf of Mexico Data Portal”

GCOOS
GULF OF MEXICO
COASTAL OCEAN
OBSERVING SYSTEM

IOOS INTEGRATED OCEAN OBSERVING SYSTEM

GULF OF MEXICO COASTAL OCEAN OBSERVING SYSTEM — DATA PORTAL

Assets | Monitoring | Direct Data Access | DIF SOS | LDN SOS URLs | Vocabularies | Downloads | Contact Us

Welcome to GCOOS Data Portal

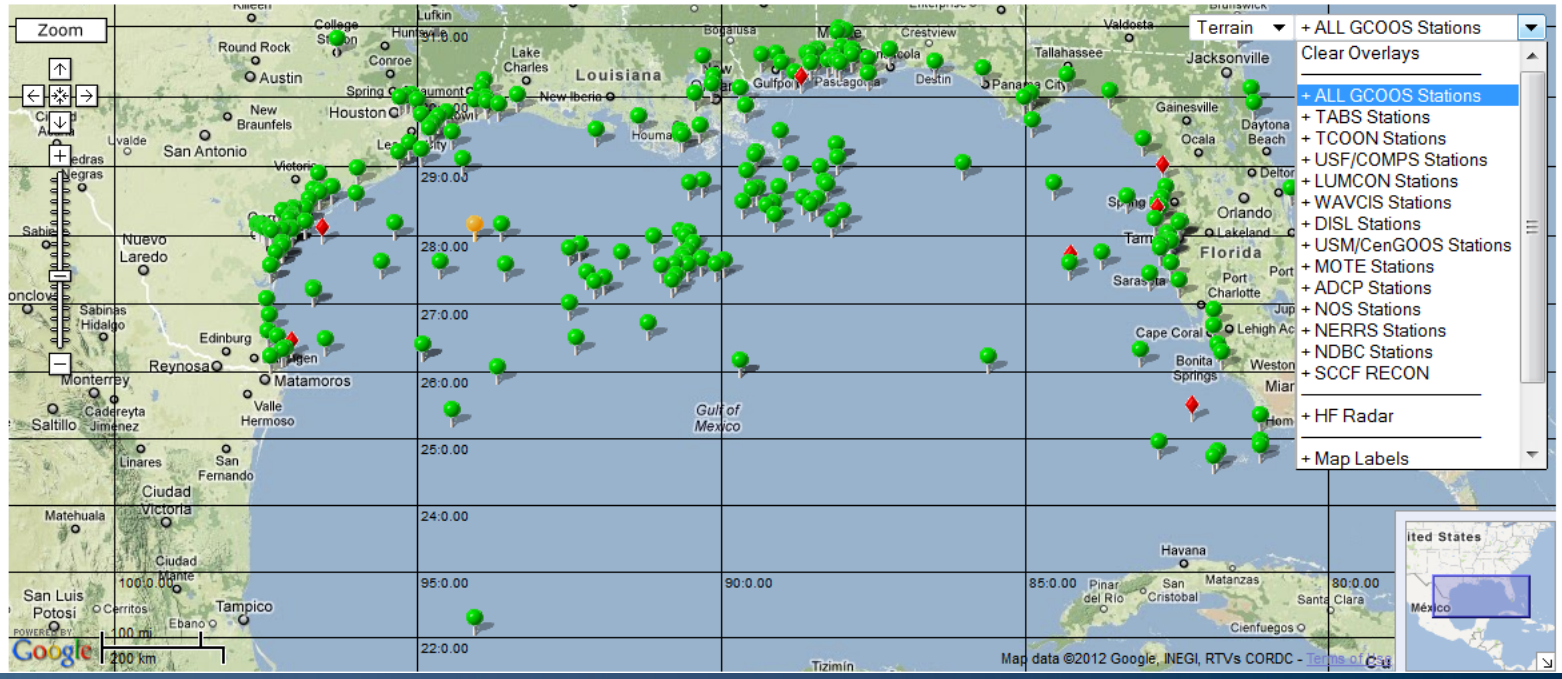
This **Data Portal** provides timely information about the environment of the United States portion of the Gulf of Mexico and its estuaries for use by decision-makers, including researchers, government managers, industry, the military, educators, emergency responders, and the general public. Observing 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

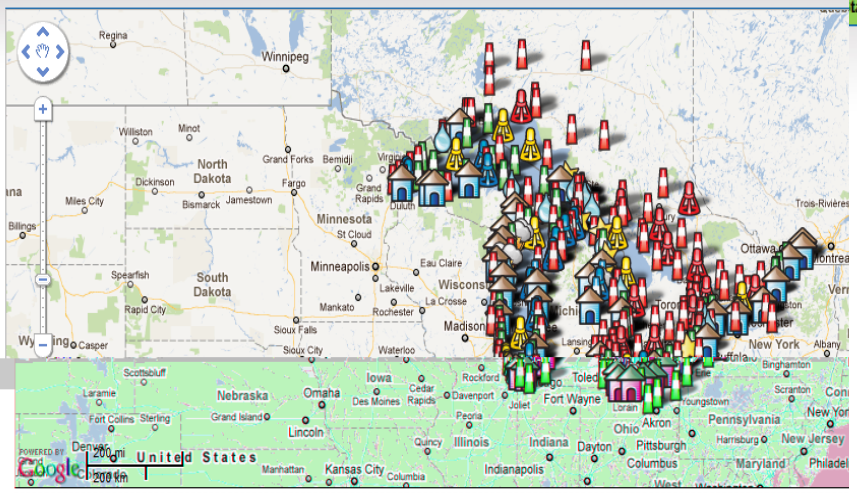


“GLOS Great Lakes Observations Explorer”

GLOS
Great Lakes Observing System

GREAT LAKES OBSERVING SYSTEM
OBSERVATIONS EXPLORER

Text View



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

tation Type | Station Info | Available Data | Record of The Day | Search Station | Ship Report

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)

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.

229 Nickels Arcade | Ann Arbor, MI 48104
comments@glos.us

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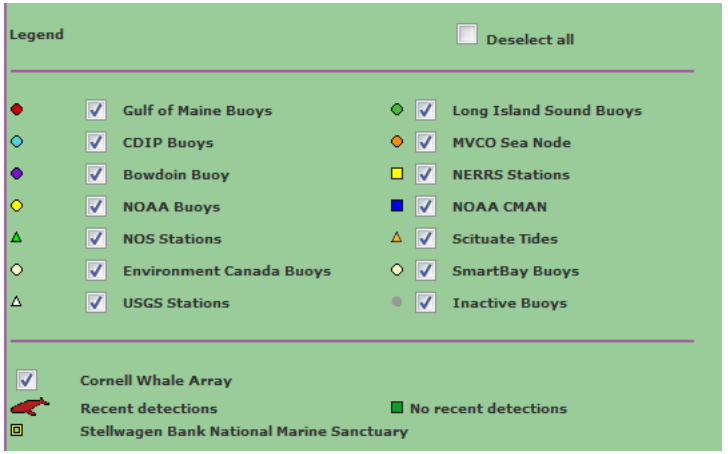
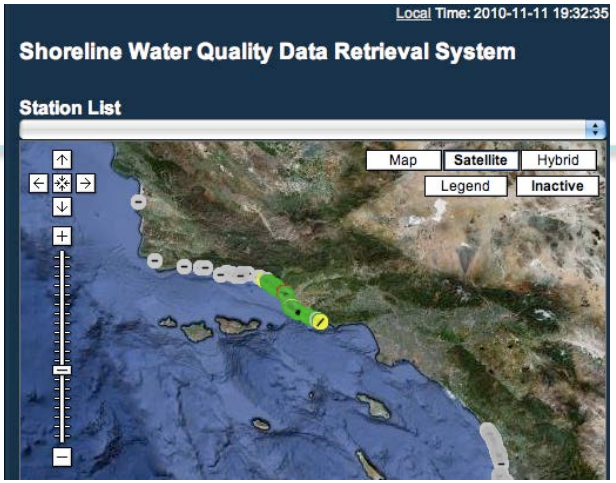

Legend
Deselect all
Gulf of Maine Buoys
CDIP Buoys
Bowdoin Buoy
NOAA Buoys
NOS Stations
Environment Canada Buoys
USGS Stations
Long Island Sound Buoys
MVCO Sea Node
NERRS Stations
NOAA CMAN
Scituate Tides
SmartBay Buoys
Inactive Buoys
Cornell Whale Array
Recent detections
No recent detections
Stellwagen Bank National Marine Sanctuary

“Northeast Data Management and Portal”

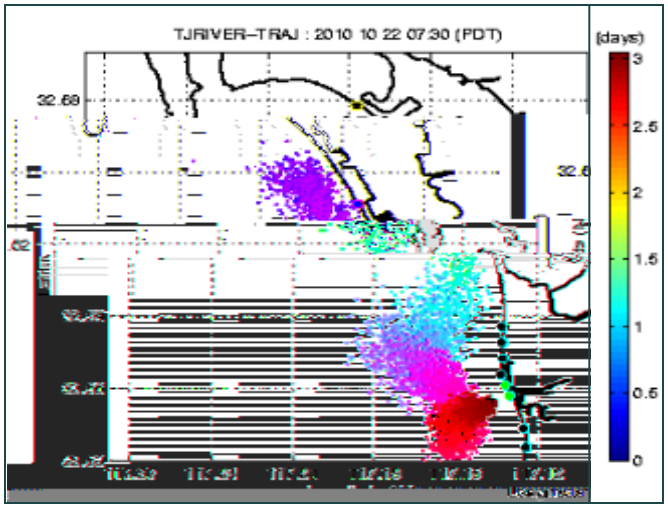
(http://odpdx.neracoos.org)

IOOS RA's Involvement in Water Quality

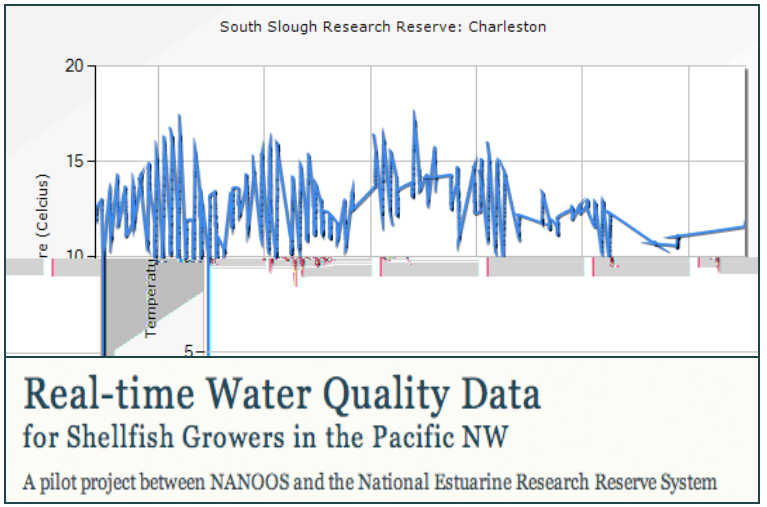
Observations, including support for partners



Data Services: Simplifying access to data



Plume Tracking



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.