

Integrated ocean observing to meet societal needs

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U.S. IOOS: Program Overview

Authorizing legislation

Integrated Coastal Ocean Observing System (ICCOOS) Act (P.L. No 111-11, March 2009)

Mission Areas

- Predicting Weather & Climate variability
- Safe and Efficient Transportation and Commerce
- Preparedness and Risk Reduction for Coastal Communities
- Healthy ecosystems and water quality



U.S. IOOS: Program Overview

Partnership effort that leverages dispersed national investments to deliver ocean, coastal and Great Lakes data relevant to decision-makers.

Global Component

- US contribution to Global Ocean Observing System (GOOS)
- 1 of 15 Regional Alliances of GOOS



National Component

- 17 Federal agencies



Regional Component

- 11 Regional Associations
- Academia, state/local/tribal government, private industry



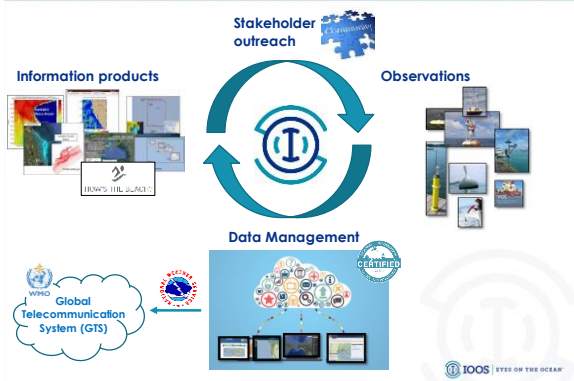
IOOS Regional Observing Assets

<h3>Coastal Moorings</h3>	<h3>Shore Stations</h3>	<h3>HF Radar</h3>
<h3>Sub-surface gliders</h3>	<h3>Wave Buoys</h3>	<h3>Animal Telemetry, Marine Biodiversity</h3>

Photo credits: Rutgers/CODAR/Dan Costa/PaciIOOS/K. Millikan



IOOS Regions meet societal needs

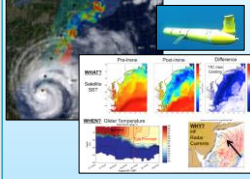


High Frequency Radar applications

<h3>HFR surface currents for search and rescue...</h3> <p>Search And Rescue Optimal Planning System (SAROPS)</p> <p>Integrated HFR into SAROPS decreased the USCG search area.</p>	<h3>...and oil spill response.</h3> <p>NOAA environmental disaster response tool</p> <p>Tracking and forecast of surface pollutants enables decision makers on beach closures.</p>
<p>The Mid-Atlantic region was noted for high quality ocean data compared to the rest of the world.</p> <p>- Orsted, International Offshore Wind Partnering Conference</p> <p>The U.S. is setting the standard for ocean data.</p>	<p>HFRNet_Scripts</p>

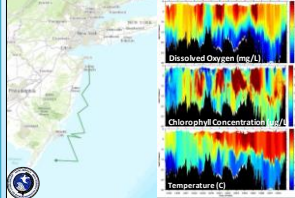
Glider applications

Glidors characterize ocean features...



- MARACOOS/Rutgers research: integrated observations used to identify ahead-of-eye cooling of subsurface water temperatures
- Assimilation of glider data may improve hurricane-intensity forecasts

...and inform ecosystem health.



- Water quality information for local fisheries

Glenn, S.M., et al., Stratified coastal ocean interactions with tropical cyclones. Nature Communications, 2016.



Regional applications of integrated observations

West Coast HABs



- Emergency closures of crab fisheries
- Environmental Sample Processor (new technology) used to detect toxins
- HAB bulletins, forecasts vital to shellfish growers, fishermen, marine mammal rescue groups

Photo credit: Stephanie Moore
Map: CENCOOS/SCCOOS

Lake Erie HAB/hypoxia

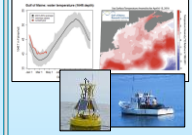


- Drinking water impacts
- Subsurface observations from GLOS/GLERL buoys
- Informs municipal water districts/intake managers

"We receive valuable and complex information in real time with these buoys. That data is an important addition to our treatment tool kit."
- City of Cleveland Water Dept

Lower photo credit: Dave Zapotosky

Gulf of Maine lobster industry



- Maine's largest commercial fishery
- NERACOOS buoys: only source of real-time subsurface water temperatures
- Forecast start date of lobster fishery to optimize the harvest

Image: Gulf of Maine Research Institute
Photo credit (left): Brad Woolfshar



Questions?

- Federal, regional, private, and academic partners
- Integrated ocean observations to improve decision-support tools



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<https://ioos.noaa.gov/>

IOOS data portal: ioos.us

