



FY2007: Regional Integrated Ocean Observing System Development

NOAA initiated a competitive funding process in 2007 to continue building capacity for regional ocean observing systems towards three long-term outcomes; establishing coordinated regional observing and data management infrastructure, developing applications and products for regional stakeholders, and establishing regional and national data management and communications protocols. These projects are contributing to these outcomes.

NORTHEAST ATLANTIC REGION

The Northeast Atlantic Region includes the coastal states from Maine to Rhode Island. Three awards were made to three recipients in this region totaling \$2,330,000.

Project Title:

Development of the Northeast Regional Coastal Ocean Observing System

Recipient/ Lead Principal Investigator:

Woods Hole Oceanographic Institution/ Dr. John Trowbridge (*jtrowbridge@whoi.edu*)

Cost:

Funded: \$1,200,000

Proposed (subject to available funds): Year 2 – \$3,498,881; Year 3 – \$3,498,529

Performance:

This project will develop the Northeastern Regional Coastal Ocean Observing System. Regional user requirements identified inundation, harmful algal blooms, water quality, and living marine resources as specific concerns in the Northeastern Region. There are three objectives of this proposal: (1) operate a core of observing elements; (2) establish new observing capabilities for inundation, water quality, and harmful algal bloom, and (3) develop the design for the user-driven core observing system.

Schedule:

1. Operate a core of observing elements.
 - Years 1 – 3: In the Gulf of Maine, maintain five of 11 existing buoys, the University of NH's Coastal Ocean Observing Center (COOA) buoy in Great Bay; and one buoy in the Long Island Sound Coastal Ocean Observing System.
 - Years 1 – 3: Maintain HF radar, operational circulation model, surface wave model, and satellite data analysis and dissemination for the Gulf of Maine.
 - Years 1 – 3: Extend shipboard surveys associated with the Atlantic Zone Monitoring Program emphasizing nutrient measurements to five new stations;
 - Years 1 – 2: Develop data management and communication systems.
 - Years 2 – 3: Support an additional three buoys in the Gulf of Maine; support other existing moorings and buoys in Long Island Sound and Block Island Sound.
 - Year 3: Implement data management and communication systems.

(over)

2. Establishing new observing capabilities for coastal inundation, nutrients, and harmful algal blooms.
 - Year 1: Complete development of the Northeast Coastal Ocean Forecast (NECOFS) model that features three core model components (mesoscale weather, waves, and coastal ocean) to provide forecast capacity for marine surface weather, ocean environment, and inundation.
 - Years 2 – 3: Deploy nutrient sensors on existing buoys and moorings in the Gulf of Maine, Great Bay, Long Island Sound, and Block Island Sound; deploy an in-situ sensor for detecting the presence of harmful algal blooms on an existing platform; deliver products for inundation.
 3. Develop an optimized design for a user-driven core observing system for the Northeast.
 - Year 1: define system requirements; develop performance evaluation criteria; adapt a model suite for observing system simulation experiments (OSSEs).
 - Years 2 –3: Execute OSSEs for physical processes to support inundation and for nutrients and HABs. Develop and evaluate alternative designs.
 4. Provide education and outreach materials.
 - Year 1: Establish a steering team of educators and scientists to share ideas on education and outreach products.
 - Year 2: Develop education products based on real-time and historical data for water quality, harmful algal blooms, living marine resources, and coastal inundation.
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Project Title:

Maximizing the Economic Return from Northeast Regional Association of Coastal Ocean Observing Systems (NERACOOS): Prioritized End User Needs and Tools for Tracking Use and Value of Observing System Information

Recipient/ Lead Principal Investigator:

Woods Hole Oceanographic Institution/ Dr. Hauke L. Kite-Powell (*hauke@whoi.edu*)

Cost:

Funded: \$156,000

Proposed (subject to available funds): Year 2 – \$147,783; Year 3 – \$157,785

Performance:

The purpose of this project is to: 1) work with prospective end-users of ocean observing system products in the Gulf of Maine/New England area to ensure that information generated by Northeast Regional Association of Coastal Ocean Observing Systems (NERACOOS) effectively addresses end-user needs; and (2) develop and implement a system to track the use of regional observing system information by end-users and document the economic value generated by this information. This will involve three main activities: 1) identify user priorities and information products to address inundation, harmful algal blooms, water quality, and living marine resources management, 2) develop usage tracking and economic assessment tools, and 3) adapt the tools to be used by other regional ocean observing systems.

Schedule:

1. Engage stakeholder user groups to identify and prioritize information needs.
 - Years 1 – 2: Conduct meetings for assessment and feedback.
 - Year 2: Characterize products and coordinate with NERACOOS.
 2. Develop tools to track use of NERACOOS information by end users.
 - Year 1: Develop and review prototype tools and develop training materials.
 - Year 2: Provide training on tracking tools.
 - Year 3: Collect and analyze data on the use of NERACOOS products.
 3. Develop economic valuation models to estimate the value generated by NERACOOS information.
 - Year 1: Design model and establish data requirements.
 - Year 2: Develop model and baseline scenarios.
 4. Estimate the economic value generated by the use of NERACOOS information.
 - Years 2 – 3: Conduct assessment of usage data and benefit.
 - Year 3: Provide final report and tools with documentation.
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Project Title:

A Northeast Benthic Observatory (NEBO) to Support Multi-Species Fisheries and Ecosystem Management

Recipient/ Lead Principal Investigator:

Woods Hole Oceanographic Institution/ Dr. Scott Gallager (*sgallager@whoi.edu*)

Cost:

Funded: \$569,506

Proposed (subject to available funds): Year 2 – \$582,403; Year 3 – \$596,156

Performance:

This project will collect and analyze spatially comprehensive high resolution seafloor imagery to quantify key taxa, benthic community structure, species diversity, seafloor habitat characteristics, and coincident water column properties with repeated measurements on time scales of weeks to years. Data collection will be at locations with high fisheries and conservation value, such as the western Gulf of Maine. Project objectives are to: 1) establish four locations to collect imagery where benthic community structure, the coupling between the water column and benthic community, and system change over time scales of days to years will be quantified; 2) develop tools for integration of fisheries relevant data to segment and classify epi-benthic targets and substrate, and to visualize the results in near real-time; and 3) establish metrics for quantifying change in benthic community structure, organism abundance and size distribution of a variety of taxa relative to substrate composition in relation to water column processes.

Schedule:

Year 1:

- Develop tools for automated image processing and classification.
 - Co-register optical and acoustic data.
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- Serve raw image data over web.
- Integrate data on water column and benthic processes.
- Define data products relevant to end users.
- Begin extracting image information for development of data products.

Years 2 – 3:

- Finalize data extraction protocols and process archived data.
- Produce data products in near real-time during each survey and serve over web.

Year 3:

- Compile and statistically analyze time series data products.
 - Provide temporal/spatial context for events during study (e.g., storms, climate change).
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NOAA Contacts:

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