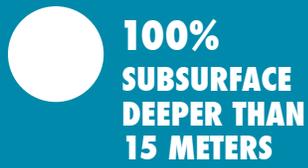
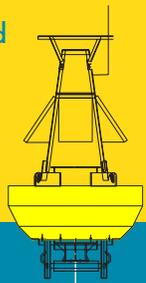


ANNUAL IMPACT REPORT 2013

Percentage of all real-time continuous ocean measurements in the region conducted by NERACOOS:



Ocean and weather observations made by NERACOOS in 2013



3.2 MILLION

Web page views of NERACOOS data and information on neracoos.org and ndbc.noaa.gov in 2013



Percentage of survey respondents who indicated that if the data were not available to them through NERACOOS it would be a serious loss or an inconvenience

NEW INITIATIVES SIGNAL THE EXPANDING IMPACT OF NERACOOS

Since our inception in 2008, NERACOOS has thrived thanks to the support from our members, partners, advocates, and funding agency – the U.S. IOOS Program. This support has allowed us to continue the delivery of critical ocean and weather information to those who have come to rely on it. Last year was a productive year, and we can now conclude it to be one of our most successful to date. With the launch of new projects, programs, and funding, NERACOOS continues to build on its successes.

In 2013, NERACOOS received a \$701k increase in committed federal funds, which included the Sandy Supplemental Bill for repairing and hardening infrastructure, a new IOOS Sensor Innovation award for transitioning state-of-the-art Harmful Algal Bloom sensors with the Woods Hole Oceanographic Institution (WHOI), and an increase in regional funds from the U.S. IOOS office. NERACOOS played an instrumental role in kicking off two regional projects, NE-CAN (the Northeast Coastal Acidification Network) and the Integrated Sentinel Monitoring Project, which have captured the attention of the scientific,

management, and stakeholder communities. The positive response to these projects demonstrates our effectiveness as a catalyst and facilitator of critical regional initiatives.

Here at the NERACOOS office we could not be more excited about the prospects of 2014. Our membership program has turned out to be a great success, and we are grateful to our initial members. We will be working to diversify our funding stream and create more opportunities for our members and partners – all aimed at increasing and improving the delivery of critical ocean information to those who need it.



J. Ru Morrison, Ph.D.
Executive Director, NERACOOS

OCEAN INFORMATION FOR PLANNING, SAFETY AND STEWARDSHIP

The Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS) provides near real-time ocean information and forecasts of ocean conditions from Long Island Sound to the Canadian Maritime Provinces of Nova Scotia and New Brunswick. Fishermen, ship captains, meteorologists, emergency response managers, and many other people rely on NERACOOS every day.

In addition to providing near real-time data, NERACOOS enables predictions of harmful algal blooms, forecasts of coastal flooding and erosion, water quality monitoring, and measurements of ocean acidification. NERACOOS is a regional partnership of academic institutions, industry, state and federal agencies, and non-government organizations – all collaborating to deliver actionable ocean and weather information.



 NERACOOS is the Northeastern entity of the Integrated Ocean Observing System (U.S. IOOS), which works with regional partners to ensure compatible and consistent ocean and coastal data collection, management, and information products across the nation.

 The IOOS Association is a non-profit organization formed by the Regional Associations (RAs) for Coastal and Ocean Observing in support of the U.S. IOOS. It works with the 11 RAs, the U.S. IOOS Program Office in NOAA, and other partners to address the nation's need for coastal observing and information.

NERACOOS SYSTEM OPERATORS

“NERACOOS is collecting critical ocean data and providing valuable tools that will help us understand changes in our ocean and their impact on our coasts, fisheries, and climate. Their buoy system is the workhorse that drives many important decisions made by fishermen, regulators, offshore wind developers, and recreational users of the Gulf of Maine and beyond.”

U.S. Senator Angus King (Maine)



{ Data/website management and product development }



{ Estuarine and coastal buoys }



{ Gulf of Maine buoy array, HF-radar and satellite products }



{ Wave forecasting, harmful algal bloom and nutrient monitoring }



{ Ocean forecasting }



{ Harmful algal bloom sensors }



{ Long Island Sound buoy array }



{ Estuarine nutrient monitoring }



Dr. Changsheng Chen of UMass Dartmouth and Dr. Robert Beardsley of Woods Hole Oceanographic Institution were recognized for their ocean forecasting contributions to NERACOOS at the annual meeting. Left to right: Dr. James O'Donnell (UConn and NERACOOS Board Member), Dr. Changsheng Chen, Zdenka Willis (IOOS Program Director), Dr. Robert Beardsley, and Dr. Ru Morrison (NERACOOS Director).

OCEAN INFORMATION FOR PLANNING, SAFETY AND STEWARDSHIP

IMPROVING STORM FORECASTING

NERACOOS continued to make important contributions to forecasting of severe weather with the facilitation of real-time collaboration between meteorologists at the National Weather Service (NWS) and ocean modeling experts.

NERACOOS has become an important source of weather and ocean data for meteorologists whenever they develop forecasts and storm warnings for the Northeast. NERACOOS real-time buoy information and ocean forecasts help the NWS to verify and improve its predictions as storms approach and batter the coast.

During conference calls with NWS meteorologists before and during major winter storms in 2013, NERACOOS ocean modelers generated and provided information that was integrated into the NWS operational weather forecasts. For one major storm, NERACOOS model predictions and buoy observations enabled the NWS to accurately forecast a higher storm surge than had been indicated by other models, giving coastal towns time to prepare.

“NERACOOS buoy data and ocean modeling allowed NWS forecasters to more accurately predict the marine and coastal impacts of the February blizzard of 2013 and in turn helped to protect lives and property.”

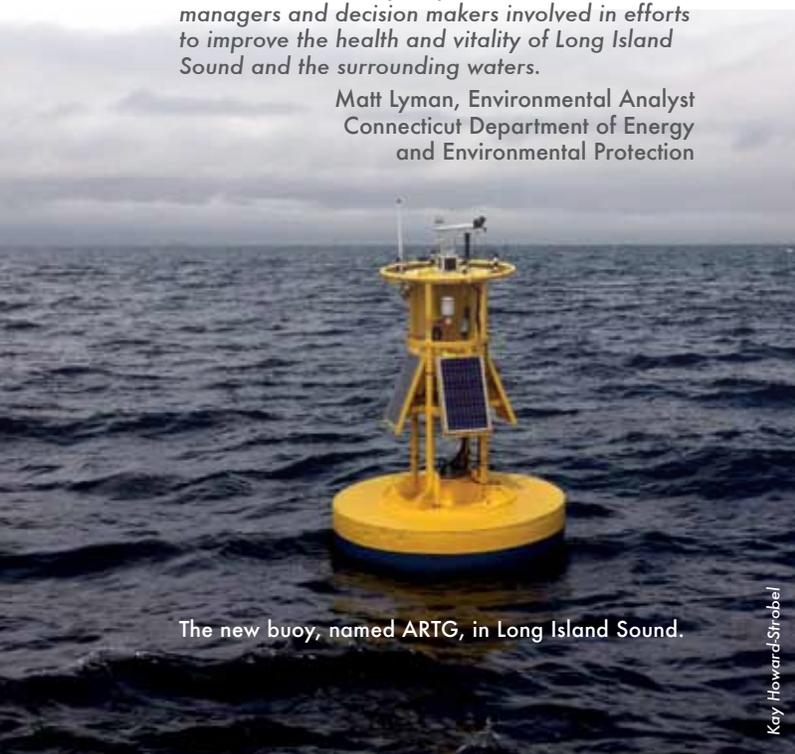
Robert Thompson, Meteorologist in Charge
National Weather Service (Taunton, MA)



John Cannon

“The real-time data and online tools provided by NERACOOS are very helpful and informative for managers and decision makers involved in efforts to improve the health and vitality of Long Island Sound and the surrounding waters.”

Matt Lyman, Environmental Analyst
Connecticut Department of Energy
and Environmental Protection



The new buoy, named ARTG, in Long Island Sound.

Kay Howard-Strobel

PROTECTING WATER QUALITY

A new buoy in Long Island Sound will enable early detection of changes in water quality, including improvements that are expected to result from stricter regulations adopted by New York and Connecticut. Every summer, parts of the Sound experience low-oxygen conditions or hypoxia, which can harm marine life. In the summer of 2012, NERACOOS buoys in the Sound recorded one of the earliest occurrences of hypoxia in the last two decades. In 2013, an EPA award to the University of Connecticut allowed the addition of a new buoy in the Sound to better monitor water quality. Scientists and managers chose a location for the buoy that will enable it to be the first to measure the effects of the new regulations on water quality. NERACOOS makes the data available online in near real time.

OCEAN INFORMATION FOR PLANNING, SAFETY AND STEWARDSHIP

INCREASING SAFETY OF MARITIME OPERATIONS

The Northeast is renowned for long winters and ferocious seas. Despite these hazardous conditions, maritime shipping must continue for the vitality of the region's economy. NERACOOS helps mariners keep safe by providing key information on ocean conditions.

Captain David Gelinias of the Penobscot Bay and River Pilots Association relied heavily on NERACOOS one day last February, when he had a challenging job ahead of him. A tanker was coming from Boston, and he needed to board it near Monhegan Island, which sits about 12 nautical miles off the coast of Maine, before bringing it into port.

When the tanker was leaving Boston, real-time data from a NERACOOS buoy near Monhegan showed that wave heights were about 4 feet. However, Captain Gelinias needed to determine if conditions would be safe later, once the ship reached Monhegan.

He used the wave forecasting tool on neracoos.org to find out. It revealed that wave heights would be increasing to 8 to 11 feet with a short period due to an approaching low-pressure system. With this information in hand, Captain Gelinias was able to cancel the scheduled boarding well in advance of the ship's arrival.

As the storm moved through, Captain Gelinias monitored real-time data from the NERACOOS buoy near Monhegan, observing that seas eventually reached 20 feet. He needed

“When making decisions about bringing a 700-foot tanker full of fuel into port, we need the best possible ocean and weather information, which is why we depend on buoy observations and forecasts from NERACOOS to ensure safety and efficiency of these critical operations.”

Captain David Gelinias
Penobscot Bay and River Pilots Association



Capt. David Gelinias preparing to board a ship.

to schedule a new time to bring the vessel into port and began by checking the NERACOOS wave forecast for the next day. It revealed that although seas would still be 8 feet, there would be a much longer period between waves. He rescheduled for the following day, confident that conditions would be safe enough.

While it was still a challenging boarding, Captain Gelinias said, “The ability to so accurately predict the seas and establish a schedule greatly contributed to the safety of the job, and it provided the shipper with a firm idea of when his ship would come into port.”

A tug and ship heading up the Penobscot River.

OCEAN INFORMATION FOR PLANNING, SAFETY AND STEWARDSHIP

SENTINEL MONITORING FOR CLIMATE CHANGE

A regional strategic planning initiative led by NERACOOS and the Northeast Regional Ocean Council, involving a dozen other regional organizations, identified a pressing need to establish an integrated regional sentinel monitoring network to observe and interpret the effects of climate change. The changing climate is pervasively altering marine, estuarine and coastal ecosystems in the northeastern U.S. and eastern Canada. Scientific evidence indicates that sea level rise, changing storm patterns, increased water temperature, altered circulation, greater stratification, and ocean acidification will intensify. Commercial fisheries and other important biological resources will be increasingly affected.

The new Sentinel Monitoring Program will inform researchers, managers, and the public about ecosystem vulnerabilities and impacts. It will support ecosystem approaches to management that promote human and ecosystem resiliency to climate change.

“ We need to know how marine ecosystems in the Northeast are changing. The Integrated Sentinel Monitoring Project represents a cross-sector collaboration to collect and integrate observing data in ways that will inform our resource management decisions and our community strategies for adapting to the changes that will occur.

Jeff Runge, Ph.D.
University of Maine/Gulf of Maine Research Institute



To learn more about the Integrated Sentinel Monitoring Project, please visit www.neracoos.org/sentinelmonitoring

EDUCATING THE NEXT GENERATION

NERACOOS works with many organizations to help promote ocean literacy for all ages. In June 2013, we partnered with the Seacoast Science Center to host a World Oceans Day celebration. Many families from around the region joined us for this event, which focused on changes in the ocean and the occurrence of ocean acidification. The celebration featured fun, educational, and hands-on activities for children.

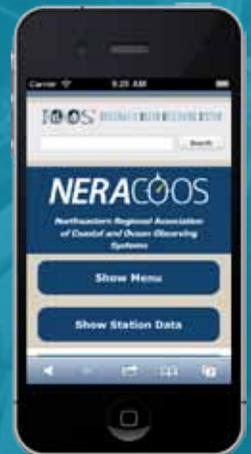


STAY CONNECTED

FOR REAL-TIME OCEAN AND WEATHER DATA AND UPDATES
ON NERACOOS ACTIVITIES, VISIT OUR WEBSITE:

www.neracoos.org

NERACOOS stakeholders are increasingly accessing data on mobile devices, and we have launched a mobile-friendly version of the website. Check out www.neracoos.org on your mobile device.

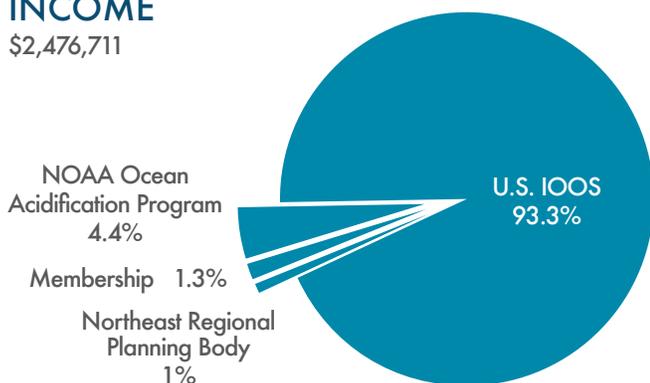


2013 FINANCIALS

NERACOOS is funded primarily by U.S. IOOS. In 2013, we began a membership program, and we are grateful for the generous support from our members.

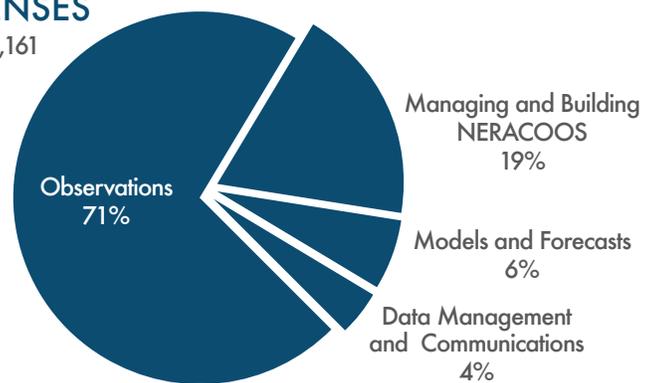
INCOME

\$2,476,711



EXPENSES

\$2,444,161



The financial information above represents funding allocated in 2013 and how these funds were budgeted to be spent. Our financial year ends September 30th and audited financials are available at www.guidestar.org.



NORTHEASTERN REGIONAL ASSOCIATION
of COASTAL OCEAN OBSERVING SYSTEMS

NERACOOS MEMBERSHIP

NERACOOS is the trusted source of ocean and weather information from Long Island Sound to the Gulf of Maine. NERACOOS membership is a diverse mix of those interested in obtaining, using, and sustaining the best ocean and weather information in the Northeast.

The federal funds we receive provide critical base support, but we need your help to keep the system operating and improving. With your membership we will be able to:

- Maintain and repair infrastructure, ensuring continued observations and forecasts,
- Develop new tools to make it easier for people to access and understand the information, and
- Advocate for the national IOOS program to continue base support.

BECOME A MEMBER

Membership in NERACOOS is an important way to support your regional ocean observing system and can include the following benefits:

- ✓ Subscription to NERACOOS Observer
- ✓ Complimentary registration for Annual Meeting
- ✓ Consultations with NERACOOS staff
- ✓ Participate in the Sustaining Members Forum
- ✓ Be the first to beta test new NERACOOS products

For more information and an application form, please visit:

www.neracoos.org/membership

NERACOOS BOARD OF DIRECTORS

Malcolm Spaulding, Emeritus, University of Rhode Island *President*
 Peter Smith, Emeritus, Bedford Institute of Oceanography *Vice President*
 Linda Mercer, Maine Department of Marine Resources *Treasurer*
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 Michael Szemerda, Cooke Aquaculture, Inc.
 Christine Tilburg, Gulf of Maine Ecosystem Indicator Partnership
 Steve Withrow, Marine and Oceanographic Technology Network**
 Cheryl Zimmerman, Farsounder Inc.*

†Non-voting Member *Board Member until 12/04/2013 **New Board Member as of 12/04/2013

NERACOOS MEMBERS

Sustaining:

Massachusetts Water Resources Authority
 Northeastern University
 RPS ASA
 University of Connecticut
 University of Maine
 University of Massachusetts, Dartmouth

Supporting:

Gulf of Maine Research Institute
 Liquid Robotics
 Malcolm Spaulding
 Seacoast Science Center

Associate:

Casco Bay Estuary Partnership
 Connecticut Department of Energy and Environmental Protection
 Fisheries and Oceans Canada
 Maine Coastal Program
 Maine Department of Marine Resources
 Marine and Oceanographic Technology Network
 Massachusetts Lobstermen's Association
 Melville Coté, Jr.
 Ru Morrison

NERACOOS AFFILIATES

Gulf of Maine Council on the Marine Environment
 Massachusetts Office of Coastal Zone Management
 New Hampshire Department of Environmental Services
 U.S. Environmental Protection Agency

NERACOOS STAFF

J. Ru Morrison, Ph.D. *Executive Director* Tom Shyka *Communications Specialist*
 Cassie Stymiest *Program Manager* Jackie Ball *Administrative Assistant*