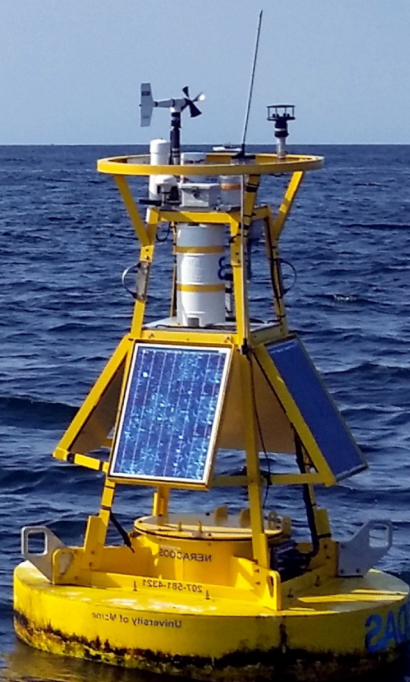


NERACOOS

NORTHEASTERN REGIONAL ASSOCIATION
OF COASTAL OCEAN OBSERVING SYSTEMS



2018 ANNUAL IMPACT REPORT

THE WAYS IN WHICH WE PROVIDED OCEAN INFORMATION



Image credit: Heather Stoffel

University of Rhode Island staff conducting alkalinity sampling and exchanging a water quality sensor on the Mount View Buoy

Averting Public Health Crises

An overload of nutrients in the water can close beaches, cause massive fish kills, and shutter shellfishing grounds. That's why monitoring nutrients is important, particularly in complex systems like Narragansett Bay, Rhode Island, Great Bay, New Hampshire, and Long Island Sound. We supplemented monitoring efforts and provided access to web-based data and visualization tools; now, resource managers can more accurately predict and swiftly respond to destructive events.

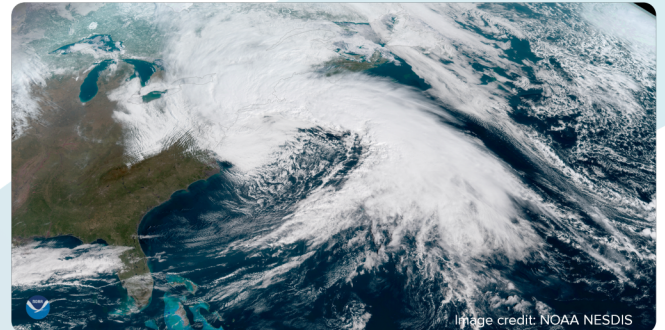


“The real-time data collected by the NERACOOS buoys in Long Island Sound give us a great insight to the daily changes in water quality, changes that we cannot capture during our monthly monitoring surveys.”

-Matt Lyman, Connecticut Department of Energy and Environmental Protection

Diffusing the Bomb (Cyclone)

In January, 2018, as a massive “bomb cyclone” storm bore down on the Eastern seaboard, our newly-developed wave run-up forecasting tool was put to the test. Designed in partnership with the National Weather Service and the Gulf of Maine Research Institute, the tool predicts coastal erosion and inundation impacts caused by storms. After performing admirably against the bomb cyclone, the tool is now being used to help forecasters and emergency managers prepare and respond to storms.



A satellite image of the January 3rd bomb cyclone storm hitting the eastern coast of the United States



Image credit: Gulf of Maine Lobster Foundation

Captain Jimmy Violet of Newport, RI, Jim Manning of NOAA/NMFS and Aubrey Ellertson of CFRF on the fishing vessel *Excalibur* while installing bottom temperature sensors

Getting to the Bottom of It with Fishers

Bottom temperature data are key for sustainable fisheries management, and getting consistent information on benthic conditions has always been challenging. We helped close these data gaps by working with the Gulf of Maine Lobster Foundation, Lowell Instruments LLC, and the Northeast Fisheries Science Center, to deploy real-time temperature sensors on fishing gear. The partnership significantly expands monitoring and provides valuable information to fishers, fisheries managers, and ocean modelers.

“[Before IOOS and real-time data]... we [occasionally] made the wrong decision and sometimes that would result in people getting hurt, and I remember going to court quite a bit, and I just don't go to court anymore.”

-Zack Klyver, Bar Harbor Whale Watch



FOR SAFETY, RESILIENCE, AND STEWARDSHIP IN 2018



“ That buoy is my business partner! ”

-Capt. TJ Karbowski, Rock and Roll Charters, Clinton, NJ

The Tech that's Revolutionizing Monitoring

Innovations in marine technology are changing the way we monitor our oceans. Last year NERACOOS partnered with SeaTrac Systems Inc., a new Massachusetts-based company building self-driving solar-powered boats. Working with scientists from Woods Hole Oceanographic Institution and Massachusetts Bays National Estuary Program, a SeaTrac vessel was used to monitor harmful algal blooms along the Maine coast and water quality in Duxbury, Massachusetts.

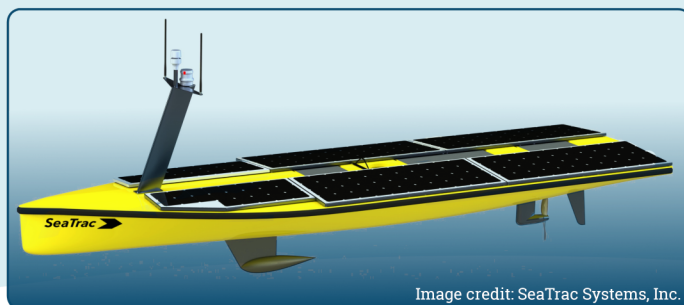


Image credit: SeaTrac Systems, Inc.

The new SeaTrac SP-48, a 15.75' solar-powered autonomous surface vessel



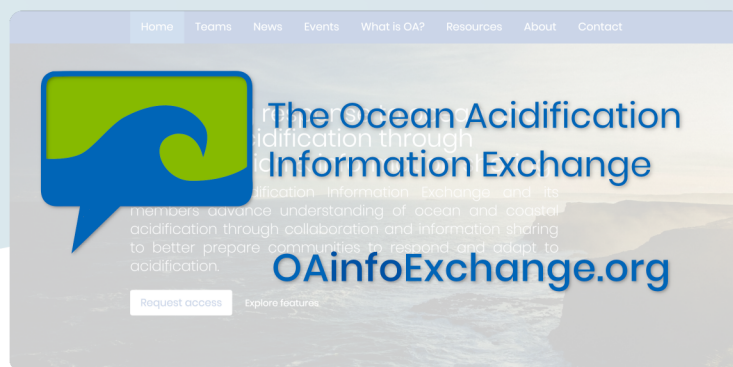
Adam Pimenta and Jason Gear of the EPA demonstrating how to measure alkalinity to citizen scientists at the Bowdoin College Shiller Coastal Studies Center in Harpswell, Maine

Connecting Scientists with Citizens

Working with local citizen science groups teaches us valuable information about our coastal environment. As the host of the Northeast Coastal Acidification Network (NECAN), we brought together citizen science groups to discuss best practices for monitoring ocean acidification. NECAN is working with more than fifty groups to launch “Shell Day,” an event that will generate a single-day snapshot of coastal conditions from Maine to Long Island Sound. The partnerships between NECAN and citizen science groups aim to collect more comprehensive data.

A Community Taking on Ocean Acidification

In conjunction with NOAA's Office of Ocean Acidification, we created an online community called the Ocean Acidification Information Exchange as a resource for professionals involved with issues of ocean and coastal acidification (OCA). The site's mission is to catalyze response to OCA through collaboration and information sharing. Members use the site's platform to ask questions, share events, and connect with each other. To date, more than 700 scientists, educators, policymakers, and members of industry have joined. Request an account at oainfoexchange.org



NERACOOS is the Northeast regional entity of the Integrated Ocean Observing System (U.S. IOOS), which is a federally authorized program and works with regional and federal 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 information.

OUR SYSTEM OPERATORS

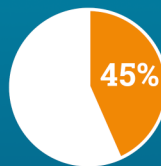
These organizations are some of the many that operate NERACOOS-funded assets. **78%** of NERACOOS funds go directly to our partners to produce and integrate ocean information.



Percentage of regional real-time continuous ocean observations funded by NERACOOS

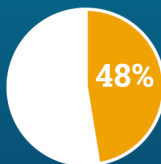
SURFACE MEASUREMENTS

(0-12 feet above sea level)
Wave height & period
Meteorological data
Water temperature
Air temperature
pCO₂



SUBSURFACE MEASUREMENTS

(0-50 feet of depth)
Nutrient monitoring
Water temperature
Conductivity



DEEP MEASUREMENTS

(50+ feet of depth)
Water temperature
Currents
Density



Letter from the Director

Dear Members, Partners, and Friends,

NERACOOS had a great 2018! I am so proud of our accomplishments and pleased to share some of them with you in this year's Impact Report. These stories highlight a small (though important!) portion of what we do. I encourage you to visit our website for a more in-depth look at all of our activities.

We continue to collaborate with many talented partners, launching several new projects this year (see the Financials section, below), increasing our effectiveness and bringing more tools to the people who count on us the most.

Our success fuels a desire to do more and to be better; it informs our decisions and forces us to take a hard look at our system. The truth is, our infrastructure is aging and is at risk. As we look ahead and plan for the future, we will prioritize securing the resources we need to improve and expand our observing and modeling systems.

The support of our members, partners, stakeholders, and Board of Directors, as well as the IOOS Program Office and IOOS Association sustains us and drives us to perform and excel. Thank you!

As always, we appreciate hearing from you. Please contact us with any and all feedback.

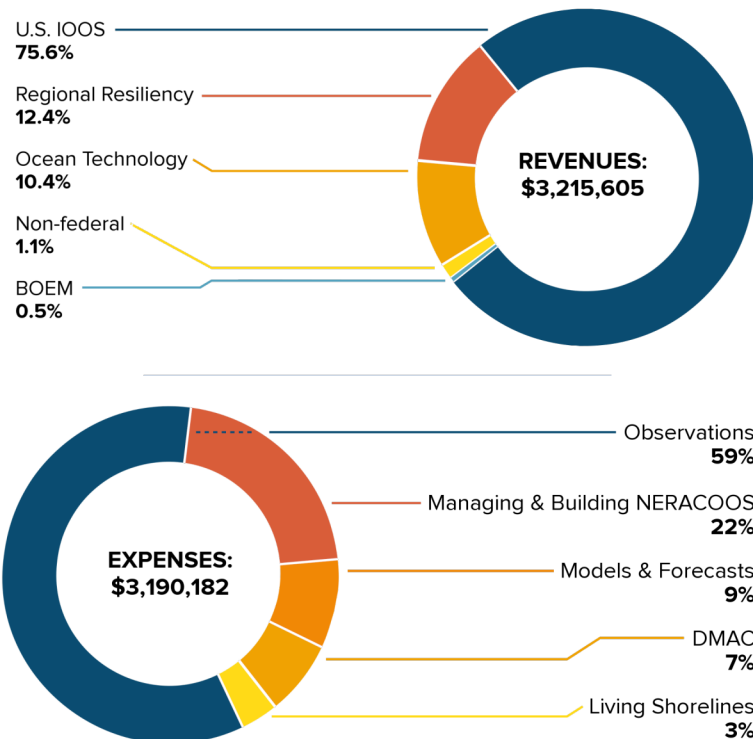
Sincerely,

J. Ru Morrison, PhD
Executive Director



2018 Financials

NERACOOS is funded primarily by NOAA through the U.S. IOOS Regional Program. In 2018, NERACOOS successfully generated additional revenue from the IOOS Ocean Technology Transfer Program, NOAA's Ocean Acidification Program, NOAA's Office for Coastal Management, the Bureau of Ocean Energy Management, the University of New Hampshire, Woods Hole Oceanographic Institution, the University of Maryland Center for Environmental Science, and the University of Maine.



The amounts presented here are derived from NERACOOS' audited financial statements for the year ending September 30, 2018. Complete copies of the audited financial statements are available at www.neracoos.org.

Board of Directors

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Janet Freedman Rhode Island Coastal Resources Management Council (*Treasurer*)
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Matthew Lyman CT Department of Energy and Environmental Protection (*Treasurer*)*
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Thomas Taylor Cooke Aquaculture
Steven Withrow Marine and Oceanographic Technology Network
Andrew Pershing Gulf of Maine Research Institute
Jason Goldstein Wells National Estuarine Research Reserve
Pamela DiBona Massachusetts Bays Estuary Partnership
Regina Lyons Environmental Protection Agency (*Non-voting member*)
Lt. James Brinkley NOAA Northeast Fisheries Science Center (*Non-voting member*)

*Board Member until December 2018

**New Board Member as of December 2018

NERACOOS Staff

J. Ru Morrison, Executive Director
Tom Shyka, Product and Engagement Manager
Rob Cardeiro, Finance Director
Jackie Ball Motyka, Operations Manager
Julianna Mullen, Communications & Community Manager
Emily Silva, Administrative Assistant & NECAN Coordinator

NERACOOS Members

Sustaining

- Kelly Cove Salmon
- Massachusetts Water Resources Authority
- University of Connecticut, Marine Sciences Program
- University of Maine, School of Marine Sciences
- University of Massachusetts Dartmouth
- University of New Hampshire, School of Marine Science and Ocean Engineering

Supporting

- Bar Harbor Whale Watch
- Gulf of Maine Research Institute
- Onset Computer Corp.
- Penobscot Bay and River Pilots Association
- Provincetown Center for Coastal Studies
- Woods Hole Group
- Woods Hole Oceanographic Institution

Associate

- Connecticut Department of Energy and Environmental Protection
- Educational Passages
- Fisheries and Oceans Canada
- Footprints in the Water
- Gulf of Maine Lobster Foundation
- J. Ru Morrison
- Maine Department of Marine Resources
- Malcolm Spaulding
- Marine and Oceanographic Technology Network
- Marine Renewable Energy Collaboration
- Massachusetts Lobstermen's Association
- Melville Côté
- RPS ASA
- St. Lawrence Global Observatory
- Teledyne Marine
- Waterview Consulting
- Wells National Estuarine Research Reserve

Affiliate

- Gulf of Maine Council on the Marine Environment
- Massachusetts Bays National Estuary Program
- Massachusetts Office of Coastal Zone Management
- Narragansett Bay National Estuarine Research Reserve
- New Hampshire Department of Environmental Services
- U.S. Environmental Protection Agency

If you rely on NERACOOS' ocean information and want to support our many innovative projects, consider becoming a member!



NERACOOS.org/membership



NERACOOS is federally certified to meet rigorous national standards for governance and data management. Our data are of the same high quality as those served by the federal government.

NERACOOS
195 New Hampshire Ave.
Suite 240
Portsmouth, NH 03801

Our mission is to **produce**, **integrate** and **communicate** high quality information that helps ensure safety, economic and environmental resilience, and sustainable use of the coastal ocean.

NOTABLE EVENTS

36.3 FEET

Largest significant wave height
Buoy A, Massachusetts Bay
March 3



32.5°F

Coldest water temperature
Buoy F, Penobscot Bay
February 10



-2.4°F

Coldest air temperature
Buoy F, Penobscot Bay
January 7

51.8 MPH

Strongest wind gust
Buoy M, Jordan Basin
November 16



1,605,526 PAGEVIEWS

Annual usage of NERACOOS.org
& NERACOOS assets on NDBC



4:00 A.M. WEEKDAYS

Busiest time of day for
NERACOOS site

STAY CONNECTED

@neracoos



phone: +1 (603) 319-1785
email: info@neracoos.org

NERACOOS.org