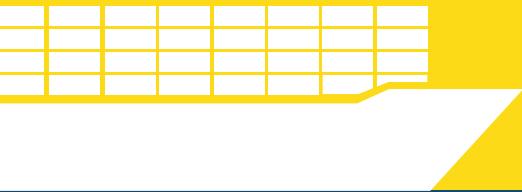


ANNUAL IMPACT REPORT 2016



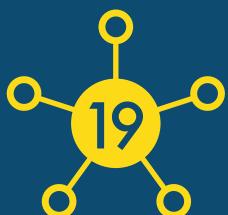
\$20.8 BILLION
Value of the ocean economy
in the Northeast region



79% of NERACOOS funds go toward
ocean observations, modeling,
and data management



48,597
people used the
NERACOOS website
in 2016


19 organizations receive
funding
from NERACOOS



1.8 MILLION
web page views were
recorded for NERACOOS.org
and NERACOOS-funded buoys
on NDBC.NOAA.gov

160+ organizations
distribute NERACOOS data
on their websites

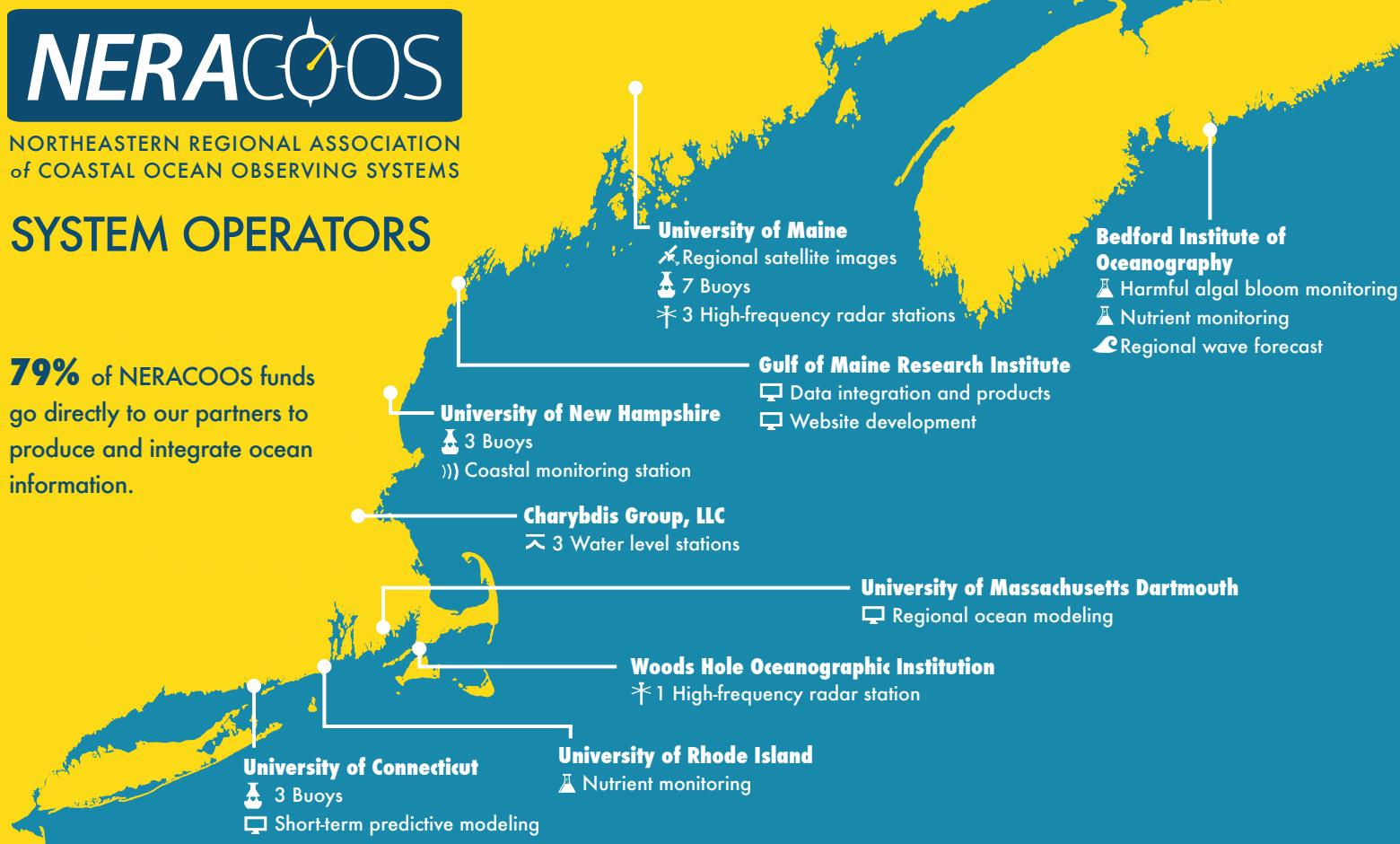
NERACOOS
had a
 28%
increase in likes
on Facebook

245
Ocean and atmospheric sensors
transmit environmental data **24/7**
with support from NERACOOS



SYSTEM OPERATORS

79% of NERACOOS funds go directly to our partners to produce and integrate ocean information.



“ NERACOOS is a phenomenal system for us. We have the ability to get real-time weather information about what's happening on the water, and that's critically important for us. ”

Captain Skip Strong
Penobscot Bay and River Harbor Pilots

BECOME A MEMBER

Become a member of NERACOOS to support the production, integration, and communication of high-quality ocean information:

WWW.NERACOOS.ORG/MEMBERSHIP



NERACOOS members aboard a Bar Harbor Whale Watch vessel, learning about the many applications of NERACOOS information.

LETTER FROM THE DIRECTOR

Dear Members, Partners, and Friends:

Thank you for another amazing year! I would like to express my sincere appreciation for your continued support. The information and services we provide help to ensure safety, protect lives and property, and encourage economic resilience.



In addition to the accomplishments highlighted in this report, NERACOOS successfully received a new five-year funding award from the U.S. Integrated Ocean Observing System. This award will be used to continue the delivery of ocean observations and forecasts in the Northeast by supporting and improving our network of buoys.

NERACOOS was also awarded a new grant from NOAA's Office of Coastal Management in collaboration with Northeast Regional Ocean Council (NROC) and fourteen partners across coastal New England. Through this new initiative NERACOOS and its partners will improve coastal inundation forecasts and assess living shoreline practices in particularly vulnerable communities.

We are looking forward to what the future has in store for us and always strive for improvement, growth, and continued collaborations. We're always happy to hear from you. Please don't hesitate to contact us or visit our website for more information about our projects.

Sincerely,

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

OCEAN INFORMATION FOR SAFETY, RESILIENCE, STEWARDSHIP

IMPROVING NAVIGATIONAL SAFETY AND COASTAL EMERGENCY PREPAREDNESS

Working with state and federal partners, NERACOOS helped fill two critical ocean observing gaps in 2016 and is delivering new information to improve navigational safety and the preparedness of coastal emergency managers.



New Wave Buoy Benefits Mariners, Coast Guard, and Meteorologists

The Cape Cod Canal is a critical link in New England's marine highway system and typically sees over seven million tons of cargo and fourteen thousand commercial and recreational vessels each year. The marine pilots who guide commercial vessels through the canal needed wave observations from Cape Cod Bay to improve safety and efficiency of their transit. To resolve this observational gap, NERACOOS partnered with state and federal agencies to deploy a high-tech wave buoy in Cape Cod Bay. The buoy measures wave height, wave period, wave direction, and surface water temperature every 30 minutes. In addition to improving vessel navigation, the buoy's data are used by the National Weather Service to improve marine forecasts and by the U.S. Coast Guard to plan and conduct operations such as search-and-rescue missions. The Massachusetts Department of Environmental Protection funded the buoy through the Oil Spill Prevention and Response Act trust fund.

“ Ninety-five percent of loaded tugs and barges pass eastbound through the Cape Cod Canal, and it is critical that we know what the sea state is in Cape Cod Bay before we enter the canal.

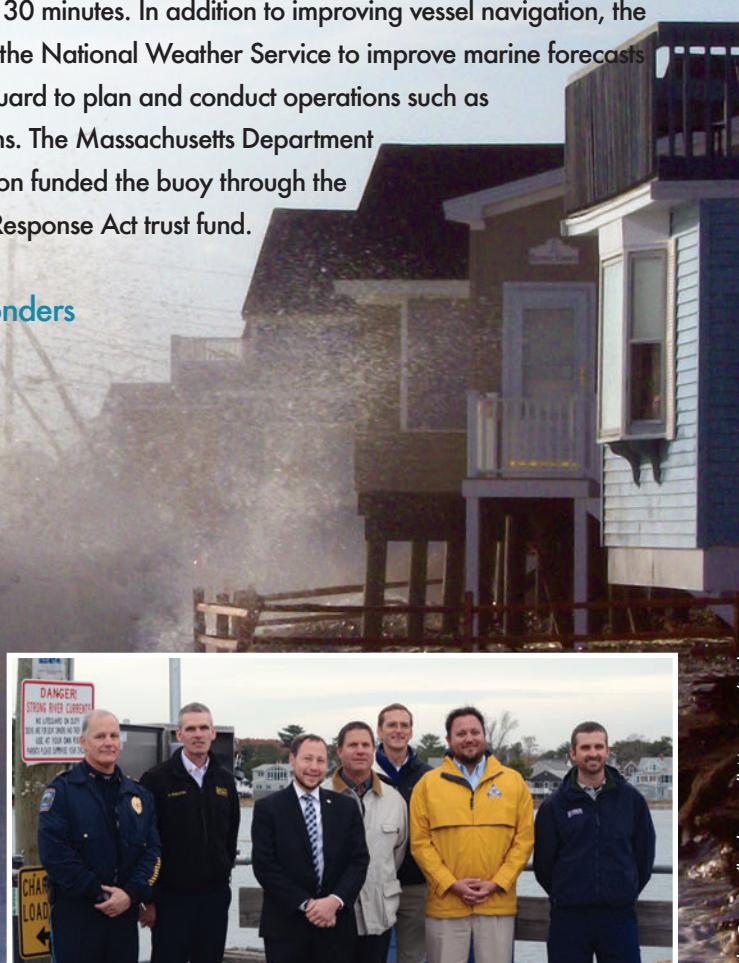
Captain Clint Walker
Northeast Marine Pilots Association

Real-time Data on Coastal Flooding for Emergency Responders

NERACOOS and the U.S. Geological Survey collaborated to deploy a new water-level gauge on the coast of Maine. The gauge is located at the City of Saco's pier at Camp Ellis, a seaside residential neighborhood where public and private properties frequently experience significant damage from storm waves, wind, and flooding. The new gauge measures the water level on the Saco River every six minutes, enabling emergency responders to prepare for and respond to dangerous conditions. The National Weather Service also uses the gauge to improve the accuracy of flood warnings along the Maine coast.

“ This tide gauge is one of 17 along the New England coast that is critical to the National Weather Service, emergency managers, and other partners who conduct operations at sea, issue flood warnings, and initiate evacuation orders for communities.

Nick Stasulis
Supervisory Hydrologic Technician
USGS New England Water Science Center



An event to celebrate the deployment of a new water-level gauge on the Saco River brought together representatives of (left to right) the Saco police and fire departments, City of Saco municipal government, NOAA National Weather Service, NERACOOS, Maine Emergency Management Agency, and U.S. Geological Survey.

OCEAN INFORMATION FOR SAFETY, RESILIENCE, STEWARDSHIP

BRINGING THE OCEAN INTO EDUCATION

Promoting ocean literacy for all ages is imperative for stewardship and sustainability of our coastal ocean. In 2016, NERACOOS engaged with hundreds of educators at the **National Marine Educators Association** (NMEA) annual meeting and at the **New England Ocean Science Education Collaborative** (NEOSEC) summit. NERACOOS staff presented at NMEA on the importance of introducing ocean data into the classroom in a way that is both engaging and relatable. NERACOOS was also proud to sponsor and participate in NEOSEC's Ocean Literacy Summit. This biennial event brings together regional educators and scientists and was focused on how the ocean is a major influence on weather and climate.

“ My students participated in a year-long ‘adopt-a-buoy’ program using NERACOOS data to track water quality, weather, and chlorophyll concentration each week. Over the year, students became truly engaged with their buoy and excited to share what was happening in their part of the Gulf of Maine with their classmates. **”**

Mary Kay Taylor, Education Director
Schooner Ardelle, Gloucester, MA



A student on the schooner Ardelle takes water quality measurements.

FOSTERING REGIONAL COLLABORATION ON VITAL ISSUES

The Northeast's economy is intricately linked with the coastal ocean, which supports commercial and recreational fisheries, tourism, marine transportation, and a growing renewable energy industry. To effectively manage and sustain these valuable resources, it is critical that stakeholders communicate across state lines, agencies, and disciplines. This holistic approach encourages innovation and efficiency.

Recognizing this need, NERACOOS works closely with diverse partners to focus the knowledge and expertise in the region. NERACOOS coordinates two regional collaborations:

- The **Northeast Coastal Acidification Network** – a partnership of scientists, industry members, and resource managers – addresses the rising concern of ocean acidification and its potential impacts on fisheries.

“ Businesses can't avert crises they don't know about. We need more investment in ocean monitoring. **”**

Bill Mook
Mook Sea Farm



- The **Integrated Sentinel Monitoring Network**, comprising over 50 research and management institutions, produced an implementation plan for science and monitoring to detect changes in the region's ecosystem.

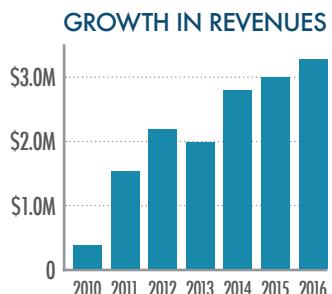
The outcomes and successes of NECAN and ISMN demonstrate the effectiveness of regional collaboration.



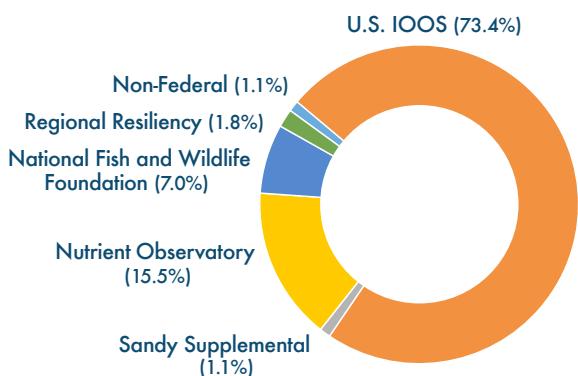
Aquaculture (above right) and commercial fishing are among the industries benefiting from the Northeast Coastal Acidification Network and the Integrated Sentinel Monitoring Network.

2016 FINANCIALS

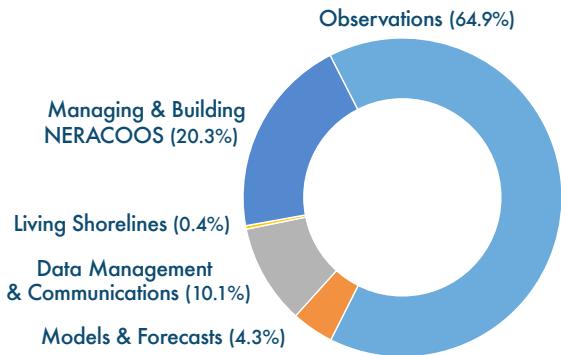
NERACOOS is funded primarily by NOAA through the U.S. IOOS Program. In 2016, NERACOOS successfully raised additional funding from the IOOS Ocean Technology Transfer Program, the National Fish and Wildlife Foundation, NOAA's Program for Disaster Relief, and the Coastal Services Center.



REVENUES: \$3,280,090



EXPENSES: \$3,270,431



The amounts presented here are derived from NERACOOS' audited financial statements for the year ending September 30, 2016. Complete copies of the audited financial statements are available at www.neracoos.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 and information.

BOARD OF DIRECTORS

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Janet Freedman	Rhode Island Coastal Resources Management Council	
Carl Wilson	Maine Department of Marine Resources	
Justin Manley	Just Innovation, LLC	
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Arthur "Sooky" Sawyer	Massachusetts Lobstermen's Association	
Thomas Taylor	Cooke Aquaculture	
Steven Withrow	Marine and Oceanographic Technology Network	
Andrew Pershing	Gulf of Maine Research Institute	
Paul Stacey	Great Bay National Estuarine Research Reserve*	
Jason Goldstein	Wells National Estuarine Research Reserve**	
Curtis Bohlen	Casco Bay Estuary Partnership*	
Pamela DiBona	Massachusetts Bays National Estuary Program**	
Melville Coté	Environmental Protection Agency (Non-voting Member)*	
Regina Lyons	Environmental Protection Agency (Non-voting Member)**	
Nicole Bartlett	NOAA Northeast Fisheries Science Center (Non-voting Member)	

*Board Member until December 2016 **New Board Member as of December 2016

***Board Officer until December 2016

MEMBERS

Sustaining

- 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
Bigelow Laboratory for Ocean Sciences
Gulf of Maine Research Institute
Malcolm L. Spaulding
Provincetown Center for Coastal Studies
Woods Hole Group
Woods Hole Oceanographic Institution

Associate

- | | |
|--|--|
| Educational Passages | Maine Lobstermen's Association |
| Fisheries and Oceans Canada | Marine Renewable Energy Collaboration |
| Institute of Marine Innovation,
Research and Sustainability | Massachusetts Lobstermen's Association |
| J. Ru Morrison | Melville Coté |
| Jim Taylor | RPS Group |
| Judith Pederson | Scott C. White |
| Maine Coastal Program | St. Lawrence Global Observatory |
| Maine Dept. of Marine Resources | Waterview Consulting |

AFFILIATES

- 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

STAFF

- J. Ru Morrison *Executive Director*
Tom Shyka *Outreach and Communications Specialist*
Rob Cardeiro *Finance Director*
Jackie Ball *Program Coordinator*
Emily Silva *Administrative Assistant*

Editing and Design by Waterview Consulting

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Web www.neracoos.org



NORTHEASTERN REGIONAL ASSOCIATION
of COASTAL OCEAN OBSERVING SYSTEMS

“ Our oceans and coasts define our economy and way of life here in Rhode Island. The effects and costs of climate change are already being felt across the state. Our oceans are warming, rising, and acidifying, and the region’s marine life and fisheries are suffering as a result. Throughout New England, NERACOOS and its partners help state and local officials monitor and prepare for the effects of climate change, ocean acidification, nutrient pollution, and extreme storms on our coastal communities and businesses. ”

U.S. Senator Sheldon Whitehouse (Rhode Island)



Sen. Sheldon Whitehouse (right) and NERACOOS Executive Director Ru Morrison, Ph.D., talk at a Congressional Steering and Outreach Committee oceans event. Dr. Morrison participated in an expert panel and made a presentation on the importance of the U.S. IOOS.

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.

STAY CONNECTED

Visit our new website with improved access to ocean and weather data, wind and wave forecasts, water level forecasts, climatology data, and more!



Like us on Facebook.
Follow us on Twitter.

A screenshot of the NERACOOS website homepage. The top navigation bar includes links for DATA, ABOUT US, COMMUNITY, and PROJECTS. Below the navigation are sections for "Hourly Buoy Data" and "Latest Conditions". The "Hourly Buoy Data" section shows a map of the Northeast coast with buoys and provides details about real-time weather and ocean data. The "Latest Conditions" section displays current wind speeds and wave heights from NOAA buoys. To the right, there is a "Data Products" section featuring six cards: "OCEAN CLIMATE", "WAVE FORECAST", "WIND AND WAVE FORECAST", "ALL DATA FROM STATION", "WAVE & WATER LEVEL FORECAST", and "GRAPHING AND DOWNLOAD". Each card has a small thumbnail image and a brief description.

www.NERACOOS.org