CELEBRATING 15 YEARS OF OCEAN OBSERVATIONS



Note from the Executive Director



Dear Members, Partners,

and Friends, 2024 was a memorable year for NERACOOS as we celebrated our 15th year of providing ocean data for critical decision-making. It's inspiring to think back on all of the partnerships and milestones that have gone into building something that is vital to so many people.

Today, our ocean observation system includes buoys, oceanographic models, glider missions, radar stations, coastal sensors, water level stations, ship-based surveys, satellite remote sensing, and a suite of products that deliver data to the public. It has evolved into a multifaceted infrastructure that is continually expanding. These diverse assets, operated by a collaborative network of implementation partners, are the building blocks that support maritime safety, national security, and ocean enterprise, a pillar of the economy in the Northeast. It would be easy to take our ocean observation system for granted. Yet, it has become an essential tool, grounded in more than twenty years of data, for understanding and responding to the challenges an ever-changing ocean poses.

As we look ahead to the future, we remain committed to improving our capabilities to ensure that data continue to support a sustainable, resilient, and productive ocean economy. We thank our partners, stakeholders, and team members for their dedication and collaboration over the past 15 years. Together, we are making a lasting impact on our oceans and the communities that depend on them.

Sincerely,

Jake Kritzer, Ph.D.



Having up-to-date, instant access to information about sea conditions is vital for my work and ship safety. The difference between 10- and 12-foot seas can make a monumental difference in crew survival and planning for open-water voyages. Boat safety and security, routes, rescue plans for injury or emergency scenarios, and our ability to do an escort can change by the minute or foot. — **Mark Wallerstein**, T/B Independence

"Ensuring the safety of our passengers is our top priority as we navigate the Gulf of Maine in search of whales. With vast areas to cover and ever-changing conditions, having access to the real-time updates the NERACOOS Mariners' Dashboard provides on offshore conditions is essential to providing a safe, smooth, and unforgettable whale-watching experience." - Julie Taylor, Bar Harbor Whale Watch Company

"When I get up, the first thing I do is check the buoy reports, especially during the wintertime when I'm scalloping. It is key to me making my decision if I'm going to go out fishing or not." - **Bob Baines**, F/V Thrasher

Providing Ocean Data for Decisions

Since 2009, NERACOOS has implemented the U.S. Integrated Ocean Observing System from Long Island Sound through the Gulf of Maine. We believe that everybody should have the information they need to advance resilient communities, economies, and marine ecosystems.

To that end, we serve people by creating, organizing, and sharing information about the ocean.

We work in ways that are science-based, policy-neutral, and collaborative as we strive to meet the needs of ocean-reliant communities.

NERACOOS



NORTHEASTERN REGIONAL ASSOCIATION OF COASTAL OCEAN OBSERVING SYSTEMS

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2024 **ANNUAL IMPACT** REPORT

A Year of Expansion and Collaboration

Eleven water level sensors were installed throughout the Northeast to enhance coastal resilience by improving quality and coverage of water level observations in the face of storm surges, extreme rainfall, and rising sea levels.

Launched The Dock, a Slack channel dedicated to fostering collaboration, sharing valuable insights on ocean observations in real-time, and growing a community focused on advancing ocean knowledge.

Two new webcams were installed in Camp Ellis, Maine to provide essential visual data for ongoing research and coastal management efforts in partnership with the Maine Geological Survey and the National Weather Service.

Initiated new industry partnership to facilitate data sharing to improve weather forecasting, navigation safety, search-and-rescue, ocean climate tracking, fisheries and wildlife management, and other essential user needs.

The NECAN regional plan, which prioritizes monitoring needs to streamline processes, was published in partnership with the Northeast Regional Ocean Council (NROC) and NOAA's Ocean Acidification Program (OAP). These collaborations foster improved decision-making, accelerate response times, and enhance efficiency.

- Catalyzed a regional response to an unprecedented algal bloom that caused 'brown water' in the Gulf of Maine from April to August 2023. The two-day workshop, sponsored by NERACOOS and UNH, advanced the understanding of the bloom, evaluated the monitoring response, and recommended improvements for the coastal ocean observation system.
 - Two nor'easter storms that devastated Maine in

January were observed and accurately modeled using data from the NERACOOS suite of products. The alignment between actual conditions and predicted values underscores the system's accuracy as a vital tool for forecasting coastal weather events.

NERACOOS MILESTONES 2009-2024

The Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS) is established to deliver critical ocean and weather data to stakeholders from Long Island Sound through the Gulf of Maine. NERACOOS works with industry, academic, government and non-profit partners to develop a regional ocean observing system build out plan.



A high-tech unmanned maritime vehicle, the Wave Glider, is launched off the coast of Maine. The project was facilitated by IOOS and supported by partners including Liquid Robotics, NERACOOS, and UMaine.

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The Northeast Coastal Acidification Network (NECAN) is formed under NERACOOS to lead the synthesis and dissemination of ocean and coastal acidification information in the Northeast.





NERACOOS supports the development and implementation of the initial IOOS data management standards.



UConn detects one of the worst occurences of hypoxia in Long Island Sound through two buoys supported for more than a decade by NERACOOS.



NERACOOS joins a partnership of local, state, and federal organizations in deploying a state-ofthe-art tide gauge at Hampton Harbor, N.H. The gauge provides critical water level information to help emergency responders, managers, weather forecasters, coastal planners, and others prepare and respond to the impacts of coastal storms.





In conjunction with Sea-Bird Scientific, UConn, UMaine, UNH, and URI, NERACOOS expands observation capabilities by adding automated nutrient sensors throughout New England.

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A wave buoy critical to safe passage in Cape Cod Bay deploys in partnership with MassDEP, the U.S. Coast Guard, Woods Hole Group, and NOAA CO-OPS. The buoy delivers real-time wave data to aid vessel navigation and improve marine forecasts.

High-frequency radars are installed in Massachusetts by WHOI to enhance coverage and accuracy of current speed and direction and support U.S. Coast Guard search-and-rescue operations throughout Massachusetts Bay.

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NERACOOS partners with WHOI and MassBays to trial SeaTrac's autonomous vessel to detect harmful algal blooms along the Maine coast and monitor water quality near Duxbury, MA.



The annual Gulf of Maine winter glider survey is launched by WHOI to aid in the detection of baleen whales.

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The Integrated Sentinel Monitoring Network (ISMN) plan is published, providing an assessment of ecosystem changes, vulnerabilities, and uncertainties to inform future responses through the use of sentinel indicators.





NERACOOS receives its first certification as a Regional Information Coordination Entity by IOOS. 18

In partnership with NOAA, NERACOOS leads the launch of the Ocean Acidification Information Exchange (OAIE), a global online community to inspire collaboration and information sharing among scientists, educators, and policymakers. NERACOOS partners with UNH and UMaine to sustain long-term plankton monitoring in the Gulf of Maine.



NERACOOS tests SOFAR wave buoys in Lake Winnipesaukee in partnership with the NWS Forecast Office and UNH. This trial leads to subsequent ocean deployments. UConn reaches 20 years of operating the Short-Term Prediction System that uses data from NERACOOS and other radar systems to help USCG plan search fields nationwide. The Narragansett Bay Fixed Site Monitoring Network, a partnership of URI, NERACOOS, and various state and federal agencies, completes its second decade of measuring water quality in the coastal centerpiece of the Ocean State.











The Mariners' Dashboard, developed by GMRI, launches to deliver real-time weather and ocean observations, trends, and forecasts.



Gulf of Maine buoys, operated by UMaine, reach 20 years of realtime data collection.



A modernized buoy dedicated to Dr. Ru Morrison, the founding director of NERACOOS, is installed in Great Bay, NH. Ru initiated the original buoy at that location during his time at UNH. A wave buoy in Buzzards Bay completes its first year of providing data on ocean conditions. A collaboration between NERACOOS, MassDEP, NOAA CO-OPS, and Woods Hole Group supports this project to enhance safe and efficient navigation.





NERACOOS partners with MARACOOS, RPS Tetra Tech, and GMRI to develop a metocean data system that will share data to improve safety and knowledge.





At NERACOOS, we recognize that the achievements outlined in these pages would not have been possible without the support of our partners. Collaborative relationships are at the heart of everything we do, and we are proud to highlight these organizations in our timeline:

Integrated Ocean Observing System (IOOS), Gulf of Maine Research Institute (GMRI), Liquid Robotics, Mid-Atlantic Coastal Ocean Observing System (MARACOOS), Massachusetts Bays National Estuary Partnership (MassBays), Massachusetts Department of Environmental Protection (MassDEP), National Oceanic and Atmospheric Administration (NOAA), National Oceanic and Atmospheric Administration's Center for Operational Oceanographic Products and Services (NOAA CO-OPS), National Weather Service Forecast Office (NWS), RPS Tetratech, Sea-Bird Scientific, SeaTrac, Sofar, Stellwagen Bank National Marine Sanctuary (SBNMS), U.S. Coast Guard, University of Connecticut (UConn), University of Maine (UMaine), University of Massachusetts at Dartmouth (UMass Dartmouth), University of New Hampshire (UNH), University of Rhode Island (URI), Woods Hole Group, and Woods Hole Oceanographic Institution (WHOI)

2024 Financials

NERACOOS is funded primarily by National Oceanic and Atmospheric Administration through the U.S. IOOS Regional Program. In 2024, NERACOOS received additional funding from NOAA's Community Special Projects, IOOS Coastal & Inland Flooding, Lenfest Ocean Program, NOAA's Oceanic & Atmospheric Research - Climate Program Office, Office of Naval Research, NOAA's National Oceanographic Partnership Program, Northeast Regional Ocean Council, Woods Hole Oceanographic Institution, NOAA's National Centers for Coastal Ocean Science, Environmental Protection Agency through the Casco Bay Estuary Program and the University of Maine, University of New Hampshire, New Hampshire Sea Grant, Maine Sea Grant, NOAA's Marine Biodiversity Observation Network, NOAA's Operational Oceanographic Products and Services, NOAA Fisheries, NOAA's Ocean Acidification Program, NOAA's Office for Coastal Management, Massachusetts Department of Environmental Protection, Brown University, National Aeronautics and Space Administration, Massachusetts Water Resources Authority, Gulf of Maine Lobster Foundation, and others.

FY2024 REVENUE:

\$5,152,374

5 YEARS OF REVENUE





The amounts presented here are derived from NERACOOS' unaudited financial statements for the year ending September 30, 2024. Audited financial statements are available at www.neracoos.org.

2024 NERACOOS Membership

SUSTAINING MEMBERS

Kelly Cove Salmon Massachusetts Water Resources Authority University of Connecticut University of Maine School of Marine Sciences University of Massachusetts Dartmouth University of New Hampshire

IOOS & Partners Regional Funds: 68.6%

General & Administrative: 5.62%

Fundraising: 0.34%

SUPPORTING MEMBERS

Penobscot Bay and River Pilots Association The Center for Coastal Studies Woods Hole Group Woods Hole Oceanographic Institution

ASSOCIATE MEMBERS

Mel Cote Connecticut Dept. of Energy & Environmental Protection Fisheries and Oceans Canada Footprints in the Water Gulf of Maine Lobster Foundation Maine Department of Marine Resources Massachusetts Lobstermen's Association St. Lawrence Global Observatory Waterview Consulting

AFFILIATES

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

The NERACOOS Membership program assists our system's operation and improvement. Thank you, Members, for your generosity! If you are interested in supporting NERACOOS by becoming a member, learn more at neracoos.org/membership.

2024 NERACOOS Board of Directors

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