



## Agenda • April 27<sup>th</sup> 2017 • Portsmouth, NH

Meeting location is the New Hampshire Department of Environmental Services, Pease International Tradeport, 222 International Drive, Suite 175, Portsmouth, NH 03801

Directions & map: <https://www.des.nh.gov/contactus/regional.htm>

Call In Information

Call In Number: 1-877-455-0244

PW: 9151074994

Webinar Link: <http://www.mymeetings.com/nc/join.php?sigKey=mymeetings&i=744921075&p=4927573&t=c>

9:15 AM	<b>Arrive &amp; Networking</b>
9:30 AM	<b>Welcome &amp; Introductions</b> <i>Matthew Nixon ME, and Rick Bennett USFWS</i>
9:40 AM	<b>Updates</b> <i>Matthew Nixon ME – State Chair</i>  <b>NROC Updates</b> <ul style="list-style-type: none"> <li>▪ Executive Committee</li> </ul> <b>Partner and Audience Updates</b> <ul style="list-style-type: none"> <li>▪ <b>Partner Updates:</b> NERACOOS, Gulf of Maine Council, Sea Grant Consortium</li> <li>▪ <b>Updates:</b> North Atlantic Landscape Conservation Cooperative</li> <li>▪ <b>Audience updates and comments:</b> Meeting attendees provide updates</li> </ul> <b>Announcements and Opportunities</b> <ul style="list-style-type: none"> <li>▪ Upcoming Workshops/Summit and Funding Opportunities</li> <li>▪ Upcoming Northeast Regional Planning Body Meeting June 21<sup>st</sup>, 2018</li> </ul>
10:15 AM	<b>Habitat Classification and Ocean Mapping Workshop</b> <i>Claire Enterline ME, Rebecca Newhall NOAA</i> <ul style="list-style-type: none"> <li>▪ Proceedings Recap</li> <li>▪ Next Steps</li> </ul>
10:30AM	<b>Ocean and Coastal Ecosystem Health Committee</b> <i>Steve Couture (NHCP), Regina Lyons (USEPA)</i> <ul style="list-style-type: none"> <li>• NECAN/NROC Ocean and Coastal Acidification Monitoring Workshop Report, December, 2017: <a href="http://www.necan.org/necannroc-ocean-and-coastal-acidification-monitoring-workshop-report-december-2017">http://www.necan.org/necannroc-ocean-and-coastal-acidification-monitoring-workshop-report-december-2017</a></li> </ul> <i>Steve Couture (NHCP), Ivy Mlsna (USEPA)</i>  <b>Ocean Planning Committee</b> <i>Ted Diers (NHCP), Mel Cote (USEPA)</i> <ul style="list-style-type: none"> <li>• RPB Update</li> <li>• Sand Management: Next steps and NROC feedback - <i>Jeff Reidenauer (BOEM), Jeff Waldner (BOEM)</i></li> <li>• RPB Restoration Sub-Committee Report out (Ivy Mlsna, USEPA)</li> </ul>
11:00AM	<b>Hazards</b> <i>Julia Knisel, (MACZM)</i>  Discussion will focus on recent storm activity, damages to State’s shorelines and Federal property, and needs/potential partnerships and synergies regarding recovery.

NROC Meeting – April 27<sup>th</sup>, 2018

11:30AM	<p><b>Living Shorelines I Closeout Report</b>  <i>Ru Morrison (NERACOOS)</i>                  Discussion of products, actions, and recommendations for NROC from the first Living Shorelines Grant.</p>
11:45PM	<p><b>Lunch:</b> On your own. Options are included in your briefing packet and will be referenced at the meeting. The States will meet with David Kaiser regarding GLD use and the RPB's data portal.</p>
1:15PM	<p><b>NFWF Update on the National and Targeted Watershed Coastal Resilience Assessments</b>  <i>Mandy Chesnutt (NFWF) – Webinar</i>                  Webinar Link:  <a href="http://www.mymeetings.com/nc/join.php?sigKey=mymeetings&amp;i=744921075&amp;p=4927573&amp;t=c">http://www.mymeetings.com/nc/join.php?sigKey=mymeetings&amp;i=744921075&amp;p=4927573&amp;t=c</a></p> <p>The Assessments are being conducted in partnership with NOAA and the US Army Corps of Engineers and are designed to assist the siting of restoration projects to maximize benefit for both human community resilience and fish and wildlife species.</p> <p><a href="http://www.nfwf.org/coastalresilience/Documents/coastal-resilience-assessment-fact-sheet.pdf">http://www.nfwf.org/coastalresilience/Documents/coastal-resilience-assessment-fact-sheet.pdf</a></p>
2:00PM	<p><b>Living Shorelines II Update</b>  <i>Eric Roberts, TNC &amp; State Outreach Partners</i></p> <p>Update on current accomplishments, goals, and next steps</p>
2:30PM	<p><b>Federal Partners Brief and Discussion</b>  <i>Rick Bennett (USFWS)</i></p> <p>An update on the current status and focus of the New England Federal Partners and a discussion on how NROC, NROC member states, and the federal partners should engage in future activities/priorities.</p>
3:00 PM	<p><b>Closing Business/Adjourn</b>                  Timing and location for next meeting</p>

## **Committee Update – Executive Committee**

### *Funding Status*

NROC is currently operating on funding from three sources: the NOAA Regional Coastal Resilience Grant award to NERACOOS (LIVING SHORELINES I), Moore Foundation and in-kind Ocean Planning funds, and NOAA Regional Coastal Resilience Grant to TNC (LIVING SHORELINES II.)

#### NERACOOS RRG Funds:

- Are active through September 2018
- States have completed Track II work and submitted final reports to NERACOOS on April 20<sup>th</sup>.
- Extended funds will support Track I remaining tasks and NROC Coordinator, whose role is to help close out the award, synthesize products/accomplishments and disseminate project outcomes.

#### Moore Foundation and in-kind Ocean Planning Funds:

- Active from 2018-2020
- Level funding this year and each year decreases
- Coastal States Stewardship Foundation is the new fiscal agent for the Moore Foundation Grant

#### NOAA RRG funds:

- Are active through September 2020
- TNC is PI with subawards to NROC partners.
- NROC Coordinator will be funded to assist states and TNC with completing the workprogram, focused on monitoring and constructing Living Shoreline projects.

## **Committee Update – Ocean and Coastal Ecosystem Health**

### ***Joint NROC-NECAN workshop held 12/1/2017***

Monitoring Coastal Acidification: Why, What, How? The Northeast Regional Ocean Council (NROC) and Northeast Coastal Acidification Network (NECAN) hosted a workshop to address the following goals:

- (1) identify what management and policy questions could be addressed by enhanced OCA monitoring;
- (2) discuss collaborative opportunities to integrate, enhance and expand OCA and nutrient monitoring throughout the region to address these questions; and
- (3) broaden the conversation about OCA and coastal resources to local resource managers who may be new to OCA, but are already dealing with other environmental issues that coincide with or worsen OCA.

A workshop [report](#) is available on the NECAN website.

### ***Integrated Sentinel Monitoring Network – information from Fall 2017 update***

Members of the ISMN steering committee last met on October 12<sup>th</sup>. Progress in implementation of ISMN infrastructure has been hindered by the absence of a clear path for funding. The group discussed hosting a series of workshops to move the concept forward. To take advantage of NERACOOS expertise and resources in data management, a workshop to facilitate incorporation of existing, external datasets into the NERACOOS data management framework is in the planning stages. Other workshop subjects include compilation of monitoring methodologies and assessment of protocol standardization across monitoring activities, assessment of monitoring issues and needs at the state level, and infrastructure needs to develop regional analysis, prediction and evaluation of ecosystem health. The SC is interested in exploring overlapping interests and goals with ESIP, NeRPB, and DFO Canada. The next steering committee meeting will be held later this spring.

### ***NERACOOS/NROC proposal to NCCOS***

The LOI was well received. NERACOOS was encouraged to submit a full proposal—and did. The proposal includes \$50,000 over the three years (\$8k, \$21k, \$21k) for NROC Coordinator participation and support (in proposal: ...assist in coordinating stakeholder involvement in workshops, communicating and coordinating project efforts with state and federal managers). If awarded, it will have a start date of September 1, 2018. Applicants expect to be notified by the end of May. For the text of the LOI, please see Appendix A.

### **Committee Update – Habitat classification and Ocean Mapping (HCOM)**

#### **Data Needs and Data Collection Plans:**

- The committee continues to track various state and federal program's mapping needs and plans in [SeaSketch](#). This online portal allows different agencies to upload into an online mapping portal their ocean mapping priorities, collected data, and areas of need. Since its inception, the tool has been utilized by numerous agencies and helped guide new data mapping efforts.
- To further our discussions on data needs and plans, and understanding of capacity throughout the region, HCOM is starting to discuss this being the focus of a winter 2019/2020 meeting.

#### **Habitat Mapping:**

- Recently HCOM conducted a workshop titled: *Developing Habitat Maps in New England with CMECS*, at UMASS Boston. Over 30 practitioners gathered to share where and how habitat maps are being developed in New England using Coastal Marine Ecological Classification System (CMECS). Discussions focused on the application and the use of CMECS products for management discussions. Following up on this workshop, HCOM members will be exploring how to create compatible maps across the Gulf of Maine for projects that cross state boundaries and applying CMECS to underwater videography. The results of this workshop will be improved data consistency for regional assessments.

### **Committee Update – Hazards**

Discussion will focus on recent storm activity, damages to State's shorelines and Federal property, and needs/potential partnerships and synergies regarding recovery. Requests were sent out to NROC members and partners asking for damage assessments and/or other needs based on impacts from the recent Nor'easters in March, 2018.

### **Partner Update – NERACOOS**

#### **Federal Data Certification**

Based on detailed review and assessment, the U.S. Integrated Ocean Observing System certified NERACOOS as a Regional Information Coordination Entity (RICE). This certification verifies that the organizational practices of NERACOOS, including data management, meet recognized and established standards set by the National Oceanic and Atmospheric Administration.

#### **Integrated Nutrient Observatory Development**

NERACOOS and its partners continued the deployment and operation of nutrient sensors in the Gulf of Maine, Great Bay and Long Island Sound. This project is currently in a one-year no-cost extension. New funding sources and opportunities are being explored. UMaine is currently operating several SUNA sensors which will be recovered in June. UCONN will be re-deploying their buoys this spring. The Western Long Island Sound buoy will be re-deployed with phosphate and SUNA sensors. UNH is re-deploying their buoys this spring with phosphate and SUNA

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sensors on the Great Bay buoy. URI will also be deploying phosphate and SUNA sensors this spring in Narragansett Bay. Tom Shyka (NERACOOS) and Jim O'Donnell (UCONN) attended and presented at the Long Island Sound Study Science and Technical Advisory Committee meeting in February. NERACOOS is currently planning a final project partner workshop this June to review the collected data, its significance, and potential applications.

### Northeast Coastal Acidification Network (NECAN)

NECAN continues to be active throughout the region. NECAN and MACAN, the Mid-Atlantic Coastal Acidification Network, recently participated in a three-day workshop convened by Sea Grant and NART to develop conceptual models to compare and contrast the major drivers and effects of ocean acidification in the Northeast and Mid-Atlantic. NECAN is also working with their partners to engage citizen science groups. There will be a series of state based workshops (ME, MA and CT) hosted in April 2018. A webinar series was also launched in conjunction with this effort, these recordings are available on the NECAN website here. The NECAN Steering Committee has also completed an implementation plan, which is available here. This implementation plan will be used as a work plan by the Steering Committee over the next five years. The working groups of NECAN (Policy, Education and Outreach, Industry, and Science) have also been very active in recent months. If you'd like to learn more about these working groups or become involved in their efforts please contact Jackie Ball Motyka ([jackie@neracoos.org](mailto:jackie@neracoos.org)) who will connect you with the appropriate working group lead.

For more information about NERACOOS and any of these projects please contact Ru Morrison ([ru.morrison@neracoos.org](mailto:ru.morrison@neracoos.org))

### Partner Update – Gulf of Maine Council

Working Group and Council meetings: (1) A virtual Council and Working Group meeting was held on December 4, 2018. Meeting highlights included: 1) development of the next 5-year Action Plan (2018-2022); 2) updates and progress reports from the 2017 – 2019 GOMC Work Plan; 3) options for GOMA after April 30, 2018, and 4) GOMC plans for the first half of 2018. (2) Upcoming meetings include a Working Group Teleconference on April 18, and a two-day in-person meeting on June 5-6, 2018 at the offices of NOAA Marine Fisheries Service in Gloucester, MA. Topics for the June 2018 meeting include marine protected areas, marine debris, planning for the Gulf of Maine Symposium, and a presentation on NOAA's National Water Model.

GOMC Awards Program: GOMC is hosting a 2018 Awards Program. Nominations were accepted through March 30, 2018. An awards reception will be held on the evening of June 5 at the Gloucester House in Gloucester, MA.

Action Plan: GOMC is developing a new 2018–2022 five-year Action Plan. This plan will include broad goals and a summary of accomplishments during the previous five-year action plan period. The 2018-2022 Action Plan goals will focus on:

- 1): Restored and Conserved Habitats;
- 2): Environmental and Human Health; and
- 3): Sustainable and Resilient Communities. GOMC will finalize and approve the Action Plan at the June 2018 GOMC Meeting in Gloucester, MA.

Gulf of Maine Association: GOMA Executive Director Cindy Krum will be stepping down on May 15, 2018. GOMA functions (which are now very limited) will be covered by GOMC Coordinator Joan LeBlanc through a separate contract with GOMA.

Gulf of Maine Symposium: GOMC continues to work with partner agencies toward the shared goal of hosting a multi-day symposium during 2019. A planning session was held on April 12 in Portland, ME. GMRI, Huntsman Marine, NERACOOS and GOMC participated. Preliminary plans call for a pre-symposium event at Huntsman Marine in March 2019, followed by a multi-day symposium in Portland, ME during the fall of 2019.

Coastal and Marine Spatial Planning (CMSP): CMSP hosted a Webinar, 'Northeast Region Ocean Data Portal: A Case Study on Data and Mapping in Support of Marine Planning' on December 18.

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Climate Network: As of October 2017, the Climate Network no longer has a coordinator. The Climate Network continues to distribute a Quarterly Gulf of Maine Region Climate Impacts and Outlook. The March 2018 Outlook highlights major weather events such as December storms and the January Nor'Easter and blizzard. As part of the seasonal outlook NOAA and Environment and Climate Change Canada predict above-normal temperatures through May 2018.

EcoSystem Indicator Partnership (ESIP): Current ESIP efforts include: 1) writing a paper on a recent sediment monitoring project to be presented at the BoFEP Science Workshop on May 9-12 in Truro, Nova Scotia, and 2) exploring sources of funds to support the ICUC App and other ESIP initiatives.

Marine Debris: GOMC is developing a work plan for Marine Debris with Maine Coastal Program taking the lead and working in conjunction with NOAA.

### **Partner Update – New England Federal Partners**

- NEFP has a web presence (<https://toolkit.climate.gov/NEFP>) and we are now archiving our meeting notes on MAX.gov
- Kim Ainsworth, from Boston Federal Executive Board, offered an update on BFEB activities. We discussed ideas of how to work with the BFEB. Ideas included preparedness, building smarter, mentoring, and agency exchanges.
- Several agencies have current work with Canada. We discussed meeting on current topics including dams, transmission lines, tribal topics, heat health, and other topics.
- USGS supplied high water marks data and list of FEMA mapping.
- A template has been developed for all agencies to add their activities into the National Integrated Drought Information System's Northeast regional drought plan.
- USGS set up a team to look at soil moisture monitoring in New England. USGS will take the lead and USDA and NOAA will also participate.
- USFWS and USGS are working on a metrics report and will involve NEFP agencies. Here are links to the DOI Hurricane Sandy site, the DOI Metrics Expert Report and the socioeconomic metrics report:  
<https://www.doi.gov/hurricanesandy>

<https://www.doi.gov/sites/doi.gov/files/migrated/news/upload/Hurricane-Sandy-project-metrics-report.pdf>

[https://www.doi.gov/sites/doi.gov/files/uploads/Socio\\_Economic\\_Metrics\\_Final\\_Report\\_11DEC2015\\_0.pdf](https://www.doi.gov/sites/doi.gov/files/uploads/Socio_Economic_Metrics_Final_Report_11DEC2015_0.pdf)

#### Attendees:

BFEB - Kim Ainsworth

DHS - Bill DeLong

DOT Volpe - Katie Lamoureux

EPA - Hal Walker (Narraganset Lab), Cynthia Greene, Matt Liebman (to speak on Citizen Science)

GSA - Carey Bergeron

HUD - Martha Curran

NOAA - Ellen Mecray

USACE - Larry Oliver

USDA - Dave Hollinger

USFWS - Rick Bennett

USGS – Keith Robinson, Pete Murdoch, Alex Bryan

The overall focus of the NEFP is on coordination and collaboration with federal agencies in the region working on common environmental topics. Workgroups form around specific topics as needed. The NEFP meets two times a year in person – February and September, and holds calls in May/June and November/December. The aim of NEFP is to coordinate, collaborate, cooperate, and communicate on issues of common interest. Among the areas identified are: water/drought, data sharing and service delivery.



**NROC**  
Northeast Regional  
Ocean Council

*Regional solutions for New England's  
coastal and ocean future*

February 12, 2018

Dear Dr. Morrison,

On behalf of the State and Federal members of the Northeast Regional Ocean Council (NROC) we look forward to collaborating in the proposal titled, "A generic predictive model for ocean and coastal acidification thresholds from Long Island Sound to the Nova Scotian Shelf" in response to funding opportunity number NOAA-NOS-NCCOS-2018-2005323. As a collaborator, we agree to coordinate involvement amongst NROC members and its network of state, federal and NGO partners, to support the following activities, including, but not limited to:

- Providing advice to the investigator team to assist with project design to ensure stakeholder use of research products developed under this FFO; and
- Assisting in the development of a management plan outlining how the scientific results will be used in a management context, and the associated timelines.

Over the past ten years NROC and the Northeast Regional Association of Coastal and Ocean Observing Systems (NERACOOS) have worked together on many ocean and coastal initiatives that benefited from a regional response, and leveraged state and federal resources through the Council and by coordinating our joint Coastal Ecosystem Health, and Ocean Planning sub-committee. If this project were to be funded in New England, we look forward to applying our experience with previous projects and leveraging current federal and state resources and programs, to the maximum extent possible, to achieve meaningful and measurable results in increasing the science and management of coastal and ocean acidification for New England's coastal resources, communities and industries.

We look forward to our continued collaboration through this project and thank you for your consideration.

Sincerely,

Kathleen Leyden  
NROC State Co-chair  
ME Department of Marine Resources

Richard O. Bennett, Ph.D.  
NROC Federal Co-chair  
US Fish and Wildlife Service

**1. Tentative Project Title:** A generic predictive model for ocean and coastal acidification thresholds from Long Island Sound to the Nova Scotian Shelf

**2. Principal Investigators:** J. Ruairidh Morrison (lead), Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS), 603-319-1785, ru@neracoos.org; Chen Changsheng, University of Massachusetts Dartmouth, 508-910-6388, c1chen@umassd.edu; Joseph Salisbury, University of New Hampshire, 603-862-0322, joe.salisbury@unh.edu; Alex Prusevich, University of New Hampshire, 603-862-4796, alex.proussevitch@unh.edu; Jennifer Brewer, University of New Hampshire, 603-862-7052, Jennifer.Brewer@unh.edu; Jason Goldstein, Wells National Estuarine Research Reserve, 207-646-1555, jgoldstein@wellsnerr.org; Eric Chapman, University of New Hampshire Sea Grant, 603-862-1935, erik.chapman@unh.edu; Aaron Strong, University of Maine, 207-581-4336, aaron.strong@maine.edu; Steve Couture, New Hampshire Department of Environmental Services, 603-271-8801, steven.couture@des.nh.gov; and Meredith White, Mook Sea Farm, 978-985-9841, meredith.megan.white@gmail.com.

**3. Approximate Cost of the Project:** \$350,000 (Y1), \$350,000 (Y2), \$350,000 (Y3)

**4. Statement of Problem:** Globally CO<sub>2</sub> levels are increasing and oceans are acidifying. In coastal waters the amount of acidification is more complex, influenced by freshwater and nutrient inputs from coastal rivers. The waters off the Northeast U.S. to the Nova Scotian shelf are poorly buffered and potentially have increased vulnerability to Ocean and Coastal Acidification (OCA). These waters are also highly productive with an historic and commercially important fishing industry. In 2016, >\$1.2 billion of finfish and shellfish were landed making New England North America's most valuable fishery. Organisms that rely on the availability of calcium carbonate to build shells and exoskeletons such as lobster and sea scallop account for two-thirds of the fisheries net income. Recreational fishing and mariculture of calcifying organisms (i.e. oysters, clams) also contribute to this value and are growing in importance. Given the standing of calcifying organisms in the region's economic health we must understand the thresholds at which these organism experience a loss of productivity, and how a degraded fishery will propagate into the economy.

The Northeast Coastal Acidification Network (NECAN) was established in 2013 as the leading organization for the synthesis and dissemination of regional acidification data and information. A 2017 NECAN Implementation Plan identified the need for "the development of a regional OCA model that integrates physical, hydrological, biological processes for hindcasting and forecasting" and the need to "develop and serve visualizations of monitoring and model results to allow people to assess the state of OCA in the region."

In response, we propose to advance the Northeast Coastal Ocean Forecast System (NECOFS), to estimate thresholds of stress occurring from adverse carbonate system condition, heat and energy availability. Established in 2007, NECOFS is an integrated atmosphere-ocean model forecast system designed for the northeast US coastal region covering a computational domain from the south of Long-Island Sound to the north of the Nova Scotian Shelf. It presently produces three-day forecasts and has been validated with hindcasts back to 1978. Smaller subdomains are nested within the larger regional domain and various modules, including biogeochemistry and water



quality, may be included. A carbonate chemistry module addressing OCA has recently been developed for the Massachusetts Bay subdomain and can presently be used to identify ocean acidification thresholds and the persistence of conditions harmful to calcifying organisms.

Our model will support outcome-based actions by coastal managers, who are beginning to address ocean and coastal acidification, as well as informing regional policymakers. Modeling will allow the interpolation between observations points, provide three-day forecasts and warnings, allow for mid-term outlooks to be developed based on system states, and explore possible future scenarios. This effort will also provide the many industries that could be affected by OCA (commercial fishing, shellfish harvesting, aquaculture, and seafood distribution) with the required information at the right temporal and spatial scales.

The project will leverage over a decade of high quality regional observations that include a dense collection of carbonate chemistry. Our expertise includes fisheries socioeconomics, near-time circulation modeling, hydrological modeling and coastal biogeochemistry. NERACOOS coordinates regional ocean observing and modeling activities, as well as hosting NECAN and providing operational support to NECOFS. We will also leverage the local engagement capabilities of regional Sea Grant organizations and National Estuarine Research Reserves. Coastal managers will be directly involved in the project through the Northeast Regional Ocean Council.

**5. Work Summary:** The proposed work will build on the regional stakeholder engagement and established regional modeling and observing capacity to directly address NECAN priorities and will center on the following activities:

- Conceptual modeling of coupled biophysical-socioeconomic dynamics, including identification of decision points, decision criteria, tradeoff strategies, information sources, information gaps, and communication gaps,
- Documenting and fulfilling stakeholder information requirements with an interactive approach based on established and continued engagement activities,
- Improving a biogeochemical model (including carbonate chemistry and land fluxes of water, total N and alkalinity), and transitioning to the full NECOFS region,
- Developing threshold warning predictions for key species, and
- Disseminating warnings, scenarios, and educational materials based on the identified stakeholder requirements.

Advice from an advisory committee will be used to ensure a transition of the novel scientific results to supporting outcome-based actions by management. Information products and modeling capacity built during the project will be sustained into the future through inclusion in operations and maintenance activities of NERACOOS.