



NROC Meeting
Monday, December 16, 2019
9:15 AM – 3:00 PM

NH Department of Environmental Services
222 International Drive, #175, Portsmouth, NH

Meeting Briefing Packet

Call-in and Webex Information, p. 2

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Conference Call and WebEx Information for the Meeting

Conference Call Access Information

Call In: 1 877-680-1673

Passcode: 1993954#

WebEx Information

Meeting Number: 744921075 Meeting Passcode: 4927573

Meeting Host: MS ADRIANNE R HARRISON Join Instructions for Instant Net Conference:

1. Join the meeting now:

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

2. Enter the required fields.

3. Indicate that you have read the Privacy Policy.

4. Click on Proceed. Audio is through the conference line.

NROC Meeting Agenda	
Monday, December 16, 2019 NH DES, 222 International Drive, #175, Portsmouth, NH 03801	
9:15 AM	Arrive and Networking
9:30 AM	Welcome and Introductions <i>NROC Co-Chairs: Steve Couture, NH DES and Regina Lyons, EPA</i>
9:40 AM	News from NROC Executive Committee <i>Steve Couture, NH</i> <ul style="list-style-type: none"> • NROC funding status, (p. 4) • Update regarding tribal engagement • Introduce NOAA fellows
9:50 AM	NROC Partners - Highlights and Opportunities for Collaboration <ul style="list-style-type: none"> • NERACOOS – <i>Jackie Motyka, NERACOOS (p. 5)</i> • Northeast Sea Grant Consortium – <i>Erik Chapman, NH Sea Grant</i> • Gulf of Maine Council – <i>Prassede Vella, MA CZM (p. 6)</i> • New England Federal Partners – <i>Betsy Nicholson, NOAA (p. 7)</i>
10:25 AM	Roundtable Discussion and Updates <ul style="list-style-type: none"> • NROC member organizations – priority projects and opportunities for collaboration • Other audience news / updates
11:00 AM	Gulf of Maine 2050 International Symposium <ul style="list-style-type: none"> • GOM 2050 update and next steps for addressing regional priorities (pp. 8-13)
11:30 AM	NROC Committee Activities and Opportunities for Collaboration <ul style="list-style-type: none"> • Ocean Planning Committee – <i>Ted Diers, NH and Mel Cote, EPA</i> • Coastal Hazards Resilience Committee - <i>Julia Knisel, MA and Adrienne Harrison, NOAA</i> <ul style="list-style-type: none"> ○ <i>Living Shorelines Project – Eric Roberts, TNC, and state partners</i> • Ocean and Coastal Ecosystem Health Committee – <i>Steve Couture, NH, Regina Lyons, EPA, and Jeffrey Runge, GMRI / NERACOOS</i> <ul style="list-style-type: none"> ○ <i>Integrated Sentinel Monitoring Network – Jeffrey Runge, GMRI / NERACOOS</i> ○ <i>HCOM – Becca Newhall, NOAA</i>
12:00 PM	Lunch Break – lunch on your own
1:00 PM	Ocean Acidification – Updates and Requests for NROC Direction <ul style="list-style-type: none"> • MA OA Commission Update – <i>Lisa Engler, MA CZM (10 min)</i> • NECAN Update – <i>Beth Turner, NOAA, Jackie Motyka NERACOOS (10 min)</i> • Shell Day – Update from 2019 project and request for direction from NROC to inform future efforts – <i>Parker Gassett, UMaine, Jennie Rheuban, Woods Hole Sea Grant (20 min)</i> • Ocean Acidification Thresholds Project – Project overview and opportunity for NROC to provide direction on management applications for the model – <i>Aaron Strong, Hamilton College, Beth Turner, NOAA (20 min)</i>
2:00 PM	Offshore Wind Energy – Updates and Requests for Direction <ul style="list-style-type: none"> • Discussion of the December 12th Gulf of Maine Intergovernmental Renewable Energy Task Force meeting and next steps for the task force • Other offshore wind updates from states and federal agencies • Obtain input on potential offshore wind topics for April 2nd NROC Ocean Planning Committee meeting
2:50 PM	Other Business
3:00 PM	Adjourn

NROC Funding Status – 16 December 2019

NROC is currently operating on funding from the following sources:

1. FY2017 NOAA Coastal Resilience Grant
 - Project: *Increasing Resilience and Reducing Risk through Successful Application of Nature-based Coastal Infrastructure in New England*
 - Total Award: \$999,999 (includes \$50,687 for NROC – project support + general NROC Coordination)
 - Lead: The Nature Conservancy
 - Partners: NROC, ME Coastal Program, NH Coastal Program, NH DES, MA CZM, RI CRMC, UConn / CIRCA, and local partners
 - Funding Period: October 2017 to September 2020 (*Partners are expected to request a 12-month extension through September 2021*)

2. FY2018 NOAA / NOS / NCCOS
 - Project: *Developing Generic Predictive Model of Ocean and Coastal Acidification Thresholds from Long Island Sound to the Nova Scotian Shelf*
 - Total Award: \$498,000 (includes \$20,000 for NROC – project support + collaboration with NROC)
 - Lead: NERACOOS
 - Partners: NROC, UMass Dartmouth, UNH, GMRI, Wells NERR, NH Sea Grant, UMaine, others
 - Funding Period: September 2018 through August 2021

3. Moore Foundation
 - Project: Regional ocean planning activities
 - Award: \$2.2 million
 - Lead: NROC (via Coastal States Stewardship Foundation as fiscal sponsor)
 - Funding Period: January 2018 – December 2020

4. Bureau of Ocean and Energy Management
 - Project: Operations and maintenance of the Northeast Ocean Data Portal
 - Award: \$230,000
 - Lead: NROC (via Coastal States Stewardship Foundation as fiscal sponsor)
 - Funding Period: September 2019 – September 2020

5. FY2019 NOAA (Regional Ocean Data Sharing/Regional Ocean Partnership Funding)
 - Project: Update commercial fisheries data on the Northeast Ocean Data Portal in collaboration with industry
 - Award: \$135,000
 - Lead: NROC (via Coastal States Stewardship Foundation as fiscal sponsor) in collaboration with the Mid-Atlantic Regional Council on the Ocean and the Responsible Offshore Development Alliance
 - Funding Period: August 2019 – July 2020

Observing System

NERACOOS is continuing to fund observations, modeling, and data management efforts in the Gulf of Maine, Southern New England and Long Island Sound. In preparation for the next five-year IOOS proposal NERACOOS is currently seeking stakeholder input regarding the current observing system and existing gaps. We welcome your feedback and request that you reach out to Tom Shyka, tom@neracoos.org.

This year the nutrient sensors will once again be deployed throughout the region including sensors in Long Island Sound, Narragansett Bay, Great Bay and in the Gulf of Maine. Glider missions will also be deployed over this next year in the Gulf of Maine to monitor oceanographic conditions, nitrate and cetacean occurrences. Two new high frequency radar sites, which can be used to monitor and predict surface currents, will be installed in the coming years, one in the Gloucester, MA area and one in the Rye, NH area.

Northeast Coastal Acidification Network (NECAN)

NECAN's efforts continue throughout the region. As a result of a series of webinars and workshops for citizen science monitoring in spring 2018, NECAN and the Education and Outreach Working Group hosted 'Shell Day' on August 22, 2019, a one-day citizen science monitoring event that generated a snapshot of coastal conditions in the Northeast from Maine to Long Island Sound. The data from Shell Day is currently being consolidated and analyzed and results will be forthcoming. The NECAN Sea Grant webinar series concluded on December 12, 2019, all four webinar recordings are available on the [NECAN website](#). In late 2018, the Industry Working Group hosted a survey for industry members and a survey report. Results from this report will be shared with state and federal resource managers and funding agencies to help guide priorities for monitoring and funding in the Northeast. The NECAN Steering Committee has revised and updated their Implementation Plan which will be available soon. If you would like to learn more about NECAN or become involved in the working groups please contact Emily Silva (emily@neracoos.org).

Also, if you're interested in ocean and coastal acidification be sure to check out the OA Information Exchange, www.oainfoexchange.org. This collaborative website is a great place to learn more about ocean and coastal acidification and to connect with others in the field. For more information contact Julianna Mullen, julianna@neracoos.org.

Integrated Sentinel Monitoring Network (ISMN)

ISMN, which is a joint project of NROC and NERACOOS, is moving forward with efforts as outlined in the [Science and Implementation Plan](#) to establish the Center for Analysis Prediction and Evaluation (CAPE). Jeffrey Runge will provide a detailed update on ISMN activities during the meeting.

Inundation and OCA forecasting

NERACOOS and their partners are continuing work on two coastal prediction projects. The first project is an IOOS Coastal Ocean Modeling Testbed project. The goal for this three-year project is to deliver improved ocean and coastal inundation forecast products to key end users in the Northeast where severe weather events cause coastal inundation, flooding, erosion and other damages. The second award is from NOAA's National Centers for Coastal Ocean Science and NOAA's Ocean Acidification Program. The project will focus on the development of a predictive model for ocean acidification thresholds in the Northeast. Efforts began in the fall of 2018 for both projects and include a significant stakeholder engagement component.

For more information about NERACOOS and any of these projects please contact Jackie Motyka (jackie@neracoos.org) or Tom Shyka (tom@neracoos.org).

Gulf of Maine Council on the Marine Environment - Update

Update prepared by Prassede Vella, MA CZM

Working Group and Council meetings: Gulf of Maine Council held a joint Council and Working Group meeting hosted by the Nova Scotia Department of Intergovernmental Affairs in Halifax, Nova Scotia on July 10 and 11, 2019. The meeting included presentations and discussion regarding: 1) planning for the Gulf of Maine 2050 International Symposium, 2) ocean planning and management in the Gulf of Maine, 3) briefing from the Climate Network, 4) opportunities to collaboration through NECAN, and 5) US and Canadian efforts to address marine debris and opportunities for collaboration. The next Gulf of Maine Council teleconference meeting (with in-person option in Portsmouth, NH) is scheduled for Wednesday, December 18, 2019 from 9 AM – 12 PM.

GOMC Awards: GOMC presented a slate of 2019 awards to individuals, organizations and businesses from Nova Scotia, New Brunswick, Maine, New Hampshire and Massachusetts during a ceremony on July 10, 2019 in Hubbards, Nova Scotia. A summary of the awards with bios for award winners is available at: <https://gulfofmaine.org/public/gulf-of-maine-council-on-the-marine-environment/awards/>. GOMC will be issuing a call for nominations for its 2020 awards program in early 2020.

Gulf of Maine Council Initiatives

Co-hosting the Gulf of Maine 2050 International Symposium from November 4-8, 2019 in Portland, Maine was a major initiative of the Gulf of Maine Council throughout the past year. A separate update on the Symposium is included on pages 8- of this briefing packet. The Gulf of Maine Council is currently working to integrate management priorities and actions identified during the symposium into its two-year Work Plan which will be finalized by Spring 2020. GOMC also has interest in exploring opportunities to increase collaboration with NROC in the follow up from GOM 2050.

Other ongoing GOMC initiatives include:

- Climate Network which provides resources and tools for government and other professionals in the Gulf of Maine. The Climate Network continues to publish a Gulf of Maine Report and Outlook highlighting regional climate impacts and anticipated trends in the Gulf of Maine.
- Marine Debris. The Gulf of Maine Council is working with NOAA and Canadian partner agencies and NGOs to raise awareness and address the environmental problem of marine debris in the Gulf of Maine. NOAA recently published a Gulf of Maine Action Plan and the GOMC looks forward to supporting its implementation.
- Tribal / First Nations Engagement. GOMC is working to enhance tribal engagement in its efforts to promote a healthy and sustainable ecosystem. This effort was the focus of a meeting in November 2019 and efforts to increase outreach and communications with First Nations and tribes will continue during 2020.
- Ecosystem Indicators Partnership. GOMC's ESIP program is scaled back as there is no longer a paid coordinator. ESIP is working to identify a long-term plan for ensuring continued availability of its Gulf of Maine monitoring data to the broader scientific community.

New England Federal Partners

Betsy Nicholson will provide an update regarding the following topics discussed at the recent New England Federal Partners meeting.

- Drought coordination. The National Integrated Drought Information System (NIDIS) Northeast Drought Early Warning System (DEWS) Strategic Plan is available at:
 - <https://www.drought.gov/drought/dews/northeast/about-northeast>
- National Park Service has a protocol for climate vulnerability assessment
- General Accounting Office (GAO) speaker provided an update on climate work they have done on the federal government fiscal exposure from climate change. GAO's conclusion is that the federal government has not made enough progress in reducing federal fiscal exposure to climate change.
 - https://www.gao.gov/highrisk/limiting_federal_government_fiscal_exposure/why_did_stu_dy
- New EO on Ocean Policy (NROC working on), is there a need to convene federal partners on this topic outside of NROC?

DRAFT Gulf of Maine 2050 International Symposium: Overview, Highlights, Key Messages, and Cross-Cutting Priorities

Gulf of Maine 2050 update prepared by Joan LeBlanc, GOM 2050 Steering Committee

Overview

The Gulf of Maine 2050 International Symposium was held on November 4 - 8, 2019, at The Westin Portland Harborview in Portland, Maine. Over 320 leaders from across New England and the Maritime Provinces came together to explore environmental, economic, social and institutional perspectives on climate resilience in the Gulf of Maine. Over the course of five days, participants learned about how key drivers – sea level rise and precipitation, coastal and ocean acidification, and warming waters – are expected to impact the Gulf of Maine over the next 30 years and worked together to identify priorities for regional resilience. Program information, abstracts for posters and presentations, and event resources are available at: www.gulfofmaine2050.org. The symposium was co-hosted by the Gulf of Maine Council, Gulf of Maine Research Institute, and Huntsman Marine Science Centre with significant contributions from the Steering Committee.

Co-Chairs

- Andrew Pershing, Gulf of Maine Research Institute
- Theresa Torrent, Maine Department of Marine Resources / Maine Coastal Program, and Gulf of Maine Council on the Marine Environment
- Jamey Smith, Huntsman Marine Science Centre

Committee Members

- Carolina Bastidas, MIT Sea Grant
- Damian Brady, School of Marine Sciences, University of Maine, and Regional Association for Research on the Gulf of Maine
- Will Brewer, Gulf of Maine Research Institute
- Steve Couture, New Hampshire Department of Environmental Services
- Darryl Eisan, Nova Scotia Department of Intergovernmental Affairs
- Jill Harlow, Gulf of Maine Research Institute
- Jonathan Labaree, Gulf of Maine Research Institute
- Joan LeBlanc, Gulf of Maine Council on the Marine Environment
- Mary McCrann, Woodard & Curran
- Katie McLean, Clean Annapolis River Project, and Bay of Fundy Ecosystem Partnership
- Ellen Mecray, National Oceanic and Atmospheric Administration
- Ivy Mlsna, US Environmental Protection Agency
- Ru Morrison, Northeastern Regional Association of Coastal and Ocean Observation Systems
- Jackie Motyka, Northeastern Regional Association of Coastal and Ocean Observation Systems
- Judith Pederson, MIT Sea Grant
- Robert Stephenson, Department of Fisheries and Oceans Canada, St. Andrews Biological Station
- Jason Tuell, National Oceanic and Atmospheric Administration
- Prassede Vella, Massachusetts Office of Coastal Zone Management
- Jackie Walker, Huntsman Marine Science Centre

- Christie Ward, New Brunswick Department of Environment and Local Government
- Peter Wells, Bay of Fundy Ecosystem Partnership

Highlights from the Symposium

- Diverse Attendance. Over 320 people from the US and Canada participated in the symposium. Scientists, government managers, fishermen, maritime business leaders, NGO representatives, and students all worked together to develop a shared understanding and priorities for promoting a resilient Gulf of Maine. With support from funders, scholarships were provided to promote diverse participation in GOM 2050.
- Keynote Speakers. Maine Governor Janet T. Mills opened the symposium with an inspiring talk about Maine’s commitment to achieving carbon neutrality by 2045. Other keynote speakers included Ko Barrett, Vice Chair of the Intergovernmental Panel on Climate Change, who highlighted international efforts to address climate change, and Rachel Cleetus, Policy Director, Climate and Energy Program for the Union of Concerned Scientists, who raised awareness about the challenges of social equity in addressing impacts of climate change on underserved populations.
- Scientific Scenario Papers. Teams of experts worked together in advance of the symposium to develop scientific scenario papers exploring how the primary drivers of change are expected to impact conditions in the Gulf of Maine over the next 30 years. The following draft scenario papers were released in advance to inform interdisciplinary work at the symposium:
 - [Gulf of Maine 2050 Overview](#)
 - [Gulf of Maine 2050 Scenario: Sea Level Rise and Precipitation](#)
 - [Gulf of Maine 2050 Scenario: Temperature and Circulation](#)
 - [Gulf of Maine 2050 Scientific Scenario: Coastal and Ocean Acidification](#)
- Poster Sessions. Over the course of three sessions, more than 100 scientists and managers shared posters highlighting innovative research and management projects related to warming waters, ocean acidification, sea level rise, and other research topics in the Gulf of Maine.
- Scientific Presentations. Top scientists from the region highlighted the latest research and knowledge about how changes in sea level rise and precipitation, ocean acidification, and warming waters are impacting Gulf of Maine resources.
- Panel Presentations and Lightning Talks. During panel discussions and lightning talks, participants heard from maritime businesses, municipal leaders, regional planners, NGOs, and students about climate impacts, examples of adaptation, and challenges and opportunities for resilience.
- Priorities for Research, Policy and Management. Facilitated working sessions focused on identifying priorities for research and policy / management actions for each driver. A full report on these priorities is under development and highlights are provided at the end of this update.
- Outreach and Sustainable Practices. GOM 2050 conducted robust outreach to increase interest and engagement in the lead up to and during the symposium. This effort included development of an event website: www.gulfofmaine2050.org, Twitter feed [@gulfofmaine2050](https://twitter.com/gulfofmaine2050), hashtag #gulfofmaine2050, and Attendify event App. Development of the event App also supported the symposium’s goal of reducing waste by eliminating the need for printed programs.
- Collaborative Action Grants. With support from diverse funders, the symposium hosted a grant competition to foster collaborative discussion and development of action plans throughout the

week. Over 30 proposals were submitted and the following grants of \$9,000 each were awarded on the last day of the symposium:

- Nantucket Conservation Foundation, Inc. will bring representatives from throughout the Gulf of Maine to a training in Quebec to learn about how to use blue carbon credits to enable salt marsh restoration. This new initiative will promote the use of salt marsh soils, which are a highly effective carbon sink, as a natural climate solution for the Gulf of Maine.
- NERACOOS will create a pilot annual climate change report for the Gulf of Maine region to keep folks focused on the progression of drivers of change and critical events. This new tool will aggregate and synthesize physical, chemical, and biological data into a prototype annual report to increase understanding of changes in the Gulf of Maine.
- Eastern Charlotte Waterways Inc. will bring research, academic, fishers, indigenous and other stakeholders together to address the impact of multiple climate stressors on the soft-shell clam industry in coastal Maine and southwestern New Brunswick. This effort will expand monitoring and transfer protocols developed by the Downeast Institute across international boundaries in an effort to increase resilience of this crucial fishery.
- Our Wicked Fish will host a two-day workshop that brings researchers together to collaborate and share data and results about how the impacts of climate change are affecting the seafood industry. This innovative approach will help develop a path forward for future research efforts while avoiding “survey exhaustion” among industry professionals.
- Products and Reports from GOM 2050. The Steering Committee is currently working on follow up products which are expected to include published scientific papers, presentations posted online, more detailed summary of priorities from the Working Sessions, meeting proceedings, and public outreach materials.

Gulf of Maine 2050 – Key Messages About How the Gulf of Maine will Change

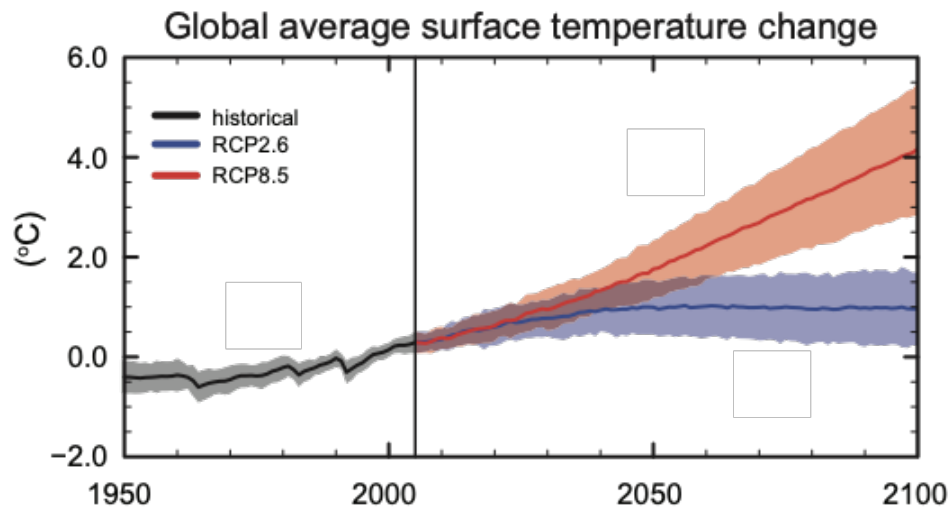
Sources: scientific scenario papers and associated presentations prepared to inform work at GOM 2050.

Copies of the papers and abstracts from presentations are available at www.gulfofmaine2050.org

Why 2050? 2050 marks the threshold between the inevitable changes to the climate system that we must prepare for and the even more challenging conditions that we will hopefully avoid.

Because of delays in the climate system, the difference in impacts between the high CO₂ (RCP8.5) and low CO₂ (RCP2.6) scenarios in 2050 is small, but beyond 2050, the variation between high and low emissions is stark: by 2,100 under high emissions, lobster fishing would not be viable, shell-forming organisms would be severely stressed, and sea levels would be more than 1 meter higher.

Global average surface temperature is predicted to change under RCP2.6 vs. RCP8.5 through 2100. RCP8.5 assumes a business as usual approach with low efforts to reduce carbon emissions – this path leads to greater temperature increases, more significant impacts, higher sea level rise, and need for more adaptation. RCP2.6 assumes significant new efforts to curb emissions by shifting away from fossil fuels, capturing emissions, and shifting to more sustainable modes of transport – this path would have less significant impacts and require a lower level of adaptation.



Temperature

Gulf of Maine waters are warming faster than 99% of the world's waters. We can expect a warmer, more stratified Gulf of Maine with altered circulation. Surface waters of the Gulf of Maine will continue to warm, from 1° to as much as 2.4°C above the 1975-2006 average. Projected impacts on socio-ecological systems include:

- Changes in productivity, community composition, and ecosystem services.
- Shifts in timing and occurrence of human activities.
- Changes and loss of traditional coastal activities, economies and culture.

Ocean Acidification

- The Gulf of Maine will be more acidic, but predictions are uncertain. Because ocean acidification responds quickly to CO₂, there is a big difference between emissions pathways. Interestingly, scenarios with less warming and more freshening are likely to be more acidic.
- Ocean acidification trends in the Gulf of Maine are masked by recent warming and changes to regional circulation that bring more Gulf Stream water into the Gulf.
- Corrosive conditions are presently observed in areas of high freshwater influence and subsurface zones.
- Increases in acidification will have a negative impact on commercially important fisheries such as lobster, clams and scallops, and oysters that are vulnerable to these conditions.

Sea Level Rise, Precipitation and Storms

- The Gulf of Maine will experience continued sea level rise, increasingly intense storm and wind events, and a highly variable climate.
- In 2050, water levels in the western Gulf of Maine from Massachusetts to New Brunswick are expected to be 19-27 cm higher while levels in Nova Scotia will be 24-32 cm higher.

Gulf of Maine 2050 – Cross-Cutting Priorities for Collaboration, Communications, Research, Policy and Management

Sources: priorities identified during facilitated Working Sessions, presentations, and panel discussions at GOM 2050.

These cross-cutting priorities relate to multiple drivers of change in the Gulf of Maine. A full summary of detailed priorities linked to sea level rise, storms and precipitation, coastal and ocean acidification, and warming waters is in the works.

Expand collaboration and sharing of knowledge, tools, resources, and strategies

- Among local communities
- Across jurisdictions
- Binationally between Canada and the US and with First Nations and tribes
- By looking internationally beyond our continent
- Collaborating across sectors is crucial - scientists, industry, government, NGOs and the general public
- Compile and share model ordinances
- Compile and share case studies for successful innovative research and adaptation projects

Improve communications and education

- Expand public awareness about current and potential future impacts and why they matter
- Develop communications that bridge the gaps between science and management
- To be effective, communications about climate impacts need to relate to local and regional communities
- Use straightforward language that the public can relate to
- Tailor communication products that translate scientific information for user needs
- Use 'stories' to communicate anticipated impacts of climate change
- Communicate the value of ecosystem services and the costs of inaction
- Replace 'doom and gloom' scenarios with a positive vision to promote positive solutions
- Improve climate change and earth science education for K-12
- Increase understanding of trade-offs, conflicts and conflict resolution
- Identify, highlight and share successful case studies for adaptive management strategies for species protection, and examples of community adaptation and mitigation efforts
- Increase the role of scientists in public communications about their work
- Engage meteorologists in communicating impacts of climate change to the public
- Understand how local citizens get most of their information and target outreach and communications to those sources

Policy and Management Actions

- Develop policies to address social equity and environmental justice
 - Communities facing significant negative impacts are often those least able to adapt

- Financial resources and actions are needed to protect vulnerable communities
- Engage and involve young people in policy and management decisions
- Integrate climate policies into all levels of government and departments
- Management policies need to be adaptive to changing ecosystems, species shifts, and dynamic environmental conditions
- Link local and regional policies to most recent climate research, forecasting, and knowledge coming out of IPCC
- Improve coordination between state and federal management strategies and policies
- Focus on forward thinking, adaptive management and preparation vs. disaster relief
- Increase funding to support implementation of management priorities and resilient communities
- Identify opportunities to improve the lag between policies and what's happening on the ground
- Identify opportunities to help fishermen implement on-the-ground changes
- Governments are not well prepared for the scale of climate change and associated impacts related to human health, communities, food security etc. – Improve links between science, communication and policy to support better planning
- Focus on extreme climate / weather events to inform limits to adaptation / survival
- Figure out how Marine Protected Areas, National Parks, and other conservation areas should adjust as the ecosystems they protect change
- Develop policies, management, planning and adaptation strategies that focus on 'grandchildren vs. grandfathers' – stop letting the past limit our ability to be forward thinking
- Come to terms with the uncertainty associated with climate change and the need to make good, forward-thinking decisions even while uncertainties remain

Research Priorities

- Collaborative research is needed to cross silos - integrate social science, economics and ecological impacts
- Expand the research and planning timescale out to 2100
- Develop 'real-time' data and reporting tools that can be used to inform adaptive management strategies
- Develop strategies for data collection and synthesis across various impacts, disciplines and countries
- Research the combined impact of all drivers on ecosystems, economy, and communities / combine models so that impacts are not being viewed in isolation
- Data collection activities should be strengthened by engaging and integrating research and data collection from citizen scientists and fishermen with more formal scientific approaches
- Integrate multiple impacts and wider oceanographic processes
- Expand research to promote understanding about impacts to other industries beyond fishing, such as tourism or other industries linked to natural resources
- Develop guidance about interpreting climate models and informing decisions within the framework of uncertainty
- Economic impact studies are needed to understand implications of climate impacts and inform cost / benefit analysis associated with adaptation efforts

Meeting Summary – NROC April 2, 2019 Meeting
New Hampshire Department of Environmental Services, Portsmouth, NH

Attendees

Susanne Altenburger, Gloucester, MA; Robert Ballou, RI DEM; Rick Bennett, USFWS; Leann Bullin, BOEM (remote); Jeremy Carter, NOAA; Erik Chapman, NH Sea Grant Program; Mel Coté, US EPA; Steve Couture, NH DES (NROC State Chair); Michele DesAutels, USCG D1 (remote); Ted Diers, NH DES; Lisa Berry Engler, MA CZM; Jennifer Felt, CLF; Kathryn Ford, MA DMF (remote); Darryl Francois, BOEM (remote); Adrienne Harrison, NOAA; Michael Johnson, Mashantucket Pequot Tribal Nation; Chris Kellogg, NE Fishery Management Council; Julia Knisel, MA CZM; Joan LeBlanc, NROC; Kathleen Leyden, ME Coastal Program / ME DMR; Regina Lyons, US EPA (NROC Federal Chair); Daniel Martin, NOAA; Ivy Mlsna, US EPA; Ru Morrison, NERACOOS; Nick Napolj, NROC; Becca Newhall, NOAA; Betsy Nicholson, NOAA; Larry Oliver, USACE; Eric Roberts, The Nature Conservancy (remote); Jeffrey Runge, University of Maine; Judy Talbot, Observer (remote); Brian Thompson, CT DEEP (remote); Prassede Vella, MA CZM (remote); Chris Williams, NH DES

NROC Executive Committee

Steve Couture provided an Executive Committee update regarding the status of NROC funding from: 1) FY2016 NOAA Regional Coastal Resilience Grant – NERACOOS, 2) FY2017 NOAA Coastal Resilience Grant – TNC, 3) FY2018 NOAA / NOS / NCCOS – NERACOOS, 4) Moore Foundation, and 5) Bureau of Ocean and Energy Management. Funding amounts, project descriptions and funding periods for these sources of funding are included in the meeting Briefing Packet at <https://www.northeastoceancouncil.org/library/>.

NERACOOS Update

Ru Morrison provided the following highlights regarding NERACOOS initiatives.

- *Observing System*: NERACOOS continues to fund observations, modeling, and data management efforts in the Gulf of Maine, Southern New England and Long Island Sound. New funding from NOAA IOOS has enabled NERACOOS to continue the deployment of nutrient sensors in the Gulf of Maine and deployment of gliders to monitor nutrients and baleen whale occurrences.
- *Integrated Nutrient Observatory Development*: The NERACOOS Integrated Nutrient Observatory project has officially come to a close. NERACOOS hosted a series of webinars in early 2019 that highlighted the successes, lessons learned and data collected by this technology transition project, recordings are available at: <http://www.neracoos.org/nutrients/resources>. Many of the nutrient sensors that were tested and deployed during this project will continue to operate with support from NERACOOS and EPA.
- *Northeast Coastal Acidification Network (NECAN)*: As a follow up from a series of webinars and workshops for citizen science monitoring in spring 2018, NECAN and the Education and Outreach Working Group will host ‘Shell Day’, a one-day citizen science monitoring event on August 22, 2019 that will generate a snapshot of coastal conditions in the Northeast from Maine to Long Island Sound. Steve Couture noted that Shell Day will be conducted in coordination with New Hampshire with lab work scheduled for August 23rd. Partners on the project include NECAN, NERACOOS, University of Maine and University of New Hampshire. For more information about Shell Day, contact project coordinator parker.gassett@maine.edu

The NECAN Industry webinar series was concluded in December 2018, all six webinar recordings are available on the [NECAN website](#) and NECAN is now planning for a new series in 2019. In late 2018, the Industry Working Group hosted a survey for industry members and is generating a survey report which will be shared with state and federal resource managers and funding agencies to help guide priorities for monitoring and funding in the Northeast. The NECAN Steering Committee is revising and updating the Implementation Plan which will be available in late 2019. To learn more about NECAN, contact Emily Silva at emily@neracoos.org. Information about ocean and coastal acidification is available at the OA Information Exchange, www.oainfoexchange.org or by contacting Julianna Mullen, julianna@neracoos.org.

- *Integrated Sentinel Monitoring Network (ISMN)*: ISMN, which is a joint project of NROC and NERACOOS, is moving forward with efforts as outlined in the [Science and Implementation Plan](#) to establish the Center for Analysis Prediction and Evaluation (CAPE). A more detailed update is being provided separately during the meeting by Jeffrey Runge.
- *Inundation and OA forecasting*: NERACOOS and partners were recently awarded two new grants. The first is from the IOOS Coastal Ocean Modeling Testbed program. The goal for this 3-year project is to deliver improved ocean and coastal inundation forecast products to key end users in the Northeast where severe weather events cause coastal inundation, flooding, erosion and other damages. The second award is from NOAA's National Centers for Coastal Ocean Science and NOAA's Ocean Acidification Program for development of a predictive model for ocean acidification thresholds in the Northeast. The team received 50% of the requested funding and will focus on developing but not implementing the model. Efforts began in the fall of 2018 for both projects and will include a significant stakeholder engagement component.
- *Regional Resilience Webinar*: NERACOOS, IOS, NROC and other partners will host a workshop on May 6-7, 2019 at the University of New Hampshire to look at ISMN / animal telemetry and tracking. For more information about the workshop, contact jackie@neracoos.org.

Northeast Sea Grant Consortium (NESGC) Update

Erik Chapman of NH Sea Grant provided an overview of current and recent activities from the Northeast Sea Grant Consortium. NESGC is focused on implementing projects on a regional scale. The Northeast region encompasses programs in Connecticut, Maine, New Hampshire, New York, Rhode Island, and Massachusetts (MIT and Woods Hole Oceanographic Institution). Sea grant focuses on promoting wise use and sustainable development of coastal and marine resources through a combination of research, education and outreach. One of the key roles of the consortium is to engage research scientists in each state in efforts to collaborate on regional problems. NESGC also helps to connect research expertise with end-users / stakeholders. Regional efforts include:

- Through a partnership between NE Sea Grant Consortium and NOAA Ocean Acidification Program, several research projects are focused on increasing understanding and impacts of coastal and ocean acidification on species such as lobster and mussels.
- \$2 million in research funds are being targeted to understanding the relationship between lobster and climate. Research applications are due on April 11. This regional initiative is focused on understanding the life history parameters, larval studies, early biology, and socio-economic lessons learned from southern New England. A related extension effort is focused on connecting stakeholders to current and past NOAA funded research.

- Several national funding opportunities have been issued to increase research on aquaculture. Areas of focus include - social behavioral and economic research needs, advancing aquaculture collaborative programs, and exploring new aquaculture opportunities.

Other ongoing activities include conducting site reviews, fielding proposals for biennial funding opportunities, and exploring new regional programming and research / extension efforts. Additional information about the NESGC and ongoing funding opportunities is available at:

<http://web.mit.edu/seagrant/pubs/northeast/index.html>. A copy of the meeting presentation is available at: <https://www.northeastoceancouncil.org/library/>

Gulf of Maine Council (GOMC) Update

Prasade Vella provided highlights regarding Gulf of Maine Council activities. GOMC is hosting a 2019 Awards Program to recognize individuals making a difference in the Gulf of Maine. Nominations are being accepted through April 5th. An awards reception will be held on July 10 in Halifax, Nova Scotia. For more info: <https://gulfofmaine.org/public/gulf-of-maine-council-on-the-marine-environment/awards/>. GOMC is co-hosting Gulf of Maine 2050, a 5-day international symposium scheduled for November 4-8, 2019, at The Westin Portland Harborview, in Portland, Maine. Partner organizations, including GOMC, GMRI, NERACOOS, RARGOM, and Huntsman Marine (New Brunswick), are working on planning and coordination of this event. In advance of the symposium, Huntsman Marine hosted a workshop during March 2019 to begin developing scientific scenarios for the major drivers of change in the Gulf of Maine over the next 30 years – warming waters, sea level rise, and ocean acidification. The symposium will include plenary speakers, breakout sessions, poster sessions, and expert presentations. A dedicated website for the event will soon be available soon at www.gulfofmaine2050.org and registration is expected to open in April 2019. There may be opportunities to create synergy between GOMC and NROC during planning of the symposium, particularly around the government perspective on mitigation of climate impacts. Information about these and other GOMC initiatives is included in the Briefing Packet for the meeting available at: <https://www.northeastoceancouncil.org/library/>

North Atlantic Landscape Conservation Cooperative (NALCC) Update

Rick Bennett, USFWS provided the following updates regarding the NALCC.

- *Northeast Region Priorities*: The Northeast Region established three categories of priorities for USFWS - supporting our Workforce; Connecting People to Nature; and Strategic Conservation. Specific areas of focus under Strategic Conservation include Landscape Conservation, Aquatic Connectivity, At-Risk Species and Coastal Resilience. More information is available at: https://www.fws.gov/northeast/pdf/NE_Region_Priorities_2016_and_Beyond.pdf
- *Science Applications/North Atlantic Landscape Conservation Cooperative*: Nationally, USFWS no longer provides dedicated staff, administrative functions and funding for the Landscape Conservation Cooperatives (LCCs), however, we continue to support efforts to gather data, identify and pursue science tools, and form and engage partnerships to address shared conservation priorities. Partners include federal, state and local government agencies, private landowners, conservation groups, industry, tribes and academic institutions. Science Applications (SA) will build on existing partnerships and emphasize State-Federal and Tribal-Federal co-led applied science acquisition and delivery on priority issues of joint concern. Efforts will focus on issues that cross jurisdictions of individual State Fish and Wildlife Agencies and Sovereign Tribal Nations respecting the individual and shared trust management authorities for wildlife species. Science Applications

will also collaborate internally with other programs to provide scientific support on priority science and landscape issues, and assist with guidance and support in the development of partnerships outside the Service. We will seek and fulfill the best opportunities to deploy SA staff and funding to support:

- collaborating with States, Tribes, and other partners on landscape conservation issues; science needs, and co-developed conservation solutions;
- addressing science needs of species-at-risk;
- regulatory streamlining, and species-at-risk management;
- agency wide data management; and
- other DOI and Service priority issues and their science needs.

Specific examples in the Northeast Region include:

- Partnering with 14 Northeast states through [Nature's Network](#), a regional conservation design focused on cooperative, landscape-scale conservation of at-risk species.
- In the Northeast, SA will coordinate species status assessment work internally and with states and partners, conservation outcomes for these priority species, including precluding listing under the ESA where possible, and they will serve as the catalyst for large-scale conservation coordination with states, landowners, and industry using the best science and information/data. Three species in particular (Wood turtle, Frosted elfin butterfly, Saltmarsh sparrow), are high priority for the Service and the northeast states. They are widespread and serve as surrogates for important habitat systems in the northeast (forested riparian, open canopy pollinator, and high coastal marsh systems respectively).
- Working peer to peer with state fish and wildlife agencies through the Association of Fish and Wildlife Agencies (AFWA) and the states' regional associations to identify shared priorities and science needs, coordinate actions, inform decision-making, and uphold our respective public trust responsibilities.
- Through AFWA, state fish and wildlife agency directors passed a resolution in September 2018 identifying guiding principles for landscape conservation partnerships and science planning that also recognized the special relationship between state agencies and the Service.

New England Federal Partners Update

Rick Bennett presented the following updates on behalf of the New England Federal Partners.

- [National Water Model](#) - regional meetings are being held on National Water model, a partnership with USGS, NOAA, and USACE, based at the National Water Center in Tuscaloosa, AL. Regional scenario workshops are being planned including one on the Penobscot Watershed, meeting is scheduled for May 8, 2019 in Bangor, ME. Contact: Ellen Mecray, ellen.l.mecray@noaa.gov
- [Drought/NIDIS - Northeast Drought Early Warning System, strategic plan](#)—implementation plan, activities—website, soil moisture—coordinator, hiring, drought.gov, US Drought Monitor. For more information, contact: Ellen Mecray, ellen.l.mecray@noaa.gov
- [Heat Health/NIHHIS](#) - October in-person meeting focused on decision-calendars and development of a new tool to overlay heat forecasts with health information on a county scale. The tool is being developed in a partnership between NOAA and CDC. Additionally, a webinar on heat health is scheduled for May 30, 2019. A model for heat-health website for North Carolina—[Convergence](#)—is the

goal for NOAA's work in the northeast. For more information, contact: Ellen Mecray, ellen.l.mecray@noaa.gov

- [South Atlantic Coastal Study](#) - Planning for coastal storm risk management, drawing on lessons from the North Atlantic Coast Comprehensive Study. Working with all states in footprint from NC through the Gulf of Mexico and Puerto Rico and territories. Focused on using the North Atlantic tools. Identifying areas that still need forward-looking plans. For more information, contact: Roselle Henn, roselle.e.henn@usace.army.mil
 - Future meetings will focus on topics such as developing strategic priorities and identifying opportunities for New England Federal Partners to work together during major storm events.
 - Mel Coté noted that the New England Federal Partners initially convened in order to provide coordinated federal input to NROC in 2006. The group later moved on to meeting on their own to discuss regional climate issues.

Increasing Resilience and Reducing Risk Through Successful Application of Nature Based Coastal Infrastructure Practices in New England

Eric Roberts of the Nature Conservancy provided an overview of this NOAA funded project being implemented by NROC, state Coastal Zone programs in Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut/the Connecticut Institute for Resilience and Climate Adaptation, and The Nature Conservancy. The project team has been refining the Draft New England Living Shorelines Monitoring Metrics and Protocols Guide. As initially conceived and drafted, the intent of the draft guide was to provide guidance to a range of audiences (from citizen scientists to state and federal permitting staff to professional staff in engineering, ecology, landscape architecture, etc.) on site characterization, as-built, and performance monitoring for a range of living shoreline project types. Although the current version of the draft guide has been useful to project partners while developing monitoring plans for the demonstration projects, the project partners determined that it would be too complex for a wider audience. Revisions are underway to align the guidance to specific living shoreline project types (e.g. coastal bluff, dune restoration, marsh restoration, etc.). Audience-specific products may be created in the future. Ongoing project team discussions will determine the set of common metrics to be collected across all projects of a specific type (e.g. marsh elevation change for marsh restoration projects), and common data points (e.g. ice observations, maintenance actions, etc.) that will be collected across all projects that are part of the regional project.

Demonstration project updates:

- [Maine and Rhode Island](#): Demonstration project construction had been anticipated for spring 2019 in both Maine and Rhode Island; however, longer than expected contracting processes delayed contractor selection and onboarding. Now onboard, contractors are advancing design tasks in both states. Pending permitting process timelines, construction of all three sites is anticipated by the late summer/early fall. Kathleen Leyden noted that Maine will likely need an extension for the project due to delays related to the unexpected requirement to prepare a QAPP.
- [New Hampshire](#): Permitting for Wagon Hill Farm in Durham, NH is nearly complete; construction is anticipated in spring 2019.
- [Massachusetts](#): Four projects in Massachusetts will be monitored using the regional monitoring guidance - Gray's Beach in Kingston, Collins Cove in Salem, Coughlin Park in Winthrop, and Duxbury Beach in Duxbury. The Gray's Beach and Duxbury Beach projects have been constructed. Spring

construction is anticipated for the Collins Cove and Coughlin Park projects. Julia Knisel noted that volunteers will be participating in a planting project for the Kingston site on April 24th.

- Connecticut: The Stratford Point Living Shoreline Project was constructed before the start of the current regional project. Wave data for two storms were collected and preliminary analysis of the data was presented at the Long Island Sound Conference in March.

Project partners continued to explore opportunities for publicly sharing the monitoring data once it is collected. Additional conversations were held with representatives of NERACOOS and The Nature Conservancy's Coastal Resilience Program to explore the possibility of housing the data on their websites (previous conversations occurred with NROC and MyCoast) or jointly creating a data sharing platform. Next steps for the project team include identifying the data sharing platform's intended audience and the minimum and desired functionalities of the platform. For additional information, please contact eric.roberts@tnc.org or jleblanc@northeastoceancouncil.org.

Key Points during Roundtable Updates / Announcements

- Adrienne Harrison reported that NOAA just completed a round of training in social science basics in the region with one more session set to take place on April 24th in Falmouth, MA. NOAA is currently evaluating other coastal training programs. NOAA also recently released a quick reference tool on meeting planning skills. Information about these and other training resources are available online at: <https://coast.noaa.gov/digitalcoast/training/>
- Becca Newhall noted that NOAA has identified funding for ME and MA for mosaic bathymetry for the Gulf of Maine. They are currently working to bring a contractor on board and will set up a technical advisory committee. The data will end up on the data portal.
- NOAA's ship - *Okeanos Explorer* (which uses SeaSketch) will be working off the continental shelf in the region this summer. Interest areas include seamounts, the shelf area, and northeast canyons. NOAA is looking for input to help inform this work.
- Susanne Altenburger, a representative of the Gloucester fishing industry, raised concerns about the need to focus on low or least carbon fisheries by modernizing the fishing and research fleet in Gloucester. For more information, contact Susanne at philbolger@comcast.net.
- Kathleen Leyden reported that Maine's new Governor Janet Mills who was inaugurated in January is focusing on putting together one large climate bill that encompasses numerous bills on various climate related issues ranging from greenhouse gases to sea level rise. Aquaculture continues to be a controversial issue in Maine – as a follow up to the proposal for a 40-acre aquaculture site in Waquoit Bay, DMR received a petition for rulemaking on aquaculture. Kathleen Leyden also noted that the USFWS has hired a new Gulf of Maine Program staff member Christopher Meaney.
- Betsy Nicholson reported that NOAA / NFWF expects to release the RFP for 2019 National Coastal Resilience Fund later today. Total funding will be \$29 million. Project level grants can focus on site assessment / design, final project design / permitting, or restoration and monitoring. To be considered, projects must benefit community resilience and protect and restore habitat for fish and wildlife. Betsy recommended that NROC consider this opportunity. Information about the program and RFP will be available at: <https://www.nfwf.org/coastalresilience/Pages/home.aspx>
- Regina Lyons reported that Deborah Szaro will continue as Acting Administrator for EPA Region 1 since the potential new administrator declined the position. EPA is also undergoing a reorganization in an effort to create similar divisions across all the regions. Following the federal shutdown, the FY19 budget included a minor increase. Most programs including the National Estuary Program were level funded.

Additional funding of approximately \$4 million for grants will go to a pass-through entity to run a competitive grant program. Funding for NEPs was eliminated in the President's FY20 budget. EPA is in the process of designating a regional dredge disposal site (Isle of Shoals North) for ME, MA, and NH. The proposal will be available for public comment later this spring or summer.

- Julia Knisel reported that Lisa Berry Engler has been appointed Director of MA CZM. In terms of ocean management planning, MA will conduct their 5-year update during 2020. A stakeholder survey has been initiated to refresh the process. CZM's climate team will add staff to expand municipal assistance.
- Michael Johnson of the Mashantucket Pequot Tribal Nation reported that he is focused on understanding and reducing potential impacts of increasing ocean activity and uses (especially wind energy) on tribal resources. He is also participating in NROC's Ocean Planning Committee meetings and working with EPA to develop a best practices document for tribal consultation.
- Larry Oliver provided updates regarding several regional projects. In Connecticut, the scope for the New Haven flood risk study has been reduced and will soon go to the public for review. New Haven Harbor feasibility study which involves a 78-acre salt marsh is being completed now. In Massachusetts, the Boston Harbor dredging project is continuing; materials are being used to cap industrial waste site. The Corps is currently looking at potential dredging Essex Harbor, MA. Town is interested in beneficial use by filling creek ditches in marsh. Looking at thin layer placement but there are concerns about putting this material onto marshes. In New Hampshire, the Hampton Harbor dredging project is moving forward. In Maine, driftwood and mulch are being moved off of the beach in Saco to protect plovers. All of the Corps' projects and inland reports now have to have a climate change assessment. The Corps is currently hiring a GS 13 Section Chief to head up environmental and cultural resources. For projects on tribal lands there is a cost share waiver – 50/50 for feasibility and 60/40 for implementation.
- Michele DesAuteles reported that USCG has reopened a position to focus on energy and marine planning. She will circulate the announcement.
- Brian Thompson reported that CT DEEP formally established and posted on the DEEP website a sea level rise projection in accordance with State law in January.
https://www.ct.gov/deep/cwp/view.asp?a=2705&q=607286&deepNav_GID=2022. On March 20, 2019, CTDEEP released a draft of the state's marine spatial plan for Long Island Sound, known as the Blue Plan. The draft will be available for a 90-day comment period and a final Blue Plan will be submitted to the state legislature for approval in the 2020 legislative session.
https://www.ct.gov/deep/cwp/view.asp?a=2705&q=607698&deepNav_GID=1635
- Steve Couture noted that NH's final report on road crossing assessments will be posted online at <https://www.des.nh.gov/organization/divisions/water/wmb/coastal/resilient-tidal.htm> later this spring. The project red listed 20 tidal crossings that need to be addressed. When factoring in sea level rise, the number of red listed crossings increases to 50.
- Chris Williams reported that the NH Coastal Program is currently rewriting wetlands bureau rules to incorporate science-based information in regards to sea level rise, living shorelines and vulnerability assessments.

Integrated Sentinel Monitoring Network (ISMN)

Jeffrey Runge of the University of Maine and the Gulf of Maine Research Institute provided an overview of the ISMN. Runge was recently appointed as ISMN Director. ISMN is a joint project of NERACOOS and NROC. The goal of the ISMN is regional facilitation of integrated, sustained observing across pelagic, benthic and

nearshore and estuarine ecosystems to inform ecosystem-based decision making. ISMN represents a broad consensus of scientists and managers recognizing that present monitoring activities are fragmented, leaving gaps in coverage of key ecosystem properties. ISMN was initiated in 2012 with formation of NROC's Ocean and Coastal Ecosystems Health Committee. Since then, a white paper, 'Integrated Sentinel Monitoring for the Northeast Region: Gap Assessment' was published in 2012, a steering committee convened and hosted regional workshops from 2013 to 2015, and the ISMN Science and Implementation Plan was published in 2016.

In 2018, with NROC funding, building of the infrastructure for the ISMN began. J. Runge was appointed ISMN director. With support of the NERACOOS staff, nominations were solicited for participation in the ISMN Oversight Committee, which will advise the director in the implementation of ISMN activities. The Oversight Committee will be formed this spring and will hold regular meetings initially to establish governance procedures for the Center for Analysis, Prediction and Evaluation (CAPE) and determine priorities for enhancement of present observing activities.

Through NERACOOS, the ISMN is engaged in convening the U.S. Northeast Biological Observations Workshop (at UNH, May 6-7), which will address regional observation needs and capabilities of the U.S. Animal Telemetry Network, the U.S. Marine Biodiversity Observing Network (MBON), and the Canadian Ocean Tracking Network (OTN). A data facilitation and management workshop is planned for later in the year. In December, 2018, NERACOOS submitted a proposal to the National Ocean Partnership Program (NOPP) entitled "MBON expansion into the Gulf of Maine: the NERACOOS/NROC Integrated Sentinel Monitoring Network". An award from NOPP would fund the development of the ISMN over the next three years, including enhancement of regional ecosystem observing, data management capability and a CAPE demonstration project predicting changes in North Atlantic Right whale distribution in relation to shipping and fishing activities. Further information about ISMN is available at:

<http://neracoos.org/sentinelmonitoring>. A copy of the presentation has been posted to the NROC website at <https://www.northeastoceancouncil.org/library/>.

NROC Ocean Planning Committee (OPC) - Draft Work Plan

Mel Coté provided background regarding the Ocean Planning Committee's transition in 2018 following the new federal Executive Order that eliminated the Regional Planning Body and pointed to Regional Ocean Partnerships, including NROC, as the appropriate forum for establishing and advancing regional priorities. In its re-established role, the OPC sought stakeholder input during 2018 to consider regional ocean planning and data priorities that were then sent to the federal interagency Ocean Policy Committee in December to inform the federal implementation of EO 13840. The OPC continues to provide a forum, information, and support for offshore planning activities and issues as they arise. Mel also noted that the committee is looking to recruit a tribal co-chair.

Nick Napoli provided an overview of the Draft 2019-2020 Work Plan for NROC's Ocean Planning Committee. The Ocean Planning Committee's current focus is advancing regional priorities for ocean planning and management as the Regional Ocean Partnership for the Northeast. The OPC's goal is to provide a forum, data and information, best practices, and opportunities to coordinate offshore planning, regulatory, and siting activities to improve ocean and coastal ecosystem health, enhance decision making, and ensure compatibility among human activities.

The OPC identified the following four strategies (with proposed activities) for working toward its goal to support and coordinate ocean planning:

1. Provide a regional forum for a broad range of interests to engage in offshore planning and management issues
 - Host two ocean planning meetings per year
 - Identify and advance regional ocean planning and management priorities
 - Establish work groups and subcommittees as needed
 - Enable and initiate discussions, forums, and workshops for emerging or important regional ocean management and planning issues
2. Engage stakeholders in the development of peer-reviewed geospatial data products characterizing human activities and ecological and cultural resources
 - Implement and update the 2019 NE Ocean Data Portal Work Plan – available online at: <https://neoceanplanning.org/wp-content/uploads/2019/03/Northeast-Ocean-Data-Portal-Work-Plan-3.25.19.pdf>
 - [Establish Regional Data Work Group to support and inform development and maintenance of the NE Ocean Data Portal](#)
3. Enhance existing regulatory and management processes with specific improvements around using best available information, coordination across jurisdictions, pre-application consultations, and engaging the public
 - Establish Best Practices Work Group to develop specific recommendations to advance best practices
 - Develop a set of potential best practices
 - Communicate and track the use of potential best practices
4. Determine long-term capacity and funding needs to support these activities and identify options to sustain the Northeast Ocean Data Portal and the capacity to support regional coordination around offshore management issues and ocean planning
 - Identify and secure funding to support the NE Ocean Data Portal and core ocean planning functions in the near-term
 - Identify potential funding and capacity for maintaining the Northeast Ocean Data Portal over the long-term
 - Identify potential funding and capacity for supporting ocean planning activities over the long-term

Following an overview of the draft Work Plan, Nick noted that Terms of Reference are currently being developed for the two new Work Groups. Steve Couture recommended that OPC be specific about needs to connection with ISMN. Nick noted that a subgroup focused on data for marine life / habitat could provide a good opportunity for coordination with ISMN. A copy of the draft plan is included in the Briefing Packet for the meeting available on NROC’s website at <https://www.northeastoceancouncil.org/library/>

NROC Ocean and Coastal Ecosystem Health Committee (OCEH) – Updates and Draft Work Plan

Steve Couture, Regina Lyons, and Becca Newhall provided an overview regarding activities and the draft work plan for NROC’s Ocean and Coastal Ecosystem Health Committee. Steve thanked Ivy MIsna for preparing the draft Work Plan and noted that OCEH is largely a committee of committees. To date, OCEH has functioned effectively on a virtual basis without in-person meetings. Steve noted that it may be time to

consider organizing an overarching meeting of all parties involved to check in on priorities, activities, and committee structure. Updates from OCEH Committees:

- *Integrated Sentinel Monitoring Network (ISMN)*. Jeffrey Runge provided an overview of ISMN structure and activities earlier in the meeting (*pp. 7-8 of this meeting summary*).
- *Northeast Coastal Acidification Network (NECAN)*. Ru Morrison provided an overview of NECAN activities and plans during the NERACOOS partner update (*pp. 1-2 of this meeting summary*).
- *Marsh Resilience*. Steve Couture noted that there are opportunities to build on OCEH's previous marsh resilience efforts by collaborating on topics related to marsh migration / tide gates. The committee is looking for opportunities to provide regional benefits by highlighting lessons learned, and identifying and addressing gaps in knowledge.
- *Habitat Classification and Ocean Mapping (HCOM)*. Becca Newhall reported that HCOM's lead organizations have changed. She thanked Maine for their leadership (Matt Nixon / Claire Enterline) and noted that ME will still be involved with implementing the work plan even though they are stepping down from co-chairing HCOM along with NOAA. Becca welcomed incoming leadership from Todd Callaghan and Dan Sampson of MA CZM and announced the following upcoming HCOM events:
 - May 10 - Webinar for CMECS on best practices for New England vs. National.
 - May 13 - Workshop on best practices for videography, NH DES, Portsmouth, NH.

Highlights from the Draft OCEH Work Plan

The overall goal of OCEH is to enhance region-wide coordination and collaborative actions on shared ocean and coastal ecosystem health priorities including those affecting water quality, habitats, and living resources and their derived social and economic benefits.

The committee has identified three broad strategies (and associated activities) for working toward its goal of protecting and restoring coastal and ocean ecosystems in the Northeast:

1. Support research and monitoring that enhances our understanding of ecosystem structure and function as related to human impacts, improves utility of social, economic and environmental indicators, and leads to effective EBM implementation
 - Implement the Integrated Sentinel Monitoring Plan for Ecosystem Change in Northeastern Ocean and Coastal Waters
 - Support Northeast Coastal Acidification Network (NECAN)
2. Strengthen regional coordination to promote efficiency and collaboration by building partnerships, sharing resources, and reducing redundancy of efforts and ensuring full public and professional participation in the decision-making process
 - Hold a virtual OCEH committee meeting
 - Promote regional marsh resiliency through coordination of marsh migration modeling, monitoring and restoration techniques and their use in the New England Coastal Zone Policy
 - Strengthen habitat classification and ocean mapping efforts in the Northeast
 - Strengthen resilient and coastal stormwater best management practices in New England
3. Facilitate the accessibility of data and decision support tools needed to support restoration, conservation, and resiliency of coastal habitats, through coordination, technical and financial assistance.
 - Establish a regional database of salt marsh surface elevation tables
 - Establish a regionally consistent methodology for salt marsh monitoring

Regina Lyons noted that the committee is looking for direction from states about what actions to pursue in order to strengthen resilient coastal stormwater best management practices in New England. The challenge is to figure out the appropriate niche for NROC so the work won't be redundant. Steve noted that federal agencies and states might consider collaborating on efforts to get Intensity / Duration / Frequency curves similar to those in NY. A copy of the draft plan is included in the Briefing Packet for the meeting available on NROC's website at <https://www.northeastoceancouncil.org/library/>

NROC Coastal Hazards Resilience Committee (CHRC) - Draft Work Plan

Julia Knisel and Adrienne Harrison provided an overview of Coastal Hazards Resilience Committee (CHRC) activities and highlighted the Draft Work Plan for 2019-2020. Committee updates include:

- Rick Bennet has been added to the committee membership
- CHRC will likely host committee call in August 2019 and February 2020
- CHRC is working to designate leads and involve multiple members in activity work
- The primary focus of the committee is Living Shorelines. The scope and number of activities is limited due to member involvement with living shorelines activities and NOAA CRG award with The Nature Conservancy

Highlights from the Draft CHRC Work Plan:

The overall goal of the CHRC committee is to build hazards resilience to impacts of coastal erosion, flooding, storms, and climate change through region-wide dissemination of data, tools, and case studies, as well as fostering collaborative actions.

The committee has determined two strategies (and associated activities) for working toward its goal.

1. Promote regional dialogue on broad-scale adaptation strategies for responding to the effects of sea-level rise.
 - Committee communications
 - Organize regional roundtable on an emerging issue related to coastal hazards assessment and management (potential topics include retreat, probabilistic modeling for SLR projections and developing guidance)
 - Develop regional funding proposals
2. Facilitate data acquisition and user-friendly tools to support planning for and responses to coastal hazards
 - Support regional efforts to advance green infrastructure and living shoreline management approaches
 - Leverage NERACOOS data, products, and services for coastal inundation observations and forecasting

A copy of the draft plan is included in the Briefing Packet for the meeting available on NROC's website at <https://www.northeastoceancouncil.org/library/>

Offshore Wind Overview and Discussion

BOEM Update

Darryl Francois of the Bureau of Ocean and Energy Management provided an update on the status of wind energy planning, leasing and development activities, and stakeholder engagement from the New York Bight to offshore Massachusetts with a look ahead to the rest of 2019. OCS Renewable Energy Authorization Process includes four phases – Planning and Analysis (2 years), Leasing (1-2 years), Site Assessment (5 years), and Construction and Operations (2 years +). Current offshore wind development activities in the Northeast include planning activities in the New York Bight to identify wind energy areas, and responding to New Hampshire's request for an intergovernmental renewable energy task force. There are eight commercial wind energy leases on the Northeast OCS. Construction and Operations Plans (COP) are under review for Vineyard Wind, South Fork, and Bay State Wind with surveys and additional COPs expected over the next year. Stakeholder outreach efforts include:

- NY Bight Transit Lane Workshop in March 2019 hosted by NYSERDA, NY DEC, and Responsible Office Development Alliance (RODA)
- An MOU with RODA, NOAA and BOEM to collaborate on communication efforts and identify research and monitoring needs for offshore wind and fisheries.
- USCG is conducting a port access route study focusing on fishing vessel traffic through RI and MA lease areas.
- Environmental studies in the Northeast including a whitepaper on Navigation Issues Related to Offshore Wind (expected to be posted to the BOEM website this spring), Offshore Wind Impacts on Tourism – 'What did we learn from the Block Island Wind Farm?', and Real-time opportunity for

Development Observations (RODEO) using the Block Island Wind Farm. A database of BOEM environmental studies is available at: <https://marinecadastre.gov/espis/#/>

Additional information is available at www.boem.gov. A copy of Darryl's presentation is available on the NROC website at: <https://www.northeastoceancouncil.org/library/>

Links to Ocean Planning Data, Process and Best Practices

Mel Coté and Nick Napoli highlighted potential links to ocean planning data, process and best practices. Offshore wind development intercepts with Ocean Planning Committee data. Many of the consultants are accessing the portal to get information about uses in potential development areas. NROC will be adding 'footprint' for Vineyard Wind to the Data Portal with links to Environmental Impact Statements for certain projects. This June, the Ocean Planning Committee will hold a meeting with a broad discussion on offshore wind. Links between the OPC's new Data and Best Practices Work Groups and needs related to offshore wind development will be considered. There are opportunities to learn from the experiences for developing Vineyard Wind.

Key Issues Raised by States and NROC Partners

- Steve Couture noted that NH is interested in RODEO as windfarms get developed. Steve asked about opportunities for existing groups like NERACOOS to house data from the observing systems. Darryl indicated that BOEM is looking for opportunities to collaborate so this would be considered. All of the data will be made public.
- Kathleen Leyden asked about how a potential interagency task force would proceed without a project to review. Darryl noted that a task force can be set up in two ways: 1) developer wants to gage interest in a lease, or 2) Governor reaches out to BOEM to request convening of a task force to see if there are areas suitable for development for offshore wind. NH Governor did reach out. BOEM is reaching out to ME and MA as neighboring states because industries that operate offshore in one location may impact another state.
- Michael Johnson asked for clarification about whether the Southfork's project is one or two lease spaces. Darryl noted that Revolution and Southfork are proposed to be on the same lease. He will follow up with additional details.
- Suzanne Altenburger raised issues regarding environmental impact of vibrations from turbines on habitat and marine life. Darryl noted that leases are issued for a specific activity with a focus on renewable energy from wind. Regarding engineering aspects – BOEM doesn't prescribe certain foundations. Developer has to identify options based upon site geology, wind resources, etc. While there may be some environmentally beneficial aspects, developer choice is based on optimization of energy production.
- Ru Morrison noted that one of the technologies used to monitor offshore wind has a negative impact on search techniques used to measure currents etc. If a large area is covered by wind turbines, it reduces the ability to conduct efficient search and rescue missions. There has been some work to determine impacts, but most are uncertain. Rotors interfere with coastal high frequency radar technology with offshore wind currents used by coast guard and others for spill response and for search and rescue. BOEM is aware of these concerns and is working with agencies (homeland security, DOE and others) to understand, mitigate and minimize these problems. BOEM is also looking at potential impacts on air traffic.

- Mel Coté noted that merging the RI and MA task force was a best practice and asked about whether NH and ME would coordinate efforts. Kathleen Leyden indicated that she wasn't sure if Governor Mills would request a task force. Current focus in Maine is on getting a University of Maine pilot project up and running but the issue is heating up with Maine fishermen already raising concerns. Steve Couture noted that NH didn't request multiple states.
- Bob Ballou asked about how cumulative impacts across multiple areas are being addressed, noting that it will be a challenge to keep up with the science on this. Darryl reported that BOEM is drafting a white paper now to provide a broad overview of issues (to be completed this year). The paper will address issues such as combined impacts, concerns about vessel impacts, and impacts on all of the resources in the area to support NEPA analysis. Mel Coté noted that cumulative impacts will also be discussed during the Ocean Planning Committee meeting as there are many competing uses. Betsy Nicholson noted that NMFS is also focused on understanding cumulative impacts on the natural resources.
- Michael Johnson noted that leases are open to any kind of energy exploration. Tribes have concerns around fish farming and other uses that could impact sustenance fishing.
- Steve Couture asked about whether regional task forces have increased focus on regional impacts. Darryl noted that regional task forces generated with RI and MA area seen as a model for moving forward. This task force recognized that maritime interests, fishing, natural resources are much broader than just in one area. One of the goals is to create 'fairways' so that mariners know that there will be no obstruction in certain areas. It is an ongoing challenge to incorporate cumulative regional impacts into early planning and final review process.
- Regina Lyons noted that wind energy is a major factor for EPA air permitting folks and they should be engaged early in the planning discussions.
- Kathleen Leyden noted concerns about state capacity issues and the need for funding to help with these complex permit reviews.
- Michele DesAuteles noted that she would be willing to follow up on USGS port access studies during a future NROC call.

Meeting adjourned at approximately 3:00 PM

Meeting summary prepared by Joan LeBlanc, NROC Coordinator

*Briefing Packet and presentations are available under Council Meeting Materials at:
<http://northeastoceancouncil.org/library/>*