Meeting Agenda • January 28, 2009 • EPA Lab in North Chelmsford, MA

9:30 AM	**Welcome & Passing of the Rock** Kathleen Leyden of the Maine Coastal Program and Mel Coté of US EPA accept 2009 chairmanship.
9:40 AM	**Quarterly Updates** *Kathleen Leyden, Maine – State Chair* Quarterly updates are intended to provide Council members with information on recent NROC activities, state or federal initiatives of interest, and other items of regional significance. The Council is encouraged to review the updates and come to the meeting with questions, suggestions for NROC action, etc. Approximately 20 minutes will be set aside for discussion of updates at each meeting. *Please review items before the meeting.* Content: ▪ Northeast Coastal Hazards Resilience Workshop – Results and Next Steps[Page 3] ▪ CZ09 Sessions [Page 4] ▪ Changes in NROC Membership [Page 5] ▪ NERACOOS Update from NROC Representatives [Pending] ▪ Sea Grant Research Plan Summary [Pending] ▪ Interagency Climate Change Workshop [Pending]
10:00 AM	**Appropriations Strategy Update** *Kathleen Leyden, Maine – State Chair* Desired decision(s) or other outcome: ▪ Councilors are aware of appropriations strategy timeline and commit to implementing strategy. Content: ▪ Review appropriations strategy and timeline for state and federal action *Materials: 2010 Appropriations strategy* [Page 6], *2010 Appropriations Congressional Request* [Page 8], NROC One Pager [Page 17]
10:35 AM	**NROC 2009 Work Plan Activities** *Committee Chairs* Committees will report out to NROC members on activities for 2009. Committees will be asked to report back to NROC on their progress with highlighted activities at the Spring meeting. Desired decision(s) or other outcome: ▪ Councilors are aware of what the committees will work on and have offered suggestions of people/organizations that need to be involved. ▪ Councilors provide information on efforts that support work plan activities for Committees to engage Content: ▪ Committee leads highlight activities from final work plans slated for action in 2009 ▪ Review Committee rosters and request suggestions for organizations/individuals that need to be involved on Committee and with activities *Materials: NROC Work Plans (Available on website)*
11:30 AM	**Timeline Review** *Mel Coté, EPA – Federal Chair* Review timeline and flow of activities for the year. *Materials: Gant chart* [Pending]

12:00 PM	**Lunch** Please feel free to bring your own lunch or money for a lunch order.
12:45 PM	**LiDAR Discussion** Susan Russell-Robinson, USGS This session builds upon the strong need expressed by NROC members and partners within the coastal community for consistent, comprehensible and easily accessible high-resolution elevation data. NROC participants will learn about (1) NH/ME LiDAR proposal included in NROC appropriations request (see document submitted by Cameron Wake) (2) NE Airborne LIDAR Workshop, May 5-7, 2009, Woods Hole Massachusetts (3) Efforts to identify existing NE LiDAR data repositories Desired decision(s) or other outcome: ▪ Confirm state interests in regional LiDAR dataset ▪ Agree to send appropriate staff to LiDAR workshop in Spring ▪ Recommend speakers and participants for LiDAR workshop ▪ Discuss process for setting NE LiDAR acquisition priorities *Materials: LiDAR Proposal from UNH and Great Bay NERR* [Page 19]*, USGS LiDAR workshop description* [Page 21]
1:45 PM	**NROC Activities and Perspectives in Climate Change** *David Russ, USGS* Desired decision(s) or other outcome: ▪ Council members are aware of other New England climate initiatives including responses to the NEGC Climate Resolution and the Federal Partners Interagency Climate Workshop. ▪ Council agrees on role of NROC in facilitating a regional strategy for coastal climate adaptation ▪ Partner with NEGC and support climate interests related to coast ▪ Major regional players, opportunity for NROC to explain what we're doing, esp re hazards. ▪ GOMC climate network activities Content: ▪ Updates from regional climate initiatives ▪ Outline NROC's role in climate change response and adaptation based on other regional efforts ▪ Review and discuss draft NROC statement on climate change including advantages/disadvantages of having a statement ▪ Opportunity for integration of regional climate efforts *Materials:* GOMC Climate Network update [Page 22], *NEGC Resolution on CC* [Page 23], *Partner updates* [Page 25]*, Revised NROC statement on climate change* [To be distributed at meeting]*,*
3:20 PM	**Closing Business** *Kathleen Leyden, Maine - Chair* ▪ Next meeting date and location
3:30 PM	**Adjourn**

Northeast Coastal Hazards Resilience Workshop – Results and Next Steps

Submitted by Ron Rozsa, Susan Russell-Robinson, and Adrianne Harrison

Approximately 60 federal, state, and local hazards professionals attended a Coastal Hazards Resilience Workshop sponsored by NROC's Coastal Hazards Resilience committee and the NOAA Coastal Services Center. Elements of coastal resilience were introduced and discussed as well as opportunities for regional collaboration around each element. The workshop participants identified four primary roles for NROC in regional coastal hazards resilience action.

1. Convene partners to advance hazard resiliency. NROC is positioned to facilitate regional communication around coastal hazards resilience.
2. Develop regional coastal hazards resilience message. NROC has expertise to lead effort in developing shared messaging for regional consistency when discussing hazards resilience.
3. Develop information network. While NROC does not have the capacity to develop and house an information network, NROC can facilitate the development of a coastal hazards resilience community of practice and work with regional partners to develop the technical requirements for an information network.
4. Advocate for funding. NROC is positioned to work with state and federal funding sources to support building coastal hazards resilience capacity in New England.

The workshop proceedings are available on the NROC website under the Coastal Hazards Portal.

CZ09 Session Update

Submitted by Adrianne Harrison

The preliminary program for the Coastal Zone 2009 Conference in Boston, MA includes three sessions devoted to region ocean governance discussions. These sessions will highlight NROC, the Gulf of Mexico Alliance, the West Coast Governor's Agreement, and several other regional entities as an example of governance structures developing in the US. The three sessions are summarized below:

1. Challenges of Regional Collaboration - The purpose of this two and a half hour conversation is to bring together representatives from the full spectrum of regional ocean governance initiatives: from the more mature efforts in the Great Lakes and Gulf of Maine to the active efforts in the Gulf of Mexico, West Coast, Northeast, Puget Sound and the Chesapeake, and finally, the newer alliances in the South Atlantic and Mid-Atlantic, as well as others. We invite representatives of these efforts and their partners to discuss the specific challenges with working across geographic, cultural, political and agency jurisdictions, as well as to develop strategies for moving forward with regional or ecosystem scale alliances. *Note: NROC is the actual host for this session and will be asking for support from members to organize and facilitate this session.

2. Lessons Learned Comparative Panel – The purpose of this one and a half hour panel is to bring together representatives from the four regional ocean governance groups formed in response to the US Commission on Ocean Policy Report (West Coast Governors Agreement, Great Lakes Commission, Northeast Regional Ocean Council, and the Gulf of Mexico Alliance) to share lessons learned. This panel will ask each group to describe their structure, process for mobilizing to action, and outcomes of the partnership.

3. Ocean Governance in Practice – The purpose of this one hour panel is bring together representatives from ocean governance groups not included in the comparative panel that can offer lessons learned and new approaches as regional efforts continue to grow around the country. This session will include groups from outside the US.

The official CZ09 technical program will be available in late March.

Changes in NROC Membership for 2009

Submitted by Adrianne Harrison

The Executive Committee would like to update the Council on several changes in membership for 2009.

1. Due to staff changes, Deerin Babb-Brott will serve as the Council member for Massachusetts' Executive Office of Energy and Environmental Affairs. Bruce Carlisle and Julia Knisel will serve as alternates. Greg Watson remains the second Council member for Massachusetts.

2. Due to budget limitations, Vermont will not be sending a representative to quarterly Council meetings. Vermont will continue involvement at the Standing Committee level. Additionally, the Executive Committee will communicate with Vermont through quarterly updates on NROC's progress and upcoming activities.

3. Due to staff changes, the Minerals Management Services NROC participant will be Bob LaBelle with Erin Trager serving as the alternate and member of the Energy committee.

The NROC roster for 2009 will be updated to reflect these changes.

****Additional quarterly updates will be supplied in an addendum on Monday, January 26th.**

2010 Appropriations Strategy

Submitted by Kathleen Leyden

Garnering Support for NROC

NROC's strategy to garner support for the Council's work plans includes:

- Securing cash and in-kind support (e.g., state, federal, non-profit) for 2009 work plan tasks;
- Pursuing a coordinated NE approach through the NE Governors to obtain 2009-10 support from Congress; and
- Working collaboratively with regional programs around the country to raise the visibility and possible role of regional ocean governance programs.

Executive Committee Recommendations: Actions Required/Desired Outcomes

1. Finalize and approve in concept the Appropriations Request (see attached) and secure commitments by RI, NH, Maine and Connecticut to work closely with their key members of Congress on this request.
2. Finalize and approve 1-page NROC statement of priorities. Direct it be laid-out and posted to the web site.
3. Request the ad-hoc Appropriations Committee (Leyden, Diers, Carlisle, Nicholson, Geiger) to implement and manage sections A-E below of the Appropriations request including a January to June roll-out strategy, development of an "elevator speech on NROC and the Governors' request", and consultation with federal agencies and programs affected by request.
4. Create a list of federal agency actions to raise the NROC profile with the Obama Administration and identify agenda items for the Federal Partners February 2009 conference call.

I. Secure 2009 support

In January 2009 the Council will act on the three Committee work plans and request the committees to advance some items in 2009 with in-kind and grant support. (This item will be discussed in a separate agenda item on 1-28-09.)

II. Pursue New England approach (for funding in March 2010 and beyond)

NROC needs to pursue a NE approach, in collaboration with the Gulf of Maine Council (GOMC), to secure the resources it needs to implement its work plans. This would entail:

A. Seeking Congressional assistance – NROC and GOMC have developed a 2009-2010 NE Governors' request to Congress to implement pertinent sections of the three committee work plans. Note: Consultation with affected federal agencies (e.g., NOAA, DOI, etc.) and programs (e.g., Sea Grant, Joint Hydrographic Center, etc.) needs to be completed.
B. Signatories – NROC has spoken with NEGC. Maine's Governor Baldacci is the current NEGC chair and should circulate a draft letter to his fellow governors containing the request that he would sign on behalf of his colleagues. (State representatives need to notify their Governor's Office this request is coming -- remind them the Governors' created these organizations (e.g., NROC and GOMC); describe the purposes of these interstate efforts; alert them of the pending Congressional request & timing; and request timely Governor's Office consideration when the request arrives in their office.)
C. Timing – It will likely take 30-days for a letter to be approved by the Governors and signed by Baldacci. NROC then needs to develop and implement a January to June roll-out strategy.
D. Connect with House Members – A lynchpin in our strategy is to enlist the support of House members and encourage them to communicate with:
    - Rosa Delauro (9-term Democrat from New Haven, Connecticut) – She serves on the House Appropriations and Budget Committees. She is chairwoman of the Agriculture-FDA Appropriations Subcommittee and is a member of the Labor-Health

and Human Services-Education and Commerce-Justice-Science Appropriations Subcommittees. (This latter committee oversees NOAA's budget.) (202-225-3661 Ivery.Pakulis@mail.house.gov)

- Patrick Kennedy (6-term Democrat from Rhode Island) – He serves on the House Appropriations Committee and the Subcommittees on Labor, Health and Human Services, and Education, and on Commerce, Justice, Science. (202-225-4911 Rachel.Bornstein@mail.house.gov)

These two members need to hear from their colleagues via a note or conversation about the importance of this work. Of special importance is for state staff from Connecticut and RI to connect with staff from their respective Appropriations member's office (see above) and encourage them "to do the right thing".

E. Connect with Senators – There are three key members:
   - Jack Reed (10-years in the Senate – Democrat in Rhode Island) – He serves on the Appropriations Committee and a number of subcommittees including Commerce, Justice, and Science. (202-224-4642 Kristen Sari is lead staff on ocean issues)
   - Sheldon Whitehouse
   - Susan Collins (Republican -- Senate Appropriations Committee)
   - Judd Gregg (Republican from NH) – He serves on the Appropriations Committee and the Subcommittee on Commerce, Justice, Science and Related Agencies. He is a long-standing advocate of regional initiatives. For example, as Governor he helped to create the Gulf of Maine Council. (202-224-3324)

F. Seeking Administration support – Federal agency staff on NROC can work within their agencies to promote NROC priorities, allocate staff time to work on activities in the committee work plans and work with agency staffing drafting 2010-12 budgets to incorporate support for NROC.

   In late January –early February the Appropriation's sub-committee and federal representatives with NOAA and DOI needs to further engage respective programs that may be affected by this request and to ensure the request is integrated with ongoing, parallel activities.

III. Collaborate with regional governor's programs in other parts of the country

Commencing in November 2008 NROC led an initiative to develop a 1-page statement on the importance of interstate ocean governance programs with four Governor's efforts around the country. This is now final and will be used by the regions with their members of Congress, presented to the Obama Administration, and distributed at national events (e.g., testimony on the Hill, Joint Ocean Commission events, etc.).

2010 Appropriations Request
Submitted by Kathleen Leyden

Formed in 2005 by the six New England Governors the Northeast Regional Ocean Council is a state – federal partnership that addresses ocean and coastal issues that require or significantly benefit from a regional response

Formed in 1989 by the Governors and Premiers of the states and provinces bordering the Gulf of Maine the Council is an US-Canadian partnership of government agencies, non-government organizations, and business interests. It works to maintain and enhance environmental quality in the Gulf of Maine for sustainable use by current and future generations.

Priority ocean issues: responding to climate change, energy and ecosystem health issues

New England Governors' Request for Congressional Assistance: October 2009 to October 2010

Introduction

This request is based on the 2007 ***New England Governor's Coast and Ocean Action Plan*** and the Northeast Regional Ocean Council's (NROC) 2009-2010 work plan. The plan describes collaborative, interstate actions that address three regional priorities – ocean and coastal ecosystem health, ocean energy planning and management, and coastal hazards resilience. (http://community.csc.noaa.gov/nroc/) This request also supports the 20-year US-Canada partnership lead by the Gulf of Maine Council (GOMC). It is guided by a 2007-2011 Action Plan (www.gulfofmaine.org)

Summary

Activity/Task	Potential Recipient/Entity to Perform the Work		
	NROC/GOMC	Federal Agency	Total
1. Improve federal and state policy, planning and regulatory decision-making	$ 125,000	$ 200,000 $1,500,000	$ 325,000

• Enhance data management • Address priority coastal & ocean research issues • Respond to managers needs for LiDAR and seafloor mapping		$2,700,000	$1,500,000 $2,700,000
2. Develop a New England ocean governance framework	$ 350,000		$ 350,000
3. Improve decision-making about ecosystem health	$ 465,000		$ 465,000
4. Work at the community level to adapt to climate change & sea level rise	$ 350,000		$ 350,000
5. Strengthen our response to renewable and traditional energy activities	$ 100,000		$ 100,000
Totals	$1,390,000	$4,400,000	$5,790,000

1. Improve federal and state policy, planning and regulatory decision-making		
Work Plan Activity	Deliverables	Amount
A. Enhance data management (OCEH #5, CHR #2, OEPM #1) Coastal and ocean decision-makers need access to physical, biological, chemical and geologic information and metadata for existing datasets. Actions: 1. Accelerate the data management activities of the Northeastern and Mid-Atlantic Regional Associations of Coastal and Ocean Observing, COIN Atlantic and the Ocean Data Partnership. 2. Develop data delivery tools responsive to managers needs including implementation of the prototype web-based GOM Habitat Monitoring Data System (HMDS). This system enables the sharing, integration, and use of coastal habitat monitoring data. It provides standardized data entry, centralized data storage, synthesis and dynamic visual display of coastal and estuarine habitat monitoring results from around the Gulf of Maine. It enables monitoring programs to safely store their data, while facilitating simultaneous use of information from multiple sources. The data can be displayed in maps, graphs, and reports that describe habitat conditions and trends regionally and at individual sites. The HMDS data synthesis and visualization tools provide answers to two questions of importance to resource managers: (a) what are "natural" (i.e. reference) conditions of critical habitats in the Gulf of Maine and (b) how do habitats change over time following restoration activities relative to reference conditions?	• A regional, consensus-based schema for data interoperability • A network of regional data providers with metadata registered in a national directory (GCMD, FGDC, or GeoConnections) with robust, searchable discovery metadata that can be accessed through portals on the Global Change Master Directory • Functional Habitat Monitoring Data System	$200,000 (Federal program to perform the work) $125,000 (GOMC)
B. Address priority coastal & ocean research issues (OCEH #6) It is timely to commence implementation of the 2009 Regional Ocean Science Plan that focuses on climate change, human health and human activities as they relate to the ocean; coastal resiliency; and management and governance. Actions: 1. Support the New England Sea Grant Programs and the scientific community in	• Peer-reviewed research that responds directly to priority coastal and ocean management issues in New England	$1.5M (Federal program to perform the work)

responding to the most pressing ocean and coastal research needs of the management community.		
C. Respond to managers needs for high resolution LiDAR and seafloor mapping (OCEH #4 , #5, #6; CHR #2; OEPM #1) <u>High Resolution (LiDAR) Mapping</u> Accurate, high resolution surface elevation data support a variety of public and private sector needs. Elevation data are available at various resolutions that are often inadequate to support priority coastal decision-making. LiDAR (Light Detection and Ranging) can provide seamless high resolution (1- to 3-m spacing) elevation data over large spatial areas. In 2009, NROC will determine the regions LiDAR priorities and costs. Actions: 1. Advance the LiDAR coverage of New England by supporting a mapping project in New Hampshire and southern Maine. This project will 1) help to better define requirements and costs associated with the acquisition, processing, management, and distribution of LiDAR data; 2) enable a thorough analysis of diverse user needs to ensure the data products are useful for multiple purposes; and 3) demonstrate ways the data can be used as the basis of advancing community resilience to the impacts of climate change. <u>Seafloor Mapping</u> There is increasing urgency to reduce green house gas emissions through the development of alternative energy in ocean environments. Human uses of the seafloor are growing rapidly in variety and intensity, as population expands, technologies develop, and new economic activities emerge. Trawling, dredging, aquaculture, mining, fiber-optic and electric power cables, oil and gas pipelines, wind farms, and other activities can affect seabed habitats, which support a diversity of animals and plants. Successful management of these activities (e.g., balance ecological impacts and conflicting uses, etc.) requires comprehensive maps of seafloor characteristics. While some mapping is being done with federal and state resources less than 50% of the offshore area is currently mapped.	• LiDAR maps for coastal communities (i.e., towns with elevations below 10 meters), LiDAR data with 1-meter point spacing and 9 cm RMSE vertical resolution would support 1-foot contours within the gradual topography of the coastal zone) in the NH seacoast and southern Maine (York to Casco Bay)	$1.2M (Federal agency or program to perform the work) $1,500,000 (Federal agency

Actions: 1. Produce high resolution bathymetric, geological, and ecological seafloor maps for designated priority areas to support sound alternate energy facilities, identification of suitable routes for cables and pipelines, to identify ecologically significant habitats, and assist states that are implementing ocean management programs.	• High resolution bathymetric, geological, and ecological seafloor maps	or program to perform the work)
	Sub-total	$4,525,000

2. **Develop a New England ocean governance framework**		
Work Plan Activity (OCEH #4 & OEPM #2)	Deliverables	Amount
The coastal and ocean sectors of New England's economy are significant contributors to the region's Gross Domestic Product. To both protect and grow the New England economy the states will engage public and private interests in the development of a governance framework that is based on a core set of mutually agreed on goals, objectives and assumptions about current conditions and the future. This initiative assumes that there will be differences within and among each state but that it is a key step in strengthening regional ocean stewardship. Actions: 1. Create highly collaborative approach to sustained engagement of public and private interests; 2. Establish marine spatial baselines (e.g., determine the time frame for planning, describe current uses and demands for space, document economic and environmental conditions and threats, define key values of the marine area, etc.); 3. Create governance framework (e.g., define general goals and objectives for the marine environment, develop general decision-making processes, create alternative use scenarios, describe the significance of each spatial sea use scenario for the different functions and activities in the marine area, evaluate each scenario, etc.); 4. Broaden engagement (e.g., develop and implement extensive communication and outreach tools, etc.)	• Quantitative and qualitative baseline information on New England's coastal and marine environment; • A ocean governance framework for New England marine waters; • Significant and sustained engagement of public, non-profit and private interests	$350,000 (NROC)

3. **Improve decision-making about ecosystem health**		
Work Plan Activity (OCEH #8)	Deliverables	Amount
State legislators, agency decision-makers, members of Congress and the region's Governors need ongoing access to information about the condition and trends of New England's coastal and marine environment. Actions: 1. Produce & disseminate New England specific communications and outreach materials that describe the conditions and trends of the coastal and marine environment.	• Web and print materials (e.g., fact sheets, brochures, reports, etc.) • Meetings and work sessions	$40,000 (NROC)
2. Accelerate state of the environment reporting in the Gulf of Maine Actions: • Complete the compilation of indicator datasets, display this information via the web and other communication tools, and assist the target audiences through training and education efforts through the Gulf of Maine Times and other mechanisms.	• Indicators of ecosystem health by the Ecosystem Indicator Partnership (ESIP) • State of the environment materials • Training sessions for target audiences • Production of two editions of the GOM Times	$300,000 (GOMC)
3. Support implementation of the Gulf of Maine Environmental Monitoring Plan by conducting Gulfwatch -- a monitoring program (circa 1991) that measures chemical contaminants in blue mussels, Mytilus edulis, to assess the types and concentration of contaminants in the near-shore marine environment. Disseminate the results to managers, the media and decision-makers. Actions: • Collect, process, prepare mussels for shipment; deliver all samples to respective labs for analysis; review all trace metal analytical results,	• Produce annual data report on chemical concentrations • Produce and disseminate outreach and communication materials for managers	$125,000 (GOMC)

morphological measurements; tabulate data; report out results; engage managers and other users via communication and outreach		
	Sub-total	$465,000

4. **Work at the community level to adapt to sea level rise**		
Work Plan Activity (CHR #1)	Deliverables	Amount
The NE states need to expedite climate change scenario planning to enable state agencies and municipalities adapt to identify vulnerabilities and then to devise specific implementation approaches for adaptation. In addition, it is timely to accelerate on-the-ground action by municipalities that are adapting to rising sea levels by supporting the approach of No Adverse Impact (NAI). It is a forward-thinking, fair, and legally defensible approach to coastal land management. In its broadest sense, it is a set of "do no harm" principles that communities can use when planning, designing, and evaluating public and private projects. By following the NAI approach and leveraging ongoing activities (e.g., StormSmart Coasts, etc.) communities can protect people, property, ecosystems and municipal budgets. Through this regional initiative NROC will showcase successful adaptation strategies, strengthen networking and communication among the coastal hazards community in New England, and make measurable progress in addressing the adverse effects of rising sea levels. (This activity also advances the New England Governors' Conference 2008 resolution concerning "Climate Change Adaptation".) Anticipated project partners include state emergency management officials and professional associations, FEMA, local governments and associations, etc. Actions: 1. Select one community-based competitive proposal in each of the five states. (Examples of selection criteria include history of vulnerability, urban vs. rural, demonstrated community commitment to addressing sea level rise issues, willingness to work with other communities in NE, likelihood of measureable reduction in sea level rise exposure, etc.); 2. Provide the services of technical experts directly to the communities to conduct	• Five pilot projects at the municipal level that demonstrate how to implement successful adaptation approaches to sea level rise; • Dissemination of adaptation techniques, case studies and other resources that enable other communities to act;	$300,000 (NROC) $ 50,000 (GOMC)

inundation scenario planning and to identify the role of federal, state and municipal governments as to their specific roles in implementing their proposed adaptation strategies. Anticipated examples include: hazard mapping & vulnerability assessments of public infrastructure that enables community action, develop and implement regulations and development standards, etc. 3. Enhance communication among state and federal hazard resilience initiatives that results in these efforts better able to implement sea level rise adaptation strategies; 4. Create ongoing communication among the communities to share lessons-learned and innovative approaches. 5. Promote successful community adaptation responses via the NROC webpage, the GOM Council Knowledgebase, stakeholder workshops in coordination with the Maritime provinces, distribution of written materials, conferences, etc.		
	Sub-total	$350,000

5. Strengthening our response to renewable and traditional energy activities		
Work Plan Activity (OEPM # 4)	Deliverables	Amount
The planning, permitting and operation of renewable and traditional energy projects is a top priority for New England. Considerable information and experience in assessing renewable ocean energy facility development and design is accumulating through pilot project implementation and full-scale project planning. However controversies and uncertainties remain regarding how to balance renewable ocean energy resources development with existing and traditional uses of the marine environment. New England specific methods for assessing the environmental and socio-economic impacts of renewable ocean energy resource development will address these uncertainties and controversies. Actions: 1. Develop voluntary guidelines for assessing environmental and economic impacts, use conflicts, and safety concerns when siting and designing coastal and ocean energy facilities, including recommendations for critical data, its collection, archiving, and analysis. These guidelines will address the differences between offshore renewable electric generation facilities (wave, wind, and tidal), and fossil	• Voluntary guidelines for assessing environmental and economic impacts, use conflicts, and safety concerns when siting and designing coastal and ocean energy facilities • State and regional meetings to disseminate guidelines	$100,000 (NROC)

fuel facilities such as liquefied natural gas terminals, cables and pipelines, as well as incorporate climate change and sea level rise considerations. 2. Disseminate guidelines via the web, print materials and meetings/workshops.		

NROC One-Pager
Submitted by Kathleen Leyden

"Reaching across jurisdictional boundaries to solve the regions most pressing ocean and coastal issues"

Maine, New Hampshire, Massachusetts, Rhode Island Connecticut and Vermont

The Northeast Regional Ocean Council is a dynamic state/federal partnership that is breaking new ground in the management of the region's coastal and ocean resources. Created by the New England Governors in response to the US Ocean Action Plan, NROC facilitates progress on regional ocean concerns. NROC works directly with the President's Ocean Policy Committee and its Subcommittee on the Integrated Management of Ocean Resources (SIMOR), focusing the resources of eleven federal agencies on the New England's ocean and coastal priorities. Guided by its *Coast and Ocean Action Plan,* NROC's 2009-2010 work plan includes collaborative state and federal projects that support three regional priorities, Healthy Ocean Ecosystems, Balanced Ocean Energy Development and Storm-Resilient Coastal Communities.

Ocean Ecosystem Health
Healthy ocean and coastal ecosystems support New England's vitally important fishing, maritime trades, tourism, defense and related sectors. The Council's 2009-2010 work plan focuses on:

- Effective restoration and protection of coastal habitats on a watershed scale;
- Spatial planning to improve decision-making about new and competing uses in marine waters;
- Other priorities include improving regulatory standards, accelerating priority research, developing ecosystem health indicators, and controlling the spread of invasive species.

Ocean Energy Planning and Management
Energy from renewable ocean wind and tidal power will help meet the regions' energy needs, create new jobs and increase energy independence. NROC is concerned about sound planning and siting of renewable and fossil-fuel based coastal and ocean energy facilities. The Council's 2009-2010 work plan focuses on:

- Developing shared data and information requirements for ocean energy projects and streamlining permitting processes; creating a regional strategy to acquire needed information;
- Facilitating the exchange of creative ocean energy approaches among the states;
- Other priorities include improving the assessment of economic impacts, use conflicts and safety concerns of ocean energy projects.

Storm-Resilient Coastal Communities
Billions of dollars in public infrastructure and private property continues to be at risk from coastal storms in New England and projections of the impacts of sea level rise are dire. NROC is working to produce state-of-the-art data and tools to advance planning and response to storms, shoreline erosion, and coastal inundation due to projected sea-level rise from global warming. The Council's 2009-2010 work plan focuses on:

- Enacting sea level rise adaptation strategies;
- Acquiring data needed to create accurate inundation models; identifying the components of an Integrated Ocean Observing System to support coastal hazards planning and response;
- Developing analytical tools for coastal managers to anticipate and response to climate change.

Through NROC, the Governors of Maine, Massachusetts, New Hampshire, Rhode Island and Connecticut have requested $5.5 million in federal support to advance shared federal and state priorities in the areas of ecosystem health, ocean energy planning and coastal hazards resiliency.

UNH/Great Bay NERR LiDAR Proposal

Submitted by Cameron Wake, UNH

Full text available on NROC website – LIDAR Proposal NH&ME 1-22-09.pdf

Accurate high resolution surface elevation data support a variety of public and private sector needs. Elevation data for many states, including New Hampshire and Maine, are available atvmixed resolutions that are often inadequate to support certain key uses and analyses. LiDAR (Light Detection and Ranging) is a proven technology that is available to acquire seamless high resolution (1- to 3-m spacing) elevation data over large spatial areas. This position paper outlines the rationale and need to acquire LiDAR data to improve topographic products for the New Hampshire and southern Maine coastal region to support several important community needs. A pilot acquisition and demonstration project in this area will 1) help to better define requirements and costs associated with the acquisition, processing, management, and distribution of LiDAR data; 2) enable a thorough analysis of diverse user needs to ensure the data products are useful for multiple purposes; and 3) demonstrate one way the data can be used as the basis of advancing community resilience to the impacts of climate change.

A number of studies have called attention to the inadequacies of existing elevation data. At the state level, the New Hampshire Geographic Information System (GIS) Strategic Plan (New Hampshire GIS Advisory Committee, 2007) identifies developing statewide high-quality topographic data as a high priority. The available data can at best support generation of a statewide 10’ contour data set, and thus are not suitable for several important analyses, such as floodplain delineation, land use planning, and transportation infrastructure development. For example, FEMA’s floodplain delineation standards require 4’ contours in rolling and hilly terrain and 2’ contours in flat areas (FEMA, 2003). A recent report by the National Research Council, *Elevation Data for Floodplain Mapping* (2007), identifies similar deficiencies in available land surface elevation data nationally. The report finds that for most of the nation, “FEMA needs land surface elevation data that are about ten times more accurate than data currently available” to support modernization of floodplain maps under the National Flood Insurance Program (NRC 2007). This report recommends that FEMA adopt 1’ contour accuracy as the standard basis for floodplain mapping in flat coastal and inland areas.

The benefits of high resolution elevation data become apparent when comparing the elevation models that can be generated from different resolutions of baseline data. The figure below shows digital elevation models constructed from data available at 30-meter, 10-meter, and 1-meter resolutions. Landscape details become much more apparent and clear as the resolution of the elevation data increases, yielding distinct advantages for regulatory decision-making and other management applications.

Airborne LiDAR uses laser pulses to measure elevations of the earth’s surface, vegetation, and the built environment. The technology offers a way of obtaining very precise, accurate, and high resolution elevations (equivalent to the 1-meter resolution shown below) in a consistent manner across large spatial areas. Despite its value, large-area LiDAR acquisitions are rare, but a number of states are developing statewide LiDAR programs.

High resolution elevation data are particularly important in shallow sloping coastal areas, but LiDAR is currently available only along the edge of the coastline, and coverage does not extend into low relief portions of coastal watersheds. These data limitations pose challenges as coastal communities attempt to make decisions in the context of climate change. Communities are struggling to identify areas that may be inundated due to sea level rise and/or flooded during intense storms. Flood risk assessment products can be developed using existing models to guide planning, zoning, and infrastructure decisions in these communities; however, high resolution elevation data are necessary for these products to be specific and credible within decisionmaking arenas.

High resolution elevation data obtained from LiDAR can be applied for a variety of additional purposes to address both public and private sector needs, including:

- Hydrologic modeling
- Floodplain evaluation and mitigation
- Land protection prioritization
- Restoration planning
- Community planning
- Design of roads and stormwater drainage systems
- Public facility siting
- Disaster planning and emergency response
- Land cover and environmental classification
- Forestry production and monitoring
- Siting of cell phone towers
- Monitoring of utility lines

Coupling the LiDAR topographic data with other remotely sensed data, such as digital orthophotography, enables additional applications for LiDAR data—surface feature extraction (e.g., buildings and other human infrastructure), habitat mapping, and forestry and agricultural management. In addition, once the LiDAR topographic data have been collected, it is likely that other valuable analyses can be conducted.

The cost associated with LiDAR and the recognition that a variety of users will benefit significantly from the availability of an enhanced topographic data set requires a coordinated effort that will take advantage of economies of scale in its acquisition and ensure that products suit the needs of multiple user groups. Such an approach offers many benefits, including the seamless collection of large swaths of data and uniform application of expert quality assurance and quality control. Coordination ensures standardization across the entire data set and reduces the cost per unit area associated with the data collection, processing, management, and distribution.

We propose a near-term acquisition of high resolution LiDAR data for the New Hampshire and southern Maine coastal areas. This collection will encompass three coastal watersheds—Piscataqua-Salmon Falls, Saco, and Presumpscot—as delineated in the figure below. For coastal communities (i.e., towns with elevations below 10 meters), LiDAR data with 1-meter point spacing and 9 cm RMSE vertical resolution would support 1-foot contours within the gradual topography of the coastal zone. For upper portions of the watershed with more topographic relief, LiDAR data with 2-meter point spacing and 18 cm RMSE vertical resolution would support 2-foot contours.

The authors are contacting groups to contribute supporting paragraphs explaining their need for and expected utilization of LiDAR data. Many groups, agencies, and entities need high resolution elevation data to complete targeted analyses to address existing information needs including New Hampshire state agencies, Maine state agencies, federal agencies as well as regional and municipal groups.

USGS LiDAR Workshop Purpose and Description

Submitted by Susan Russell-Robinson

A "NE Airborne LiDAR Workshop" will be held at the USGS Science Center for Coastal and Marine Geology, Woods Hole, MA during May 5-7, 2009.

Local, state and federal Government agencies, the community and industry are driving significant increases in the demand for high quality elevation data. LiDAR and other acquisition technologies are also developing at a rapid rate. This USGS – Northeast Regional Ocean Council (NROC) sponsored workshop will provide an overview of the current state of Lidar acquisition technologies and discuss applications and availability of high-resolution topographic data for meeting local and regional coastal needs in the NE.

Gulf of Maine Council Climate Network 2009-2010 Work Plan
From GOMC Winter Meeting

The Gulf of Maine Council Climate Change Network has several activities planned for 2009-2010 that may be of interest to NROC and the three standing committees. The Executive Committee and committee co-chairs are considering arranging a meeting with the Climate Change Network chair in March 2009 (during the Gulf of Maine Council Working Group meeting) to discuss opportunities for collaboration.

1. Conduct risk analysis and prioritize the vectors of invasive species and understand the effects of climate change. (Related to OCEH) The GOMC will only play a minor role in this activity – seeking to encourage those assessing the risk of marine invasive species to consider how a changing climate will affect the future spread of such species. The Climate Change Network will conduct several tasks to support this activity including

2. Convene stakeholder workshops to identify and promote mitigative and adaptive strategies for dealing with sea-level rise and changes in water quality related to climate change. (Related to CHR and OCEH) The GOMC seeks to build on existing regional efforts (e.g., Environment Canada, EPA, state coastal programs, etc.). The GOMC will compile and assess existing reports and documents on this topic. To assist in the creation of individual adaptation plans by local experts, the Climate Change Network will convene experts and stakeholders in two separate one-day workshops to address sea level rise and extreme precipitation and discuss and detail ways of addressing threats to freshwater, storm water, wastewater treatment systems, and clean water.

3. Enhance the climate change module of the Council's on-line KnowledgeBase by compiling programs, best practices, and other information. (Related to CHR) This is a regional activity, which is relevant to the entire Gulf of Maine Region. The Council needs to partner with other organizations to accomplish this.

4. Investigate and propose regional climate change adaptation strategies. (Related to CHR) A pilot study location will be chosen based on an analysis of vulnerability assessed in preceding tasks. Using a workshop format, an adaptation strategy could be developed with stakeholders in the targeted community. The results could then be promoted to other communities to encourage them to undertake similar efforts.

5. Prepare regional criteria to identify coastal habitats at risk from sea-level rise and other climate change impacts; integrate into habitat restoration decision-making. (Related to OCEH) Regional criteria to identify coastal habitats at risk from sea level rise, extreme precipitation and other climate change impacts will have been prepared. The results will then be presented to decision makers responsible for coastal habitat restoration as one way to increase their knowledge about the need to restore and monitor coastal habitats.

The full GOMC work plan can be found at
www.gulfofmaine.org/council/internal/docs/apwprevisions.pdf.

NEGC-ECP Climate Resolution
From NEGC-ECP Website

Thirty-second Conference
of the New England Governors
and the
Eastern Canadian Premiers
Bar Harbor, Maine
September 15 & 16, 2008

Trente-deuxième Conférence
des gouverneurs de la Nouvelle-
Angleterre et des premiers ministres
de l'Est du Canada
Bar Harbor (Maine)
Les 15 et 16 septembre 2008

RESOLUTION 32-5

RESOLUTION CONCERNING CLIMATE CHANGE ADAPTATION

WHEREAS a growing number of studies anticipate that adverse impacts of climate change will have a negative impact on the economy in a number of key areas including agriculture and food security, water resources, coastal zones, public health, climate-related disaster risk management, buildings and infrastructure, and natural resources management; and

WHEREAS the New England states and Eastern Canadian provinces are already experiencing the impacts of climate change; and

WHEREAS the Climate Change Steering Committee is implementing the recommendations from the *2007 Ministerial Forum on Energy and the Environment* with a focus on energy efficiency and conservation, and adaptation strategies; and

WHEREAS the *Climate Change Action Plan* calls for the reduction of GHG emissions and adaptation to negative social, economic and environmental impacts of climate change, within the context of the region's sustainable development; and

WHEREAS the majority of the region's population and infrastructure reside in areas that are vulnerable to sea-level rise and increasingly severe and frequent storms, adaptation planning and implementation is becoming an urgent priority; and

WHEREAS working in partnership on adaptation would allow the region to understand impacts more fully, share resources, develop sustainable and robust adaptation strategies.

NOW THEREFORE BE IT RESOLVED THAT the Conference of New England Governors and Eastern Canadian Premiers (NEG/ECP) recognize the importance of adapting to climate change in our region; and

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BE IT FURTHER RESOLVED THAT the NEG/ECP commits to use and share data and information to clearly identify and further refine assessments of vulnerable areas; and

BE IT FURTHER RESOLVED THAT the NEG/ECP Climate Change Steering Committee be directed to improve communications and knowledge sharing on adaptation; and

BE IT FURTHER RESOLVED THAT the NEG/ECP encourages all governments to ensure that information about climate-related risk, vulnerability, and options for adaptation are incorporated into planning and decision making in key sectors, such as agriculture, water, health, disaster risk management, urban planning, coastal development and transport; and

BE IT FURTHER RESOLVED THAT the NEG/ECP shall work with appropriate agencies and organizations to promote the establishment of long-term monitoring programs to allow for adaptive management; and

BE IT FURTHER RESOLVED THAT the NEG/ECP directs its Climate Change Steering Committee to continue to work with organizations such as ICLEI (Local Governments for Sustainability) to provide communities with the tools to easily incorporate climate change adaptation in municipal planning and decision making.

BE IT FURTHER RESOLVED THAT Governors and Premiers reaffirm their commitment, as a region, to reduce greenhouse gas emissions 10% below 1990 levels by 2020, and to levels sufficient to eliminate any dangerous threat to the climate by 2050.

Adopted at the 32nd Annual Conference of the New England Governors and Eastern Canadian Premiers in Bar Harbor, Maine, on September 16, 2008

John E. Baldacci
Governor of Maine
Co-chair

Shawn Graham
Premier of New Brunswick
Co-chair

The Conference of the New England Governors and the Eastern Canadian Premiers / Conférence des Gouverneurs de la Nouvelle Angleterre et des Premiers ministres de l'Est du Canada

Regional Climate Partner Updates
Submitted by NESCAUM and NEIWPCC

Climate impacts and adaptation planning continue to be a priority for New England and a growing list of partners are developing climate initiatives. These updates are meant to inform NROC as its role in regional climate adaptation planning is defined.

1. Northeast States for Coordinated Air Use Management (NESCAUM)
NESCAUM will has been designated the regional body by the NEGC to undertake regional approach climate adaptation activities. NESCAUM is essentially responsible for a response to the NEG-ECP Climate Resolution.

NESCAUM's first climate adaptation meeting was January 26, 2009. This meeting brought approximately 10 regional partners together to discuss their approach to climate adaptation planning and to begin identifying elements that appropriate for regional collaboration. Several members from NROC organizations were invited including USFWS, EPA and NOAA. NESCAUM has agreed to share results from this meeting with NROC.

2. New England Interstate Water Pollution Control Commission (NEIWPCC)
The climate coordinator for NEIWPCC will be attending the meeting in person to describe NEIWPCC's climate initiative and potential opportunities for collaboration between NEIWPCC, NESCAUM, and NROC.