

**New England Federal Partners
Interagency Meeting on Climate Change in the Northeast
Workshop Summary**

Date: June 2-4, 2009

Location: NOAA Fisheries, Northeast Regional Office, Gloucester, MA

Invitees: Federal agency national and regional representatives

Background: Federal agencies active in the New England region recognized the need for enhanced cooperation and collaboration to address climate change vulnerability and adaptation issues. The climate change stakeholder community, including state, regional and local entities, as well as research and academic institutions, has recognized the importance of federal agency support in a shared regional approach to respond to impacts from climate variability and change.

At the national level, key federal agencies have signed memoranda of understanding pledging mutual support and cooperation on climate issues. More recently there have been calls highlighting the importance of such collaborative efforts (e.g. National Academies studies on ‘Restructuring Federal Climate Research’, ‘Informing Decisions on Climate Change’, and the newest one underway: “America’s Climate Choices”). Regional stakeholders, including states, communities, planning groups and NGOs, have expressed an interest in a well-considered approach to climate change by federal agencies. At their 2008 annual meeting, the New England governors reiterated the importance of a coordinated government response to climate impacts and called for cooperation with local government organizations.

Beginning at the Northeast Regional Ocean Council meeting in October 2009, a group of representatives from the federal agencies with climate-related responsibilities in New England began meeting to plan a workshop for the purpose of establishing a framework for effective communication and collaboration on climate change adaptation issues in the region. The goals of the workshop were to:

- Identify federal responsibilities for addressing climate issues in New England and reach consensus on the regional federal interagency priorities.
- Consider interagency federal priorities for addressing climate issues in New England and develop a framework to communicate regional issues to the national level.
- Identify opportunities to collaborate among federal agencies that will facilitate assistance to stakeholders in the region.

Plenary Speaker-The National View: Climate Policy and the Importance of Federal Agency Coordination

Robert Corell, Vice President for Programs, H. John Heinz III Center for Science, Economics and the Environment (currently on leave to lead the Global Climate Action Initiative)

Dr. Corell directed the nationwide climate impact assessment process of several years ago. Bob spoke to John Holdren, Assistant to the President for Science and Technology Policy, on the morning of the opening day of the Federal Partners meeting. Holdren “sent his best wishes” to meeting participants and expressed his support.

1. Science summary. Historical trends and the IPCC computer projections of future climate scenarios were presented (See presenter's power point on the meeting website (community.csc.noaa.gov)). Actual observed temperature changes have exceeded “worst case scenarios,” the highest range of earlier estimates of projected temperature changes, and the rate of warming is increasing. Since 2000, CO₂ emissions from human sources have grown four times faster than in the 1990s. Examples provided showed trends including rapidly diminishing Arctic sea ice and the potential for ice-free summers in the very near term (e.g., 2050). The Greenland ice sheet is melting four times faster, and the science community now projects sea level rise in excess of one meter in this century, putting a lot of high-investment infrastructure at risk (e.g., Cape Kennedy, NYC, DOD facilities). In summary, there are important new data available even since the 2007 IPCC 4th Assessment Report. Warming of the climate systems is unequivocal, and there is now a higher level of confidence in projected patterns of warming; anthropogenic warming and sea level rise will continue for centuries. Regional climate studies are

valuable to planning purposes and to stimulate action. There is a critical need to downscale global and lower resolution models to more local regional projects, and set time scales. There also is a need for statistical and dynamic downscaling.

2. References of note:

- www.northeastclimatedata.org providing historic and projective peer-reviewed climate scenarios and datasets from the UCS-UNH Northeast Climate Impacts Assessment report,
- *Confronting Climate Change in the U.S. Northeast: Science, Impacts, and Solutions*, released July 11, 2007, www.northeastclimateimpacts.org, and covering the northeast region PA to ME.
- See also www.globalchange.gov to download the Global Climate Change Impacts in the United States report, released June 16, 2009.
- See also www.drought.gov for the National Integrated Drought Information System (NIDIS) portal, for examples of how to present integrated Federal government data to stakeholders.

3. C-Roads open source model computer simulation software tool incorporates climate models from 2007 IPCC scenarios including parameters on land use, emissions, carbon sequestration, reforestation, greenhouse gas emissions, and others. It was developed for use by decision-makers worldwide and allows scenarios to be role-played and policy options to be explored. The model is useful in helping with the understanding of what may occur to the climate in the months leading up to the UN Climate Change Conference in Copenhagen (Dec 2009, <http://en.cop15.dk/>) where a post-Kyoto protocol for 2012 onward is expected to be developed.

Vulnerability = Impacts - Adaptive Capacity

4. Some important suggestions moving forward:

- Plan for the future now based on the worst-case scenarios.
- We need to understand the concept of “stationarity;” get away from the idea that the climate is stationary and build uncertainty into our management structures.
- Ask the “users” what they need, don't tell them.
- Give priority to process over products, then link information procedures and users.
- Build connections across disciplines and organizations; seek institutional stability.
- Build in capacity to learn-by-doing.
- Design for learning.
- Urgency must be communicated.

5. Parting Observations: Climate change is no longer simply an environmental issue; it's an issue of economic security and human well-being. Federal agencies need to develop decision-support tools, robust capability and new integrated Federal initiatives. There is a need for strong legislation supporting a comprehensive national climate service. There is also a need to bring agencies together in a broad partnership that makes the best use of their strengths and expertise. See National Academy's recommendations in a March 2009 report, “Informing Decisions in a Changing Climate.” The .pdf version is available for downloading at www.nap.edu.

Plenary Short Sessions

Session 1: Engagement with Regional Organizations on Climate Change

- The purpose of this session was to have each agency identify the various partnerships and networks with which they're involved in the New England region, to see where there are commonalities, but also to see whether there are opportunities for agencies to join new organizations.
- All the federal agencies are working on climate issues in some way, and all are involved with a variety of partnerships and networks linked to their respective missions and authorities.

- The regional organizations most commonly cited by the agencies are the: Northeast Regional Ocean Council (NROC); Northeast Regional Association of Ocean and Coastal Observing Systems (NERACOOs); Gulf of Maine Council (GOMC); Coastal America; New England Governors Council/Eastern Canadian Premiers (NEGC/ECP); New England Interstate Water Pollution Control Commission (NEIWPCC); and Northeast States for Coordinated Air Use Management (NESCOAUM).
- Some examples of the organizations least commonly cited, due to their relatively narrow focus, are: New England Organic Farmers Association; Regional Interagency Steering Committee (RISC); New England Fisheries Management Council (NEFMC); and Northeast Association of Fish and Wildlife Resource Agencies.
- All the federal agencies should utilize these existing partnerships and networks to disseminate new information on climate change adaptation, including agency experts contact information, funding opportunities, data, maps, and other tools.

Session 2: Federal Climate Resources and Activities Inventory

- Originally developed in response to NROC member states' need for information.
- Currently in Excel format with 70 entries from nine federal agencies.
- Consider reformatting to include: years of funding, partnerships and opportunities.
- Customers/constituents, a link to Word file with set of detailed information.
- Organize the format so it's searchable and useful to states and other constituents, including searchable by topic, potential funding, potential partnerships, and location.
- Consider as a tool for information delivery.
- Issues remaining: how will it be updated and by whom? How will it be made available for broadest use (use RSS feed for updates)? Will states fill out a similar format for broad use?
- Current version is available on the meeting website: community.csc.noaa.gov.

Agency Briefings

National Oceanic and Atmospheric Administration

- Climate change is real and the Nation needs targeted climate services to help users understand, adapt to, and mitigate climate change.
- Responding to the climate change challenge requires an unprecedented level of collaboration (feds, NGOs, industry, academia...) to produce high-quality climate information products that are user-friendly, responsive, and relevant.
- NOAA role: training and education; observations and monitoring; research and modeling; product development and delivery; bridges to communities; vulnerability assessments and adaptation planning; engagement in and influence on future products.
- NOAA plans to work in partnership with other federal agencies to design and develop a National Climate Service using the following guiding principles: (1) balanced, credible, cutting-edge science; (2) sustained dialog with stakeholders – listening to understand their need for relevant and useful information; (3) prediction and projections at scales that are relevant for decision-making; (4) timely assessments; (5) informed policy options; (6) problem and solution focused; and (7) offering a balance between human-caused climate change and natural climate variability.
- NOAA is creating an online Climate Portal to enhance communication, education, literacy, and relevant topical and geographic information (by topic and by region).
- NOAA offers both intramural and extramural funding opportunities including grants, external partnerships, collaboration with NOAA laboratories and forecast offices, academic centers for climate, and cooperative institutes to help facilitate better access to climate information, and improved interaction with NOAA.

U.S. Geological Survey

- National Climate Change and Wildlife Science Center: The USGS goal is to produce information on to inform adaptation and management of fish and wildlife in the face of climate change. The Center is designed with input from Federal, State, and Tribal science and management agencies; non-governmental organizations; academic institutions; and others having an interest in conserving America's fish and wildlife resources. The Center has ongoing activities in Maine and Connecticut.
- Climate Effects Network: National climate early warning system, base on existing networks for long-term observations of physical and biological resources that directly and indirectly respond to climate.
- National Phenology Network: The USGS is a sponsor of the National Phenology Network, which monitors the influence of climate on the phenology of plants, animals, and landscapes by encouraging people to observe phenological events like leaf out, flowering, migrations, and egg laying, and by providing a place to enter, store, and share observations.
- Carbon Sequestration: conducting assessments of geologic sequestration of carbon and biological sequestration of carbon.
- Regional Climate Change and Sea-Level Rise: The USGS has conducted a substantial amount of climate-change research in the Northeast. As part of the National Assessment of Coastal Vulnerability to Sea-Level Rise, preliminary results are available for the U.S. Atlantic coast, including the Northeast coast. A detailed coastal vulnerability to sea-level rise assessment has been completed for Cape Cod National Seashore.
- Regional Climate Change and Hydrology: Changes in the amount and seasonality of precipitation may have far-reaching implications to the patterns of water and nutrient movement in terrestrial ecosystems. The USGS Water, Energy, and Biogeochemical Budgets (WEBB) program has a long term study at the Sleepers River Watershed in Vermont. The USGS Global Change Hydrology program has studied historical climate-related trends in New England hydrology since 2001.

Federal Emergency Management Agency

- FEMA's primary role is with disaster preparation and mitigation.
- FEMA actively partners with USACE, USGS (river gaging and remote data acquisition (LIDAR)), and NOAA's National Weather Service, the NOAA Hurricane Center, and the Bureau of Indian Affairs for tribal communications.
- FEMA also actively partners with states, particularly with coastal zone managers, RI coastal resource center, VT natural resource agency, and others for river erosion, flood and risk management.
- Active partnerships with non-governmental organizations include: The Nature Conservancy
- FEMA operates under the Stafford Act (disaster assistance), works as a leader on the Regional Interagency Steering Committee (RISC), and directly communicates with states' directors of public safety.

Federal Highway Administration

- FHWA is interested in climate change from both greenhouse gas reduction and adaptation/infrastructure risk standpoints.
- For greenhouse gas emission reductions, FHWA's office of Planning, Environment, and Realty is focusing on planning level solutions which may yield greater reductions than addressing them primarily at the individual project level.
- FHWA is developing an Adaptation Strategy to guide and coordinate agency adaptation work in several headquarters offices.
- FHWA is developing an Interim Infrastructure Risk Assessment Framework for use by transportation agencies and MPOs. A pilot program to implement the framework is planned for FY2010.
- A 2008 survey of State DOTs indicated that about half had climate change adaptation activities either taking place or under discussion.

- Climate change impacts and adaptation considerations should be addressed in the transportation planning process. Addressing climate change mitigation and adaptation up front in the planning process facilitates decision-making and improves efficiency at the program level, and provides a sound basis for implementation strategies.
- FHWA encourages collaboration with our partner agencies. The Eco-Logical approach to developing infrastructure projects can take into consideration climate change's effects on the natural environment.
- Recent completed USDOT impacts research includes the *Gulf Coast Study Phase I* (completed as SAP 4.7) and *The Potential Impacts of Global Sea Level Rise on Transportation Infrastructure- Atlantic Coast Study*. Phase II of the Gulf Coast Study is underway.

U.S. Army Corps of Engineers

- The US Army Corps of Engineers (USACE) water resources management mission includes navigation, flood and coastal storm damage reduction, protection and restoration of aquatic ecosystems, hydropower, water supply, recreation, regulatory, and disaster preparedness and response.
- The most important influences of climate change on USACE missions will be changes in temperature, changes in precipitation quantity, intensity and form (snow vs. rain), and changes in sea levels, winds and wave patterns.
- Climate change requires water resources managers to move from an equilibrium – or stationary – paradigm to one of constant evolution.
- USACE is developing and implementing an integrated, comprehensive, systems-based, and risk-informed approach which will incorporate anticipatory and adaptive management so that systems remain adaptable and sustainable over time.
- In February 2009, USACE, Reclamation, USGS, and NOAA published a report on “Climate Change and Water Resources Management: A Federal Perspective” ([USGS Circular 1331](#)). This report presents the best available science to help water managers prepare for and adapt to the effects of climate change on the nation's water resources.
- In July 2009, USACE released updated guidance to incorporate sea-level change considerations in civil works projects (Engineer Circular 1165-2-211). We are preparing other guidance updates to account for climate change.
- USACE welcomes and looks for collaboration at all levels as we move ahead with climate change knowledge acquisition, adaptation, and mitigation.

U.S. Coast Guard

- The Coast Guard operates and maintains hundreds of coastal properties that are vulnerable to the affects of climate change. Adaptation and mitigation strategies are being developed to ensure these assets will remain functional after storm events and sea level rise so that it may continue to carry out its maritime missions.
- The Northwest Passage most likely will be open for more regular navigation by 2015. The Coast Guard is currently modernizing its polar icebreakers to support Arctic operations, including research, law enforcement, and pollution response.
- The International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78 has established Emission Control Areas along the coasts of Canada and the United States. The Coast Guard, along with the EPA, ensures compliance with this convention, which dictates the limits on sulphur oxide (SOx) and nitrogen oxide (NOx) emissions from ship exhausts and prohibits deliberate emissions of ozone depleting substances.
- The Coast Guard is leading an integrated planning effort for responding to major disruptions in the Marine Transportation System (MTS) from natural and manmade disasters. The Coast Guard is working to build resiliency within the MTS by engaging the private sector, establishing government roles, and developing recovery policies, plans, and procedures at the local, regional, and national levels.

U.S. Forest Service

- The Forest Service’s mission is to sustain the health, diversity and productivity of the nation’s forests and grasslands to meet the needs of present and future generations. Climate change can have significant impacts to the lands we manage.
- To address these impacts, the Forest Service has developed a strategic framework for responding to climate change. The Framework has 7 key goals will help the Forest Service carry out the mission of sustaining forests and grasslands for present and future generations under a changing climate. These include science, adaptation, mitigation, policy, sustainable operations, education and alliances.
- To achieve these goals, the Forest Service will work collaboratively with a broad range of agencies, partners, and stakeholders, including other federal agencies, States, Tribes, communities, private landowners and the public.
- The Forest Service is taking actions to improve the forests’ resilience to climate change by emphasizing programs on the National Forests and through cooperative forestry to States and local governments in: woody biomass utilization, carbon sequestration, forest health and forest pest management, fire management, fuels reduction, forest stewardship, and forested watershed management.
- The Forest Service is finalizing a document entitled “Water, Climate Change and the Forest Service - Water Stewardship for a Changing Climate”. This document discusses: 1) initial climate changes on the hydrologic cycle and how they may affect forested watersheds that supply a significant portion of this nations water supply; 2) watershed approaches to a changing climate and; 3) how resource professionals and landowners can integrate climate adaptation in their work.

U.S. Environmental Protection Agency

- EPA has a strong regional presence and a mission that is directly linked to addressing the impacts of climate change in terms of understanding vulnerabilities, reducing greenhouse gas emissions, and planning for and responding to climate change. EPA has developed and made available many climate and climate-related energy programs; undertaken and funded climate science research; prepared guidance materials; provided training; convened conferences; participated in workgroups and served on panels; conducted outreach and education; and given financial support to state and local governments for greenhouse gas emission inventories and implementation of action plans.
- EPA is moving toward including climate considerations in all its operations as an environmental and public health regulatory and resource management agency. For example, in September 2008, EPA released a report entitled, *National Water Program Strategy: Response to Climate Change*, which identifies potential impacts of climate change for clean water and drinking water programs and defines actions to respond to these impacts.
- One of EPA’s important roles is providing funding for climate-related projects. Two significant, current coastal-related climate planning projects in New England exemplify this role:
 - The Climate Ready Estuaries Program is a partnership between EPA’s Ocean and Coastal Protection Division and Climate Change Division, and the National Estuary Program (NEP) to build additional capacity in the NEPs and other coastal communities to adapt to the effects of climate change.
 - The New England Environmental Finance Center (NEEFC), based at the University of Southern Maine, is helping to pilot the Coastal Area Sea Level Rise Tool (COAST) to help coastal communities make informed decisions about various adaptation strategies for increased sea level rise, erosion of natural defenses, coastal flooding, and potentially changing storm intensities.
- EPA is working with drinking water and wastewater treatment system operators through New England to assess the vulnerability of these systems to climate change impacts (e.g., sea level rise, flooding, storms), and help utilities and communities plan for these impacts.
- EPA coordinates on a regular basis with other federal and state agencies, and non-governmental organizations through existing regional partnerships and networks such as the Climate Change Steering Committee of the New England Governors/Eastern Canadian Premiers Council, the Northeast Regional Ocean Council (NROC), the Gulf of Maine Council (GOMC), the Northeast States for Coordinated Air Use Management (NESCAUM), the New England Interstate Water Pollution Control Commission (NEIWPC), and Local Governments for Sustainability (ICLEI).

- EPA is also providing technical assistance to state adaptation planning groups in three New England states (Connecticut, Massachusetts, and Maine), and to local governments and regional planning efforts.

National Park Service

- By late this century, climate change will result in changes to national park units in the northeast such as coastal archeological resources being damaged and historic buildings being threatened. Pest-related damage to forests will escalate and plant and animal populations requiring cooler weather will move or die out of parks as the temperatures rise, being replaced by warmer weather species.

The NPS is addressing climate change issues in the areas of:

- Law and Policy to understand authority and guidance to conserve resources;
- Planning, to incorporate adaptive management and scenario planning into the Visitor Protection and Planning processes;
- Science to develop a coordinated approach on understanding research and information needs;
- Resource Stewardship, to identify species/ecosystems most at risk and create priority lists;
- Greenhouse gas mitigation to continue the Climate Friendly Parks program and use of “CLIP” (Climate Leadership in Parks) tool for all parks to reduce NPS caused emissions; and
- Education and Outreach, where the NPS can have the greatest impact for the nation. With 250 million annual visitors, the NPS can lead in discussions on having the public understand the changes that are taking place and what can be done about them.

Natural Resources Conservation Service

NRCS’s climate change activities contribute to the implementation of the U.S Department of Agriculture’s over-arching climate change goals and a pending USDA Climate Change Science Strategic Plan.

- Understand the effects of climate change on natural and managed ecosystems.
- Develop knowledge and tools to enable adaptation to climate change and to improve the resilience of natural and managed ecosystems.
- Develop knowledge and tools to enhance the contribution of agriculture, forestry, grasslands, wetlands, and other land management practices to mitigate atmospheric greenhouse gas emissions
- Provide scientific information and tools to USDA agencies, stakeholders and collaborators to improve decision making

NRCS Climate Change Activities:

- Implement targeted Conservation Programs with Carbon Sequestration and Greenhouse Gas Benefits. The 2008 Farm Bill authorizes \$54 billion in Conservation Program Funding from FY 2008-2017 for a wide range of land easement and conservation cost-share assistance programs. The estimate allocation to Northeastern States is \$90 million/year for the next five years.
- Improve Resource Monitoring, Forecasting and Assessment through enhanced Soil Survey, Conservation Effects Assessment Project, and Soil Climate Analysis Network
- Assist in the development of Market-based Initiatives and Agreements including International activities (i.e Methane to Markets, Cooperation with State Dept on Bilateral and Multilateral Agreements)
- Increase Climate Change Literacy and Awareness for employees and clients
- Technology Developments for Voluntary GHG Reporting (development of decision-support tools to estimate Agricultural GHG sources and sinks, and directed Carbon Measurement Systems)

U.S. Fish and Wildlife Service

- The USFWS has developed a Strategic Plan for Responding to Accelerating Climate Change in the 21st Century and a 5-Year Action Plan for implementing our strategic plan. The strategic plan and action plan will soon be released for external review and comment.

- The USFWS is pursuing mapping of coastal wetlands that have adjacent elevations appropriate for migration. The National Wetland Inventory program is monitoring long-term changes in coastal vegetation patterns and associated soil properties due to sea level rise on National Wildlife Refuges.
- USFWS National Wildlife Refuges are working with USGS and multiple USFWS Regions are collecting habitat and avian data and will be developing an ecological integrity index for coastal salt marshes. Additionally, Surface Elevation Tables (SETS) have been installed on National Wildlife Refuges to evaluate long-term trends in elevation and marsh accretion.
- USFWS is conducting Sea Level Affecting Marshes Model (SLAMM) modeling on all coastal refuges to evaluate impacts and plan for sea-level rise. All coastal NWRs will be completed in 2009.
- Atlantic Coast Joint Venture is conducting a sustainable landscapes project, currently being conducted along the South Atlantic Coast and will assess the current capability of habitats to sustain bird populations. The models will predict the impacts of landscape-level changes (e.g. from urban growth, conservation programs, climate change) on the future capability of these habitats to support bird populations.
- The USFWS plans to characterize water needs for priority species and management activities, particularly on our National Wildlife Refuges and National Fish Hatcheries. This information will be vital when examining long-term impacts to water availability in the Northeast due to increased population growth, urbanization, and impacts associated with climate change.
- State fish and wildlife agencies are a key partner of the USFWS as we have shared responsibilities for fish and wildlife conservation. The northeast states working through the Northeast Association of Fish and Wildlife Resource Agencies are working on a landscape level to identify Regional Conservation Needs (RCNs) that address impacts such as urbanization, land-use changes, and climate change. More information on the RCN process and completed products may be found on the web site: www.rcngrants.org.
- The USFWS works in collaboration with State, Federal, and NGO partners and is looking to expand that collaboration to address climate change impacts and adaptation planning.

Breakout Sessions

Goals:

- A list of relevant issues under each topic where Federal activities exist in the region.
- A list of agencies with current missions and mandates to offer data, products and services to stakeholders in this topical area,
- A draft communication framework that can be offered to stakeholders for identifying key agencies with responsibilities and climate information on the topic.

Adapting to Climate Impacts on the Built Environment

Issues:

- Private land ownership vs. eminent domain
- Value of built environment vs. value of natural environment; defend or retreat?
- Sizing, siting, and permitting of infrastructure (e.g., buildings, wastewater treatment, dams, culverts, telecommunications, etc.) in vulnerable coastal zone and floodplains
- Avoid duplication; need to compile existing data and maps of the built environment (e.g., roadway elevation data, etc.)

Federal roles and responsibilities:

- Federal responsibility only on federal land
- Broaden coordination, including development and use of models, scientific research, etc.
- Regulatory actions must consider climate change impacts
- Improve scientific understanding, including ecosystem valuation, and communicate to the public
- Risk assessment

Communication framework:

- Identify contacts, update NROC inventory
- Use state of the art information delivery systems (Wikis, portals, etc.)

- Central clearinghouse for information and funding sources

Opportunities to collaborate:

- Agreement on interagency modeling and delivery – preexisting/new MOUs
- Sea Level rise Mapping – LIDAR, bridge communication gaps
- USGS has 2 existing projects on SLR effects on ground water
- Create inventory of regulatory decisions related to climate change
- Training programs for climate change, consistent models, use web effectively

Adapting to Climate Impacts on Marine Ecosystems and Living Marine Resources

Issues:

- Need comprehensive list of research; identified by core group; include structures and tasks on short and longer term
- Offshore energy impacts and hydrokinetics
- Cumulative impacts: habitat loss, sea-level rise and changing habitat, wetland destruction, temp, pH, communities, invasive species, marine spatial planning, trophic shifts, seasonality, disease, catastrophic loss
- Compatible uses: fisheries, energy... need an ecosystems approach
- Interstate scientific data monitoring, migrations
- Through observations and monitoring we need to enhance understanding and predictions of environmental change including climate impacts on coastal resources and communities at regional to subregional levels

Federal roles and responsibilities:

- Ecosystem services/habitat assessment
- Data and its context in the larger issues
- Data sharing
- Common vision and common goals
- Coordinated stakeholder meetings
- Demonstration projects with direct Federal involvement
- Coordinated effort with National Climate Service (climate.gov)
- Workshops to demonstrate various models available

Communication framework:

- Need to get other Feds to table for re-constituting Federal partners. Include: HHS, HUD, DEduc, FERC, Fed Rail Admin., tribes (BIA)
- cross-agency dialogue and increased external collaboration

Opportunities to collaborate:

- Regional team for the next National Assessment
- Participation in USACE Coastal Vulnerabilities program (see info Kate White)
- Shared Learning, identifying the technology of vulnerability assessments
- An interagency group on knowledge management
- Work together in a watershed context: Penobscot Watershed, Federal roles and coordination; Kennebec River Initiative; Connecticut River; Saco River
- NOAA Strategic Plan for modeling
- NOAA Coastal Maine project, need greater Fed involvement
- Existing partnerships: NPS/FWS/USGS: downscaling Cape climate data, include USACE and EPA/REVA.
- Research should address: response of overall productivity of the region; response of individual fish and shellfish stocks; identification of the most important indicators required for modeling climate-change effects; monitoring to support research programs and provide early warning signs of catastrophic events; downscaling climate predictions to spatial and temporal scales meaningful to fisheries managers.

Adapting to Climate Impacts on Vulnerable Coasts

Issues:

- Habitat loss, coastal erosion, changes in sediment regime and hydrography

- Invasive species, species resilience
- Conflicting uses, socioeconomic impacts

Federal roles and responsibilities:

- Specific agency roles, e.g., EPA – nutrients, NOAA- coastal mapping
- Develop models, data standards, conduct research, provide coordination, leadership, communication, funding – agencies working together

Communication framework:

- Identify contacts, update NROC inventory
- Use state of the art information delivery systems (Wikis, portals, etc.)
- Central clearinghouse for information and funding sources

Opportunities to collaborate:

- Prioritize research needs; coordinate monitoring efforts across agencies (USGS, NASA, NOAA, etc.)
- Work with stakeholders to identify needs

Outcomes and Next Steps

- Expand and formalize the New England Federal Partners. There was agreement among participating agencies that coordination should continue across a spectrum of topics including climate change, LIDAR, modeling, and other topics of mutual interest. *Next steps will include:* the drafting of a) a letter of invitation (Ellen), b) a Terms of Reference (Susan/Ellen), and c) reaching out to include agencies missing from the workshop (all Federal Partners). Model will be based on the Federal Partners charter from 2003, and an expansion of the August 2008 ‘Memorandum of Cooperation’ on climate adaptation in the region.
- Federal representatives agreed on the need for regional consensus on climate scenarios, data sets, models, and projections for New England. *Next steps will include:* compiling a list of potential areas for coordination (USACE Coastal Vulnerabilities project, Penobscot River partnership, USGS groundwater and watershed models for climate (Dave Bjerklie), others?), including Shared Learning materials on climate model comparisons and GIS data sets for the region (volunteers?).
- Participants were informed of the opportunity to participate in the next Congressionally-mandated National Assessment of Climate Vulnerability. *Next steps will include:* forming a regional team and establishing a framework for collaboration on a regional scale to inform this national effort (all NE FedPartners). Additional elements of this framework that are under development include: updating and synthesizing the Federal Climate Activities inventory (all agency reps), and compiling a ‘Points of contact’ list for the agencies that includes a more detailed list of names and associated expertise for the region on climate issues (Ellen/Norm).
- Continue agency interactions with regional efforts on climate including: NEWIPCC, NESCAUM, GOMC and GOMC Climate Network, NEG/ECP and state adaptation planning teams.

Appendices

- Workshop participants list and contact info (Becky)
- Breakout Sessions’ 2-pagers (volunteer to compare with goals, clean-up, unify)
- Points of contact for agencies list (result of above; Ellen and Norm)
- List of good ideas for stakeholders, lessons learned and take-aways (for NESCAUM, GOMC, and agency leaders) (volunteer?)