



**Northeast Regional Ocean Council
Marine Spatial Planning Working Session
October 26 & 27, 2009**

**NOAA/NMFS Northeast Regional Office
55 Great Republic Drive, Gloucester, MA**

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EXECUTIVE SUMMARY

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Purpose and Background

The Northeast has recently become a hotbed for marine spatial planning activity and innovative partnerships to encourage integrated ocean use management approaches and improved decision-making. To capitalize on potential synergies among ocean planning efforts within the region and to offer pragmatic input at the national level as the Interagency Ocean Policy Task Force prepares a coastal and marine spatial planning framework, the Northeast Regional Ocean Council (NROC) has recognized a need for facilitated regional dialogue around ocean planning and improved interstate and federal coordination. Thus, NROC convened the second of two working sessions on ecosystem-based marine spatial planning (EB-MSP) on October 26-27, 2009 in Gloucester, MA, to promote interstate dialogue and regional coordination.

The first workshop was co-sponsored by The Nature Conservancy, NOAA, and NROC in June 2009 and focused on improving the understanding of principles and objectives of marine spatial planning, as well as assessing regional data availability. Discussions and results of this workshop indicated a need for additional opportunities to explore the data and regulatory context for ocean planning in the Northeast.

The scope of this second NROC marine spatial planning workshop was to advance shared objectives of ocean planning through discussion of *data and research coordination needs and regulatory efficiency possibilities*, and through enhancing the region's capacity to "think and work like a community", including state-federal cooperation, to support "on the water" integrated ocean management efforts at *every level*. In addition, the timing of this workshop created an opportunity for state partners to inform the current work of the Ocean Policy Task Force on its coastal and marine spatial planning framework. Drawing from their experiences with current ocean planning efforts in New England, state partners subsequently articulated what the community has learned about data, regulatory, coordination and capacity needs to the Interagency Ocean Policy Task Force (IOPTF).

Organization of October 26-27, 2009, Workshop

Overall: Day 1 of the working session was designed as a venue for NROC governmental partners, which includes the five New England coastal states and six federal agencies (National Oceanic and Atmospheric Administration, Environmental Protection Agency, U.S. Coast Guard, U. S. Army Corps of Engineers, Department of Interior, and Natural Resources Conservation Service), to a) enhance cross-jurisdictional dialogue, b) explore regulatory efficiencies for siting marine uses, and c) identify shared data and product needs. Day 2 incorporated non-governmental practitioners from around the region to explore opportunities for coordination and collaboration to leverage ongoing MSP-related projects for broader benefit. An overarching objective of both days was for participants to embrace "thinking and working like a community." Non-governmental participants were invited specifically for their hands-on involvement in ocean science, planning, management, and policy.

Day 1 began with 'Setting the Context,' featuring presentations by each of the New England coastal states and a federal agency perspective to share respective drivers for MSP, lessons learned to date and perceived benefits to working collaboratively. Next, in 'A Framework for Working Together' participants explored incentives and strategies for improving collaboration as a region, including the potential role of NROC. During the 'Putting Regional Perspective into Practice' exercise, state and federal participants discussed challenges they have experienced in the regulatory and planning processes and explored efficiencies that would enable more effective MSP. The afternoon closed with a discussion on 'Data Accessibility Constraints and Opportunities,' which highlighted frustrations and realities of accessing data needed for MSP and ways to overcome data sharing/accessibility challenges.

Day 2 kicked off with a group discussion on how to achieve ‘Marine Spatial Planning at a Regional Scale,’ with government perspectives now augmented by participants from NGOs and academia. Discussion gravitated toward how to best capitalize on existing state efforts to inform and/or complement a regional-scale MSP effort. Next, a ‘World Café’ provided an interactive setting where participants identified specific priority needs to support EB-MSP in six key areas: data, human use characterization, habitat classification, cumulative impacts, tradeoff analysis, and adaptive management. ‘Matching Needs with Existing Efforts’ showcased examples of developing products and existing initiatives with great promise for contributing to broader EB/MSP efforts in New England. A ‘Collaborating with NROC’ session followed as a venue for participants to consider opportunities to leverage governmental and non-governmental partner expertise and resources to advance EB-MSP in the Northeast, and to continue discussions of how partners may work effectively in concert with NROC in the future. Finally, in the wrap-up session ‘New England Statement of Need’, participants underscored their interest in continuing the constructive dialogue from the workshop, in further developing the capacity to work like a community, and in synthesizing and sharing priority issues and needs identified with IOPTF, legislators, and potential NROC funders.

Detailed summaries of Day 1 and Day 2 sessions are presented in later sections of this report.

Common Themes and Meeting Outcomes

Participants surfaced and explored five main themes during the two-day workshop:

- Governance process,
- Regulatory efficiencies and coordination,
- Data needs, collection, and standards,
- Decision support product needs, and
- Role of NROC and other regional partners.

Governance process: The states underscored that organic planning is much preferred over top-down requirements for a regional marine spatial plan. The states concurred that continuing collaborative state/federal ocean planning is a more pragmatic approach responsive to real life data, institutional and regulatory conditions and, therefore, ultimately more effective. There was concern that a prescriptive, top-down, “cookie cutter” approach through a mandated regional marine spatial plan would force the region to become “a track star before learning how to walk.” There was considerable interest in developing a regional planning *framework* through a process that builds on existing efforts and occurs within a manageable geographic scope. Many of the non-governmental partners stressed the importance of a comprehensive regional marine spatial plan with clear regional objectives and a value system to aid in regional MSP decisions. Some federal participants also noted that a regional approach would be more consistent with current practices in managing ecological resources and could lend itself to economies of scale in terms of necessary staff and monetary resources.

Regulatory efficiencies and coordination: Four major components were discussed. 1) Agreement among state participants that a federal mandate to engage in MSP would enable enhanced efficiency and consistency in the regulatory process. There remains a need for federal engagement earlier in the process; however, federal representatives explained their concerns in meeting this expectation without potential changes to existing legislative authorities. Many of these legislative authorities place the federal agencies in a reactive rather than a proactive mode, as is being requested by the states. 2) The states proposed that state ocean planning efforts be incorporated into federal permitting/review requirements. As previously stated, federal agencies currently lack the ability to forego needed information for a site-specific review and consultation. 3) The states noted that

it would be helpful if federal agencies were to produce a common, comprehensive list of requirements for NEPA and associated reviews (e.g., Endangered Species Act, essential fish habitat, Clear Air Act, etc.). 4) Agencies agreed it would be beneficial to have clearer understanding of the type and extent of data required for review/approval by different agencies for different kinds of projects. It was noted that projects often have differing characteristics; therefore, additional or new information may be requested by federal agencies when reviewing a specific project.

Data needs, collection, and standards: There was broad agreement that developing and implementing EB-MSP at any scale is fundamentally dependent upon / shaped by the availability, quality and accessibility of relevant data. Participants identified shared data needs ranging from human use characterization to habitat classification, and discussed challenges to data accessibility and management.

Decision support product needs: There was general agreement around the need for better products and tools to support ocean use management decisions, particularly in the areas of cumulative impact assessment and ecological/socioeconomic tradeoff analysis.

Potential Roles for NROC: Participants identified several benefits of a regional ocean governance entity including: 1) serving as a liaison among states and federal agencies to promote consistent federal guidance on data and regulatory requirements, 2) sharing successes in EB-MSP processes and transferring them between states and across regions, 3) advancing those aspects of EB-MSP that require a regional approach and greater capacity (staff support, data analysis, etc.), and 4) recognizing the strength of federal-state partnerships and the high level of talent among broader regional partners.

Participants generated three main outcomes during the workshop. More specific action items associated with particular sessions are incorporated in the full report that follows.

1. Participants enthusiastically supported “thinking and working like a community” to articulate and demonstrate the NE region’s competitiveness/preparedness for potential EB-MSP funding, including federal money that may result from IOPTF actions.
2. There was broad agreement about the priority data, products and decision support tools needed to *do* EB-MSP and that stakeholder engagement is a necessary accompaniment to the science.
3. Notwithstanding genuine differences among state staff, federal representatives, academics and NGOs regarding drivers, constraints and opportunities for EB-MSP, participants cautiously embraced the concept of a coarse-level regional ocean plan within 3-5 years. Caveats included the need for:
 - a. starting from a shared framework that leverages existing efforts from the ground-up as opposed to a top-down approach,
 - b. a “data plan” for sharing information and tools,
 - c. a coordinated federal response for planning and permitting phases, and
 - d. NROC to grow into its role as a regional convener for regulatory coordination, edge-matching of ocean plans across scales, and sharing/standardizing solutions to gain efficiencies and provide value-added at a regional level.

The Meeting at a Glance (click on the links to jump directly to individual session summaries)
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NROC Marine Spatial Planning Working Session, Day One— State and Federal Partners (**Attendees**) ([link...](#))

Objectives: Enhance interstate dialogue and regional coordination; Develop options for enhancing regulatory efficiencies; Identify shared planning and management needs. ([link...](#))

Session 1: Setting Context— the state and federal perspectives on marine spatial planning, the constraints and opportunities. ([link...](#))

Session 2: A Framework for Working Together— how can we all work together (better)? ([link...](#))

Session 3: Putting Regional Perspectives into Practice—issues and pragmatic solutions, finding regulatory efficiencies. ([link...](#))

Session 4: Data Accessibility Constraints and Opportunities— challenges accessing and sharing data. ([link...](#))

NROC Marine Spatial Planning Working Session, Day Two— State, Federal & NGO Partners (**Attendees**) ([link...](#))

Objectives: Enhancing dialogue and regional coordination; Identify shared needs; Foster cooperation between governmental and NGO partners to capitalize on opportunities to collaborate, leverage resources and jointly pursue work to meet science needs for all. ([link...](#))

Session 5: Marine Spatial Planning at a Regional Scale— shared ideas and progress from day one. ([link...](#))

Session 6: World Café Session— developing a list of priority data, support tool and process needs for regional planning. ([link...](#))

Session 7: Matching Needs with Existing Efforts— NGO partners present relevant, ongoing projects. ([link...](#))

Session 8: Collaborating with NROC— how can we work together to effectively advance state and regional MSP. ([link...](#))

Session 9: New England Statement of Need— sharing results of the working session with IOPTF, legislators and potential funders. ([link...](#))

NROC Marine Spatial Planning Working Session, Day One— State and Federal Partners (**Attendees**) ([link...](#))
October 26, 2009: 9:30am-5:00pm

Day One Meeting Objectives:
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1. Promote “thinking and working like a community.” Enhance interstate dialogue and regional coordination among state and federal NROC partners to support “on the water” ocean management efforts at each level:
 - Share perspectives on benefits and challenges for EB-MSP,
 - Understand drivers for each state and the federal community, and
 - Acknowledge challenges and potential opportunities for coordination at a regional scale.
2. Explore options for enhancing regulatory coordination and efficiencies and outline realistic options responsive to state and federal partner’s specific needs, opportunities and constraints.
3. Identify shared ocean planning and management needs to more effectively capitalize on opportunities to collaborate and leverage resources for research, data, analysis, decision tool development and other science efforts to support state led, federally supported integrated ocean management.

Session 1: Setting the Context— presentations of state and federal perspectives on marine spatial planning.
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Purpose: Present state and federal perspectives at the outset to better understand the similarities/differences in respective circumstances / approaches and begin to form a picture of state and federal roles, strengths and inclinations.

Process: A representative from each state presented a snapshot of the context for their MSP efforts. A federal presentation described agency roles supporting NROC and MSP, uncertainties/challenges and the opportunities for intra-agency and federal/state collaboration.

Summary:

Maine— Kathleen Leyden reported that the primary MSP **driver** in Maine is wind (renewable) energy. This state currently has the most installed capacity for land-based wind energy with regulatory efficiency to support the process and a natural extension to explore ocean-based wind projects through their Ocean Energy Task Force. Legislation was passed to streamline general permitting processes for ocean energy demonstration sites. **Data, research and product needs** include: human use inventory; bathymetry; AIS and VMS data; benthic terrain and species characterization; enhanced/additional data buoys; economic impact analysis (trade-off analysis for commercial fisheries); avian and bat radar studies; marine mammal data; cumulative impact information; decision support tools (trade-off analysis, dynamic interactive scenario analysis to support communication, outreach and local knowledge capture with stakeholders). The **lessons learned** from their MSP process to date

include: all of ME's ocean areas are heavily used; the short planning timeframe did not allow for trust-building with stakeholders; more outreach is needed; and, state-to-state and federal exchange of information has been invaluable.

Connecticut— Brian Thompson described CT as an energy transmission state rather than a major site for primary generation. Currently, the state is collecting seafloor mapping data to support regulations, especially in the near shore. Connecticut is focusing on non-energy based planning activities such as dock management, sea-level rise and coastal hazards and sees MSP as a potential tool to help. The state continues to learn from its neighbors (especially MA, RI, and NY) and looks forward to cross-regional collaboration to bring planning perspectives and resources to bear. CT **data and products needs** include: seafloor mapping data/bathymetry; benthic sediment and geology information; and working sample products/models demonstrating utility to legislators.

Massachusetts— Deerin Babb-Brott stated that the primary MSP **driver** in MA is wind energy siting. Due to a significantly compressed planning timeline (essentially 10 months), it was necessary to develop a planning framework, collect data, conduct preliminary trade-off analyses, assess cumulative impacts and engage stakeholders concurrently rather than sequentially. MA's continuing **data, research and product needs** include: refined human use characterization (especially commercial and recreational fishing); habitat characterization; complete USGS seafloor mapping; physical oceanography data; species life history requirements (to better support ecosystem-based approach); and decision support tools to help with trade-off analysis and cumulative impacts determination. **Lessons to date** include: a comprehensive, ecosystem-based MSP development process is time and resource intensive; comprehensive data are not required to make progress, e.g., you can start with available data because ultimately it is an iterative process. Deerin suggested that a national approach should facilitate a consistent baseline framework that accommodates individual state processes and initiatives.

New Hampshire— Chris Williams reported that New Hampshire does not have MSP political **drivers** at this point but does have a focus on tidal energy in estuarine and near shore areas. Although the NH coastline does not have the characteristics conducive to offshore wind development, it does see value in MSP for siting other uses like aquaculture facilities and dredging. Primary **data and research needs** include: bathymetry; sediment data; and human use/resource characterization. Technology development is a **driver** in NH with potential collaborative work involving the University of New Hampshire Center for Ocean Engineering (for tidal energy) and the Center for Coastal Ocean Mapping.

Rhode Island— Grover Fugate stated that global climate change and the resultant state interest in increasing renewable energy capacity is the primary **driver** for RI ocean management planning—technology requirements for wind energy determined initial site selections. The Special Area Management Plan (SAMP) is RI's tool/framework of choice. The Coastal Zone Management Act is the enabling legislation, and, ultimately, marine-use designations override upland zoning. Ocean planning in RI extends out to 30nm to include the primary areas for wind energy siting, and the state has a strong, site-specific research portfolio. Additional **data, research and product needs** include: expanded marine mammal life history information (potential under-representation at present), refined human use characterization, and data ground-truthing via sonar technologies. Since commercial fishing is important in their entire project area, trust building through committed outreach is a critical **lesson learned** from the RI SAMP process. Grover suggested that MSP helps avoid misinformed project development and thus reduces wasted time and resource commitments from all parties.

Federal Perspectives— David Kaiser from NOAA reflected perspectives from the Ocean Policy Task Force to inform the discussion. He noted this is an opportunity for NROC to formalize an interstate agreement—to help develop a regional plan for New England. The federal agencies are looking beyond just renewable energy to

develop a broader, adaptive, ecosystem-based approach for resource management and want to work with state and regional partners to achieve this. The challenges are numerous, including: a variable authority to act from state to state; a lack of an interstate compact; inconsistent state-level policies; multiple federal mandates; and the lack of a common and standardized set of data and MSP planning tools. However, the benefits of MSP are numerous including: the potential for comprehensive, proactive, predictable and adaptive decisions; greater efficiencies for regulators and users; simplified state and federal-level legal requirements; and the ability to address and adapt to unique, region-specific issues.

States reacted to this update on the IOPTF deliberations with some unease, emphasizing a resistance to an “out of the gate” prescriptive, comprehensive regional marine spatial plan. They stressed the pragmatic importance of working with real life institutional/political contexts that define palatable drivers, such as ocean renewable energy, to serve as effective ice breakers for pursuing EB- MSP, and cautioned against trying to consider too many uses too quickly. There was also trepidation about a top-down plan trumping or hindering ongoing state ocean planning efforts. While states acknowledged benefit to a regional approach in gathering data and developing decision support tools, they preferred working with their federal partners on a more “organic” planning effort rather than an all-inclusive, mandated plan.

Additionally, attendees suggested the federal MSP efforts consider:

- Recognizing the importance of tribal and international relationships;
- Developing consistent terminology and definitions;
- Recognizing that renewable energy development (and its potential to mitigate climate change) is not mutually exclusive with ecosystem-based, marine spatial planning; and
- Using the New England Governors’ Conference blueprint and goals to guide state energy targets and build a regional approach.

Session 2: A Framework for Working Together—What could it look like? Understanding the perspectives, constraints, and opportunities for coordinating MSP efforts at a regional scale.
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Purpose: To discuss how participants would like a regional ocean planning framework to look and begin to surface ideas, priority needs, and guiding principles for working together.

Process: This session started out with a facilitated, large-group discussion on the overall approach to developing a regional framework and then transitioned into four smaller breakout groups, each of which rotated through four stations set up to address the following questions:

- *What is/should be the role of NROC?*
- *What are the incentives for States & Feds to work together regionally?*
- *Where do we need to build capacity?*
- *How can the States & Feds plan together more collaboratively?*

Summary: (facilitated, large group discussion)

There was a general consensus that the immediate goal of the EB-MSP framework should be a regional data plan designed to improve data collection and accessibility for the region, with particular emphasis on developing standardized protocols for collecting and sharing data with other states, ultimately supporting cumulative impact analysis. To start, it was suggested to focus the data collection on the needs of one or two drivers (e.g., energy and/or conservation), while acknowledging that a full range of data will be needed for analysis. For example, any plan where energy is the driver will require substantial conservation data to illustrate the impacts to natural resources and inform a decision-maker. A regional EB-MSP plan would be a subsequent step building on the data and relationships created through design and implementation of a regional data plan.

Specific elements for a regional data plan should likely include:

- Standardized data needs (minimal data requirements for effective MSP);
- Protocols for data collection (but not to inhibit innovation in collection methodologies);
- An agreement on thresholds of data collection (i.e., when has enough data been collected); and
- Design and development of decision support tools and scenario or visualization tools.

Investment by federal agencies in regional data collection and decision-support tools will prepare the region for engaging in the design of a regional EB-MSP plan. This regional platform will provide a necessary baseline for the regional analysis of cumulative impacts to resources and the marine economy.

A regional plan should include or address federal engagement in planning activities that are not specific to projects. In addition, to support implementation of regional EB-MSP, the federal agencies need to continue coordinating and communicating across agencies, specifically around the issues of the National Environmental Protection Act (NEPA) and NEPA-consistency across federal agencies.

Summary: (rotating breakout group reports)

For each of the four breakout group categories, important points and ideas were shared among participants and are presented here.

What is/should be the role of NROC?

- If NROC doesn't lead, then who will?;
- Process facilitation and convening forums;
- Liaison between states and federal entities (consistent response by federal agencies);
- NROC should analyze state plans for compatibility and "edge-matching" to rollup into a regional plan;
- Revisit membership in NROC, add the Federal Energy Regulatory Commission, Department of Defense tribes, etc.?
- Create sub-group(s) of NROC that could address specific technical issues; and
- NROC should be explicit about adding value to MSP efforts

What are the incentives for states & federal entities to work together?

- Opportunity to leverage limited existing funds and to collaborate to generate new funding sources;
- Efficiencies around data sharing, acquisition, regulatory coordination; and

- Improved perspective on predictability for managers/developers, build out plans for the region, and improved consideration of potential conservation opportunities, and prospects for energy and aquaculture development in the region.

Where do we need to build capacity?

- Data— sharing, collection and standardization;
- Additional staff to support state planning and regional MSP efforts;
- Technological capacity for data analysis;
- Long-term economic, social and environmental impact analysis; and
- Improved current opportunities for stakeholder involvement and expanded ways in which stakeholders can be involved.

How can states and feds work more collaboratively together?

- By sharing data, data gaps, collection protocols, standards, and lessons learned;
- By defining data needs and availability;
- To secure funding;
- By acknowledging common MSP drivers; and
- By collaborating on outreach and educational opportunities (shared events).

Session 3: Putting Regional Perspective into Practice— finding regulatory efficiencies.

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Purpose: To develop creative options for regulatory efficiencies to fit practical political and institutional circumstances in ocean management—moving from a state/federal perspective to a regional one. Create a list of realistic action items to be pursued by federal and state partners.

Process: Two sessions (co-led by a state and federal partner) posed practical permitting and planning ocean management scenarios to the large group for discussion.

Summary:

Grover Fugate (RI CRMC) and Karen Adams (ACOE)— offered the following scenario concerning use of the NEPA process during the permitting of a specific site for offshore wind energy:

- How can the regulatory permitting process (including compliance with NEPA, Section 7 of Endangered Species Act, Section 106 of National Historic Preservation Act, Migratory Bird Treaty Act, Magnuson-Stevens, etc.) be standardized/streamlined/coordinated among Federal agencies to allow data and analyses from states’ ocean plans (marine spatial plans, Special Area Management Plans (SAMPs), etc.) to be used by relevant federal agencies to the maximum extent?

States requested that federal agencies accept state marine spatial plans once completed and use these plans to inform federal decisions.

Q: Can a state ocean plan be considered a major federal action and trigger the review process, therefore engaging federal agencies earlier? States seek federal “buy-in” for projects and an ability to identify “fatal

flaws” early in the review to avoid wasting resources on no go projects. RI provided an example of an energy project being proposed off its coast where late in the process the Navy notified the applicant of submarine training lanes within the project’s boundaries. This also demonstrates the value of having *all* of the necessary federal agencies present at the planning stage.

States seek a process for identifying agreed upon ‘no go’ areas using valid existing data, even if at a course resolution. Large “fatal flaw” issues can be identified early by federal review agencies, and federal agencies are able to concur preliminarily that certain areas are acceptable for additional detailed analysis once a specific project is proposed. However, federal agencies must retain ability to deny or mitigate effects of a specific project through their review authorities. As mandates are currently written (e.g., NEPA, ESA, Magnuson-Stevens Fishery Conservation and Management Act), federal agencies function in a reactive role. Participants agreed that federal resource agencies are functioning in a more proactive role by extensively working with the action agency or applicant in the pre-application phase to identify issues and focus project alternatives. Participants are continuing to find more ways to work proactively together at earlier stages of the planning process, and federal agencies are committing more limited resources to these efforts.

Q: Can a state ocean plan be considered the beginning of the formal NEPA process? No, not within the current regulations. An ocean plan does not contain any “on the water” activities and therefore, there are no actions for consultation under ESA, EFH, etc. Consultations under ESA and EFH, etc., and the accompanying NEPA document, will not occur until there is a specific project under review. However, such state ocean planning efforts will greatly aid the federal action agency in drafting the NEPA document and are an integral part of informal scoping under NEPA.

Q: What regulatory efficiencies are available and can they be implemented? Participants did discuss formalizing the state ocean planning (i.e., pre-application) efforts as a way to gain input from federal agencies earlier in the process. If resources were made available to federal agencies, this is a relatively simple way to gain efficiencies within the current regulatory framework.

For some projects that require two federal action agencies, some efficiencies are present. For example, a renewable wind energy project proposed off of Block Island, RI includes transmission lines from the project location in state waters through federal waters and back through state waters to land. For the state waters portion, ACOE has permitting authority, while in federal waters, MMS has permitting authority. A streamlined approach includes the two federal agency efforts within one NEPA document (i.e., one ESA consultation, one EFH consultation, etc.) with either ACOE or MMS as the lead agency. This type of interagency coordination affords federal action agencies, as well as project partners, with regulatory efficiencies.

Furthermore, the states seek a programmatic NEPA document addressing regional priorities and focusing on the larger planning piece of the picture. The thought is that site-specific projects could then be tiered off of the programmatic NEPA document. Federal agencies recognize that currently no one agency has the lead authority, or resources, to write a programmatic NEPA document.

Q: Can federal agencies provide more consistent and predictable data requirements for projects to states and industries, both in New England and nationally? Federal agencies recognize that data sets vary in their availability and quality across geographies. Due to this variability and unlimited possibilities of project design, federal requirements for necessary data would not be “one size fits all.” Many federal agencies do not list standardized data requirements to improve regulatory efficiency and instead, choose to remain flexible in what is needed based on project location, design, and operation.

Overall, states want to better understand federal agency regulatory review questions and information needs up front to improve planning and project development and to avoid eleventh-hour “show stoppers.” States seek an articulation of a federal “collective corporate perspective” from the Fab 4 (FWS, EPA, NOAA, ACOE) as valuable consistent guidance to states. At the close of this discussion, federal agency representatives agreed to a larger conversation regarding the above issues at a later date.

Deerin Babb-Brott (MA EEA/CZM) and Chris Mantzaris (NOAA/NMFS)— offered the following scenario of using NEPA as a planning tool, focusing on adaptive and proactive planning:

- How can state and federal regulations codify learning and adapting as well as engagement of the federal community as part of the marine spatial planning process to proactively inform ocean plan development, scoping studies, etc? How can provisions for adaptive management be addressed proactively through NEPA and other federal and state permitting authorities rather than on the back end?

Participants focused the scenario discussion on two main topics: 1) using a phased process to address adaptive and proactive planning and 2) establishing a technical group within NROC to address EB/MSP-related regulatory and data issues.

Q: Can a phased NEPA process be used as a planning tool? States seek an approach using ACOE’s “highway methodology” process for moving proposed actions ahead and for regulatory streamlining under NEPA and other authorities. If federal representatives can ask the right questions of the states, and states and their planning partners and can provide the requested information during the planning process, a phased collaborative approach to the entire project is feasible.

Participants identified the need for establishing a technical group within NROC as a consistent forum to problem-solve around EB/MSP-related regulatory and data issues. This technical group is to include a team of lead permitting federal agencies and state representatives. These players have a link to management and a focus on the big picture, such as addressing emerging issues like aquaculture, as well as more project-specific issues.

Session 4: Data Accessibility Constraints and Opportunities— challenges accessing and sharing data.

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Purpose: To discuss and illuminate the challenges associated with data access/sharing and to craft an approach to address the issues.

Process: A facilitated, large-group discussion addressed the following:

- For Data Users: *What is your primary challenge with accessing data (timeliness, quality, format)?*
- For Data Holders: *What is your primary challenge to providing access to data (institutional roadblocks, staff resources, etc.)?*
- For All: *What are some solutions to overcoming the identified barriers?*

Summary:

This session aided in focusing participants' attention on current and future data constraints and potential solutions. The main discussion points are summarized below.

Data Users identified specific data that are needed and current obstacles in obtaining the data. For example, U.S. Coast Guard maintains the Automated Identification System (AIS) which tracks the movement of large commercial vessels. However, this type of data needs to be processed for use in marine spatial planning and the AIS dataset does not currently include many commercial and recreational vessels (but may soon as equipment prices lower). In addition, NOAA National Marine Fisheries Service (NMFS) currently maintains the Vessel System Monitoring (VMS), which tracks the movement of certain types of commercial fishing vessels. NMFS states that VMS datasets are also not maintained in a format that is accessible to states and other stakeholders because they contain proprietary information. The states have requested these data without the proprietary information; however, NMFS is currently understaffed to be able to remove proprietary information and to respond to requests in a timely manner. The USCG offered to assist with providing VMS data, scrubbed of proprietary information in small geographic areas, while NMFS works to resolve the issue of how to provide these data on a regional scale.

In addition, there was discussion among participants that a federal action agency (such as ACOE) can condition permits to require permittees to share data (e.g., meteorological data) among federal, and possibly state, agencies.

Finally, data users were interested in guidance regarding data requirements, e.g., is the RI planning process leading the way toward obtaining the minimum data required at the federal level? If resources in other states are similar, could we agree upon common standards for types, quality and amount of data required?

Day Two Meeting Objectives:

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1. Promote “thinking and working like a community.” Enhance interstate dialogue and regional coordination among state, federal and NGO NROC partners to support “on the water” ocean management efforts at each level.
2. Identify shared ocean planning and management needs to support state led, federally supported integrated ocean management.
3. Foster cooperation between government and non-governmental partners in the region to more effectively capitalize on opportunities to collaborate, leverage resources and jointly pursue work to fill science needs including data, analysis, and decision tool development.
4. Outline clear statement of need for various audiences (e.g., Ocean Policy Task Force, NE Governors, potential funders) to advance effective marine spatial planning in the Northeast.

Session 5: Marine Spatial Planning at a Regional Scale— shared ideas and progress from Day 1.

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Purpose: To share observations, progress, and state/federal perspectives on challenges/benefits of working regionally, finding regulatory efficiencies, and data sharing from Day 1 . Regardless of ultimate mandate or funding level, discuss how we can begin to think and function like a regional community.

Process: Betsy Nicholson presented highlights from Day 1 with a perspective on the potential opportunities presented by the interagency Ocean Policy Task Force initiative. This was followed by a facilitated, large-group discussion which was prompted by the following questions:

- *What do the NGO partners perceive as additional challenges/frustrations to working regionally?*
- *What are some additional perspectives on data accessibility?*
- *Are there outstanding questions from Day 1 that the NGO partners can help to answer?*
- *What are the advantages to working regionally that have not been mentioned already?*
- *What are our strengths as a regional community?*

Summary: For a summary of Day 1, see specific sessions above or the compiled presentation in the Appendix. The following summarizes key points from the large group discussion during this session.

The possibility of federal funding for a regional MSP pilot was seen by most as a significant incentive to “think and work like a community” in the Northeast. Participants identified the region’s strengths as contributions to its competitiveness, including:

- RI SAMP and MA Oceans Act/Ocean Management Plan are practical MSP experiences to leverage; specific data have been collected, mapped, and valued.
- The Northeast region is a more manageable geographic scale compared to other regions.
- Stakeholders have a tradition of working together and innovative partnerships have developed to advance MSP (i.e., MA Ocean Partnership in MA; University of RI, Coastal Resource Management Council and Sea Grant in RI).
- The applied science and research communities are strong (e.g., Regional Association of Research in the Gulf of Maine, Northeast Coastal and Ocean Data Partnership, Northeast Regional Association of Coastal and Ocean Observing Systems, Communication Partnership for Science and the Sea)
- There are real pressures/drivers, including offshore energy development interest, energy demand, fisheries, dredge disposal siting, aquaculture, etc.
- There is a unique law and policy capacity through regional universities and legal institutes (e.g., Roger Williams Maine Affairs Institute)
- The history of regional cooperation goes back to New England river basins work and New England Governors’ Conference.
- New England has good working relationships with neighboring Canadian initiatives and can learn from those experiences.
- New England is known for both a strong environmental ethic and a respected maritime heritage demonstrating a balance of uses.

Participants noted the differences between planning collaboratively within the region versus being required to develop a “regional plan.” There was concern among some that a federally-mandated plan might disrupt current momentum of the states in identifying/acquiring needed data, building relationships, and setting goals and objectives. An alternative approach would be to leverage states’ knowledge/experience to *inform* a regional process through NROC and other fora.

Ample discussion centered on the relative validity of using a practical single sector issue (e.g. offshore renewable energy development) to drive integrated MSP or whether the approach risks prioritizing ocean uses on a first-come-first-served basis leading to unintended consequences that compromise ecosystem resiliency.

There was general agreement that capacity building for NROC is needed to fulfill its potential roles and capitalize on regulatory efficiencies and to leverage scientific efforts within the region. In addition, effective stakeholder engagement was recognized as an essential component of MSP and acknowledged to be resource intensive (time and cost).

Session 6: World Café Session— developing a list of priority data, support tool and process needs for regional MSP. (*Return to Table of Contents*)

Purpose: To develop prioritized lists of data types, products/tools, and governance/process requirements to enable effective regional MSP. The results of this exercise will provide content for a New England regional statement of need.

Process: Participants self-selected into six breakout groups to collectively identify data types, support tool and process needs for each of the following six categories:

- 1) Data
- 2) Human Use Characterization
- 3) Habitat Classification
- 4) Cumulative Impacts
- 5) Tradeoff Analysis
- 6) Adaptive Management

Summary:

The breakout groups (consisting of state, federal, NGO and academic representatives) rotated by free choice among the six stations. At the end of the exercise, each person was asked to identify the single top priority item per station. Participant votes for priorities were color-coded indicating the participants' sector (federal, state, NGO, academic). Where there was a distinct majority portrayed by one sector those are indicated below. The top-priority choices are presented below and complete need listings can be found in the appendix to this report.

Data

- Require project applicants to share/grant access to data in the permitting process;
- Ensure that data are made widely available;
- Resist an absolute mandate for data integration;
- Share protocols for collection and data standards; and
- Encourage data/science translation (communication & outreach) for managers, regulators and the public.

Human Use Characterization

- Enhance current human use compatibility analyses;
- Improve commercial/recreational fisheries datasets (a priority for: States);
- Develop a formalized and standardized approach to local knowledge capture (public participation GIS); and
- Address the reluctance of stakeholders to share data.

Habitat Classification

- Develop a model/framework/enabling approach for habitat classification (a priority for: NGOs);
- Collect detailed bathymetric data (a priority for: States); and
- Determine a metric for vulnerability/resilience of habitats/ecosystems.

Cumulative Impacts

- Develop a product/tool that aggregates data types and spatial/temporal cumulative impacts;
- Decide on a solid baseline assessment of current impacts to build upon (a priority for: States); and
- Build capability for "edge-matching" of data inputs and analysis outputs (a priority for: Feds).

Tradeoff Analysis

- Determine who makes decisions on what is valued— clarification of the political process up front;
- Ensure that data and methodology measure true (not just classical) costs and benefits of ecosystem services being ‘traded off’; and
- Attempt to match the scope of a tradeoff exercise to the resolution of available data.

Adaptive Management

- Monitor ongoing funding opportunities and clarifying values/goals consistently (a priority for: States);
- Integrate adaptive management into the permitting process;
- Fund data collection by public/private partnerships;
- Set measurable, time-bound objectives and specific measures of success; and
- Determine how a permitting process can be adaptive and decisive at same time if “final” agency action must accommodate mechanisms for adaptive management? (a priority for: Feds).

Session 7: Matching Needs with Existing Efforts—partners showcase relevant, ongoing projects.
(Return to Table of Contents)

Purpose: To provide an opportunity for partners to introduce relevant/applicable MSP tools and projects, and to promote awareness of existing efforts and identify potential opportunities for collaboration / leveraging efforts.

Process: This session consisted of a series of 5-minute PowerPoint presentations in which each presenter was asked to succinctly address the following questions:

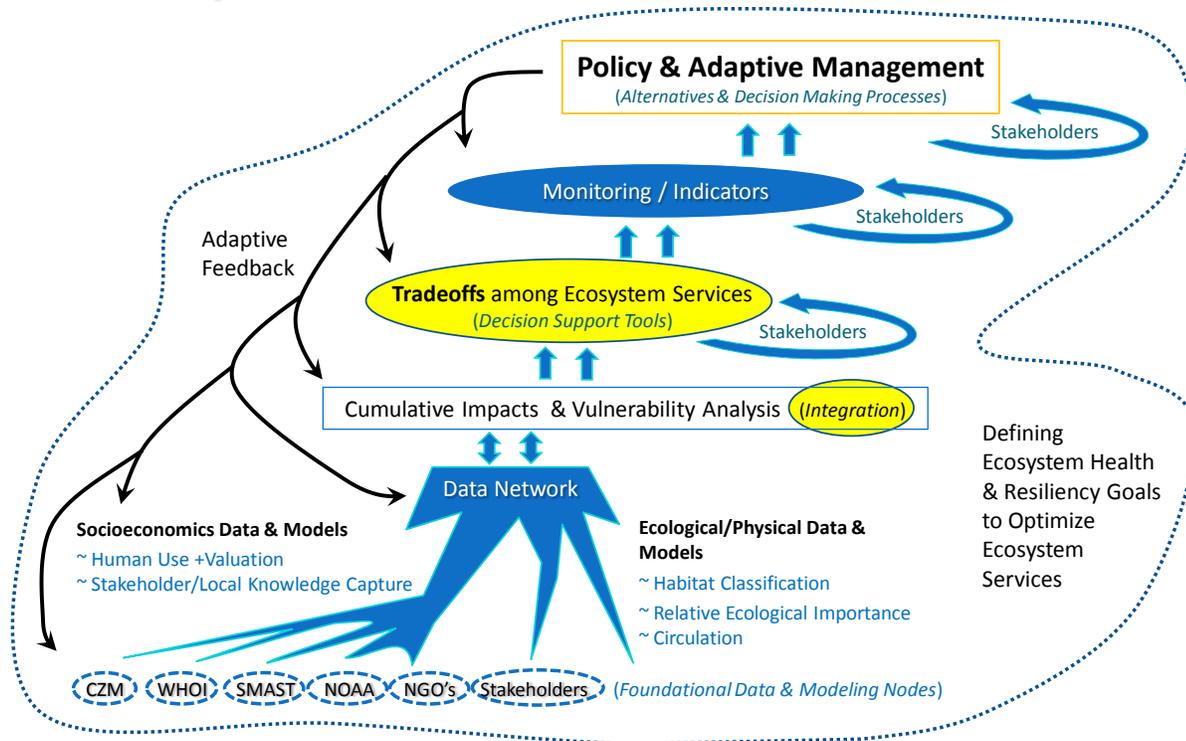
- 1) *What is it (the tool/project)?*
- 2) *What does it do (what MSP needs are addressed)?*
- 3) *What is the tool's applicability at varying scales?*
- 4) *What is the tool development status (what stage and when available)?*

Summary:

Stephanie Moura (Massachusetts Ocean Partnership, MOP)— Introduction to Session

Stephanie oriented participants to a simple diagram depicting interconnected components of EB-MSP, noting that each presentation to follow would fit into that overall structure. (See below.) Foundational data and modeled data products feed into a dynamic information network which supports integrated, cross-sectoral analysis of ecosystem vulnerability and cumulative impacts. Products of these integrated evaluations support quantification of tradeoffs among ecosystem services (ecological, socioeconomic and cultural) under different management scenarios. When specific ocean ecosystem services are valued in spatially explicit areas, their status can be monitored and communicated to managers and affected stakeholders. In an iterative process of adaptive management, this information provides feedback to inform decision-making at multiple levels, with the ultimate aim of optimizing provision of ecological, socioeconomic and cultural services through setting and periodically re-evaluating targets for ecosystem resiliency.

Ecosystem-Based MSP



Brian Smith (NOAA Coastal Services Center, representing joint project with Mineral Management Service)— Data Network ([link to presentation](#))

- The Multi-purpose Marine Cadastre is a marine information system for the outer continental shelf and state waters;
- It is a screening-level tool for MSP-related decision-making;
- It can be used at multiple scales (national, regional, and local—depending on data availability);
- It is currently available on-line, and can serve as a credible one-stop screening tool for MSP in New England if desired by the community.
- <http://www.csc.noaa.gov/mbwg/htm/multipurpose.html>

Tom Shyka (representing the Northeast Regional Association of Coastal & Ocean Observing Systems)— Data Network/Data Provider ([link to presentation](#))

- NERACOOS is a collaborative organization designed to deliver products and services to stakeholders and user communities;
- They integrate and provide information from observations and models on ocean energy, coastal hazards resiliency, HABs, water quality, ocean acidification, etc.;

- The goal is to develop a regional data integration framework to support end user products and services.
- <http://www.neracoos.org/>

Jack Wiggin (Urban Harbors Institute)— Human Use Characterization (*link to presentation*)

- UHI is part of a team conducting a study commissioned by DOI/MMS to identify and characterize renewable energy space-use conflicts on the Outer Continental Shelf, analyze potential mitigation measures and strategies, identify opportunities and mechanisms for communication and cooperation, and to develop a related geospatial database;
- This effort will provide a broad-scale view for evaluation of leases for renewable energy projects in the coastal and Outer Continental Shelf offshore waters of the Atlantic and Pacific oceans;
- Project just started, 24 months to completion.
- http://www.uhi.umb.edu/projects_current.htm

Nicholas Napoli (MA Ocean Partnership)— Human Use Characterization (*link to presentation*)

- This MOP effort is focused on the characterization and valuation of human uses in MA state and potentially adjacent federal waters including: commercial fishing, recreational fishing, recreational boating, and vessel navigation;
- It will more specifically identify priority commercial fishing grounds and characterize their value, develop spatially explicit data on recreational fishing and the value of that activity to coastal communities, and develop more refined spatial data on recreational boating of all types and estimate the value of priority boating areas and their relationship to coastal communities;
- Methodologies for characterizing and valuing other human uses will also be considered;
- The methodologies can be expanded regionally;
- The project is being scoped now and will be implemented in 2010.
- <http://www.masscoastpartnership.org/scienceinput.html>

Brian Smith (NOAA Coastal Services Center)— Habitat Classification (*link to presentation*)

- The Coastal and Marine Ecological Classification System (CMECS) is a system of habitat classification that considers: water column, biotic cover, surface geology, sub-benthic composition, and 3-dimensional, geomorph structure;
- It provides structure for developing and synthesizing data, supports status and trend monitoring, and complements existing wetland and upland classification systems;
- The map and geographic scales are user-driven, and there is no predefined minimum mapping unit;
- Status: surface geology component is complete to subclass level, biotic cover is ready to test and apply, geomorph and water column components are being reviewed and refined while the sub-benthic component work has just begun.
- NOAA and partners are currently moving through the Federal Geographic Data Committee process to make CMECS a national standard for habitat classification.
- <http://www.csc.noaa.gov/benthic/cmecs/>

Sally Yozell (The Nature Conservancy)— Habitat Classification (*link to presentation*)

- The NW Atlantic Marine Ecoregional Assessment is a robust, transparent, distributable data baseline, to serve as an information resource to marine decision-makers and managers;
- It helps assess integrated information and identify areas, species, and ecological processes of biological significance that, if conserved, will protect biological diversity of the NW Atlantic;
- This provides a flexible, regional model that can be scaled to finer resolution when data are available;
- Data and maps will be available in the near-term.
- <http://www.nature.org/initiatives/marine/>

Chris Boelke (NOAA/National Marine Fisheries Service)— Habitat Classification (*link to presentation*)

- Essential Fish Habitat (EFH) is defined as: “Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity”;
- EFH Text Description: describes the types of habitat and physical characteristics that comprise the EFH for a given life stage and species, EFH Map: identifies the areal extent with which the EFH text description applies;
- It is an adaptive approach which requires updates of new and refined data every five years;
- Adoption of EFH omnibus amendment is scheduled for 2011.
- <http://www.nmfs.noaa.gov/habitat/habitatprotection/efh/>

Nicholas Napoli (MA Ocean Partnership)— Cumulative Impact Analysis (*link to presentation*)

- Cumulative Impact Analysis is a methodology for analyzing and mapping the impact of human activities on marine ecosystems;
- It produces an ecosystem vulnerability index, organizes human activity/stressor data, maps the footprint of human activities, and models cumulative impacts to ecosystems;
- The methodology is applicable to local, regional, and global scales;
- By February 2010, there will be an initial vulnerability index for the northeast region with initial cumulative impacts maps for MA and adjacent federal waters. Further refinements will occur throughout 2010.
- <http://www.masscoastpartnership.org/scienceinput.html>

Les Kaufman (Boston University)— Tradeoff Analysis / Ecosystems Services Modeling (*link to presentation*)

- The Multi-scale Integrated Model of Ecosystem Services (MIMES) is a dynamic computational model designed to address the following questions: How and where are ecosystem services generated?, What happens when one service is valued over others?, and What happens over varying scales and over time?;
- MIDAS (Marine Integrated Decision Analysis System) is a graphic end-user interface between complex dynamic research models like MIMES, and the questions and needs of local managers and stakeholders, the vast majority of whom are not scientists;
- This MOP project is being developed initially for application in MA with the first deliverable product likely in 2010.
- <http://www.uvm.edu/giee/mimes/media.htm>

Verna DeLauer (COMPASS)— Monitoring and Indicators ([link to presentation](#))

- The Communication Partnership for Science and the Sea (COMPASS) is working with an NCEAS (National Center for Ecosystem Analysis and Synthesis) working group to develop a concise set of transferable indicators;
- COMPASS is also coordinating a process to improve understanding, communications, and consistent messaging among indicator initiatives in the northeast region;
- Using knowledge gained from the review of northeast regional indicator initiatives, COMPASS will inform MA and other EB-MSP efforts about the appropriate use of indicators based on project requirements;
- In collaboration with MOP, a database of regional indicator efforts is being developed and a spring 2010 workshop to convene and coordinate the various indicator initiatives is being planned; and
- The group will consider mechanisms for ongoing communication among the various indicator initiatives in order to inform projects at varying scales (from local projects, to states to the region).
- <http://www.compassonline.org/>

Session 8: Collaborating as a Region— how can we work together to effectively advance state and regional MSP?

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Purpose: To discuss how we ensure that efforts in the region are coordinated, informed/integrated, communicated, and ultimately implemented.

Process: Facilitated large-group discussion.

Summary: The beginning of the session was framed by considering how the NROC partner efforts can be coordinated and communicated. Some suggestions were:

- Develop a coordinated, strategic communication plan that identifies key target audiences (legislators, funders, etc.);
- Share monthly progress reports and other information via email list-serve/website;
- Regularly reconvene this group, approximately every six months;
- Distribute a meeting summary from this working session with action items and all supporting materials including NGO PowerPoint presentations;
- Further develop the NROC website (including links back to partner organizations);
- Share our progress within the Northeast region and beyond—promote this initiative widely;
- Develop a way to track and communicate progress (funders, legislators, public); and
- Continue to enhance communication between scientists and managers.

As a region, how do we want to move things forward, coordinate, and leverage efforts? Some suggestions included:

- Have NROC put together a coordinated, regional MSP work plan (NROC subcommittee?);

- Create strong/clear objectives and framework upfront before developing a regional NROC MSP program;
- Outline specific potential pilot projects within the region;
- Develop a funding approach;
- Develop an ocean data plan;
- Develop a focused understanding of needs from frontline managers;
- Obtain MMS studies and others that are available;
- NEARACOOS and NROC have signed a MOU (strategic planning now for Regional Associations & NERACOOS 3-year window);
- Further define decision support tool needs;
- Develop more engagement with industry stakeholders, help them to be more comfortable with MSP concepts;
- Match tools and inventories to NROC needs; and
- Use a conceptual model to comprehensively map current/future projects (EB-MSP), coordinate with global efforts.

Session 9: New England Statement of Need— sharing results of the working session with IOPTF, legislators, and potential funders.

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Purpose: To give NROC partner attendees an understanding of how the information generated during this two-day working session will be shared.

Process: Brief presentation by Betsy Nicholson and discussion in large group.

Summary: Priority issues, concerns, and solutions from this workshop will be identified, addressed, and shared with others within the region (e.g., this report) and nationwide. Action items are listed within this document as a repository of expected continuing efforts. The first items addressed from the list of Action Items will be this document's availability to the participants and greater public, and state input to IOPTF in the form of recommendations from NROC to CEQ.

A Statement of Need will be drafted by NROC, reviewed by partners and pitched to the federal community, NE Congressional delegation and potential funders to support future MSP efforts at a regional scale. This document will also assist non-governmental partners in finding their niche to best contribute to a regional planning process to ensure that their products are meeting a management need.

REPORT APPENDICES—

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- 1) Participants/Attendees list ([link...](#))
- 2) Participant Agenda ([link...](#))
- 3) Presentation of Day 1 Findings [from Session 5] ([link...](#))
- 4) Matrix Stations 1-6 Content [from Session 6] ([link...](#))
- 5) Partner Presentations [from Session 7] ([link...](#))

October 26th, 2009 Attendees List ([Return to Table of Contents](#))

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Tom Chapman, DOI – USFWS

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**Northeast Regional Ocean Council
Marine Spatial Planning Working Session
October 26, 2009**

**NOAA North East Regional Office
55 Great Republic Drive, Gloucester, MA (Hearing Rooms A-C)**

Meeting Objectives

1. Promote “thinking and working like a community”. Enhance interstate dialogue and regional coordination among state and federal NROC partners to support “on the water” ocean management efforts at each level:
 - Share perspectives on benefits and challenges for MSP
 - Understand drivers for each state and the federal community
 - Acknowledge challenges and potential opportunities for coordination at a regional scale
2. Explore options for enhancing regulatory coordination and efficiencies and outline realistic options responsive to state and federal partner’s specific needs, opportunities and constraints
3. Identify shared ocean planning and management needs to more effectively capitalize on opportunities to collaborate and leverage resources for research, data, analysis, decision tool development and other science efforts to support state led, federally supported integrated ocean management

DAY 1

- | | |
|-------|---|
| 9:00 | Check-in |
| 9:30 | Welcome, purpose of workshop, review of agenda, introductions |
| 10:00 | Setting the Context – presentations of state and federal perspectives on marine spatial planning |
| 11:30 | Lunch |
| 12:15 | Framework for Working Better Together – what could it look like?
Understand perspectives, constraints and opportunities for coordinating MSP efforts at a regional scale |
| 1:30 | Putting Regional Perspective into Practice – finding regulatory efficiencies |
| 3:30 | Break |
| 3:45 | Data Accessibility Constraints and Opportunities |
| 4:45 | Wrap up – and adjourn for the day |



**Northeast Regional Ocean Council
Marine Spatial Planning Working Session
October 27, 2009**

Meeting Objectives

1. Promote “thinking and working like a community”. Enhance interstate dialogue and regional coordination among state and federal NROC partners to support “on the water” ocean management efforts at each level
2. Identify shared ocean planning and management needs to support state led, federally supported integrated ocean management
3. Foster cooperation between government and non-governmental partners in the region to more effectively capitalize on opportunities to collaborate, leverage resources and jointly pursue work to fill science needs, including data, analysis, and decision tool development
4. Outline clear statement of need for various audiences (e.g., Ocean Policy Task Force, NE Governors, potential funders) to advance effective marine spatial planning in the Northeast

Day 2

8:30	Check-in
9:00	Welcome, review of agenda, introductions, results of Day 1
9:30	Marine Spatial Planning at a Regional scale – building upon ideas for working regionally
10:45	Break
11:00	World Café Session - data, products and processes for effective MSP at the state and regional scale
12:00	LUNCH
12:45	World Café Continued - review of prioritization activity
1:15	Matching Needs with Existing Efforts – hearing from our partners
2:30	Break
2:45	Collaborating with NROC – the NROC dock
3:30	New England Statement(s) of Need – plan for preparation and submission
4:45	Wrap up and next steps

Summary of Day 1

NROC Marine Spatial Planning
Working Session
October 26-27, 2009
Gloucester

Setting the Context

- Driver: Ocean energy is key issue that will drive MSP approach (states are generators, transmitters, and test beds)
- Data: Common data needs to support decisions
 - Make decision with what you have (match sophistication of data and decisions)
- Lessons learned: Share them, still learning
- Opportunities for collaboration: cumulative impact analysis, data collection/access, human atlas, trade off analysis, habitat classification

Some Challenges to CMSP

- Authority to act varies
- States lack interstate compact/agreement authority
- Inconsistent policies at State level
- Multiple Federal mandates
- Geographic Scope: land, estuary, State and Federal marine water interface
- Common set of data and CMSP tools needed
- Federal, State and Tribal “buy-in” to a CMS Plan
- How will a CMS Plan be used?
- Adherence to a CMS Plan once agreed to.

Benefits to CMSP

- Comprehensive, proactive, predictable, and adaptive CMSP will lead to more coordinated and informed decisions at all levels of Government.
- Greater efficiencies for regulators and users: delivery of Federal services; data and information gathering and sharing; environmental reviews, etc.
- Some legal requirements at Federal and State level may be simplified.
- Address issues unique to a region.

Framework for Working Better Together

- Sense of urgency
- Top down regional plan vs. organic planning (creating track star when we don't know how to walk)
- Embraced concept of regional plan in 3-5 years but have to get there from ground up

Framework for Working Better Together

- Start by developing agreed upon coordination framework on how to get there
- Data plan – sharing data sets and products and tools that you need to use them
- Coordinate federal response (planning and site specific phase)
- NROC has a role in coordinating these needs

Incentives to Work Together

- Opportunity to leverage limited existing funding, collaborate and generate new funding sources
- If states and feds collaborate regionally there are efficiencies around data sharing, acquisition; regulatory coordination
- Regional perspective allows predictability for managers and developers, build out plans for the region, allocate conservation, energy, aquaculture needs more effectively as a region

Role of NROC

- Liaison between states and feds regarding data and other needs
- Solutions shared and standardized so states that follow can benefit
- Provide consistent response from feds
- Plans analyzed for compatibility and edge matching to role up into a regional plan
- Revisit of NROC table for MSP issues

Capacity Building/Working Collaboratively

- Staff
- Technological capacity for data analysis
- Long term economic social and environmental impacts
- Involve stakeholders
- Sharing data, gaps, collection protocols, standards
- Defining needs for data
- Funding

Regulatory Efficiencies: Proactive Planning

- States want to understand questions and needs up front to avoid 11th hour show stoppers
- Common list of requirements for NEPA
- Want data requirements standardized (what do you need)
- General characterization of impacts of major uses as pre-screening alternative analysis
- Early identification of no-go areas with right data sets
- Collective corporate perspective on consistent guidance from fab 4 (FWS, EPA, NOAA, ACE)
- Establish technical group within NROC construct to tackle MSP regulatory and data issues

Data Accessibility

- Data needs:
 - Avian fauna, AIS, VMS
- Matching up data rich and poor, state and fed waters
- Standardizing data protocols, formatting, classifications
- Barrier of proprietary data sets – build into permit conditions for applicants
- Data released with caveats to help states use it wisely

Session 6: World Café Session— developing a list of priority data, support tool and process needs for regional planning.

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Participants self-selected into six breakout groups to **collectively identify data types, support tool and process requirements** for each of the following six categories:

- 1) Data
- 2) Human Use Characterization
- 3) Habitat Classification
- 4) Cumulative Impacts
- 5) Tradeoff Analysis
- 6) Adaptive Management

The break out groups (consisting of state, federal, NGO and academic representatives) rotated by free choice among the six stations and then at the end of the exercise each person was asked to identify the single top priority item per station.

Complete results of each station are reported below.

<p><u>STATION 1: DATA</u> <i>What does your state and the Northeast community need to enable EB-MSP at state and regional scales?</i></p>
<p>DATA TYPES NEEDED:</p> <ul style="list-style-type: none">▪ Commercial Fishing▪ Avi Fauna▪ VMS & AIS▪ Climate Change Category▪ Water Chemistry▪ <u>Barriers</u><ul style="list-style-type: none">○ Hard to standardize with evolving technologies○ No process for including anecdotal data into process○ Lack of awareness of available data○ Security sensitive data pipelines, electrical - fed guidelines, some public; need restricted access○ Need to know scale and detail○ Technical barriers for large data sets – hard to visualize○ QC – how do you know data is good quality?
<p>SUPPORT TOOLS NEEDED:</p> <ul style="list-style-type: none">▪ Who hosts data and how is it distributed?<ul style="list-style-type: none">○ TDI – development in RI○ ESVI [1 Federal] and EVI [1 NGO] – MA and RI working on indexes (EVI enhanced if

others use optimization tools)

- Data/science translation needed for managers, regulators and public [2 NGO, 2 Academia, 2 State]
- Make sure venues for moving data out
- Visualization tools for public access [1 NGO, 1 Academia, 2 Federal]

PROCESS NEEDS:

- Data Sharing Barriers
 - Integration effort lacking; a lot of small pieces collected [1 State, 2 Federal]
 - Developers (industry) not providing access; feds allow data to be proprietary
 - Incompatible networks – NOAA DIF, EPA; designed for back end
 - No mandate for integration; lack of use protocols, standards, metadata to describe [2 NGO, 2 State, 4 Federal]
 - Confidential data (e.g. VTR)
 - Lack of incentive – no need for realizing a dynamic network [3 NGO]
- Realizing a Dynamic Network [2 NGO]
- Require data access in permitting process; make sure real, available [2 NGO, 3 Academia, 7 Federal]
- Mandate to coordinate [1 State, 2 Federal]
- Regional association [1 NGO]
- State agencies
- Federal mandate for geographic standards and sharing exist
- Specific project could motivate better sharing
- ASMFC has regional warehouse
- USGS, FGDC - data clearing house nodes
- MMS – can help make known
- Sensitive data – scale dependent
- Academic community can help

Table Legend:

- Item/issue noted spans more than one section for a particular station
- Total vote count for: NGOs, Academia, State, Federal participants
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STATION 2: HUMAN USE CHARACTERIZATION

What does your state and the Northeast community need to enable EB-MSP at state and regional scales?

DATA TYPES NEEDED:

- Commercial & Recreational Fishing [NGO 2, Academia 1, State 5]
 - Distribution of effort by species
 - VNK, VTR, observer data
- Community use patterns – local knowledge
 - Data on non-fed managed species
- Aquaculture
 - Leased areas/species
- Other recreational uses [Federal 1]
 - Use patterns
- Science research sites
- Rec fishing
 - Marine rec fisheries statistics - use patterns
 - (what caught, effort)
- Energy technology
- Navigation
 - AIS data (comm. & rec boating)
 - Shipping and commercial
- Transmission – relation to land side
- Cultural/Historical [Federal 1]
 - (i.e. ship wrecks, traditional local knowledge)
- Whale watching
- Disposal sites – hist, existing, haz waste, dredging
- NDAs
- Future unknown/unimaginable uses

SUPPORT TOOLS NEEDED:

- Regional pilot for VMS data – states & NMFS [NGO 1, State 1]
 - Multi-purpose marine cadastre (shipwrecks)
 - boundaries
- Energy technology feasibility assessment [Federal 3]
 - Land side connections [NGO 1]
- Viewshed/visual impact analysis [Federal 1]
- Compatibility analysis [NGO 2, Academia 3, State 2, Federal 4]
- Fishing Index – to prioritize areas
 - Uncertainty
- Permit data imbedded in MSP data set.
- Formalized approach to local knowledge capture – PPGIS [NGO 3, State 1]

- (anecdotal data) → lack of validation
- CA marine map
- Model or tool to incorporate emerging uses [NGO 1, Academia 1]

PROCESS NEEDS:

- Regionally identity
- Reluctance of stakeholders to share data – trust issue [NGO 4, Academia 1, Federal 1]
 - get stakeholders in a mind to make data available
- Access to science research site data
- Private providers of AIS – agreements

Table Legend:

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STATION 3: HABITAT CLASSIFICATION [1 State]

What does your state and the Northeast community need to enable EB-MSP at state and regional scales?

DATA TYPES NEEDED:

Standardization needed across all categories.

- Seafloor/Bathymetry/Benthic
 - Detailed bathymetrical substrate - LIDAR [3 NGO, 4 State]
 - Benthic biological communities – sessile, mobile [1 Academia, 2 Federal]
- Wetlands [1B]
- Tidal rivers
- Water column (inclusive of physical oceanography) [1 Federal]
 - Vertical integration within (by species)
 - Issue – it moves, so how do you deal w/it?
- Air column
 - Bats
 - Avian
 - Human uses
- Species
 - Diadromous fish
- Information sources
 - White paper from Consortium for Ocean Leadership

SUPPORT TOOLS NEEDED:

Standardization needed across all categories.

Relative Ecological “Value”

- Potential physical habitat - important to make distinctions between biological and geophysical - info availability? (“foundational pieces”); need regional buy-in and peer review on the process
- SASI (Swept Area Seabed Impact) tries to tie 3 components together (2 pieces of benthic biology and bathymetry)
- Consideration of seafloor/life history/physical oceanography in an index (MA example)
- Consideration of shifting baselines in habitat classification; need to include goal setting exercise
- Habitat connectivity analysis (birds, highly migratory species, marine mammals)/life history requirements [1 NGO, 1 State, 2 Federal]/trophic level dynamics
- Measure of vulnerability/resilience of communities to disturbance (e.g. Halpern, HSI of west coast, Kostyler & Todd) [4 Academia, 1 Federal]

PROCESS NEEDS:

Standardization needed across all categories.

- Need standard data elements/requirements; a state/federal framework to support information for/by permit applicants and monitoring requirements [1 State, 4 Federal]

- Regional buy-in and peer review on the process [2 Federal]
- Need *scale* of data collected to inform both management and data collection
- We are lacking a framework to tie all this together
- Need model/framework/enabling approach for habitat classification to move forward w/best available data [6 NGO, 2 Academia, 1 State, 2 Federal]
- Focus on stage (habitats) even if the players (species) will change (i.e. climate change, disturbance, etc.)
- Mechanism for sharing? [1Federal]

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STATION 4: CUMULATIVE IMPACTS

What does your state and the Northeast community need to enable EB-MSP at state and regional scales?

DATA TYPES NEEDED:

- Identify activities – past, present, future
 - Commercial fishing [1 Federal]
 - Recreational fishing [1 Federal]
 - Navigation
 - Aquaculture
- Water quality
- Status of stocks
- Endangered species
- Air quality
- Land use
- Baseline
- Environmental justice
 - Subsistence fishing
 - Economic analysis
- Habitat
- Sediment/benthic
- Ocean circulation/physical oceanography
- Climate/atmosphere
- Mineral exploration, sand/gravel, etc.
- Traditional knowledge
- Military/Homeland Security
- Energy flows – shipping traffic
 - AIS
 - State records – NY, MA
- Cultural/aesthetic
- Parks/MPAs
- Incorporation of data from outside region/reconciliation of scale and time series
- OK to have different spatial and temporal resolution

SUPPORT TOOLS NEEDED:

- Baseline assessment to build on [1 NGO, 1 Academia, 5 State]
- Impact assessment for individual projects [2 Federal]
- Socioeconomic analysis/impact (environmental justice)
- GIS-based decision tool – MMC? [1 NGO, 1 Federal]
- Statistical analyses
- Incorporation and improvement of ecological valuation tools

- Models – wildlife history
- Predictive modeling
- Spatial aggregation of data types - regional scale maps [3 NGO, 1 Academia, 2 State, 3 Federal]
- Spatial and temporal cumulative impacts [4 NGO, 1 Federal]

PROCESS NEEDS:

- Edge matching (across boundaries) [2 Federal]
- NEPA documents (requirement)
- ESA - Section 7 (requirement)
- Permitting agency standards
- Stakeholder process
 - Tribes [1 Federal]
 - Improvements in trust
- Research on existing and emerging uses [1 Federal]
- Data availability/aggregation/ID scrubbing
- Collect data and sharing requirements through various processes [1 Federal]
- Permit requirements to share data – enforce data delivery requirements
- What scales are appropriate for different decisions?
- Review and selection of appropriate models
- Consistent indicators/targets [1 Federal]
- Legal thresholds for cumulative impacts? [2 Academia]
- Carrying capacity threshold [1 NGO, 1 Academia, 1 Federal]
- Regional analysis is key (and cross-agency) [1 Academia]

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STATION 5: TRADEOFF ANALYSIS

What does your state and the Northeast community need to enable EB-MSP at state and regional scales?

DATA TYPES NEEDED:

- Foundational info=best available info/science
- Biodiversity hotspots [NGO, 1]
- Human Uses
- Social preferences data
 - Do we want fishing econ/culture? [Academia, 1]
- Data about “True” Benefits & Costs Rather than “Classical Economic” costs than “Classical Economic” costs. “Externalities” [NGO 4, Academia 2, State 6, Federal 5]
 - Natural Res. Damage Assessments
 - Environmental Taxation
- Underlying Assumptions
- Must be visible
- Ecological Valuation

SUPPORT TOOLS NEEDED:

- Foundation info=best available info/science
- “Scenario” Analyses/Comparison Alts
- Develop a non monetary currency for valuing services to allow quantification across different kinds of values [NGO 1]
- Translate data types into ecosystem services as currency
- Optimization oriented tools [NGO 2, State 1]
- Scale reality check! Match scope of exercise w/resolution of available data [Federal 4]
 - Pilot will be ambitious
 - Beyond that is probably unrealistic
 - Will need finer data to drill down into priority areas
- Stakeholder involvement in developing tools builds a constituency [NGO 1]
- Underlying Assumptions
- Must be visible
- Develop a new vernacular for compensation and mitigation [NGO 1, Academia 1]
 - Consider lag effects over time
 - Track running tally of tradeoffs among services over time
- Running cost benefit analysis = Identify Priority Areas & Principal services and functions

PROCESS NEEDS:

- What laws & policies set as goals/targets about relative importance/values [Fed 1]
 - Areas of discretion vs. absolute
- Decision authority – who decides relative importance of uses/services? [NGO 1, Academia 1,

State 1, Federal 4]

- Feds? State? Municipalities? Regions? Stakeholders?
- Be clear up front to avoid 11th hour show stoppers
- Politics of acceptability
- Iterative ground truthing of priorities thru vetting w/public
- Different levels of authority not always harmonized
- Politics flows in to fill void of best avail info; interests will defend themselves in absence of data
- Running cost benefit analysis = Identify Priority Areas & Principal services and functions

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STATION 6: ADAPTIVE MANAGEMENT

What does your state and the Northeast community need to enable EB-MSP at state and regional scales?

DATA TYPES NEEDED:

- **Monitoring:** [NGO 1, Academia 1, State 4]
 - must be funded ongoing & values clarified consistently
 - What is a reliable source of funding?
- Observation
- Planning – public data sets [Federal 1]
- Permitting – onus on development
- Modeling – adaptive management
- **Indicators:** [NGO 3, Federal 2]
 - What are management goals?
 - Should be policy relevant, measurable, understandable
- Human use value data; human dimensions
- Q: How do you make real-time changes as new data become available? If plan review is on different timescale, for example.

SUPPORT TOOLS NEEDED:

- Report card/schedule
- Trade-off analysis, scenario analysis
- Predictive modeling
- Political will, public education
 - Involving NGOs to help with stand political change
- Plan itself identifies data needs/gaps & how to move learning forward
- Reporting requirements, licenses
- Contingency plan that allows for on permits
 - a.m.; requires indicator monitoring & management plan contingency is already identified (e.g. MWRA)
- Different lease terms

PROCESS NEEDS:

- **Building an Adaptive Mngmt up front** – even at permitting phase
 - Permitting: Funding data collection through public/private partnerships – need consistency & to make data publicly available. Take advantage of private investments/projects but leverage public. [NGO 4, Academia 2, Federal, 3]
- Public /private also important for learning
- Planning: Articulate what you're planning for what needs to be revisited
- Measurable, time-bound, objectives – be up front & specific/concrete about what we're managing for – Baseline [NGO 1, State 2]
- Project scale – manage risk –responses to different scenarios – what are management responses

required - be upfront & explicit **[Federal 3]**

- Review/reflect – built-in-mechanism for ensuring new info. Is integrated into decision-making; triggers that say it's time to rethink plan or project **[NGO 1, Academia 1]**
- Permitting – when do you have final agency action? Need mechanism for adaptive decision-making **[Federal 6]**
 - Differentiate between plan being adaptive & project being adaptive
 - Difference in natural resource data – adapt based on new info/science or impact data; why we adapt varies
 - Role between stakeholders & managers – can you be adaptive & continually get input? Adaptive to what end?
- Stakeholder engagement – jointly identify goals, objectives, processes (decision role)
- Do laws/processes/governance currently in place enable an adaptive approach? **[Academia 1, Federal 1]**
- Balance between rule making & policy – mechanism/scale to achieve this balance – maybe an executive order
- Can you be adaptive & decisive at same time?
- Permitting requirement to release data as utilize; part of larger data sets

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NOAA Coastal Services Center and Minerals Management Service

Brian Smith and Christine Taylor

MSP for NROC— Gloucester, MA
October 27, 2009



What is it?

The Multi-purpose Marine Cadastre is a marine information system for outer continental shelf and state waters.



What does it do? (What needs addressed?)

The Multi-purpose Marine Cadastre is a screening level tool for MSP related decision making.



What does it do? (What needs addressed?)

The Multi-purpose Marine Cadastre is a screening level tool for MSP related decision making.



* Denotes significant gaps in data



Applicability at Varying Scales?

The Multipurpose Marine Cadastre can be used for multiple scales (National, regional, local – subject to data availability).



Development/Usability Status?

The Multipurpose Marine Cadastre application is available on-line.

Next steps

- Habitat and biodiversity
- Focus on distributed data vision
- User guide
- Case studies



Three things to take away

- Like the other 11 Regional Associations of IOOS, NERACOOS is an open and collaborative organization designed to deliver products and services to stakeholder and user communities
- For this we integrate and provide information from a number of sources including observations and models.
- We are interested in the waters of the Canadian Maritimes to Connecticut



Maritime Safety and Security

www.neracoos.org

NERACOOS

NERACOOS and NROC

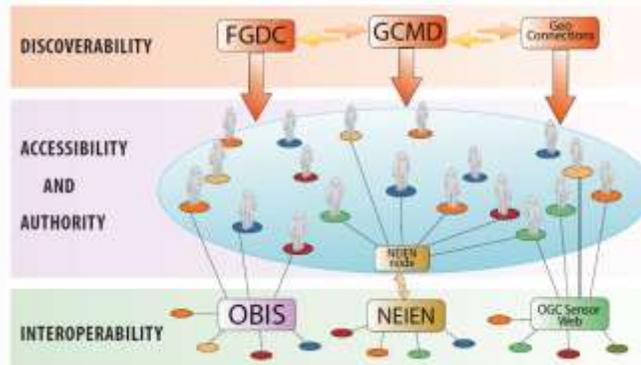
- Ocean Energy
- Coastal Hazards Resiliency
- Ocean and Coastal Ocean Policy
 - Harmful Algal Blooms
 - Water Quality
 - Ecosystem Management and Marine Spatial Planning
 - Ocean Acidification

Climate Change permeates all

NERACOOS

NERACOOS and NeCODP

Goal: Develop a regional data integration framework to support end user products and services



NERACOOS

Industrial Economics, Inc.
Urban Harbors Institute, UMass Boston
MIT Sea Grant
Research Planning, Inc.
Thomas J. Murray and Associates
Oregon State University
California Sea Grant Program

Jack Wiggin, Urban Harbors Institute

MSP for NROC— Gloucester, MA
October 27, 2009



What is it?

Identification of OCS Renewable Energy Space-Use Conflicts and Analysis of Potential Mitigation Measures

Study commissioned by US DOI MMS:

- Coastal and offshore waters, OCS, Atlantic and Pacific
- Inform MMS's future decision making on renewable energy projects on the OCS



What does it do? (What needs addressed?)

Identify and characterize space-use conflicts

- lit search, stakeholder meetings, ethnographic fieldwork

Development of a geospatial database

- determine multiple use areas; predict potential conflicts

Identify mitigation measures and strategies

Identify opportunities and mechanisms for communication and cooperation

- including, specifically, with NROC and WCGA



Applicability at Varying Scales?

MMS purposes: from broad-scale view to evaluation of leases for renewable energy projects

- Extent is the coastal and offshore waters and the OCS of the Atlantic and Pacific oceans
- Geospatial data from all reliable sources will be incorporated



Development/Usability Status?

Just underway—24 months to complete

- Geospatial database
 - Draft April 2010 / Final March 2011
- Stakeholder engagement
 - January 2010 thru March 2011
- Final report
 - September 2011



Massachusetts Ocean Partnership

Nicholas Napoli

MSP for NROC— Gloucester, MA
October 27, 2009



What is it ?

Human Use Characterization and Valuation for MA Waters

2008-09 Pre-Cursor - Massachusetts Ocean Plan



Commercial Fishing



Recreational Fishing



Recreational Boating

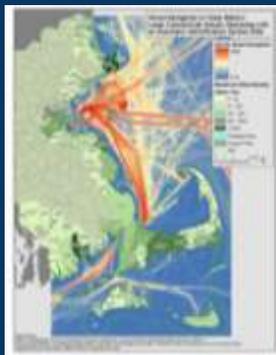
What is it ?

Human Use Characterization and Valuation for MA Waters

2008-09 Pre-Cursor - MOP Characterization of Community Specific Spatial and Socioeconomic Linkages to MA Waters



Commercial Fishing



Vessel Navigation



Recreational Activities

What do we need it to do? (What needs *will be* addressed?)

Commercial Fishing –

- More specifically identify priority commercial fishing grounds and understand their value

Recreational Fishing –

- Spatially explicit data on recreational fishing activity in MA
- Value of that activity to coastal communities and ports

Recreational Boating –

- Spatially explicit data on recreational boating activity of all types
- Estimate the value of priority boating areas and their relationship to coastal communities



Development/Usability Status?

Fall 2009

- Scoping

2010

- Implementation in MA
- Identify opportunities to expand regionally



NOAA Coastal Services Center

Brian Smith and Mark Finkbeiner

MSP for NROC— Gloucester, MA
October 27, 2009



Applicability at Varying Scales?

- Map scale and geographic scale is user driven
- No predefined minimum mapping unit



Development/Usability Status?

- ✓ **Surface Geology Component:** Complete to Subclass level. Some review of reef types needed. Ready to test and apply.
- ✓ **Biotic Cover Component:** Framework complete. Biotic Group is draft, Biotopes need development. Ready to test and apply.
- * **Geoform Component:** Framework complete. Values need additional review and smoothing.
- * **Water Column Component:** Framework being reviewed and refined.
- ✋ **Sub-Benthic Component:** In the initial stages. Watch this space.

<http://www.csc.noaa.gov/benthic/cmecs>



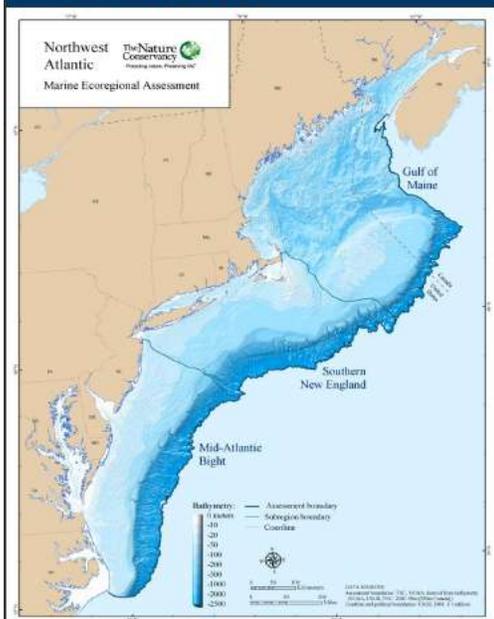
The Nature Conservancy

Sally Yozell
Dir. Of Marine Conservation

MSP for NROC— Gloucester, MA
October 27, 2009



NW Atlantic Marine Ecoregional Assessment - What is it?

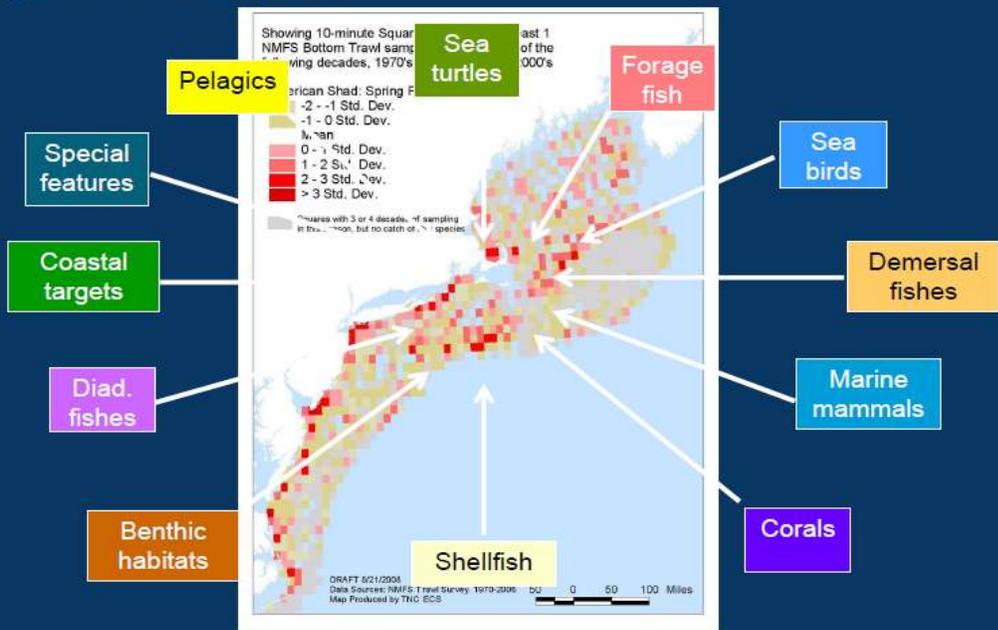


- A robust, transparent, distributable data baseline, to serve as an information resource to marine decision makers and managers

- Assess integrated information and identify areas, species and ecological processes of biological significance that, if conserved, will protect biological diversity of the NW Atlantic

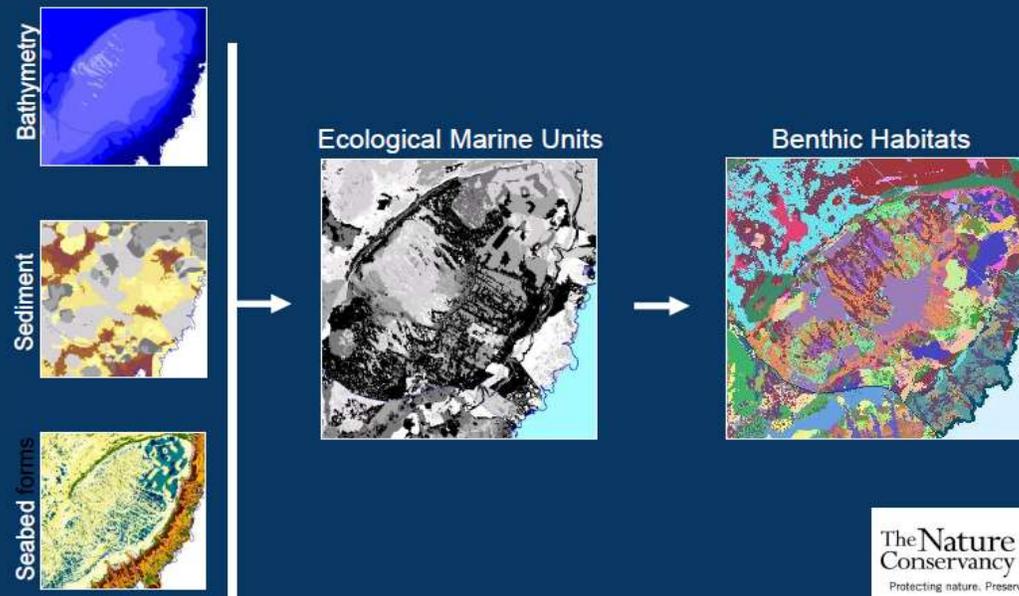


Goal: Identifying Important Places for All Targets- What is it?



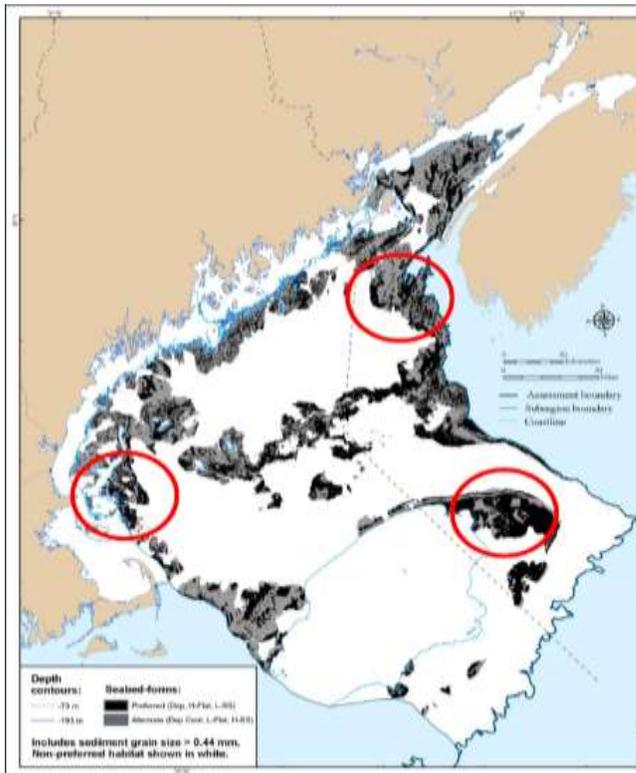
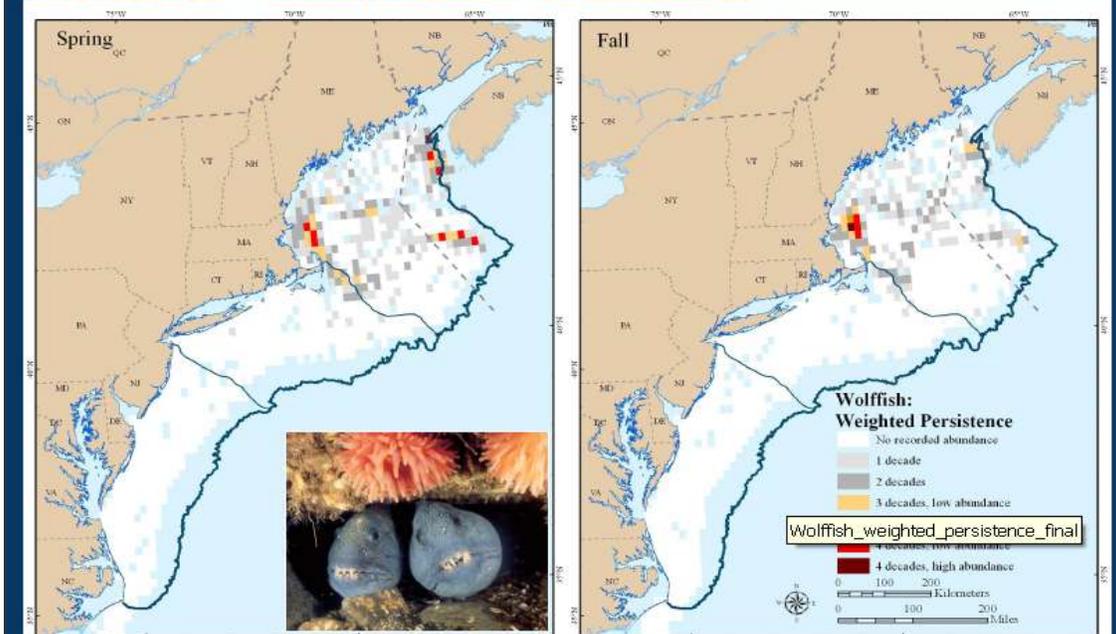
Benthic Habitat Analysis- What is It?

Ecological Marine Units (EMUs)



Fisheries Analysis - What is it?

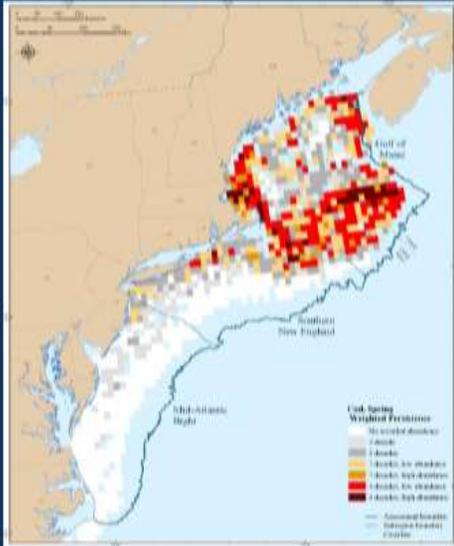
Fisheries - Weighted Persistence



What Does it Do?

Wolffish habitat in the Gulf of Maine

Scalability of Data



- Broad Regional Patterns
- Highlights areas of concern or “special places”
- Identifies areas for further investigation
- Flexible model that can be refined when new data is available
- Technique can be used in smaller more focused areas with finer scales



Development/Usability Status?

- Web Map Server
- TNC model output
- Refine model with new sediment data
- Cumulative threats model
- Human impacts Assess
- Tighten fish/benthic link



Questions?



Essential Fish Habitat (EFH)

“Those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.”

Sustainable Fisheries Act, 1996



EFH PROVISIONS of SFA

- **The Fishery Management Councils must describe and identify EFH for managed species, minimize to the extent practicable adverse effects on EFH caused by fishing, and identify other actions to encourage the conservation and enhancement of EFH**
- **Federal agencies must consult with NOAA Fisheries Service on any actions that may adversely effect EFH**

EFH Designation Components

- EFH **Text Description** – This describes the *types* of habitat and physical characteristics (sediment, depth, temperature, salinity, etc.) that comprise the EFH for a given life stage and species.
- EFH **Map** – This identifies the areal extent within which the EFH text description applies. Within the areas indicated on the map, only those places that fit the text description are actually EFH.

Revision of EFH designations

- Adaptive approach – update required every 5 yrs
- Inclusion of new data and refined existing data
- Habitat evaluation working group, Peer review workshop, Habitat PDT
- Scheduled 2011 – Adoption of EFH omnibus Amendment

New Habitat Approach (for benthic life stages)

Inshore

- frequency of occurrence (TMS with >10% + tows) in state survey datasets + ELMR

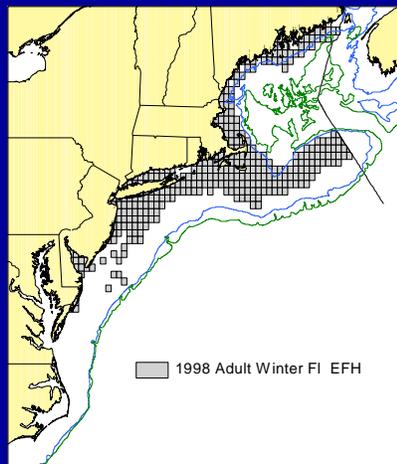
Shelf

- cumulative catch rates plus **habitat variables** (depth, bottom temperature, sediment types)

Off-Shelf

- occurrence based on depth for applicable species/life stages

“Old” and “New” EFH Maps



"Old" and "New" Text Descriptions

Old

Bottom habitats including estuaries with a substrate of mud, sand, and gravel on Georges Bank, the inshore areas of the Gulf of Maine, southern New England and the middle Atlantic south to Delaware Bay as depicted in Figure X. Generally, the following conditions exist where winter flounder adults are found: water temperatures below 25°C, depths from 1-100 meters, and salinities between 15-33 ppt.

New

Inshore and continental shelf benthic habitats (add geographic distribution) with substrates of mud, sand, gravel, and/or gravel with mud and sand, as depicted in Figure X. Other conditions that generally exist where EFH for adult winter flounder is found are: depths of 2 to 78 meters, bottom temperatures of 1-15.5°C, and salinities of 9-33.5 ppt. Primary prey organisms are polychaetes, amphipods, hydroids, anemones (e.g., *Cerianthus* spp.), and bivalve siphons.

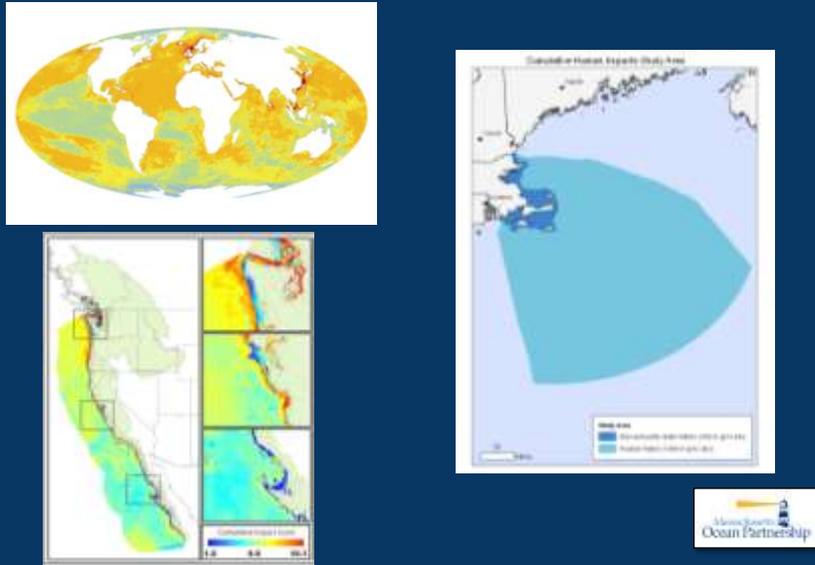
Massachusetts Ocean Partnership

Nicholas Napoli

MSP for NROC— Gloucester, MA
October 27, 2009



Applicability at Varying Scales?



Development/Usability Status?

January 2010

- Initial vulnerability Index for the northeastern region
- Initial cumulative impacts maps for MA and adjacent federal waters

After January 2010

- Refine human activity data and ecosystem classification
- Scenario analyses?
- Scale to the region?
- Compare to habitat classification schemes (TNC, CMECS, EFH, IEA)



Boston University

Les Kaufman

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October 27, 2009



What is MIMES?

It is a dynamic computational model that answers these questions:

1. How and where are ecosystem services generated?
2. What happens when one service is valued over others?
3. What happens over different scales and over time?

What is MIDAS?

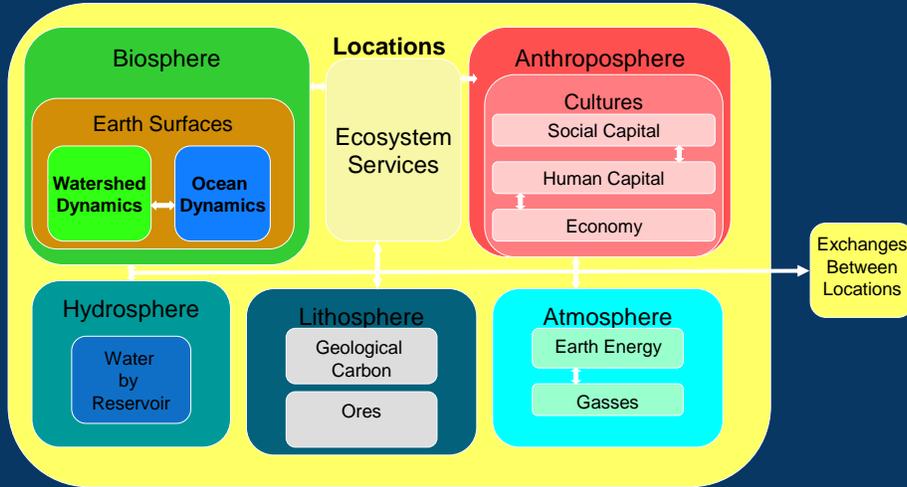
MIDAS is a user-friendly graphic interface for spatial planning.

It takes the knowledge gained from modeling, and puts it into the hands of managers in a useful form.

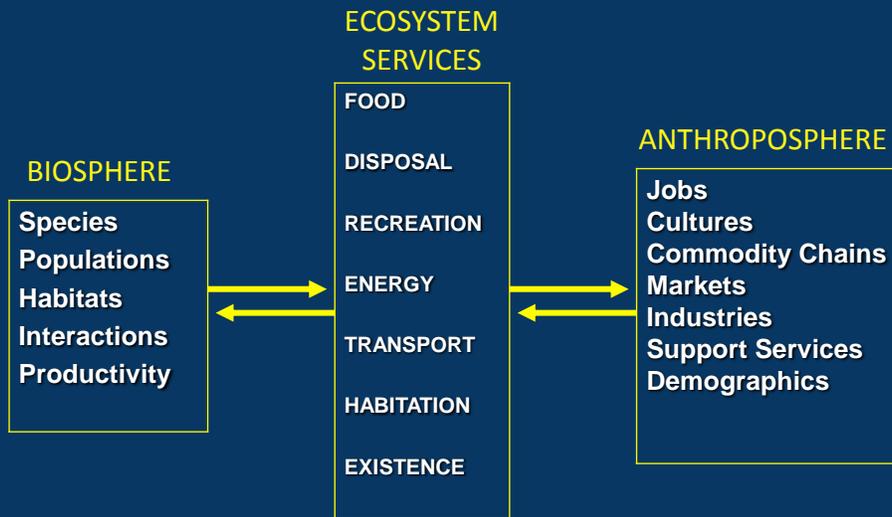


What does it do? (What needs addressed?)

Multi-scale Integrated Model of Earth Systems (MIMES)



What does it do? (What needs addressed?)



Dynamic, spatial, knowledge-driven



Development/Usability Status?

1. INPUT:
 - a. Starting GIS data on landscape/aquascape, organisms, human activities
 - b. Stakeholders' desired ecosystem service priorities
 - c. Constraints (things that must be here or there, now or then)

2. CREATION OF MODEL AND USER INTERFACE
 - a. Model skeleton defined in workshops with opportunity for user input on key trade-offs and places.
 - b. SIMILE and JAVA modeling work at UVM, BU, and elsewhere
 - c. Model Mark N_t produced
 - d. Tune user interface
 - e. Air user interface Mark N_t
 - f. Feedback leads to model and interface Mark N_{t+1}
 - g. Model and interface updated with new data as they become available
 - h. Repeat b - g indefinitely and adaptively

3. FIRST DELIVERABLE: MIMES and MIDAS N_t



Communication Partnership for Science & the Sea (COMPASS)

Verna DeLauer

MSP for NROC— Gloucester, MA
October 27, 2009



What is it?

Interest in cumulative impacts of human activities on ecosystem health to better link how ecosystem change affects services.

Three Efforts:

1. Stanford Law - Legal Standards for EBM
2. NROC/MOP/COMPASS coordination
3. NCEAS - Transferable metrics

The COMPASS logo consists of the word "COMPASS" in a white, sans-serif font, with a small red dot above the letter "O". The logo is set against a dark blue rectangular background.

What does it do? (What needs addressed?)

NROC/MOP/COMPASS coordination

- Shared understanding
- Shared communications
- Consistent messaging
- Data sources

The COMPASS logo consists of the word "COMPASS" in a white, sans-serif font, with a small red dot above the letter "O". The logo is set against a dark blue rectangular background.

Applicability at Varying Scales?

- Using knowledge gained from review of indicator initiatives, inform Massachusetts and other indicator processes.
- In the future, engage legal experts to develop legal standards for EBM for inclusion in existing and new State statutes throughout the region.

COMPASS

Development/Usability Status?

NROC/MOP/COMPASS coordination

- Indicator database
- MOP/COMPASS steering committee
- Spring 2010 workshop
- Mechanism for ongoing communication

COMPASS

<<END>>