Chapter 5 - Plan Implementation and Evolution

The development of the Massachusetts Ocean Management Plan was guided by the goals of integrated management, effective stewardship and protection of marine ecosystems, support for sustainable uses and services, and adaptive management. To carry these goals forward through implementation, important mechanisms must be established to ensure successful execution and continued evolution of the plan. The Oceans Act of 2008 requires the review of the plan and its components—including the baseline assessment and enforceable provisions—at least once every five years. While this formal review is critical, many of the elements described below will provide for more frequent and ongoing integration of vital data and information, expert guidance and stakeholder input, communication processes, and performance measures into the plan.

Management and Administration

In addition to mechanisms to ensure robust communications, stakeholder processes, and science and information development, the Massachusetts Ocean Management Plan includes the following key elements for effective management and administration. Several steps must also be followed to finalize the plan, as discussed below.

Steps to Promulgation

The Oceans Act requires the Secretary of the Executive Office of Energy and Environmental Affairs (EEA) to promulgate the final Massachusetts Ocean Management Plan by December 31, 2009. The following steps are envisioned to advance from this draft plan to the final version. Consistent with the Act, copies of this draft have been made available as of June 30, 2009, and notice of the availability of this draft for public review has been provided in the Environmental Monitor.

Formal public hearings on the plan are expected to be held in the following five regions: North Shore, Boston Harbor, South Shore, Cape Cod and Islands, and South Coast. To afford the public, stakeholders, legislators, and others adequate time to review the draft and to avoid summer scheduling conflicts, the hearings are expected to be held in the first two weeks in September. Prior to each hearing, notice will be provided in both the Environmental Monitor and in local/regional papers.

The public comment period for the draft plan will continue for 60 days after the last hearing and is anticipated to close around mid-November. After the public comment

period, work will continue on revisions to the final plan and any associated rule changes.

With the release of this draft plan, coordination will continue with federal agencies as part of pre-application processes associated with the plan's treatment of siting and permitting of uses/facilities/activities and the integration of state and federal authorities. Of particular importance will be efforts to work closely with the National Oceanic and Atmospheric Administration (NOAA) to submit the final plan as a formal component of the Commonwealth's coastal management program.

Planning and Regulatory Coordination

The Oceans Act vests the authority for oversight, coordination, and planning of the Commonwealth's ocean areas with the Secretary of EEA. The Secretary has responsibility for ensuring that state agency actions that relate to ocean management—including policy development, scientific research, and regulatory decision-making—are consistent with and advance the goals of the ocean management plan. During plan development, an internal team of EEA agency representatives was assembled to provide important input and to ensure that the plan is in step with other state statutory and regulatory responsibilities. Moving into plan implementation and evolution, a similar inter-agency group will serve as the EEA Ocean Team to assist the Secretary in serving his oversight, coordination, and planning authority functions for ocean waters and development. This inter-agency group will provide a vehicle for the Secretary to coordinate the implementation of the ocean management plan, including agency efforts related to the Science Framework (discussed below).

In developing the plan, significant efforts were made to coordinate with representatives of federal agencies to ensure consistency and maximize efficiencies with existing federal regulatory processes and matters. These efforts will continue through several mechanisms, including an inter-agency federal permitting group coordinated by the Army Corps of Engineers New England District, and through valuable dialogue and discussions in the forums provided by the Northeast Regional Ocean Council (NROC) and its working groups.

Coordination with regional planning agencies will continue through the Ocean Advisory Commission (OAC) and through proposed partnerships for regional ocean characterization efforts described below.

Trust Fund Creation and Operation

The Oceans Act calls for the establishment of a new Ocean Resources and Waterways Trust Fund. The Secretary will serve as trustee of the fund, overseeing its structure, function, and expenditures in close coordination with the Department of Environmental Protection and the EEA Ocean Team. Over the next several months, the EEA Ocean Team will be examining different options for developing standardized compensatory mitigation and/or lease and occupation fees.

Plan Updates

An important finding through plan development was that while great progress has been made in the understanding of the life, habitat, processes, and services of marine ecosystems, important gaps exist. Key actions have been identified to address some priority information gaps, data integration needs, and management-support tool development in support of the plan. Described in the Science Framework, these actions include ongoing monitoring, mapping, and characterization efforts, like seafloor mapping; important species/resource surveys and assessments; and human use mapping and valuation. As new, valuable information is developed, it should be made available for use within the plan's management framework as swiftly as possible, with necessary notice, review, and revision.

A protocol will be formalized that allows for the following routine updates to the plan:

- New geospatial data/information on uses or resources integrated into the Massachusetts Ocean Resources Information System (MORIS);
- Technical adjustment to correct errata or make language clarifications; and
- Minor changes to specified management area boundaries.

The process for these routine updates will include: appropriate peer review, review by the EEA Ocean Team, public notice and a 30-day comment period, any revisions as necessary in response to public input, and final approval by the Secretary.

A procedure will also be developed to allow for other, non-routine updates to the plan, such as shifts in locations of management areas or changes in performance standards that are deemed necessary for effective and efficient administration of the plan without wholesale revision. The process for these updates would be appropriate peer review, review by the EEA Ocean Team, review by the OAC, public notice and a 60-day comment period, public hearing(s) during the first 30 days of the comment

period, any revisions as necessary in response to public input, and final approval by the Secretary.

Five-Year Plan Revision

The five-year revision of the Massachusetts Ocean Management Plan will involve a process akin to the one undertaken to develop the first plan, with intensive efforts for public input and engagement, specific stakeholder discussions, assessments of data and information, and a review of management measures and policies. It is anticipated that the process for formal plan revision will take about a year and a half.

Performance Measurement

An important part of the Science Framework is the development and implementation of an assessment/evaluation system with a series of indicators. These indicators will be selected for their effectiveness and efficiency in tracking specific ecological and oceanographic components and processes and assessing selected management options to provide feedback in an adaptive management approach. The development of the indicators is a high priority, and work to compile an operational draft will occur over the next several months with the Ocean Science Advisory Council (SAC). After the assessment/evaluation system has been developed, specific implementation and annual work plans will follow to guide successful execution of the environmental, socioeconomic, and management indicators and integration of results into management assessment, status and trends, and state-of-system reports.

Communications and Stakeholder Processes

Adaptive management involves a commitment to continued input, dialogue, and communication with stakeholders and the broader public. This section summarizes the structural organization for continued stakeholder input and expert advice, as well as a set of communication tools that will be employed in ocean management plan implementation.

Stakeholder Input and Expert Advice

As envisioned by the Ocean Act, the OAC will be called upon to provide a critical consultative role throughout plan implementation and again in the formal five-year revision. The OAC's diverse membership—including its representatives from the Legislature, regional planning agencies, and various ocean interest groups – allows for broad input to EEA and its agencies. Similarly, the SAC will continue to be called on to provide assistance and guidance in the development of new data and

information. Because there are a number of priority short-term actions that fall under the SAC, smaller issue-specific working groups will be developed and additional expertise sought to assist the EEA Ocean Team. Specifically, these groups and experts will assist in efforts to revisit, refine, and advance an Ecological Valuation Index (EVI); examine marine habitat characterizations and develop and apply classification systems and biotic associations; further develop the information base necessary for improving socio-economic characterizations of human uses; and (as stated above) develop and execute environmental, socioeconomic, and management indicators.

In addition, a stakeholder group will be convened to provide input to the EEA Ocean Team to improve its ability to present sound advice and recommendations to the Secretary and to bring a diverse set of regional stakeholder interests into a participatory planning process. Like the outside experts called upon to assist the ocean planning work groups, this informal advisory group will provide the EEA Ocean Team with first-hand observations and recommendations as new data and information are developed and scenarios are assessed. Suggestions and advice from this group will be vetted by EEA and then brought to the OAC and SAC for their review and discussion. The OAC and SAC will then make final recommendations and/or present options to the Secretary. An example of this coordination arrangement would be the capture of regional and local knowledge and information to refine the existing characterizations of important resources and uses. By working directly in partnership with such representatives from the regional planning agencies, local fishermen, industry, non-government organizations, and others, their input can be captured and used by the EEA Ocean Team through a systematic, transferable approach that would allow for specific information from regions and more localized areas to be incorporated.

Continued collaboration with the Massachusetts Ocean Partnership (MOP)—whose staff, partners, and consultants have provided important support, assistance, and advice in the ocean planning process—will be pursued. As evidenced by its tremendous support and catalyzing efforts in developing the Massachusetts Ocean Management Plan, MOP will continue to be an essential contributor in plan implementation and evolution, working to integrate natural and social sciences and representing wide interests in support of resilient ocean ecosystems, productive economies, and vibrant communities.

Communication Tools

In addition to the input provided by and through the bodies and organization described above, the continued opportunity for civic engagement in plan

implementation and evolution is a high priority. EEA, working with MOP, the OAC, and the SAC, will ensure that the public and specific interests are provided with regular, informative updates and afforded substantial opportunity to bring their voice and input into the process. To achieve this, the following represent some of the communication tools that will be employed:

- OAC and SAC meetings will be open to the public and efforts will be made to hold these meetings at varying regional locations.
- Efforts will be made to provide either real-time or archived video documentation of key OAC meetings.
- EEA's Massachusetts Ocean Management Plan Public Input Portal will remain available as a web-based resource intended to facilitate public comment and allow comments to be viewed online.
- Important updates will be made available through such platforms as the Massachusetts Office of Coastal Zone Management's (CZM) monthly electronic newsletter, CZ-Mail, and through email and website updates from MOP.
- The Massachusetts Ocean Resources Information System will serve as the official online repository for ocean management data. MORIS was created by CZM and MassGIS and can be used to search and display spatial data pertaining to Massachusetts ocean and coastal zone. Users can interactively view various data layers over backdrops of bathymetry, political boundaries, natural resources, human uses, or other data. Users can quickly create and share maps and download the actual data for use in a Geographic Information System (GIS).
- Press and media coverage will be pursued as appropriate through press releases and cooperation on issue-specific articles/reports.
- Consideration will be given to the development of an annual Bay State ocean conference where progress on elements such as science, data networks, and management can be shared and discussed.
- Members of the EEA Ocean Team, MOP, and other participants in the planning process will bring the Massachusetts Ocean Management Plan into broader discussions though presentations and panel participation at regional and national conferences and through forums such as NROC.

Science and Information

Over the last two decades, great progress has been made in the understanding of estuarine and marine ecosystems, and there is now wide agreement that healthy and resilient ecosystems have more capacity to provide the scope and extent of benefits that citizens and

visitors to Massachusetts need and appreciate. Embracing this principle and working with the OAC, the goals of the Oceans Act were used to develop specific strategies and outcomes for the Massachusetts Ocean Management Plan (see Chapter 3). Along with the recognized importance of integrated management and effective stewardship, a major plan goal is the ability to adapt to evolving knowledge and understanding of the ocean environment.

This concept of adaptive management is a critical underpinning of ecosystem-based management. With the SAC, the Science Framework of the Massachusetts Ocean Management Plan was developed to ensure that this conceptual purpose is fulfilled through concrete and achievable tasks. The Science Framework provides the blueprint to ensure that the plan can specifically evolve to incorporate new and enhanced information and understanding in the future. The framework includes summaries of the major marine ecosystem components of the ocean planning area and beyond. Then, organized by six themes, it illustrates important information needs and describes the key actions that have been identified to further the framework's operational objectives. Several of the framework's key actions are summarized below, but the full Science Framework in Volume 2 should be consulted for complete descriptions of the rationale and context for the recommended actions and their connections to an evolving and iterative ocean management plan.

Ecosystem Monitoring, Characterization, Mapping, and Classification

Addressing critical information gaps will have direct bearing on important management aspects of the plan, such as developing a robust EVI, quantifying ecosystem values and services, understanding the effects and pace of climate change, and measuring and tracking indicators. Important actions within this theme include the continuation of acoustic seafloor mapping, complementing these efforts with nearshore data and benthic sediment and organism surveys; maintaining current levels of resource assessments and augmenting these assessments as necessary to characterize important biotic components currently not well covered; and ensuring long-term observations and records of water column, atmospheric, and hydrodynamic parameters.

Characterization and Mapping of Human Uses/Activities

As with the understanding of ecosystem components, the understanding of human uses and interactions is of critical importance to an integrated management framework. While robust, long-term, spatially explicit information is available on certain uses (such as commercial fishing), others (such as recreational uses including fishing, boating, and diving) lack this level of data. For some of the newer uses/activities, their effects on ecosystem components and functions are not well

known. Additionally, there are short-term steps that can be taken to parse existing information to improve its applicability and utility.

Ecosystem Models and Decision-Support Tools

The utility of data and information generated through the actions in the two previous themes can be greatly enhanced by the development and application of models and other decision-support tools. A major component of the ocean management plan is the identification and protection of special, sensitive, or unique estuarine and marine life and habitats. A first-cut methodology was developed for the application of an Ecological Valuation Index based upon the framework proposed for the Belgian part of the North Sea. Within the tight timelines prescribed by the Oceans Act, the EVI methodology development was advanced, but there is still more work to do to advance this tool to a point where it can be applied with confidence. The refinement of method and its underlying data are a principal priority. For more information on the draft methodology, see the EVI report in Volume 2 of the Massachusetts Ocean Management Plan.

Two other important actions within this theme are the development of hydrodynamic and ecological models, including those that incorporate understanding of the life histories of important species. These actions will be used to help understand and map the spatial and temporal habitat requirements of key species in their life histories for the identification of habitats of particular importance and/or vulnerability, high diversity, and rarity.

Applied Scientific Research

Resource assessments and surveys, long-term monitoring, and model predictions are important tools for characterizing estuarine and marine systems, but there are still critical elements and unanswered questions that need to be addressed. With new understanding of ecosystem components, processes, and relationships, uncertainty is reduced and the outcomes of management decisions can be better anticipated. Investigations to increase the understanding of critical species, communities, and/or trophic thresholds—especially within the context of rapid climate change—are important to support decisions with long-term implications for the planning area. Some main thresholds include: shifts in primary/secondary production, ocean circulation/hydrodynamics, and salinity from climate change; effects of pH changes on organisms with calcium carbonate shells (especially commercially important ones); and long-term changes in the frequency of intense storms, which could affect coastal resources and human populations.

Integrated Data Management and Communication Network

Marine spatial planning relies heavily on current, spatially explicit information, so the Massachusetts Ocean Management Plan needs an integrated data management network that is robust, interoperable, and user-friendly. The Massachusetts Ocean Resource Information System, as discussed above in communication tools, will serve as the foundation for the network. Outside of the data that is stored and managed in MORIS, large and important data holdings of a number of other organizations and institutions should be integrated into the data network to improve information access for managers, scientists, user groups, and other stakeholders, as well as the general public. An important action in this theme is to integrate and coordinate the data network with real-time observation systems, such as the networks in the Northeastern Regional Association of Ocean Observing Systems (NERACOOS). Another important step is continued work on an integrated submerged lands GIS database containing legal, physical, and cultural information in a common reference framework (i.e., "marine cadastre"). Resolving existing boundary issues and the development of this authoritative marine boundary atlas is a priority for the Massachusetts Ocean Management Plan. Finally, as described above, communication of the information and results stemming from the Science Framework will be important to ensure that managers, scientists, user groups, and other stakeholders (including the general public) are connected to current science, policies, and management practices.