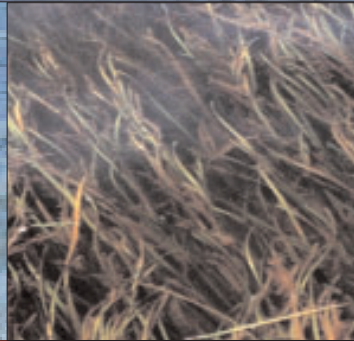


WAVES OF CHANGE



THE MASSACHUSETTS OCEAN
MANAGEMENT TASK FORCE
REPORT AND RECOMMENDATIONS

March, 2004

Management Tools Recommendation #6: Use Characterization

Recommendation

To support fully informed and inclusive decision-making, ocean management planning should be supported by the development and maintenance of inventories of the uses and resources of the state's marine waters. Such inventories should be kept up-to-date to indicate not only existing uses of the state's oceans, but also emerging trends in new or changing types and patterns of use. This data should be GIS-based and organized on maps and databases to illustrate uses and resources on the seafloor, in the water column, and/or at the ocean surface, as well as uses in the airspace over these areas, and when activities (human and natural) occur in time. Additionally, to the extent feasible, they should include upstream and coastal areas that affect the ocean resources. Such inventories would be useful for ocean resource management, even in the absence of more comprehensive ocean resource planning authorized by a new state statute.

To support baseline use characterizations and resource management decisions that rely upon these use characterizations, baseline mapping for all state waters should be organized around themes useful for ocean resource management, with the possibility of reliance on the following main geographic and socio-economic themes:

- point locations of infrastructure located in ocean resources (physical structures or jurisdictional lines);
- patterns of industrial, commercial, and recreational transit over the surface;
- natural macro-features, including bathymetry, surficial geology, habitat, circulation, wind, and tidal currents;
- location and seasonal distribution of fisheries and fisheries resources, as well as other marine flora and fauna;
- location of other natural resources, such as wind or tidal areas, and areas of tidal upwelling;
- socio-economic trends, such as commercial, industrial, recreational, cultural, military, homeland security, and others; and
- utilization types and trends, such as extractive, transient, stationary, resource-dependent, and others.

Mapping should clearly represent the ubiquity of recreational and commercial boating, while identifying areas where these uses are geographically and/or seasonally concentrated. Mapping should also clearly represent the relationship between boating and transient fish resources. Decisions regarding use characterizations must be coordinated closely with decisions regarding data acquisition and management.

Scientific Understanding Recommendation #1: Marine and Ocean Resource Trends Advisory Group

Recommendation

An advisory group of state, federal, academic and other marine and fishery scientists and other experts should be appointed to evaluate and estimate baseline marine species population levels, habitat conditions, and contaminant levels to evaluate changes in ocean resources through time, identify emerging threats to ocean resources, and determine appropriate management goals. Conditions relating to the effects of global climate change, including sea-level rise and salinity of the ocean, could be included in these data collection efforts. The group should compile historic data and periodically study trends in these resources relative to the estimated historic conditions to assess improvements or degradation in the character of the resources.

The goal of this recommendation is not to set conservation or restoration goals to achieve minimally disturbed environmental conditions, but rather to fully leverage existing historic data to contribute to our understanding of estuarine and marine ecosystems, thereby leading to improved resource management. The estimation of minimally-disturbed population levels and habitat conditions can also assist in the assessment of cumulative impacts and contribute to the recommended comprehensive ocean resources monitoring and research plan. This advisory group should advise state officials responsible for stewardship and management of the state's ocean resources.

Scientific Understanding Recommendation #2: Ocean Monitoring and Research

Recommendation

As a basis for sound management of ocean resources - with or without new state authorities to develop comprehensive ocean resource management plans - a comprehensive ocean resources monitoring and research plan should be developed. This monitoring and research plan should encompass living and non-living estuarine and marine resources, as well as studies of the economic and other uses of these resources. The plan could serve as an important "roadmap" for work to be carried out by state resource agencies and others (e.g., academic institutions, permit applicants, public agencies), and should be periodically reviewed and adjusted to reflect improved understanding of resources and their patterns of use, integrate new management approaches and incorporate innovative survey techniques. The plan should provide guidelines on standardized protocols for conducting surveys to enhance data consistency.

The monitoring and research plan should be ecologically driven and cover both environmental features of the ocean (living marine resources, such as commercial, recreational and non-target species; benthic communities; invasive species; estuarine and marine habitat; water and sediment quality; and physical oceanographic, wind, and weather patterns), as well as social and economic uses and characteristics of these ocean resources (including uses of the water column, the lands under the water, and the water sheet). The plan should lay out a complete scope to evaluate cumulative impacts from activities such as coastal alteration projects, fisheries, and implications of resource management approaches (e.g., fishery and watershed planning), while distinguishing changes due to natural processes.

National and regional efforts to develop monitoring and research plans have recently garnered support, and Massachusetts is an active participant. One such effort is the Gulf of Maine Ocean Observing System (GoMOOS) with its array of oceanographic buoys collecting realtime data in the Gulf of Maine, including in Massachusetts Bay. These larger efforts should guide specific monitoring and research needed to improve the understanding and management of the Commonwealth's ocean resources. The comprehensive plan for Massachusetts should be developed by Massachusetts resource agencies, but rely on an integrated approach that includes municipalities, neighboring states, federal agencies, collaborative efforts between fishermen and government agencies, and provide flexibility for innovative approaches and the identification of research needs.



Scientific Understanding Recommendation #3: Seafloor Mapping

Recommendation

In support of comprehensive management and monitoring of ocean resources, the Commonwealth should acquire high-resolution seafloor habitat maps. Existing and emerging technology, such as aerial photography and multibeam sonar, collects spatially explicit information on vegetation characteristics, topography, and surficial geology of the seafloor and provides the foundation for seafloor habitat mapping. Habitat is a term that encompasses physical, chemical, and biological attributes, and the creation of seafloor habitat maps, showing the distribution and abundance of seafloor habitats, requires the collection and interpretation of a variety of environmental data to delineate and describe characteristics of the seafloor environment. Seafloor mapping should be done in coordination with the Natural Heritage Program's terrestrial Biomapping Project and the Gulf of Maine Data Partnership Program, which is facilitating data sharing among regional groups.

Scientific Understanding Recommendation #4: Standardized Protocols for Data Collection

Recommendation

As a corollary to our recommendations relating to Ocean Monitoring and Research and the Dissemination of Ocean Resource Data, we also recommend that when state permits require that environmental monitoring be carried out by the project applicant as part of publicly permitted activities, such monitoring should use more standardized protocols for data collection. The standardized monitoring protocols should be designed to aid managers in assessing environmental suitability and impacts of proposed and permitted activities and gain understanding of individual and cumulative impact of projects and uses. These standards should be flexible to allow project proponents achieve specific goals and evaluate effectiveness of new technologies designed to assess resources and, wherever possible, be consistent with federal data standards.

Outreach Recommendation #1: Ocean Literacy and Stewardship

Recommendation

The Task Force recommends that the Secretary make a formal commitment to developing a new ocean literacy and stewardship ethic among all citizens of Massachusetts. The initiative should target a multigenerational audience, and include the private and public sectors, academic institutions, politicians, advocates, the media, and the general public. It should include a K-12 Ocean Education project, as well as a broader public education strategy.

