

THE MASSACHUSETTS OCEAN  
MANAGEMENT TASK FORCE  
TECHNICAL REPORT

March, 2004



## MASSACHUSETTS OCEAN MANAGEMENT TASK FORCE - MEMBERS

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### State Elected *Ex Officio* Members

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## ACKNOWLEDGEMENTS

The *Massachusetts Ocean Management Task Force Technical Report* (Volume 2) is the work of the Ocean Management Task Force (OMTF), staff, and other experts who supported the Task Force during its work. This Technical Report summarizes information provided to the Policy/Frameworks, Data Trends and Needs, and Use Characterization Working Group. The Task Force appreciates the leadership and hard work provided by Task Force Working Group Chairs including: Sue Tierney (Frameworks Working Group), Jim Hunt (Policy Working Group), Tom Skinner (Use Characterization Working Group), and Judy McDowell (Data Trends and Needs Working Group).

This volume reveals the basis for many of the Task Force recommendations and shares the wealth of information that was developed to support this effort. Several Task Force members in particular, along with state agency staff and private sector consultants, provided significant assistance in researching and drafting sections of this report and its companion Technical Report. These individuals are: Bill Adler (Massachusetts Lobstermen's Association), Mike Armstrong (Massachusetts Division of Marine Fisheries (DMF)), Deerin Babb-Brott (Massachusetts Coastal Zone Management (CZM)), Jay Baker (CZM), Priscilla Brooks (Conservation Law Foundation), Todd Callaghan (CZM), Dennis Ducsik (CZM), John Duff (U-Mass/Boston), Mike Egan (Carruth Capital), Bruce Estrella (DMF), Tom Hoopes (DMF), Jim Hunt (Massachusetts Environmental Policy Act (MEPA) office), Sarah Joor (CZM), Kate Killerlain (CZM), Judy McDowell (Woods Hole Oceanographic Institution), Vin Malkoski (DMF), Joe Pelczarski (CZM), Ann Pembroke (Normandeau Associates), Arthur Pugsley (MEPA), Tom Skinner (CZM), Susan Snow-Cotter (CZM), Megan Tyrrell (CZM), Greg Watson (Massachusetts Technology Collaborative), Alex White (CZM), and Tony Wilbur (CZM).

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## INTRODUCTION

To advise the Massachusetts Ocean Management Initiative, Environmental Affairs Secretary Ellen Roy Herzfelder has named a Task Force to examine the current issues, identify data and information gaps, review existing ocean governance mechanisms, recommend state-wide planning principles, and issue recommendations for administrative, regulatory, and statutory changes. In response to this charge, the Ocean Management Task Force (OMTF) has developed two publications: *Waves of Change: The Massachusetts Ocean Management Task Force Report and Recommendations* (Volume 1), and the *Massachusetts Ocean Management Task Force Technical Report* (Volume 2).

*Waves of Change* (Volume 1) includes an introduction, descriptions of the theme areas (i.e., governance, management tools, scientific understanding, and public outreach) that the Task Force has addressed, six Principles for ocean management, fifteen Recommendations with justifications and implementation plans, and a conclusion.

This Technical Report (Volume 2) is a compendium of separate ocean resource briefings written by staff to the Task Force and includes chapters on the public trust doctrine in Massachusetts, a descriptive overview of traditional and emerging ocean uses, an overview of data trends and needs, a summary of state and federal regulatory authorities relating to ocean resources, and several appendices.

The development of *Waves of Change* required Task Force members to consider complex ocean policy questions. To complete the charge given to us by the Secretary, it was necessary to share our expertise and experience, as well as draw on those of others. This Technical Report compiles information accumulated by Task Force members and staff that was utilized by the Task Force in the process of developing Principles, evaluating the adequacy of existing legal and policy frameworks governing our ocean resources, and examining the information base necessary to make ocean management decisions.

### DEVELOPING THE TECHNICAL REPORT

This volume is the work of the Ocean Management Task Force (OMTF), and moreover of the staff and other experts who supported the Task Force during its work. To carry out its effort, the Task Force divided itself into six Working Groups: Principles; Data Trends and Needs; Use Characterization; Policy; Framework Issues; and Outreach. The Task Force members and staff involved in each working group reviewed, discussed and analyzed a wide range of information provided in formal presentations and in briefing papers developed by agency staff and Working Group members. From this information base, the Task Force was able to develop its preliminary recommendations in December 2003, which were commented on by almost 300 public individuals and organizations at public meetings and in written submissions through February 13, 2004. Many of the presentations, meeting summaries, public comments and source materials that the Task

Force utilized are found on the Task Force website (<http://www.state.ma.us/czm/oceanmgtinitiative.htm>).

This Technical Report summarizes information provided to the Policy/Frameworks, Data Trends and Needs, and Use Characterization Working Groups. It is provided in this volume to reveal the basis for many of the Task Force recommendations and to share the wealth of information that was developed to support this effort. The Task Force anticipates that this information will be valuable for many uses beyond its own work. The following section outlines the charge for the three working groups whose reference information is summarized in this report.

## **THE WORK GROUPS**

### **Data Trends and Needs Working Group**

The Data Trends and Needs Working Group (DTNWG), composed of academic and government scientists, resource managers and advocacy groups, was assigned the large task of describing the diversity of ocean resources in Massachusetts. The Working Group also identified influences of anthropogenic activities on the abundance and quality of certain resources. The goal of the DTNWG was to summarize ocean resources data, key trends and gaps in data; summarize ecologically and economically important trends; determine if relevant data is readily available for planning purposes; determine what data is needed to support ocean resource management purposes; and provide recommendations to OMTF to improve data collection, management, analyses and interpretation to facilitate ocean resources management.

To achieve this multi-faceted goal, technical reports were drafted, and present a range of information about human and natural resource issues relating to the state's oceans, as well as identify limitations of the current knowledge regarding ocean resources. The data presented, however, are by no means a comprehensive assessment of all ocean resources or a thorough assessment of existing data. The DTNWG described trends in human population, maritime economics, alteration of marine habitat and life (cumulative impacts), oceanography and weather patterns, living marine resources, estuarine and marine habitat, and sediment and water quality in the technical reports provided herein. These technical reports support the Scientific Understanding and Outreach Recommendations.

### **Use Characterization Working Group**

The Use Characterization Working Group (UCWG) was created to help the OMTF examine human uses and activities in Massachusetts coastal waters; identify areas of multiple uses, as well as those of highest user conflict; develop narrative descriptions and visual representations that summarize these uses; and identify potential coastal and ocean use trends. The UCWG sought to identify human use trends and developed a descriptive overview of the ocean uses in the coastal regions of Massachusetts. This material provides the basis for the Use Characterization recommendation found in the Management Tools section of *Waves of Change*.

## **Policy/Framework Issues Working Groups**

Mid-way through the Task Force process, the Policy Working Group and the Framework Issues Working Group merged to become the Policy/Frameworks Working Group. This working group examined the existing body of statutes, regulations, and policies relevant to ocean resources and identified gaps, inconsistencies, and overlaps. From there, the group developed a series of recommendations to strengthen the existing tools in light of changing ocean uses. In addition, this group developed a recommendation to fill one of the most evident gaps in the Commonwealths' ocean management – the lack of proactive planning. This Technical Report provides a summary of the existing tools used to manage ocean resources as well as some analysis of the weaknesses of those tools. In addition, this section provides a concise summary of the Public Trust Doctrine in Massachusetts. The Public Trust Doctrine is considered by the Task Force to be the cornerstone to its work.

## **FORMAT OF THE TECHNICAL REPORT**

This report is divided into several substantive sections that provide an overview of the status and trends of resources and uses of the ocean, the existing ocean resource regulatory framework, major human-induced impacts to ocean resources, (including pollution, habitat destruction and degradation, overfishing and effects of fishing on habitat). Additionally, an appendix is attached to this Technical Report and includes a glossary, a schedule of Task Force meetings, a list of commenters to our preliminary recommendations and public informational meetings in December 2003, and a summary of the implementation plans of each recommendation, including those agencies that will be leading implementation efforts.

The following sections are included in this report:

**Population and Economy** – The demographics of the Massachusetts coastal zone and the contributions of maritime industries to Massachusetts economy are detailed. Thirty (+) years of human population data are summarized for coastal municipalities. An overview of maritime industries is presented to describe the status and recent changes in our ocean-based economy.

**Characterization of Ocean Uses** – Information on trends in uses of Massachusetts ocean and coastal areas is described here. The information collected by the Use Characterization Working Group, staff, and the public at the Task Force's Meeting with Interest Groups is listed in this section. Since changing trends in ocean use led to the formation of the Task Force, this analysis provided valuable perspective to the group.

**Cumulative Impact** – General human-induced and natural impacts to habitat are identified and described for Massachusetts. This section briefly explains cumulative impacts, describes major anthropogenic impacts and natural influences, lists some local examples of these impacts, shows the geographic location of key impacts, and presents emerging issues.

**Oceanography, Weather Patterns and Climate Change** – Major oceanographic features and weather patterns are discussed, and the status and consequences of climate change are described.

**Living Marine Resources** – The summary includes a description of fishery resources, commercial and recreational fish and shellfish landings, abundance of selected species, and invasive species. The summary is largely based on monitoring programs currently undertaken by state agencies.

**Estuarine and Marine Habitat** – Habitats are categorized as wetlands, seagrass, and seafloor, and major datasets were summarized to provide an overview of the status of these resources.

**Sediment and Water Quality** – Monitoring programs, major discharges, and the general requirements for monitoring activities are identified to provide an overview of the current state of water and sediment quality monitoring programs.

**The Oceans as a Public Trust** – An overview of the Public Trust Doctrine, a cornerstone of the Task Force's recommendations, is contained herein. This section describes its history, legal framework and requirements, and applications.

**Policy** – This section examines issues with the state regulatory system and how the state implements its delegation of authority from certain federal statutes. This summary intends to provide a quick review of the key statutes most likely to apply to large coastal projects, as well as the types of development projects that government agencies have consulted on or reviewed.