Gulf of Maine Ecosystem-Based Management Toolkit Survey Report

March 2008

Gulf of Maine
Council on the
Marine Environment

The Gulf of Maine Council on the Marine Environment was established in 1989 by the Governments of Nova Scotia, New Brunswick, Maine, New Hampshire, and Massachusetts to foster cooperative actions within the Gulf watershed. Its mission is to maintain and enhance environmental quality in the Gulf of Maine to allow for sustainable resource use by existing and future generations.

Introduction

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Overview

Many government agencies and non-governmental organizations (NGOs) from the United States and Canada are collaborating to advance ecosystem-based management (EBM) in the Gulf of Maine region.

Bordered by the northeastern United States and the Canadian Maritime Provinces, the Gulf of Maine is a semi-enclosed sea that is renowned as one of the world's richest marine ecosystems. Along the western and northern shores of the Gulf of Maine lie the cities, towns, and watersheds of Massachusetts, New Hampshire, Maine, New Brunswick, and Nova Scotia. The legendary fishing grounds of Georges Bank mark the southern and eastern boundary.

The Gulf of Maine has supported a long tradition of fishing, marine transportation, coastal development, and recreation. Given the growing variety and intensity of human uses, effective management is imperative to support ecosystem integrity and economic prosperity in the region. Among the existing and proposed activities affecting the Gulf of Maine are the following:

- Aquaculture
- Development of coastal lands
- Discharge of sewage and other pollutants
- Energy production and distribution (e.g., wind farms, pipelines, liquefied natural gas terminals)
- Fishing
- Recreation and tourism
- Seabed mining
- Telecommunications (e.g., seabed cables)
- Transportation (e.g., docks, piers, dredging)

In addition, climate change is likely to have major impacts on sea life and human activities in the Gulf of Maine in the future.

Regional EBM Workshop

In March 2007, 76 representatives from dozens of government and non-governmental organizations in Canada and the United States participated in a two-day workshop called "An Integrated, Ecosystem-based Approach to Regional Ocean Management: Creating a Policy-relevant Science Vision". The workshop was convened by the Communication Partnership for Science and the Sea (COMPASS) and held at the University of New Hampshire.

At the workshop, participants identified 7 Action Items as priorities for advancing EBM in the Gulf of Maine:

- Action Item 1: EBM pilot projects
- Action Item 2: Modeling consortium
- Action Item 3: Data access and coordination
- Action Item 4: EBM toolkit
- Action Item 5: A vision for EBM in the Gulf of Maine
- Action Item 6: Communications infrastructure
- Action Item 7: EBM forum for young scientists

After the workshop, seven Gulf of Maine EBM Work Groups formed and began to implement each of the Action Items. Members represent academia, NGOs, and government agencies in the United States and Canada.

For information about the Gulf of Maine EBM Work Groups, go to www.gulfofmaine.org/EBMWorkGroups.

For information and materials from the March 2007 workshop, including presentations and a post-workshop summary, go to www.gulfofmaine.org/ebm/meeting2007.

Need for a Regional EBM Toolkit

Action Item 4 from the March 2007 workshop called for development of a Gulf of Maine EBM Toolkit, a regionally appropriate set of technological tools and other tools that practitioners can use to implement EBM. Workshop participants envisioned the Toolkit as tailored to address the unique challenges facing managers and other coastal decision-makers around the Gulf of Maine. The workshop identified the following objectives for the Gulf of Maine EBM Toolkit Work Group:

1. Create and support tools to help managers make more informed decisions that enable them to draw on the most relevant science.
2. Create products that help decision-makers understand coastal/ocean status and trends.
3. Empower stakeholders to bring relevant science to legislators, other sectors and the public.

Workshop participants recommended that the Toolkit initiative should make existing EBM tools more accessible; provide a targeted set of tools adapted to the region's needs; develop new tools for this region; and respond to the evolving needs of coastal managers. They recommended that the Toolkit should assist managers and policy-makers with the following tasks:

- Evaluating cumulative impacts of human activities on coastal and marine habitats
- Setting conservation and management priorities
- Conducting scenario analyses to understand the effects of management decisions
- Analyzing tradeoffs among different activities and ecosystem services

As examples, workshop participants suggested that the Toolkit could include data visualization and synthesis tools; a set of Gulf of Maine place-based case studies; and state-of-the-environment reports. Workshop participants also suggested that the Gulf of Maine EBM Toolkit Work Group consider ways to integrate existing resources such as the EBM Tools Network (www.ebmtools.org) and The Nature Conservancy's decision-support toolkit for coastal managers (www.marineebmtoolkit.org).

See Appendix A for a complete summary of Action Item 4: EBM Toolkit from the March 2007 workshop.

Survey Objectives

After the workshop, an EBM Toolkit Work Group formed and began the process of implementing Action Item 4. To build on the initial ideas generated at the workshop, the Gulf of Maine Council on the Marine Environment and Communication Partnership for Science and the Sea (COMPASS), in association with the EBM Tools Network, conducted a survey of EBM practitioners around the region, including those not present at the workshop. The objective of the Gulf of Maine Ecosystem-Based Management Toolkit Survey was to provide information about tools that coastal decision-makers need. The survey was designed to gather region-specific information from EBM practitioners about the following topics:

- Management issues and situations to which they seek to apply EBM
- Critical obstacles to implementing EBM
- Types of tools that could facilitate practice of EBM

The EBM Toolkit Work Group intends to use the survey results to identify priorities for the Toolkit and to plan phases of Toolkit development. The survey was not designed to measure attitudes and opinions about the desirability of EBM. Rather, it was designed to gather information about tools needed by people involved in ocean and coastal management, if EBM were to be advanced in the region.

Beyond the Toolkit initiative, the results of the survey will be useful to all Gulf of Maine EBM Work Groups and other organizations interested in EBM.

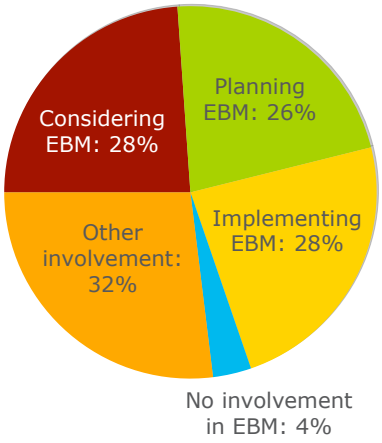
Armando Estudante

Freshly caught scallops on the deck of a fishing boat.

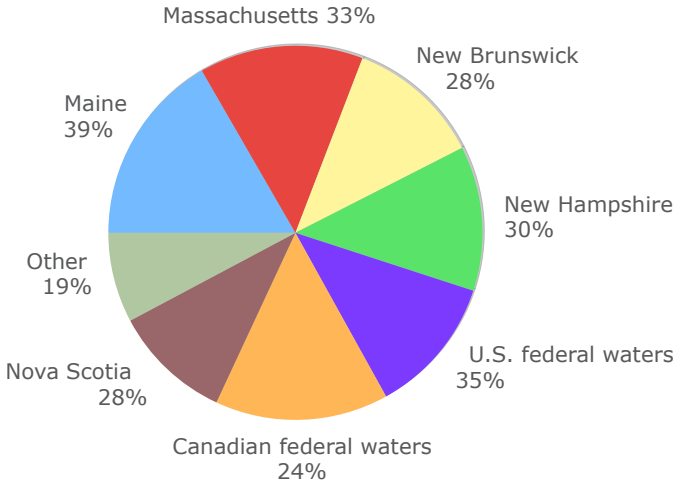
Survey Method

The Gulf of Maine EBM Toolkit Survey was conducted from September 6 to October 4, 2007. Invitations to participate in the survey were emailed directly and via listserves to all participants in the regional EBM workshop (see above) and an estimated 150 other people whose work relates to EBM in the Gulf of Maine. Some participants may have received the survey as a forwarded email from the original invitees and listserves.

Conducted using SurveyMonkey.com, the survey had 32 questions with multiple choice and/or written responses. The format and some of the questions were adapted from a worldwide survey conducted by the



How Are Survey Participants Involved in EBM?



Where Are Survey Participants Working?

EBM Tools Network (2007). Questions and multiple-choice options were revised to make them regionally appropriate, and questions were added to accomplish the specific objectives of the EBM Toolkit Work Group.

Survey Response

Fifty-five people participated in the survey. It is estimated that the survey invitation was sent to 225 people[1], indicating a response rate of 24%. This response rate is typical for web surveys (Kaplowitz et al. 2004). As with any survey, the possible effects of nonresponse bias should be considered (Sax et al. 2003).

As a comparison, a global survey conducted by the EBM Tools Network, using similar methods, was sent to more than 300 people around the world, and survey findings were based on 91 responses from people in 35 countries and regions (EBM Tools Network 2007).

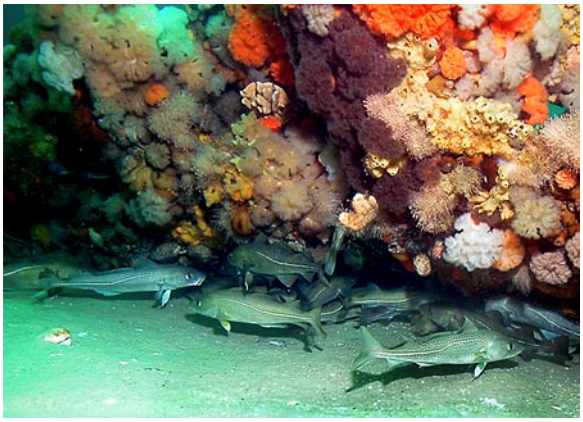
In the Gulf of Maine EBM Toolkit Survey, the majority of participants (53%) identified themselves as working in government at the local, state, provincial, or federal level. Others said they worked for academic institutions (18%) and non-profit/non-governmental organizations (16%). A few said they worked for community-based groups, museums/aquariums, consulting firms, or other organizations.

With regard to their involvement in EBM, participants were divided evenly among considering EBM (28%), planning EBM (26%), implementing EBM (28%), and other involvement (32%). Two respondents (4%) said they had no involvement in EBM.

Survey participants indicated that their EBM activities are spread evenly around the region: Maine (39%), Massachusetts (33%), New Brunswick (28%), New Hampshire (30%), Nova Scotia (28%), U.S. federal waters in or near the Gulf of Maine (35%), Canadian federal waters in or near the Gulf of Maine (24%), and other (19%).

Twenty-one participants provided supplemental written responses about the geographic focus of their work. They said they work on spatial scales ranging from local sites, such as a bay or wildlife refuge, to large regions, such as the entire Gulf of Maine or northeastern United States.

In written responses, 49 survey participants identified their focal ecosystem and/or habitat(s). They said they work on diverse systems such as rivers, coastal watersheds, salt marshes, and offshore waters of the continental shelf. Most said their EBM activities focus on nearshore waters and/or the land-sea interface. For example, rivers and watersheds were indicated in 15 responses, salt marshes in 11 responses, estuaries in 16 responses, intertidal areas in 8 responses, eelgrass in 5 responses, and coastal waters in 21 responses. In contrast, only 7 responses clearly indicated a focus on offshore waters.



NOAA

Stellwagen Bank National Marine Sanctuary.

[1] The exact number of people who received the survey is not known for reasons that are typical of web surveys. For example, the emailed invitation may have been blocked by recipients' spam filters, the original invitation may have been forwarded to other recipients, and the survey invitation was distributed to list-serves for which exact numbers of subscribers were not available.