

Synopsis of Ocean Management Interviews

Goals

The Massachusetts Ocean Partnership Fund (MOPF) and COMPASS conducted 35 interviews with scientists, economists, policy analysts and managers throughout New England during September and October 2006. The goals of the interviews were:

1. To understand the range of marine science and policy issues in New England.
2. To evaluate commonalities, differences, and gaps in our knowledge of the critical science issues for ocean management in Massachusetts and the broader Gulf of Maine.
3. To identify a common sense of direction for developing a Massachusetts science plan for ocean management with an Ecosystem Based-Management conceptual framework.

This summary identifies the main themes that arose during the interviews. Please note that we tried to capture how the majority of respondents answered each question while noting dissenting viewpoints as well. Questions fell under the following sub-headings.

- I. Issues in Regional Marine Science
- II. Issues in Policy & Governance
- III. Drivers of Policy and Management
- IV. Prioritizing Science in an Ideal World
- V. EBM Definitions and General Opinions
- VI. Translating Science into EBM
- VII. Spatial Planning & Ocean Zoning
- VIII. Coordination Between Sectors
- IX. Communication Needs
- X. Benefits & Challenges - Massachusetts Ocean Partnership Fund

I. Issues in Regional Marine Science *(note that respondents could answer question with as many science issues as desired)*

Synopsis: The table below represents respondents' range of answers regarding what should be the priority science issues in the Gulf of Maine.

Cited by 80% of respondents	Cited by 70% of respondents	Cited by 60% of respondents	Cited by 40% of respondents	Cited by 25% of respondents	Cited by 20% of respondents	Cited by at least 1 respondent
<ul style="list-style-type: none"> ▶ Sustainable fisheries, ecosystem effects of fishing 	<ul style="list-style-type: none"> ▶ Climate change (particularly effects on fish population dynamics, & sea-level rise) ▶ Spatial mismatches between scales of governance and ecosystems 	<ul style="list-style-type: none"> ▶ Temporal mismatches between biological systems and human institutions ▶ Interrelationships between biological resources and variation in physical environment ▶ Anthropogenic influences on coastal ocean water quality 	<ul style="list-style-type: none"> ▶ Integrated habitat and seafloor mapping ▶ Dispersal scales and connectivity among marine populations ▶ Resource abundance, productivity, and recruitment ▶ Habitat restoration Ecosystem structure and function, including relationship between biodiversity and stability ▶ Habitat identification ▶ Invasive plants and animals ▶ Oceanographic circulation patterns 	<ul style="list-style-type: none"> ▶ Nutrient transport ▶ Ecosystem science and conservation (general) ▶ Quantification of fisheries by-catch ▶ Wave & wind ocean energy ▶ Marine mammal endangerment ▶ Integrated ocean observing system 	<ul style="list-style-type: none"> ▶ Harmful algal blooms 	<ul style="list-style-type: none"> ▶ Sedimentation ▶ Hypoxia ▶ Toxic contamination-pollution affects on human health ▶ Water quality monitoring ▶ Off-shore and near-shore aquaculture ▶ Regime shifts in marine ecosystems ▶ Historical ecology of Gulf of Maine ▶ Cumulative impacts ▶ Ecosystem indicators Biological reference points for EBM ▶ Plankton ecology

II. Issues in Policy and Governance *(note that respondents could answer question with as many science issues as desired)*

Synopsis: Respondents had a range of answers regarding what are the priority policy and governance issues in the Gulf of Maine. Below is a table showing common themes and they are recorded by the number of times they were mentioned in an interview.

Cited by 40% of respondents	Cited by 20% of respondents	Cited by at least 1 respondent
<ul style="list-style-type: none"> ▶ Integration of land-use planning with marine planning ▶ Improved management for sustainable fisheries including the integration of ecosystem considerations 	<ul style="list-style-type: none"> ▶ Change in governmental structure ▶ Participatory decision-making ▶ Need for common science goals 	<ul style="list-style-type: none"> ▶ Social Science research as it relates to ocean use ▶ Regional planning ▶ Continuity of funding ▶ Trade-offs among sectors ▶ Science Translation

III. Drivers of Policy & Management

Given what respondents believed to be the critical science issues in the region, we asked if these issues were driving policy and if not, what was. The economy and commercial interests were common themes believed to be driving management decisions. However, some respondents felt that underlying those drivers were emotional turf battles for policymakers' attention. In addition, many felt that neither public nor private funding organizations were as interested in applied science on an ecosystem scale and that hinders critical science research from occurring and getting into the hands of managers.

Current Policy Drivers (these are context-specific)

- Commercial interests
- Economy
- Politicians blind eye to fisheries mismanagement
- Emotions
- Pollution

How policy should be driven

- From the bottom-up
- By assessing the practical considerations/needs of end users
- By producing sophisticated data collecting systems so managers can make better informed decisions
- Coordinated management
- By enticing policymakers with science they can understand

IV. Prioritizing Science in an Ideal World

We asked respondents how they would prioritize science issues if they were a policymaker and what was needed so that policymakers' decisions were informed by science. Themes included the need for an overarching, coordinated, multi-disciplinary governing body whose mission is to oversee ocean management, beyond fisheries management and special interests. Some saw this as an agency within NOAA with stakeholder representation. This governing body would make decisions in real-time and be able to be efficient and timely. Some went further and stated that the federal government should usurp state control and offer explicit guidance. Other responses included:

- Increasing our knowledge base
 - We need more understanding of how the ecosystem actually works in order to accurately prioritize science. Coordinating data and prediction modeling would be steps toward this.
 - We should look to the past to gain understanding on how best to prioritize science issues.
 - Manage adaptively.
 - Look to other models, like the New England Fisheries Management Council structure, to see how an overarching, governing ocean body could work.
- Designing mechanisms for buy-in, acceptance, and collaboration among various sectors
 - We should prioritize issues based on what concepts we think the public can really understand and buy into.
 - There would be a mechanism for considering and measuring trade-offs if science was prioritized ideally.
 - If science disciplines were better integrated, we could make more informed decisions about prioritization.

V. Ecosystem-based Management (EBM)

Defining EBM

Respondents had a wide range of definitions for the term “ecosystem-based management”. Some agreed with the COMPASS definition which is in Appendix I. Others haven’t bought into EBM as a viable concept or even know much about it. A few respondents prefer Ecosystem-based Fisheries Management as a concept and feel we are already doing that to some degree. Many stated that EBM was hard to define yet the lack of agreement on a common definition is one barrier to advancement of the concept. Others are tired of hearing jargon such as ecosystem-based management and feel that we should be more explicit to avoid ambiguity and miscommunication. While others felt that it is just a conception or an admonition and that implementing it is difficult and might not be possible given our current governance infrastructure and policies. Lastly, a few respondents stated that there are ethical reasons to do EBM but determining how to deal with those pragmatically is a challenge. Besides the COMPASS definition, others were cited including: Stellwagen Bank EBM definition, MA Ocean Management Task Force definition, NOAA’s official definition. These are all included in Appendix I.

Defining Phrases of EBM in the words of respondents

“Management that is sophisticated enough to **recognize the complexities of ecosystems** and that commercial species are part of a larger system and management has to be informed by these relationships.”

“Managing for a **healthy** habitat in which **communities of species** can thrive.”

“We manage humans and their interactions within the ecosystem (with the exception of habitat)”

“EBM is a reminder that there are different parts of the ecosystem that are **connected** and potentially there will be **cumulative effects**.”

“**Tradeoffs** with a holistic approach; do what’s best for the common good despite tradeoffs.”

“Managing with **all elements** of the environment.”

“Taking into account the changes in the environment and the trophic system as a whole.”

“Taking target species and habitat structure into account when you make decisions about things like fish quotas, pipeline construction and shipping.”

“**Integrated** approach to managing”

“Studying ecosystems from the perspective of **all disciplines**”

“Long-term”

“Manage for **healthy** ecosystems”

VI. Translating Science into Ecosystem-based Management

Barriers to applying science to policymaking

Given responses to the previous section, we also asked respondents what were the major barriers to applying science to policymaking. Of all questions, this motivated the most discussion. Some believed that no one is asking the hard questions. Instead, we’re all just promoting one idea (i.e. ecosystem-based management) rather than engaging a public debate to determine what we as a region want for the Gulf of Maine. Special interests were cited many times as a barrier to science policy linkages. Once again, money and economics came up as barriers for both scientists to do applied research and for managers to apply science to decision-making. Some felt that policymakers needed more education about the science and that there was a lack of general understanding about ecological interactions. In addition, some felt that policymakers weren’t that concerned with the science and were much more concerned with outcomes that were favorable to their constituents. Scientists felt excluded from the policy world, particularly from fisheries management. They did not feel that this dilemma would change until there is a generational change among policymakers and managers. Lastly, and perhaps most pertinent, the majority of respondents said that the science and policy communities must appreciate each other’s constraints. But neither group really understands what the other is up against in terms of extraneous pressures. Other viewpoints include:

- Need reasons for change
 - With more fisheries failures, policymakers will heed scientific advice.
 - Academic institutions don’t promote research that is applied – need institutional change.
 - Our management decisions should be value-based rather than based on politics.
- Looking at successful case studies
 - The Fisheries Management Councils are already applying science to policymaking.
 - Scientists must look at data differently – so that it has real applications.
- Challenge of disparate interests
 - Fear among disparate interests is a barrier.
 - We need the expertise of social scientists or some kind of middle ground to help with a science policy transition and consensus-building

VII. Spatial Planning and Ocean Zoning

Respondents were asked how they felt about the concepts of spatial planning and ocean zoning. Nearly everyone responded favorably to these concepts and felt they should be incorporated into EBM as long as they were adaptive in nature. However, no one thought that this would be easy or that either of these tools is a panacea. Rather, the concepts are starting points for moving toward a new approach to manage ocean use. A few also called for rethinking the definitions of these terms. Many felt that we need to think about the allocation of resources and understand the spatial representation of goods and services in the ocean. We also need to be considerate of trade-offs that will surface as a result of an area-based management approach. This will lead to mistrust and displacement among sectors. To remedy this, many suggested more communication was needed.

VIII. Coordination Tools and Resources – what’s needed

Respondents were asked what tools and resources are needed to coordinate with other sectors. Once again, money was cited as a motivator for working with others. In addition, many felt that we need more programs that act as a conduit through which science information gets communicated and accepted. Both COMPASS and Northeast Consortium were mentioned as conduits to communication. Many believed that if each individual sector was better educated about what the other sectors do, trust would build. Lastly, some did not think that meetings and workshops were the answer for convening disparate interests. They felt that these were only a lubricant for ideas and often did not lead to collaboration or change. Other viewpoints include:

- Better communication
 - We need to work on the big gaps in technical language, particularly around EBM.
 - It would be great to have shared goals and objectives in discrete areas.
 - Patience is needed to make this happen.
- Dealing with difference
 - We should figure out how to deal with the difference in time scale (researchers work in years, policymakers work now).
 - We can’t always force collaboration; may not be necessary at all levels.

Connections and Gaps in Coordination

In addition to the tools and resources, respondents were asked who they currently coordinate with and who they’d like to work with in the future. Overwhelmingly, nearly all of the scientists stated that they work with other scientists. Almost as many stated that they work with the fisheries management community. They added that this relationship has gotten consistently better and the suspicion among managers about scientists has subsided. However, many still did not feel that this particular collaboration was economically suitable for the scientists. Nor did many feel that scientists of other disciplines (not just fisheries science) had the opportunity to have an impact on fisheries management. Many scientists wanted to work more with managers and both managers and scientists felt a need to bring social scientists into the arena. A few scientists and managers mentioned having good relationships with NGOs and industry.

IX. Communication Needs

Respondents were asked how well scientists communicated their research to other sectors and what was needed to share that information more effectively. Many respondents noted that scientists should learn what resource managers were doing and what they really wanted and that managers should get scientists more interested in solving real problems but that there is not always time to do either one. Some felt that we needed better science translation for media and that scientists needed to develop relationships with good environmental reporters. Lastly, there were some that felt scientists are doing really well at communicating their research to others and that misunderstanding of the information is not the problem. Other viewpoints include:

- Educating each other
 - We need to find a way to get the public to understand their relationship with the environment on an individual level
 - Managers should understand what scientists can actually provide
 - Habitat 101 courses for managers
 - Train student scientists now to communicate their research to other sectors
- Getting on the same page
 - We need central science themes that we agree on across all areas of interest
 - It's critical to get rid of preconceived notions before communicating
- Finding resources
 - Funding is needed for science to be policy-relevant
 - We should let high-profile researchers know it's in their interest to communicate effectively with other sectors
 - Need NOAA to take a lead in communication resources

X. Massachusetts Ocean Partnership Fund (MOPF)

Respondents were given a briefing on the Massachusetts Ocean Partnership Fund initiative which is essentially a group of diverse stakeholders who are working collaboratively to determine what is needed to advance integrated, multi-use ocean management in Massachusetts. They were then asked what they believed to be the challenges and needs of this type of Partnership and the benefits of trying to make this work.

Challenges:

Many respondents felt that MOPF wouldn't be able to actually implement anything or get managers to use their recommendations and/or products because it wouldn't carry enough political weight or the level of compromise would be too great to make a difference. They also believed that there would be turf wars over the science that was needed to implement an EBM approach. Other challenges include:

- Expectations
 - MOPF members must realize that some problems aren't conducive to making everyone happy.
 - Trying to operate differently than what's currently accepted.
 - Defining a niche
- Dealing with disparate interests
 - Too many agendas.
 - Process becomes too political.
 - Who gets invited?
 - Mistrust.
 - Steep learning curve & not enough time.
 - Differing interpretations of results based on biases and interests which can create suspicion.

Needs:

Respondents felt that in order for MOPF to work, members had to be open-minded and have honest dialogue about hard issues. Many felt that leaders and change agents needed to buy-into the process before others would. It was mentioned that fisheries management had to be at the table to make MOPF work and that in addition, other policy, social science and economic views should be represented. Other needs include:

- Meeting protocol
 - Professionally facilitated and mediated meetings
- Time & continuity
 - Continued, ongoing networking
 - Small group at first then stakeholder involvement
- Process values
 - Shared goals
 - Clear expectations
 - Articulated trade-offs
 - Clear language; discussions that enhance understanding
 - Putting special interests aside
- Resources
 - Lots of money
 - Peer-reviewed proceedings and results

Benefits:

Overwhelmingly, respondents felt that collaboration is important and that at the very least, MOPF is one step forward and has the potential to become a forum for disparate interests to communicate and is worthy to try. Themes include: MOPF can overcome bottlenecks to change; more perspectives will be at the table; It's good to keep money flowing through MOPF to institutions and scientists; and, it can prevent litigation.

Appendix I:

EBM Definitions

COMPASS Scientific Consensus Statement on marine Ecosystem-Based Management:

Ecosystem-based management is an integrated approach to management that considers the entire ecosystem, including humans. The goal of ecosystem-based management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need. Ecosystem-based management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors. Specifically, ecosystem-based management:

- Emphasizes the protection of ecosystem structure, functioning, and key processes’
- Is place-based in focusing on a specific ecosystem and the range of activities affecting it;
- Explicitly accounts for the interconnectedness within systems, recognizing the importance of interactions between many target species or key services and other non-target species;
- Acknowledges interconnectedness among systems, such as between air, land and sea; and
- Integrates ecological, social, economic, and institutional perspectives, recognizing their strong interdependences.

Stellwagen Bank EBM definition:

Ecosystem-Based Sanctuary Management (EBSM) integrates knowledge of ecological interrelationships to manage impacts within sanctuary boundaries. The general goal of EBSM is to protect the ecological integrity of the SBNMS while recognizing that the sanctuary is nested within GOM large marine ecosystem. Effective implementation of EBSM should: (1) consider ecological processes that operate both inside and outside sanctuary boundaries, (2) recognize the importance of species and habitat diversity, and (3) accommodate human uses and associated benefits within the context of conservation requirements.

MA Ocean Management Task Force definition:

Integrates knowledge of ecological interrelationships to manage impacts within an ecosystem; effective implementation of EBM should: (1) consider ecological processes that operate both inside and outside ecosystem boundaries, (2) recognize the importance of species and habitat diversity, and (3) accommodate human uses and associated benefits within the context of conservation requirements." Task Force reports can

be found at: http://www.mass.gov/czm/oceanmanagement/waves_of_change/index.htm

NOAA supports COMPASS' Consensus Statement:

A recently released scientific consensus statement on marine ecosystem based management signed by over 200 prominent academics in the marine field provided clear definitions of ecosystems, ecosystem based management, as well as key elements of, and actions consistent with ecosystem based management. Fundamental in the consensus definition of ecosystems is that humans represent an integral component of any ecosystem, corresponding with NOAA's definition.

Appendix II: Sample Interview Questions

Breaking the Ice Questions

I'd love to hear about your current projects and main research focus. What are you involved in now? Who (what sectors) do you work with most?

Have you ever been involved with policy, how so?

Priority Ocean Issues

Taking a step back from your own research, what would you identify as the “top three” pressing natural science issues and/or social science issues for the Gulf of Maine? What knowledge, information, or resources are needed to better address these issues?

If they're a manager,

From a management perspective, what are the top science issues that could help inform better ocean management?

For the state of Massachusetts to prepare an effective comprehensive ocean management plan, what do you see as the “top three” natural science issues and/or social science issues (and information needs) that are important to address in MA? What knowledge, information, or resources are needed to better address these issues?

In your opinion, are any of the issues you named for Massachusetts or the Gulf of Maine driving policy and management? Why or why not? Should they be?

In an ideal world, how would you prioritize science issues if policymaking were up to you?

Answer:

Ecosystem-based Management and Spatial Planning

What does ecosystem-based management mean to you?

To what extent are your research or management objectives applicable on an ecosystem scale?

Do you believe that EBM should be incorporated into policy? If so, how?

In what ways do you think science can be integrated into ecosystem-based policymaking and management? What, if any, barriers do you see to accomplishing this?

Do you think area-based management or spatial planning would be a useful approach to help resolve ocean planning and management problems on an ecosystem scale? What do you think is needed to implement area-based management effectively from a *scientific* perspective?

Policy-relevant science

What do you think is needed to aid the transition of research into policy? (new policy, new/different types of research, better communication between researchers and policy makers).

Coordination Across Sectors / Interests

As a XX (researcher, manager, social scientists, etc), are there any tools or resources that would better enable scientists and policymakers to collaborate? Scientists and resource managers? Scientists and the media?

Are there sectors that you collaborate with regularly? What sectors, in your opinion, should be collaborating regularly? What are the barriers to collaboration?

What do you think is needed for collaborative research to become policy-relevant? (goals vs. strategies vs. tactics)

Regarding coordination across sectors/disciplines – what connections are your greatest assets? Where would you like to see additional connections?

Communication Strategies

What sort of resources, training or infrastructure is needed for scientists to communicate more effectively with policymakers? Resource managers?

The media? At the state, regional and/or federal level? Can you suggest any alternate forums?

MOPF-specific Questions

The MOPF is planning to oversee the development of a list of science research needed to implement EBM, what could you see as potential benefits and drawbacks of tackling this task as a collaborative group of scientists and policy people with diverse interests? Is this a good idea?