Marine Law Symposium Synthesis

The Evolution of Ecosystem Based Management: From Theory to Practice

October 19 – 20, 2006
Bristol, Rhode Island

Co-Sponsored by:
Marine Affairs Institute, Roger Williams University School of Law
Rhode Island Sea Grant
University of Rhode Island Department of Marine Affairs

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MEETING AGENDA

Thursday, October 19, 2006

Opening Keynote Address: *The Environmental Ethics of Ecosystem Based Management*
Dorinda Dallmeyer, Univ. of Georgia, Environmental Ethics Certificate Program

Panel I: Approaches to Ecosystem Based Management
Moderator: Kristen Fletcher, Marine Affairs Institute
Speakers:
Chesapeake Bay Perspective, **William C. Dennison**, V.P. for Science Applications, Univ. of Maryland Center for Environmental Science

Great Lakes Perspective, **Anders Andren**, Director, Wisconsin Sea Grant

Buzzards Bay Perspective, **Joe Costa**, Executive Director, Buzzards Bay National Estuary Program

Panel II: Essential Elements of Ecosystem Based Management
Moderator: Tracey Morin Dalton, University of Rhode Island
Speakers:
Using Marine Regional Planning Tools to Balance Multiple Objectives in Ecosystem Based Management, **Michael Beck**, Senior Scientist, The Nature Conservancy Global Marine Initiative

Bioregional & Local Range Management, **Kevin McAleese**, Program Director, Community Based Conservation Network - North America, Sand County Foundation

Ocean Planning in Massachusetts: Working Toward an Ecosystem Based Management Approach, **Kate Killerlain Morrison**, Ocean Policy Analyst, Massachusetts Office of Coastal Zone Management

Keynote Address: *Applying the Best Science to Enable an Ecosystem Based Approach***, Ronald C. Baird,** University of North Carolina Wilmington

Friday, October 20, 2006

Keynote Address: *Ecosystem Based Fisheries Management: Not Yet Ready for Regulatory Primetime***, Kim Diana Connolly,** University of South Carolina School of Law

Panel III: Additional Perspectives on Ecosystem Based Management
Moderator: Dennis Nixon, University of Rhode Island
Speakers:
The Role of Environmental Labeling & Certification in Ecosystem Based Management
Cathy Roheim, University of Rhode Island and Marine Stewardship Council

The Marine Trades Perspective, **Michael Keyworth**, Brewer Cove Haven Marina

The Role of Special Area Management Planning, **Jennifer McCann**, Rhode Island Sea Grant

Panel IV: Facilitated Discussion on Next Steps
Facilitator: Christophe A. G. Tulou, Christophe Tulou Associates
Panel IV will pull together individuals for a facilitated discussion on lessons and next steps with an eye to those who are galvanizing these efforts to move forward. The panelists, in concert with the participants, will prepare a synthesis of lessons and successes of EBM and determine next steps for continued engagement in EBM implementation.

Discussants: **Russ Moll**, California Sea Grant
David Keeley, Gulf of Maine Council

I. Introduction to Meeting[1]

Over 100 participants, including students, policymakers, scientists and attorneys, attended the 6th Marine Law Symposium held October 19-20 at Roger Williams University School of Law.[2] Entitled "The Evolution of Ecosystem Based Management: From Theory to Practice," the Symposium provided analysis of ecosystem based management with an eye toward the management and protection of the marine environment. This meeting was designed to build on ocean policy issues presented at the 2004 Marine Law Symposium, which focused on analysis and implementation of the Ocean Commission and Pew Commission Reports, and meetings held in the interim. Leaders from across the U.S. presented their successes, challenges, and next steps for implementing ecosystem management, assessing successes of on-the-ground efforts and sharing innovative ideas from the private and nonprofit sectors.

Adding to its interdisciplinary flavor, the Symposium was integrated with the 5th Annual Sea Grant Science Symposium which complemented legal and policy analysis with scientific information, giving professionals and students the opportunity to have a more effective discussion of the future of marine resource management.

Recognizing existing definitions of EBM, and the difficulty in agreeing to one particular definition, participants did not focus on defining EBM; rather, the program focused on key elements of EBM, those common threads that link ecosystem management regimes across the nation and world. EBM was presented as distinct from current approaches that usually focus on a single species, sector, activity or concern; rather, it considers the cumulative impacts of different sectors. Specifically, ecosystem-based management (1) emphasizes the protection of ecosystem structure, functioning, and key processes; (2) explicitly accounts for the interconnectedness within systems, recognizing the importance of interactions between many target species or key services and other non-target species; (3) acknowledges interconnectedness among systems, such as between air, land and sea; and (4) integrates ecological, social, economic, and institutional perspectives, recognizing their strong interdependences.[3]

Speakers were asked to answer the following questions during their respective presentations:

What is working well?
What is not working? What are the remaining challenges/lessons to be learned?
What are the potential solutions? (next steps)

From these common threads, lessons, challenges, and next steps emerged. This document provides these findings, concluding with opportunities for the community of ocean and coastal professionals to implement and advance EBM as a tool for marine resource management.

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[1] **Special Thanks to the Planning Committee:** Michael Beck, The Nature Conservancy; Barry Costa-Pierce, Rhode Island Sea Grant; Kristen M. Fletcher, Roger Williams University School of Law; David Keeley, Gulf of Maine Council; Kate Killerlain Morrison, State of Massachusetts; Lawrence Juda, University of Rhode Island; and Christophe A. G. Tulou, Christophe Tulou Associates.

[2] Key sponsors were Roger Williams University School of Law, Rhode Island Sea Grant and the University of Rhode Island Department of Marine Affairs. The program agenda, list of resources, and Symposium outcome document are available on the Institute website at: http://law.rwu.edu/marineaffairs.

[3] Adapted from COMPASS, *Scientific Consensus Statement on Marine Ecosystem Based Management,* March 21, 2005, available at http://www.compassonline.org/pdf_files/EBM_Consensus_Statement_v12.pdf.

II. Why Ecosystem Based Management?

Both the U.S. Commission on Ocean Policy and the Pew Ocean Commission recommended the implementation of ecosystem based management to better manage the nation's marine resources. The Commissions based their recommendation on existing examples of EBM. EBM is not new; elements have been used in the Chesapeake Bay, Great Lakes, and other regions and countries for decades. However, advances in knowledge, technology, and governance and new partnerships make many of our coastal areas ripe for implementation of this comprehensive approach to marine resource management.

Ethical Considerations

Adding to this rationale, keynote speaker Dorinda Dallmeyer offered historical and modern ethical theories for implementing EBM, from the utilitarian value of an ecosystem to current and future generations to those duties that are owed to the flora and fauna of an ecosystem. As evidenced by the Public Trust Doctrine, the governance of marine resources has relied upon the unique nature of these resources and their inherent importance to the public. Emerging from this recognition were management systems relying on human use of the environment, human integration into the environment, and a "sea ethic" that exposed inherent links between humans and animals (especially marine mammals).

Evolution of EBM: Social & Cultural Elements

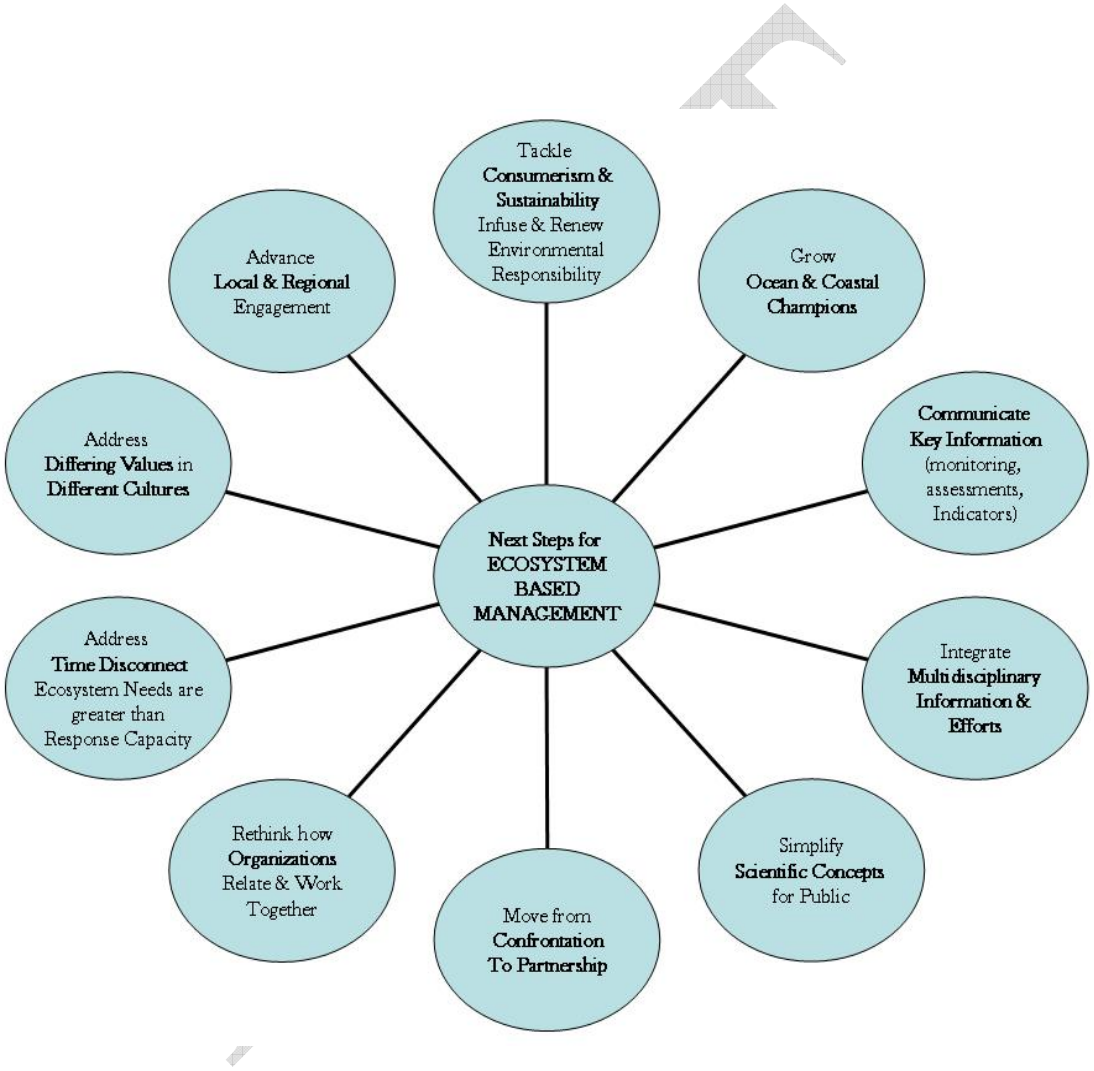
In addition to the historical and modern ethical theories, the increasing resource-related crises in the U.S., fueled in large part by human-induced climate change, is driving the evolution of EBM. Recognizing that the time period to remedy environmental damage for future generations is diminishing, policy-makers, scientists, and environmentalists continue to scramble for a mechanism to address the complexity of natural problems in an even more complex social (human) structure. While it is important for the public to buy into a particular environmental outcome, it is equally important to raise public awareness by understanding the impacts of individual actions and choices, and buying into social and political changes that can best implement important EBM principles.

The Coastal EBM Community

Throughout the symposium, the concept of a coastal EBM community emerged. This community – whether it takes the form of a virtual professional network or of a learning community – must identify ways to meet the challenges presented in the "next steps" which were collectively identified at the meeting. The community agreed that it is possible (and useful) to review and discuss multiple objectives and sectors in a common meeting including addressing distinct but interconnected areas such as water quality, fisheries, coastal hazards, and recreational uses – and we can benefit by looking at multiple scales (from local to regional). The community concluded that there are a number of tools that can help advance EBM and a summary of those tools would be useful to future analysis and implementation of EBM. Finally, though speakers and participants identified scientific information as a principle element of EBM, and vital in its implementation, the community agreed that the true evolution of EBM will depend on social and cultural marketing.

Implementing EBM: The Snowflake Design

To summarize the findings of the meeting, participants helped to create a diagram which defines EBM through actions rather than words. This diagram identifies the key needs of the community which, by nature of the "snowflake" design, must be accomplished together rather than in isolation.



III. Lessons learned: What is working and not working?

As noted above, the speakers were asked to identify what is working and what is not working in the emerging world of EBM. Certain issues emerged as both strengths and challenges in implementation of this management and new challenges often emerged from the discussion of existing strengths. The speakers' ideas revealed the following key elements.

Public awareness emerged as both a strength and a challenge. The two Commissions have offered impetus for change, a focus on the ocean and a drive to change the management of the oceans. As a result, public awareness seems to be growing but at a slow pace. Even with rising public awareness, it is sometimes too general; the public may be aware of global warming but not of the link between an agency decision and its link to preventing harm to the public.

While the public does seem to be more aware, its impact in garnering political support for the oceans is questionable. Awareness alone is not effective enough to engage **political will**. It is hoped that increasing the political and public support will provide much-needed **sustained funding** for implementing EBM. Regional efforts were noted as potential multi-faceted resources if EBM could leverage the energy from those efforts into priority decision-making.

Access to science and data emerged both as a strength and a challenge. Some regions experience a "firehose" of data with inadequate resources to conduct appropriate analysis; others found processes of knowledge creation too slow and not tuned to geographic scales and EBM needs. Other mechanisms emerged as potential **tools for implementing EBM**. Regional biological assessments are being conducted by the private sector to inform action and identify issues (such as bioregional assessments by The Nature Conservancy). With advanced technology and understanding of ecosystems and their natural processes, transparent, flexible, data-driven tools are emerging that can assist in meeting the objectives. The tools are adaptable and can serve multiple partners in an effort to manage on an ecosystem basis. Voluntary actions (especially at the local level) have emerged to better manage identified threats such as stormwater or point source discharges.

The legal and regulatory system also received a mixed review. Many cited fragmented management and overlapping or conflicting jurisdictions as a hurdle to implementing EBM. However, most agreed that action can move forward without a legal mechanism despite inefficiencies it may cause. Several noted there is little coordination between legal and management structures; in fact, support for interagency planning and coordination is limited and different agencies may have different interpretation of laws. In essence, the legal framework is not geared for coordinated, multi-scale management. Related to this is the inadequate interface between science and policy.

Partnerships were identified as essential: relationships with the private sector, between state agencies and municipalities, and communication among the different municipalities. However, some populations are on the "outside" or their interests may be perceived to be different such as the New England fishing community. This implicates the overlapping activities and demands on the resources within a region, encouraging the various user groups to the table to negotiate user conflicts before or as they arise.

It was posited that challenges in our **management timeframe** might eventually cripple EBM efforts. From the perspective of shifting baselines, as elucidated by scientist Jeremy Jackson, each generation enters this conversation with its own perception of the baseline of ecosystem health and expectations regarding its ills and recovery. How can we extend the time

horizon (ecological time scales) in order to look at environmental options for future generations? If we don't, we are not only falling short of our responsibility to future generations, we are also remaining stuck in the cycle of responding to the emerging crises instead of the larger picture. Within this timeframe issue is the reality that ecosystems are not rebounding as they once did.

Recognizing that EBM is about affecting **behavior change**, the challenge of addressing human ecosystem emerged as a major issue including bringing diverse groups to the table, planning for and prevention of natural hazards, and depoliticizing certain decisions. For example, restoration on a regional scale often can be politicized and, as a result, restoration does not work as planned.

IV. Solutions & Next Steps

Public Awareness/Political Will/Funding

In addressing the issue of public awareness, it is vital that this community make connections between consumerism and sustainability, reinfusing the public with environmental responsibility, both in terms of its role in today's environmental crisis as well as its responsibility to future generations. In order to do this, policy and scientific information must be simplified for the public, but with an eye to clarifying and marketing responsibility. Also, marketers must be clear and forthright about the ethics for why we should better manage ecosystems.

Political will must be raised so that resources and manpower are better directed to identify needs, monitor progress, and disseminate knowledge. When a sector or level of government is identified as the appropriate responsible sector, resources and support must be provided; an example is nonpoint source pollution where the burden is shifted to local government which does not have the capacity to address the problem comprehensively. The community should identify a smaller group to take on this challenge, likely working on a federal level through existing efforts in the Joint Ocean Commission Initiative or Friends of NOAA, but also identifying individuals in the regions who can cultivate regional champions.

Science & Data & Related EBM Tools

An overarching theme for the science behind EBM was that, as a community, we should accept our inherent ignorance about EBM because ecosystems are more complex than we realize and more complex than we can think. Thus, even if we do not know the best management techniques to implement restoration on an ecosystem scale, we need to "keep at it" because it will add to our base of knowledge, and adaptive management can provide the mechanism to make necessary shifts in policy or implementation.

With the significant differences between communities and regions that have access to such knowledge, scientific information and data, the approach to science and the relevant EBM tools must be specific to the needs of the communities. But, a key next step is to communicate results, indicators, and measurements from ecosystem approaches, investing in ocean observing, coastal mapping and regional habitat mapping. Research should not be limited to scientific information; rather, social and economic information must be developed and integrated into the management process.

Working groups in each region can assume responsibility for identifying gaps in knowledge and/or data, as well as those instances in which data exists but the capacity to analyze

it does not. These can be collected toward concerted efforts of raising funds for data collection and analysis.

Finally, an effort should be make to identify and analyze the successful elements of each EBM approach—do they work and if so, why? How are the approaches contributing to better management? If successes of EBM can be inventoried and characterized, it will provide a base from which to work.

Legal/Regulatory

In the context of legal and regulatory efforts, markers of legislative or policy success should be identified as progress likely will not come about through one master piece of legislation. Thus, the community can determine and support those amendments to different statutes that can bring about change cumulatively over time. Other more immediate legislative changes include clarifying necessary statutory definitions (such as navigable waters under the Clean Water Act) and mandating EBM in certain pieces of legislation.

At the state level, the community can pursue ocean management legislation or an executive order mandating changes to implement or advance EBM and can continue to foster interagency planning and coordination. Massachusetts (through comprehensive marine spatial planning) and California (through coordinated governance and increased funding) can serve as lead examples of jurisdictions that are setting the stage for more effective ocean management. Compilation and analysis of lessons from their successes and failures can assist other state efforts.

In the long-term, efforts should be made to bridge the gap between regulators and the "real world" and to determine (possibly on a case by case basis) the most appropriate use of voluntary mechanisms rather than mandates. Certain problems may require mandated standards. Finally, an early success may be to seek market-based solutions to add to the more typical 'governance' solutions such as submerged lands leasing.

Partnerships

Implementation of EBM will not occur without key partnerships. In order to build these partnerships, a broad spectrum of social and cultural values must be represented at the table. To do this, the community must overcome fragmentation of the coastal ocean constituency, bringing together scientists and fishermen, for example, and improving the unity of the ocean constituency. Creating a learning network from these constituencies can provide opportunities to exchange information and lessons and to leverage resources toward next steps. Regional groups are a good first step but it can also be a virtual network to focus on particular elements of EBM.

The strategy for implementing EBM will require partners with access to certain information, access to key constituencies, or experience implementing parts of EBM. EBM is likely to best succeed in an environment that is studied already and has certain resources in place.

Finally, the community must put resources into growing coastal and ocean champions in different sectors and at different levels of government. While leadership might come from the federal level and can play an important role, strong local to regional leadership is key to allow EBM to emerge from the bottom up. A multi-institutional group should be created to approach the innovative funding sources at a multi-jurisdictional level, such as a "Friends of EBM" group that can represent these priorities at a high level.

V. Conclusion

While EBM is a complex concept, it can be identified through the latest, scientific (hard and social) applications to environmental problems. By definition, it is an evolving understanding of the environment.

The common thread from the Symposium was, despite some uncertainty and continuing challenges, for the community to "keep at it" by (1) meeting their role in implementing EBM at their own ecosystem level and (2) sharing resources and lessons learned through a community network.

For more information on working groups or access to other EBM resources, contact the Marine Affairs Institute at Roger Williams University School of Law at marineaffairs@rwu.edu or visit http://law.rwu.edu/marineaffairs.