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## Is your work EBM? Reflections from the EBM Tools Network

In our first issue back in September 2007, MEAM shared the views of four EBM experts on [challenges facing the EBM field](#). Earlier this year, MEAM caught up again with some of those experts to get their views on [progress the EBM field has made since then](#).

Now as the calendar year comes to an end, we wanted to get an even broader perspective on how EBM principles, goals, and methods have been integrated, or not, into coastal/marine management and conservation. Ten members of the [global EBM Tools Network](#) — a voluntary alliance of tool users, developers, and training providers — offered us their views about how their work relates to EBM, and what factors help make it, or keep it from being, EBM. (Some respondents requested anonymity, which we granted.)

[Share your own reflections for other readers in the Comments section at the bottom of this article.]

### My work as EBM and what makes it possible

"Yes, I consider my work EBM with some caveats. I work in international development, assisting mainly small island developing states to establish marine laws and policies. Although the focus has conventionally been around 'sustainable development', many aspects of EBM are either implicitly or explicitly included.

"Small island states have already seen marine environmental degradation at their doorstep and are keen to reverse these trends. At the same time, they need to secure new income sources.... They are increasingly looking to their oceans for financial security ("Blue Economy" etc.). While the degree of environmental emphasis varies from government to government, there is a general appreciation of: a) environmental issues, b) the inter-linked nature of marine environmental health and human maritime activities, and c) of the need to be more integrated in marine/maritime management."

--- *Anonymous*

"My answer is absolutely YES that my work is EBM. The most important factor for enabling EBM in my work is the strategic policy for EBM by the federal (central) government. Other important factors are cooperation between the local community and authorities and scientific findings by researchers about why EBM is so important."

--- *Hyuntaik Jason Oh is a Research Scientist at the National Fisheries Research and Development Institute in the Republic of Korea. He can be contacted at [ohhyuntaik@gmail.com](mailto:ohhyuntaik@gmail.com).*

"I work on ecosystem-based fisheries management policies within the (US) Pacific Fishery Management Council process. So, yes, I do work on EBM.

"In the US, we've seen incremental changes in how we approach fisheries management, and off the US West Coast, we are working on and towards EBM. Data-sharing technologies and massive data-modeling efforts have evolved over recent years to give scientists, managers, and the public more clear ideas about how our Large Marine Ecosystems function. Our ongoing single-species work helps us better understand those species and their places within our ecosystems; our newer ecosystem-scale work helps us see connections between species, their environment, and the multiple human uses of the environment.

"US ecosystem-based fisheries management development has been facilitated by existing policy processes, largely because US regional fishery management councils have been organized by Large Marine Ecosystem since 1976. Our laws require us to conserve and manage living marine resources at the species- and population-scale. However, EBM policy-making has been possible because our existing institutions and participating stakeholders are accustomed to thinking about multi-species management at the ecosystem-scale.

"My impression from EBM literature is that some proponents of EBM think that if we are still doing single-species management, we are not doing EBM. Or that if we don't wholly rearrange our policy-making institutions, we cannot do EBM. I see EBM as a policy goal that we can both achieve and approach simultaneously. Ecosystem-based fisheries management may not be enough for those who want to see all sectors of human activity managed together. However, fisheries scientists, managers, and stakeholders have decades of experience thinking about their ecosystems, and that experience can serve as a vital spur for work on multi-sector EBM."

--- *Yvonne deReynier is a senior resource management specialist for NOAA Fisheries' West Coast Region. She can be contacted at [yvonne.dereynier@noaa.gov](mailto:yvonne.dereynier@noaa.gov).*

"I work in a Nigerian University as a lecturer teaching courses in fisheries. I completed a short course in Ecosystem Approaches to Fisheries in the Netherlands. As a participant, my contact with EBM was most enlightening, and I believe that I now have a mandate to become an EBM advocate. To a large extent, the course completely changed my focus in research from investigating basic fisheries biology to applying EBM in fisheries management, particularly data-limited fisheries. I am also looking at the possibility of incorporating ecological risk-based fisheries assessments methods into my work.

"EBM is not a popular concept in my country although an EBM-based fisheries management plan was recently developed for the shrimp industry. I am very interested in taking EBM to the small-scale fisheries sector, which accounts for 80 percent of domestic fish supply in the country. Planning and developing EBM approaches requires support at all levels of government, research to fill gaps in knowledge, human capacity training, and funds. I expect that as major challenges in fisheries governance are being overcome and with wider participation by the small-scale fisheries sector, political will, and improved funding to build human capacity, a lot will be achieved in implementing EBM particularly in sub-Saharan Africa."

--- *Anonymous*

"I am participating in a project about climate change adaptation in artisanal fisheries in Peru. Yes, I think this project follows an EBM approach because: 1) it involves not one,

but several species (pelagic and demersal fishes, invertebrates, macroalgae); 2) it involves climatic and oceanographic information as an early warning system for fishers; and 3) it involves the human dimension represented by the artisanal fisheries who are the beneficiaries and co-designers of the project.”

--- *Jorge Tam is a researcher at the Instituto del Mar del Perú. He can be contacted at [jtam@imarpe.pe](mailto:jtam@imarpe.pe).*

“I lead the MIMES-MIDAS modeling and field team studying the dynamics of coupled human and natural systems in marine coastal and inland great waters environments. We have active projects right now in the Gulf of Maine, the Lower Mekong, and East Africa and work beginning in Belize and Brazil. This and other work in my lab is designed to elaborate and support EBM. The spatially explicit, dynamic, adaptive, integrated social-economic-ecological aspects of this work make it EBM.”

--- *Les Kaufman is a professor of biology with the Boston University Marine Program and Marine Conservation Fellow with Betty and Gordon Moore Center for Science and Oceans at Conservation International. He can be reached at [lesk@bu.edu](mailto:lesk@bu.edu).*

“Yes, my work is EBM. I have been supporting an adaptive EBM approach for the Massachusetts Ocean Management Plan, groundfish management in the Gulf of Maine and Nantucket Sound, and watershed-based wastewater mitigation on land here on Cape Cod.”

--- *David Dow is a retired government scientist and grassroots environmental activist. He can be contacted at [ddow420@comcast.net](mailto:ddow420@comcast.net).*

“I have been working on spatial/environmental planning and management for the past two decades. I have done management plans and consulting for different study areas - municipalities, water catchments, coastal zones, and finally maritime spatial planning. Those plans are not entirely with an EBM approach because they address several objectives with conservation and environmental quality being only one of them and sometimes socioeconomic goals are more important to decision makers and those implementing plans. However, we use an integrated approach so the environment and ecosystems are always considered.

“Over the last decade several concepts such as ‘limits of acceptable change’ and ‘carrying capacity’ have increased attention to integrating ecosystems into decision making. And undoubtedly when ecosystems fail to provide services - such as protection from natural disasters - this becomes highly important for all. Working in a region prone to natural disasters makes the need for EBM more evident.”

--- *Helena Maria Gregório Pina Calado is an assistant professor in the Department of Biology at the University of the Azores, Portugal. She can be reached at [calado@uac.pt](mailto:calado@uac.pt).*

“The GEF-UNDP Humboldt Current Large Marine Ecosystem (HCLME) Project, with inputs from both Chile and Peru, is working to advance EBM in the HCLME to improve governance and the sustainable use of living marine resources and services. The Humboldt Current supports one of the world’s most productive Large Marine Ecosystems. It represents approximately 11% of the global fish catch (down from around 20% less than a decade ago) and hosts globally significant biodiversity. There are currently many pressures on this unique ecosystem. Environmental variability, including climate change, is impacting ecosystem productivity and trophic structure, a minimum oxygen zone is limiting production, and high carbon dioxide levels are causing natural acidification. In addition, there are pressures from a range of anthropogenic activities, such as overfishing and habitat destruction caused by multi-source pollution.”

--- *Michael Akester is the Regional Project Coordinator for Chile-Peru for the Humboldt Current Large Marine Ecosystem Project. He can be contacted at [michaela@unops.org](mailto:michaela@unops.org).*

“Our State Wildlife Action Plan, which includes the coastal environments of the Great Lakes and the Great Lakes themselves, aggregates information about species and natural communities into an ecological landscape scale. So yes, I do view my work as ecosystem-based, although it is also flexible and scales up or down depending on the problem at hand. Conservation actions to help rare or declining species and their habitats are organized at multiple levels, one of which is the ecosystem level.”

--- *Shari Koslowsky is the state wildlife action plan coordinator for the US state of Wisconsin. She can be reached at [shari.koslowsky@wisconsin.gov](mailto:shari.koslowsky@wisconsin.gov).*

## Barriers to EBM

“There is very little that is new under the sun, and whether we call it EBM, Blue Economy, Green Economy, or whatever, the same tensions exist –between the need to maintain and create revenue streams and to act in good faith to protect the environment. The short-term gains from any proposed business development are very (VERY) attractive to poor and developing state governments. If these are to be balanced with a longer-term vision of sustainability and EBM, then some sort of countervailing incentives need to exist.... ‘Blue bonds’ for example, could be one way to go. Whatever financial mechanisms are established, they need to be both financial and well-established in order to get around this serious (and valid) concern from developing states that EBM is for only those who can afford it.”

--- *Anonymous*

“We find that most folks are not ready for EBM, fear dealing directly with tradeoffs (or even knowing about them sometimes), and do not like the reiterative nature of adaptive management. The worst of all are agencies and co-management groups here in the US, particularly the northeast — which is ironic because this is also quite possibly the place in the US where the thinking and research are the most progressive.”

--- *Les Kaufman*

“We lack monitoring/modelling efforts to evaluate the success of our endeavors and government outreach programs to engage the public if we have to move to Plan B. Also, there are interactions between fisheries management, marine and coastal spatial planning at the state/federal level, and human activities within coastal watersheds, but the local/state/federal legislation and regulatory mandates make it hard to develop a holistic EBM approach that balances human uses with the protection of wild places, wild things.”

--- *David Dow*

“Most of the time, there is a lack of scientific knowledge about processes as well as a lack of clear guidance for integrating EBM into planning process. And when this knowledge and guidance exists, it is often too vague and hard to adapt to specific situations.”

--- *Helena Maria Gregório Pina Calado*

“The barriers to EBM for the HCLME are mainly political. Some of the difficulties faced in promoting a multisectoral planning approach are that the government institutions responsible for managing coastal and marine systems are fragmented and the linkages between conservation and economic (including social) interests are often not appreciated. For example, implementing EBM for the northern HCLME requires legal reforms to allow aspects of fisheries co-management and the promotion of Coastal and Marine Spatial Planning. In the short term, however, attempts to implement EBM are constrained by gaps in knowledge and understanding of how to manage coastal and marine systems, difficulties in effectively incorporating scientific understanding into the decision-making process, and incipient recognition of the need to include the stakeholders whose support is essential to action in the management processes.”

--- *Michael Akester*

“I would say access to ecosystem level information. There is a lot of up-to-date information available, but it requires investigation to find it, access it, get permission to use it, etc. We need to keep working to improve the free flow of ecological information.”

--- *Shari Koslowsky*