

# Comprehensive Ocean Zoning: Answering Questions about This Powerful Tool for EBM

Comprehensive ocean zoning (COZ) is potentially a powerful tool for integrating marine management at ecosystem scales. In this issue of MEAM, we look to places where zoning is being implemented, and address the following questions:

1. What is COZ and what benefits does it provide?
2. How does zoning in the sea differ from zoning on land?
3. How can zoning be achieved in light of different property-rights regimes?
4. How should the dynamics of marine ecosystems be addressed, given the somewhat static nature of the zoning tool?
5. What are the greatest challenges to implementing zoning?

## What is comprehensive ocean zoning?

Ocean zoning is a set of regulatory measures used to implement marine spatial plans. Akin to land-use plans, marine spatial plans specify allowable uses in all areas of the target ecosystem or ecosystems. Different zones accommodate different uses - fishing, oil drilling, shipping, conservation, research, etc. - or different levels of use. As in municipal zoning, ocean zoning regulations address prohibitions on, or permission for, such uses. The zoning plans are portrayed on maps, because the regulations are area-based.

Contrary to wide perception, ocean zoning and marine spatial planning are not necessarily the same thing. Charles (Bud) Ehler and Fanny Douvere, who have spearheaded a UNESCO project to assess marine spatial planning (MSP) and its potential for promoting ecosystem-based management, say ocean zoning is only one tool for MSP, and not always needed. Their 2007 UNESCO publication *Visions for a Sea Change* - a report of the First International Workshop on Marine Spatial Planning - explains:

"There is no prerequisite for marine spatial planning to proceed as far as prescribed spatial allocations. It might instead simply indicate preferences or priorities.... Equally, zoning may not need to apply across the whole plan area in the sense that specific 'zones' might be identified - e.g., a conservation priority zone - among one general zone that covers most of the area."

Their report, available at [www.unesco-ioc-marinesp.be/publications](http://www.unesco-ioc-marinesp.be/publications), is perhaps the most authoritative source so far on the subject of MSP, and describes comprehensive ocean zoning efforts in multiple countries. (Ehler and Douvere also co-edited the September 2008 issue of *Marine Policy* journal, which was devoted to the topic of marine spatial planning. To view abstracts from that issue, go to [www.sciencedirect.com/science/journal/0308597X](http://www.sciencedirect.com/science/journal/0308597X) and follow the links to the September 2008 issue.)

Increasingly, marine planners and conservationists see potential in using zoning to help integrate marine management and make it more ecosystem-based. James Sanchirico of the University of California at Davis states that COZ should play a key role in fisheries management, for example. In a forthcoming paper for the *New York University Environmental Law Journal* Sanchirico and his colleagues Josh Eagle and Barton Thompson consider problems related to fishing - both internal (such as overfishing and overcapitalization) and external (such as not incorporating values of healthy marine ecosystems). They suggest COZ could help overcome both sets of problems by resolving conflicts among and between interest groups, including by ensuring that these groups have a vested interest in the long-term health of resources. If a user group is given priority in resource allocation in a particular area, they reason, that group will work harder to ensure that area remains productive. "We contend that zoning creates a framework that can both ease the re-alignment of industry incentives as well as facilitate the attainment of the broader goal of healthier ocean ecosystems," write Sanchirico, Eagle, and Thompson. They add that zoning could also help strengthen politically weak groups. If planners zoned areas for "non-use", for example, the primary beneficiaries of those areas (i.e., the marine conservation community) would attain a greater voice in decisions across the entire seascape.

John Ogden of the Florida Institute of Oceanography highlights zoning's role in improving the utility and efficiency of marine reserves. "We need to place our framing of marine reserves and our policy arguments for them in the context of an overall

effort in planning, and that involves zoning," says Ogden. He says marine reserves are too often placed where they are for ad hoc reasons that have little to do with ecology. "Instead, we need to put reserves where they ought to be," he says. Ogden believes that only COZ can provide that big-picture perspective.

Some nations and authorities have acknowledged the value of zoning, even if few have instituted full-scale COZ. The State of Massachusetts in the USA recently passed the Massachusetts Ocean Act, which implicitly calls for spatial management of its three-mile territorial sea. The Act calls on state officials to

"...develop an integrated ocean management plan, which may include maps, illustrations and other media. The plan shall...set forth the Commonwealth's goals, siting priorities and standards for ensuring effective stewardship of its ocean waters held in trust for the benefit of the public [and] shall identify appropriate locations and performance standards for activities, uses and facilities allowed...."

Implementing the act within state waters will likely require zoning that provides dedicated space for ocean industries like aquaculture and wind energy, with prohibitions on certain uses in specific zones, as exist in marine reserves.

Overall, COZ may provide benefits over other tools of marine management. These potential benefits include:

- Moving management away from fragmented sectoral efforts toward integrated, effective EBM that includes all uses of, and impacts on, the oceans;
- Overcoming the shortcomings of small-scale protected areas;
- Recognizing the relative ecological importance and environmental vulnerability of different areas;
- Allowing harmonization with terrestrial land use and coastal planning;
- Articulating private sector roles, responsibilities, and market opportunities; and
- Minimizing conflict between incompatible uses.

## **How does zoning in the sea differ from zoning on land, and can zoning be achieved without property rights?**

Zoning in general was developed for use on land. In the ocean realm, COZ differs from land-use zoning, both in terms of the scale on which it is planned and the way it is implemented across the mosaic of private property, common property, and use-restricted landscapes and seascapes.

Whereas terrestrial zoning is usually small-scale, within the remit of municipal planning authorities, COZ often must recognize the wide linkages across marine and coastal ecosystems. It must also systematically address uses of, and impacts on, the marine environment at a regional scale.

Lack of property rights in the ocean can hinder efforts to apply the land-based principles of zoning to the marine environment. However, zoning of communal or common property such as marine space and resources is possible by amending legislation toward use rights. In the social science field, property rights have been defined by some as "operational level" rights. In this context, such rights include *access* (right to enter), *withdrawal* (right to extract), *management* (right to regulate use), *exclusion* (right to deny access), and *alienation* (right to sell, lease, or transfer). Marine protected areas, seabed leasing, and military zones already exist that recognize and limit these kinds of rights.

"It is the lack of property rights in the ocean that makes the case for COZ so strong," says Sanchirico. He argues that zoning, and the spatial allocation of uses that is part of COZ, will create "group property rights" that provide stewardship incentives and lead to rationalization of uses. These group property groups will also provide new incentives for user groups to organize themselves and become better involved in planning and management. In addition, he says, zoning can pave the way toward better management negotiations by endowing all user groups with assets and the flexibility to "trade" those assets as part of resource management negotiations, subject to environmental review.

## **How should the dynamics of marine ecosystems be addressed?**

Marine ecosystem boundaries are porous, and most marine systems are both highly dynamic and poorly understood, contributing to significant management uncertainty. To the extent that management plans exist, there are critics who view zoning plans as static. They see a disconnect between the problem (managing dynamic ecosystems) and the solution (parceling ocean space via zoning plans that exist as maps on paper).

However, zoning need not be static. Zoning plans can be amended regularly to account for changing conditions. In fact, new technologies allow for dynamic zoning - not only in terms of moving boundaries, but also allowing users to recognize where

those boundaries are in real time. GPS and other technologies on vessels could allow for seasonal movement of boundaries to be perceived instantly by users.

"We don't have to wait for technological fixes to envision dynamic zoning," says Sanchirico. "Zoning, as we envision it, introduces private and/or group contracting into the portfolio of ocean policy tools, which is a bottom-up way of addressing the fluidity of ocean conditions."

## What are the greatest challenges to implementing zoning?

Some of the greatest challenges to implementing MSP pertain to information requirements. There can be significant costs (in money and time) to gather the necessary information to develop a comprehensive plan and monitor the effects of zoning regulations. However, wide participation of user groups can help to bring costs of developing a zoning plan down, as user knowledge can be used to supplement scientifically derived knowledge.

Jim Ray, who served as environmental manager for Shell Global Solutions (a division of Shell Oil) and is now president of Oceanic Environmental Solutions, a consulting firm, says a key challenge in COZ involves understanding the various components of marine environments - physical, biological, chemical, geological, social/economic, etc. - and how they relate to each other. "There is far too little funding for the science needed to make planning decisions," says Ray. He notes this is the case "even though scientifically justified decisions are generally more acceptable than politically justified ones, both to industry and to the public at large."

Another obstacle to COZ is public misperception of what zoning entails, and industry apprehension of what it sometimes views as unwarranted restrictions or denial of access. Some within the oil and gas industry, for example, view zoning as a means for the conservation community to push for blanket prohibitions over wide swaths of the seabed. In this context, the term "ocean zoning" is sometimes viewed skeptically as just another way of saying "marine protected area" - which already is a loaded term for some sectors.

Nonetheless, zoning advocates stress the potential positive aspects of COZ for industry: it can create a better climate for private sector investment in both ocean industries and marine conservation. Namely, in contrast to the status quo, zoning brings both clarity on rights and a guarantee that those rights will be honored.

A key step in the COZ process is the evaluation of how well existing management measures are achieving their objectives and goals. Ray says that in countries like the USA, sectoral (non-comprehensive) ocean zoning already exists in a variety of forms, from spatial management measures instituted by fisheries councils, to leases for oil and gas drilling. "We must identify the weaknesses in our current variety of ocean zoning measures, and determine what does and does not work," says Ray. He says planners need to identify whether the various entities involved have any coordinating mechanisms, and how to harmonize their activities and effects.

Ray sees value in COZ as a tool, but also cautions against creating plans that cannot be carried out. "Where you have rules and regulations, you have to have monitoring and enforcement," he says. "Yet in so many cases, the authorities in charge do not have the personnel, equipment, and funding to support that part of their mandates. It is a real issue, but many like to dismiss it as something they can't do anything about."

There is some debate about whether legislation to mandate zoning is necessary for applying zoning in MSP and EBM. On one hand, zoning was addressed extensively in negotiations on the Massachusetts Ocean Act, although whether it will be applied is still a question. On the other hand, comprehensive ocean zoning in Belgium is progressing despite the lack of a specific legal framework, suggesting that legislative mandates are not essential for being able to use zoning as a tool for EBM (see [the case study on Belgium](#)).

It is likely that the specific process for using COZ will differ from place to place. These refinements will reflect the legislative and regulatory framework already in place, the availability of data on ecosystems, services, and uses, and the acceptance of decision-makers and the public for the concept of COZ.

Comprehensive ocean zoning has much potential, but remains largely untested. UNESCO consultants Ehler and Douvere are developing guidelines for MSP and COZ. Their guidelines, due out in May 2009, will address:

- Approaches to establish the authority that allows the development of marine spatial management in a participatory manner that integrates issues across sectors;
- Setting up planning and analysis for marine spatial management that allows proactive, future-oriented management of oceans and coasts;
- Types of research, data and information essential to conduct marine spatial management that addresses both important ecological and socio-economic concerns;
- Incentives, institutional arrangements, and other considerations for successful implementation of marine spatial management;
- Processes to conduct practical stakeholder involvement in the pre-planning, planning, implementation and evaluation

- phases of marine spatial management; and
- Methods for the adaptation of marine spatial management plans to changing circumstances, including climate change, new political priorities or economic conditions.

Stay tuned!

For more information

**Fanny Douvere and Charles Ehler**, UNESCO, Paris, France. E-mail: [fanny.douvere@mac.com](mailto:fanny.douvere@mac.com); [charles.ehler@mac.com](mailto:charles.ehler@mac.com)

**James Sanchirico**, University of California (Davis), USA. E-mail: [jsanchirico@ucdavis.edu](mailto:jsanchirico@ucdavis.edu)

**John Ogden**, Florida Institute of Oceanography, USA. E-mail: [jogden@marine.usf.edu](mailto:jogden@marine.usf.edu)

**James Ray**, Oceanic Environmental Solutions, USA. E-mail: [jray16@comcast.net](mailto:jray16@comcast.net)

For links to more sources of information on ocean zoning, [see this page](#).

---

## **BOX: How do you begin an ocean zoning process?**

Bud Ehler and Fanny Douvere are developing guidelines for UNESCO on marine spatial planning and comprehensive ocean zoning. We asked them for tips on how to get started with an ocean zoning program. They suggested these three steps:

- Make a "plan for planning" that can guide the allocation of available resources (people, money, information) within the time required. This includes allocating appropriate amounts of time to key elements of the planning process: e.g., engaging stakeholders, identifying existing conflicts and compatibilities, developing alternative scenarios, identifying management measures, and preparing the plan. Developing a work plan should make the best use of available resources.
- Plan to be adaptive. It is a mistake to try to address every issue in the first round of planning. Use an open and inclusive stakeholder process to identify spatial management problems that are perceived as "real" and focus on them first. Demonstrate short-term benefits of MSP.
- Focus on alternative future visions. MSP is about creating a desired future, not simply documenting present conditions and extrapolating current trends.

---

**Source URL:** <https://www.openchannels.org/news/skimmer-marine-ecosystems-and-management/comprehensive-ocean-zoning-answering-questions-about#comment-0>