

# MARINE ECOSYSTEMS and Management

News and analysis on ocean planning and ecosystem-based management

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**John B. Davis**  
MEAM Editor / OpenChannels Supervisor

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## Mismatches between the scale of ecosystems and the scale of management: How practitioners are addressing this challenge

Marine ecosystem processes, as well as the various natural and human factors that influence those ecosystems, often operate at regional and global scales. Marine larvae can travel hundreds of kilometers before settling. Some adult marine organisms travel across oceans, as do some fishers. Polluted runoff into oceans can come from terrestrial sources across a continent. Climate change impacts ecosystems globally.

However, jurisdictional boundaries are found at local, provincial, and national levels. And management and conservation actions — such as regulation of individual fisheries, or designations of marine protected areas — typically occur at these spatial scales, too.

Such mismatches between the spatial scales of marine ecosystem processes and the spatial scales at which

marine management and conservation are conducted can lead to ineffective or inefficient marine resource management and conservation efforts. This in turn can lead to declines in ecosystem health and loss of ecosystem services despite the stated intentions.

In the past decade, marine ecosystem-based management (EBM) and marine spatial planning (MSP) have been proposed as ways to address these mismatches. EBM by definition incorporates ecological boundaries in management. MSP provides a platform for large-scale planning that accounts for whole ecosystems.

In this issue, MEAM examines how, or whether, EBM and MSP initiatives have helped address  
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these mismatches between the spatial scales of marine ecosystems and marine management. Alternatively, are there other innovations or trends for marine governance that have bridged the gaps? We hear from

practitioners and researchers about how spatial scale mismatches have affected their work and how these mismatches are being addressed.

## A. How MPA networks can address scale mismatches

By Rebecca Weeks

[Editor's note: Rebecca Weeks is a conservation planning research fellow at the Australian Research Council Centre of Excellence for Coral Reef Studies at James Cook University. Here she discusses the spatial scale mismatches inherent in regions with very local governance jurisdictions, such as customary marine tenure, and how MPA networks can address these problems.]

### On scale mismatches in the Pacific:

"In the Coral Triangle and Pacific Islands, governance jurisdictions tend to be very small. Local governments in the Philippines typically manage around 15 km of coastline (although this is highly variable). In regions with customary marine tenure, jurisdictions can be even smaller, with individual reefs owned by different clans or families. Scale mismatches are a problem because ecological features and processes that operate at spatial scales broader than these management jurisdictions cannot be adequately managed without cooperation.

"A recent study by Almany and colleagues,<sup>1</sup> for example, found that a grouper spawning aggrega-

tion catchment area (the area from which adult fish come to aggregate) in Papua New Guinea spanned the boundary between two customary marine tenure areas. To effectively manage that population would require cooperation between the communities. It is little use protecting fish on one side of the boundary if they are heavily fished on the other.

"So why not just make governance jurisdictions larger? In many regions where coastal communities are highly dependent upon marine resources, 'top-down' management strategies implemented by higher-level policy-makers are frequently perceived to ignore or be insensitive to local concerns. Local, community-based, 'bottom-up' management is better supported by stakeholders and typically receives higher levels of compliance. And there is good evidence that it can be effective in achieving local-scale objectives — see the work by Garry Russ and Angel Alcala in the Philippines."

### On scaling up management using MPA networks:

"Recent efforts to 'scale up' local management have focused on developing MPA networks. In the Philippines for example, these efforts have resulted in the formation of around 40 local government alliances.<sup>2</sup> These typically comprise between two and five municipalities who work together to collectively manage their marine resources. Similar initiatives have been developing across the Pacific and have been a feature of the Coral Triangle region.

"The critical question that needs to be asked is whether these networks are large enough (i.e., whether we are 'scaling up' enough) to resolve scale mismatches. Compared to the significant research effort that has been invested in identifying minimum effective sizes of individual MPAs, there has been a surprising lack of guidance on how large MPA networks need to be.

In practice, coordinated management efforts can resolve scale mismatches if two requirements are met. First, the extent of governance networks must be sufficient to encompass key ecological processes. Second, network managers must have the capacity to design and implement management actions that will ensure the persistence of those processes.

Recently, I reviewed the spatial extent of ecological connectivity processes and management institutions in the Coral Triangle region to assess whether these

### The problem of scale mismatches in the Mediterranean

"Conservation of marine ecosystems in the Mediterranean is greatly affected by scale mismatches. Virtually all MPAs in the Mediterranean are small-scale coastal ones. This practice leads to insufficient protection of key habitat in pelagic areas and the deep sea. It also compromises habitat integrity and survival until optimal reproduction for most migratory and deep water species. Several Fisheries Restricted Areas managed by the General Fisheries Commission for the Mediterranean provide some protection of those domains, but they only address fishing industry impacts, not other threats. As a consequence, several species linked to those areas remain threatened."

— Atila Uras and Daniel Cebrian Menchero

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conditions are being met. I found that governance networks are a promising strategy to help resolve social-ecological scale mismatches. Typically, their spatial extent is compatible with several key ecological connectivity processes that could not effectively be managed within individual jurisdictions. These processes include spawning migrations, larval dispersal, and connectivity between habitat types (e.g., coral reefs, mangrove and seagrass).”

#### **On the need to scale up both planning and governance:**

“While governance networks increase the spatial extent across which management actions are coordinated, those actions may still be ineffective if they are designed and implemented with purely local perspectives. In other words, even though an MPA network may be large enough to encompass complementary habitat types and provide for larval connectivity between MPAs, MPA placement may be guided by local-scale concerns and may not achieve these objectives.

Thus, planning perspectives need to be scaled up alongside governance extent. At present, local managers are highly dependent upon assisting organizations such as NGOs to help them design

and implement management strategies to achieve objectives related to regional-scale processes. In one of many such examples, the Wildlife Conservation Society has been working with ten communities in Kubulau, Fiji, to link their individually managed fisheries closures into a district-wide network (see Weeks and Jupiter 2013).<sup>3</sup> Moving forward, we need to build the capacity of local network managers to take on this role. There could also be an enhanced role for provincial government agencies to better coordinate local actions.

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<sup>1</sup> Almany, G. R. et al. 2013. Dispersal of Grouper Larvae Drives Local Resource Sharing in a Coral Reef Fishery. *Current Biology* 23:626–630. Elsevier Ltd.

<sup>2</sup> Horigue, V. et al. 2012. Marine protected area networks in the Philippines: Trends and challenges for establishment and governance. *Ocean & Coastal Management* 64:15–26.

<sup>3</sup> Weeks, R., and S. D. Jupiter. 2013. Adaptive comanagement of a marine protected area network in Fiji. *Conservation Biology* 27:1234–1244.

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## **B. Bilateral and regional management bodies for Norwegian fisheries**

### **By Alf Håkon Hoel**

[Editor’s note: Alf Håkon Hoel is research director for the Norwegian Institute of Marine Research. Here he emphasizes that fisheries management has been addressing scale mismatch issues for decades through the creation of and participation in bilateral and regional management arrangements. Norway alone is party to more than ten bilateral and regional arrangements (e.g., Norway-European Union, Norway-Faroe Islands) and a number of regional management bodies for fisheries (e.g., Northeast Atlantic Fisheries Commission), most of which were initiated in the 1970s.]

#### **On the need to scale up governance for regional fisheries:**

“Most of the critically important fish stocks in Norway are distributed over very large geographical areas and are also shared with other countries. This necessitates multi-level governance systems where international cooperation is key to the setting of management strategies and decisions on total allowable catches, etc. The Norway-Russia Joint Fisheries Commission is an example of this. The decisions of the Commission must be implemented by each coun-

try’s government respectively. This is where domestic legislation and institutions come into play. Scientific advice is provided by the International Council for the Exploration of the Sea, based on inputs from research institutions in Norway and Russia in particular.”

#### **On the establishment of bilateral and regional management arrangements:**

“In the 1970s, developments in international ocean law led to most states establishing 200-mile exclusive economic zones. This brought the bulk of what used to be international fisheries under national control. A period of intense institutional innovation ensued where bilateral and regional management arrangements — like the Norway-Russia Joint Fisheries Commission — were negotiated and domestic institutions were modified to take on new tasks. These fisheries arrangements have been in place for decades, long before MSP and EBM initiatives.”

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## C. MSP in Massachusetts

### By Deerin Babb-Brott

[Editor's note: Deerin Babb-Brott is senior partner at SeaPlan, an independent nonprofit ocean science and policy group in the US, and also former Assistant Secretary for Oceans and Coastal Zone Management for the US state of Massachusetts. Here he discusses how MSP initiatives in Massachusetts have started to address issues of scale mismatch for the state and region.]

#### On addressing scale mismatches in Massachusetts:

“It requires extraordinary effort to rationalize coastal and ocean laws and regulations that are narrowly drawn and operate independently. In the late 1990s-early 2000s in the face of a number of major marine development projects, Massachusetts recognized that it had no mechanism to consider the overall context for proposed projects and few effective coordination measures. The state also recognized that even projects that had consensus about their need and benefit (like some traditional energy, communications, and navigation projects) were subject to significant review and permitting delays due to lack of information and conflicting agency missions.

“In Massachusetts, the public and government recognized the tangible and immediate public benefits of investing in overcoming management disorder, and current MSP initiatives represent the beginning of a solution. In 2008, the Massachusetts legislature mandated the development of a management plan that helped to address many ecosystem-governance scale mismatches by:

- 1) Incorporating consideration of biodiversity and ecosystem health; special, sensitive, and unique

estuarine and marine life and habitats; and interdependence of ecosystems; and

- 2) Coordinating uses that include international, federal, state and local jurisdictions.

“The resulting plan established a context for environmental projects and management measures that enable the state to manage its marine environment as a politically discrete component of a larger ecological system. The plan successfully addresses the challenge of disparate authorities frustrating informed and reasonably timely review, and state agencies must now coordinate their actions to achieve their individual management prerogatives. This leads to rational consideration of how numerous laws and regulations operate as a whole on the marine ecosystem, in service to social goals.”

#### On the remaining challenges to be faced:

The plan identifies but does not engage, however, the terrestrial, regional, or global conditions that comprise or affect the marine ecosystem of which Massachusetts waters are a part. This is a source of consternation to some and a pragmatic reckoning of capacity and political feasibility to others. As planning in Massachusetts, Rhode Island, and other states continues — and as those efforts merge with ongoing regional planning for the Northeast and Mid-Atlantic Exclusive Economic Zone — our ability to address more complicated questions will increase. Most importantly, a functioning model has been implemented and provides a management tool that will be tested and improved over time.”

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## D. MSP and learning networks in the Pacific

### By Patrick Christie

[Editor's note: Patrick Christie, professor of Marine and Environmental Affairs and International Studies at the University of Washington (US), points to the benefits of learning networks to promote management strategies that can overcome scale mismatches.]

#### On scale mismatches in tropical contexts:

“Mismatches between ecosystem and governance boundaries are common in tropical contexts where language and cultural diversity is high and decision making is frequently decentralized. In places like the Philippines or Indonesia, hundreds of languages are spoken within the boundaries of one Large Marine Ecosystem. Similarly, thousands of languages are spoken within the boundaries of the Coral Triangle

region, which includes six countries with very distinct cultural norms and governance systems ranging from mostly centralized (Malaysia) to decentralized (the Philippines) policy making. So while Coral Triangle countries share high levels of marine biodiversity, share tuna and other marine populations, and are ecologically connected, they are socially distinct from one another.”

#### On the impact of the Coral Triangle Initiative:

“In this complex context, MSP and EBM have been used to encourage marine resource management. Most notably, the multilateral Coral Triangle Initiative (CTI) has made considerable progress toward the establishment of a Coral Triangle MPA System, an ecosystem approach to fisheries management

(EAFM), and climate change planning. The new Coral Triangle MPA System is a form of MSP. Some of the areas within the system are large, zoned national parks while others are smaller MPAs managed through co-management mechanisms. Institutional and human capacity is being developed to implement EAFM. Climate change vulnerability assessments and plans are being developed in various contexts.

“In a recent study, we conducted thousands of social surveys and interviews at community, national, and regional levels within the Coral Triangle region and found progress in all these policy programs. While MPA enforcement remains challenging in the region, for example, 85% of national-level informants from the six countries report improvement in MPA enforcement due to CTI-related efforts. Another interesting finding is that a statistically significant higher number of local government officials report increased integration of MPA, EAFM, and climate change policies in program sites where CTI effort has been focused versus control areas not yet directly influenced by the CTI. Our social network analysis demonstrates that policy makers for the CTI are now linked together in a highly valued learning network that is fostering mentorship and leadership creation.

Our report with many more results is available at [www.uscti.org/uscti/Resources/LP%20report\\_FINAL.pdf](http://www.uscti.org/uscti/Resources/LP%20report_FINAL.pdf)

#### **On the importance of learning networks:**

“One innovative governance solution that is particularly timely and necessary is learning networks. The creation of communication networks of resource users, resource managers, and national policy makers to diffuse information and lessons is a potent mechanism to speed progress. Learning networks such as the Locally-Managed Marine Area (LMMA) Network ([www.lmmanetwork.org](http://www.lmmanetwork.org)) connect people interested in MSP and EBM solutions throughout the Pacific. Many participants are committed to local efforts. The Regional Exchange meetings that support the CTI link mainly national-level policy makers. I would like to see significantly more investment in such learning networks at all relevant governance levels. Through such learning networks, context-appropriate mechanisms can be developed that meet both social and ecological goals at multiple scales. Solutions can emerge from within the network while benefiting from judicious and appropriate external technical support.”

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## **E. A regional ocean governance framework in the Caribbean**

**By Robin Mahon**


[Editor's note: Robin Mahon, professor of Marine Affairs and director of the Centre for Resource Management and Environmental Studies at University of the West Indies, describes fragmentation in responsibility for transboundary issues in the Wider Caribbean Region (WCR), and how the Caribbean Large Marine Ecosystem (LME) Project is starting to address this problem.]

#### **On scale mismatches in the Caribbean:**

“With a full range of tropical marine ecosystems and more than 40 states and territories in close proximity, the WCR has struggled with issues of spatial and organizational scale for decades. Most responsibility for management and conservation is at the national level, but most ecosystems and resources problems are transboundary or are impacted by transboundary effects. In the WCR, transboundary issues are addressed by at least 25 organizations that have a mandate for some aspect of marine management. Since there is no coordinating mechanism for these organizations at the regional level, responsibility is fragmented, and each of the organizations deals with ecosystem scale and defines reasonable boundaries for management differently. The Organización del Sector Pesquero y Acuicola de Centroamerica (OSPESCA), for example, has made excellent

progress with management of the Central American spiny lobster with its members in Central America, but Cuba and Colombia, which also have stocks, are not members. The FAO Western Central Atlantic Fishery Commission area does encompass all of the stocks but does not have the political connectedness OSPESCA does to get management decisions made.”

#### **On a regional ocean governance framework for addressing scale mismatches:**

“The Caribbean LME Project has helped focus attention on issues of scale in transboundary governance including mismatch and nesting of arrangements. The development of a regional ocean governance framework as a context for addressing transboundary issues is an important step for the region. It recognizes that while organizations may not be able to change their spatial areas of responsibility easily, provision for policy coordination among organizations with a view to harmonizing their approaches can help to address mismatches. Implementing this framework is the challenge for the region over the next 20 years.” 

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## Tundi's Take: Are we too preoccupied with scale?

By Tundi Agardy, MEAM Contributing Editor ([tundiagardy@earthlink.net](mailto:tundiagardy@earthlink.net))

Mismatch of scale is the thorn in the side of marine managers. Can we do what we need to do to achieve EBM at the scale required? Or will we always fall short?

The scale problem complicates scientific understanding of marine ecosystems: mesocosm experiments (i.e., studying a small part of the natural environment under controlled conditions) and over-simplified models cannot tell the full story of how natural ecosystems that are larger in scale and more complex work. The scale problem is the bane of conservationists trying to mitigate pressures on rare or highly threatened species. For many of these species, the extents of their home ranges force consideration of human activities far afield.

Getting the scale right is a daunting task for those looking to integrate management across all the sectors of human activity that affect an ecosystem. The enormity of the challenge confounds planners and strains the administrative structures of governance. And scale is a big constraint to engaging as many stakeholder groups as good EBM practices require.

The scale problem is ever-present, not only in general ocean management, but also in targeted management that aims to protect or recover single stocks or species at risk. Highly mobile marine organisms, for instance, know no boundaries, and effective management may require interventions across the largest possible physical scale — the global ocean. Getting the scale right with highly migratory species means identifying all the habitats that are necessary for the species' survival and addressing risks that affect critical habitat as well as links in the chain of necessary habitats. Even today, most conservation plans are drawn up at a small scale and focus on only a link or two in the chain. The scale of conservation planning and management is thus not appropriate to the scale of the management needs.

One notable exception is the Southern Ocean where scientific research, monitoring, and fisheries management are all undertaken at scales appropriate to what appear to be the logical bounds of the marine system. The multinational body that oversees management, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), is fortunate in that no one permanently resides in Antarctica. In this case, land use and watershed management do not push the boundaries of the management area upland as they do in other parts of the world.

This brings us to another dimension of the scale problem — how our actions, and the institutions that direct our actions, can align with the physically large

and all-encompassing scale that EBM requires. Understanding ecosystem dynamics and linkages — between species, across biomes, and between humans and the rest of nature — is one step toward EBM, but certainly not the only one. Scoping the management problem may lead to a need for management that spans nations, institutions, and user groups of all kinds.

### Which is better: large centralized projects or letting a thousand flowers bloom?

But now I will suggest something heretical. Maybe we are too preoccupied with scale, and with getting uniform regulations of uses across geographical vast areas. Maybe, just maybe, baby steps toward EBM — taken over and over, replicated time and again — are enough to “get us to scale”. Indeed, as I have observed decades of failure in global and regional scale negotiations and policy agreements, I can't help but think that maybe multiple small-scale efforts, spread across the globe, are our only hope for a sustainable future.

Years ago I was involved in evaluating the program of a major donor in environment and population. A debate raged among the board members, the program officers, and the grantees about which was better: investing in a few large projects that were carefully planned according to an articulated theory of change, or letting a thousand flowers bloom. We didn't settle on a definitive answer, but the considerations are similar to those having to do with the question of scale in EBM. Overthink it and plan too big and you could close the door on unanticipated opportunity and inadvertently restrict innovation. But let a thousand flowers bloom and you may never reach the scale needed for true EBM.

Perhaps this is where the coming together of top-down and bottom-up is most needed. We need to take chances, and attempt all kinds of management, at small scales and over very wide areas. The trick is letting the thousand flowers bloom into the garden one wants and needs.

So, in addition to needing an army of planners working with communities to sow seeds of effective management, we need leadership with global and long-term vision and a way to make national, regional, and global policies align harmoniously. Instead of creating very large-scale EBM initiatives, we might be better served by nurturing leadership to guide a multitude of small-scale EBM efforts. ■

### To comment on this article:

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# Perspective: Navigating long time horizons and uncertainty in planning

By Jennie Hoffman

I have heard it argued that many planning horizons are too short to effectively incorporate climate change. How can a five-year recovery plan, for example, deal with changes that aren't expected to manifest for 30 or 50 years — particularly when there is uncertainty about exactly when and how those changes will play out?

One approach is to consider opportunity cost over multiple time horizons: that is, to consider the immediate and future benefits we may be giving up by choosing one option over another now. Even if the decision is just what we will do in the next five years, we can ask what options will remain open or be taken off the table over the long term as a result of our five-year plan.

This brings me back to a discussion that has played out in the past few issues of MEAM about the reality of tradeoffs and conflict in managing for conservation and food security (sparked by a piece by Jake Rice in the August/September 2013 issue). Particularly in light of climate change, it behooves us to think not just about what a tradeoff looks like now, but what it might look like in 10 or 30 or 50 years.

Let's say a community agrees to give up fishing in one area in exchange for guaranteed fishing rights in another. What if, in response to climate change, the distribution of the species of interest shifts completely out of the guaranteed access area into the "no-go" area? Or what if the no-go area was meant to protect a species or community that shifts out of the protected area into the fishing area?

If no permanent changes to the habitat have been made, the agreement can be renegotiated — for instance, changing protected area boundaries or shipping lane locations. If permanent or semi-permanent changes are being considered — for example, the use of destructive harvest techniques like bottom trawling or the installation of tidal or wind power facilities — renegotiation at a later date is not as feasible.

Regardless of whether our primary concern is conservation, resource extraction or something else, we would all do well to consider whether and how what we care about may change in importance or location in response to climate change (or anything else for that matter). This can be based on quantitative modeling or on qualitative what-if scenario thinking depending on data availability. How might tradeoffs change if the species of interest shifts north or south, to deeper or shallower water? How much could

the value of the resource of interest change before stakeholders would change what they are willing to agree to?

## **"Best available science" should include best practices in decision making under uncertainty**

I know some people are uncomfortable bringing qualitative considerations into tricky planning or management decisions. Still, if the best available science tells us that change is likely but that we do not know exactly when and how those changes will manifest, doesn't using the best available science mean using best practices for decision making under uncertainty? We can make negotiations and decisions more transparent and sustainable by explicitly exploring the implications of potential changes over time on what stakeholders are willing to give up.

A few examples of how this sort of thinking has been applied in practice:

- In the United Kingdom, coastal planning guidelines require the evaluation of both goals and consequences over multiple time horizons, called epochs ([www.gov.uk/government/publications/shoreline-management-plans-guidance](http://www.gov.uk/government/publications/shoreline-management-plans-guidance)).
- Researchers found that incorporating future risk of catastrophic bleaching into reserve design for coral reefs could increase reserve network performance by more than 60% while increasing costs by just 2% ([www.esajournals.org/doi/abs/10.1890/07-1027.1](http://www.esajournals.org/doi/abs/10.1890/07-1027.1)).
- In the Chukchi and Beaufort Seas, the North Pacific Fishery Management Council was concerned that a northward shift of commercially important species could lead the industrial fishing fleet into areas important for culture and subsistence of coastal communities. In a precautionary move, the Council blocked the northward expansion of bottom trawling until the implications of climate change for the linked marine and human systems in the region are better understood ([www.npfmc.org/arctic-fishery-management](http://www.npfmc.org/arctic-fishery-management)).

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## **Editor's note:**

Jennie Hoffman is founder and principal of Adaptation Research and Consulting. She is an expert in climate change vulnerability assessment and adaptation of natural resource management and conservation to climate change. Hoffman has co-authored *Climate Savvy: Adapting Conservation and Resource Management to a Changing World*; *Scanning the Conservation Horizon: A Guide to Climate Change Vulnerability Assessment*; and *Designing Climate-Smart Conservation: Guidance and Case Studies*.

## Notes and news

### New ocean acidification website launched

A new website on ocean acidification brings together the latest infographics, publications, presentations, and news for researchers, policymakers and the public. Produced by the Intergovernmental Oceanographic Commission, the International Geosphere-Biosphere Programme, the Scientific Committee on Oceanic Research, and the Ocean Acidification International Coordination Center, the website is at <http://ocean-acidification.net>

### European Atlas of the Seas adds MSP project locations

The European Atlas of the Seas has added a new map showing the location of European MSP projects. View the new map at [http://ec.europa.eu/maritimeaffairs/atlas/index\\_en.htm](http://ec.europa.eu/maritimeaffairs/atlas/index_en.htm)

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### Belgium approves updated marine spatial plan

On 20 March, Belgium approved a new maritime spatial plan for the Belgian part of the North Sea, a significant update of the country's 2003 master plan for its marine area. In contrast to the 2003 plan, which presented a zoning approach largely based on single-sector interests and with no legal authority, the new plan is fully integrated and enforceable under new legislation. The new plan lays out principles, goals, and spatial policy choices for the management of all activities in the Belgian territorial sea and EEZ: fishing, shipping, dredging, offshore energy, tourism, MPAs, and more. For more information, go to [www.unesco-ioc-marinesp.be/spatial\\_management\\_practice/Belgium](http://www.unesco-ioc-marinesp.be/spatial_management_practice/Belgium)

### England publishes marine plans

On 2 April, England published its first-ever marine plans providing guidance for sustainable development for the English coast and seas. The two plans cover the inshore and offshore areas, respectively, of the country's East region, from Flamborough Head to Felixstowe. A total of 11 plans covering all English waters are anticipated by 2021.

The marine plans will inform and guide decisions on development in these marine and coastal areas, while also conserving and enhancing the environment and recognizing leisure uses. Use of the marine plans is expected to reduce costs and increase certainty for developers, boosting economic and employment benefits for coastal communities and other entities. The marine plans are available at [www.marinemangement.org.uk/marineplanning/areas/east\\_plans.htm](http://www.marinemangement.org.uk/marineplanning/areas/east_plans.htm)

### European Parliament endorses maritime spatial planning legislation

On 17 April, the European Parliament endorsed a Directive for Maritime Spatial Planning to help member states develop plans to coordinate marine activities, including fishing, aquaculture, marine protected areas, and maritime infrastructures (cables, pipelines, shipping lanes, and energy installations). Once the directive is ultimately adopted by ministers, member states must transpose the directive into their national legislation by 2016. Learn more at [http://europa.eu/rapid/press-release\\_IP-14-459\\_en.htm](http://europa.eu/rapid/press-release_IP-14-459_en.htm)

The new directive is designed to help avoid potential conflicts between uses and create a stable environment attractive to investors. It sets minimum requirements for the drawing up of national maritime spatial plans. These plans will identify all existing human activities,

taking into account land-sea interactions, and the most effective way of managing them. As many of the activities run across national borders, the directive will help member states co-operate more efficiently.

### New publication on incorporating ecosystem services into planning

A new article in the journal *Marine Policy* examines the use of ecosystem service valuation for marine planning. The paper presents current approaches to marine planning in the US and UK, highlights steps in the marine planning process where valuation can inform marine planning and policy-making, and discusses challenges to ecosystem service valuation techniques in the context of marine planning. Co-authored by an international team of 15 researchers, the paper "Incorporating ecosystem services into planning: The role of valuation" is at [www.sciencedirect.com/science/article/pii/S0308597X14000311](http://www.sciencedirect.com/science/article/pii/S0308597X14000311)

### New guide to building blue carbon projects

The Abu Dhabi Blue Carbon Demonstration Project has released "Building Blue Carbon Projects - An Introductory Guide." This guide aims to stimulate discussion regarding projects that support the conservation and restoration of coastal ecosystems using their climate mitigation value. It provides a snapshot of common blue carbon project elements based on existing projects and introduces key issues for consideration.

The target audience for the guide is the range of potential project proponents interested in developing blue carbon projects to mitigate climate change and support coastal ecosystem management. The guide is available for download at <http://bluecarbonportal.org/?download=11412>

### Transcript available: live chat on using film to inspire management action

A transcript is available from the OpenChannels live chat on 29 May about inspiring conservation and management action through film: <http://openchannels.org/node/6515>. The chat guests were Karen Anspacher-Meyer and Eva Barnett of Green Fire Productions, who answered audience questions on their *Ocean Frontiers* films (<http://ocean-frontiers.org>). They showed several video clips during the chat, and these are embedded in the transcript.