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From the Editor: Big Changes at MEAM [1]

Dear MEAM Subscribers,

There are several big changes happening at MEAM this month. First and foremost, MEAM is becoming what we informally refer to as 'eMEAM': an all-electronic newsletter that will be published monthly and feature even more applied, practitioner-focused content. If you previously received MEAM in paper format only, we have converted you automatically to this email delivery.

The other change is that I will be taking over as MEAM's new editor while John Davis will become the supervising editor. I have had the pleasure of serving as associate editor of MEAM for the past two years and have been a regular contributor since MEAM's inception in 2007. The other professional hat that I wear is as coordinator of the EBM Tools Network (www.ebmtools.org [2]), a worldwide network which helps over 6800 coastal and marine conservation/management practitioners find the best tools and resources for their work. I have built my career on making connections – between practitioners and the tools they need, between conservation and management and scientific research, and between the natural and social sciences – to help people find effective and innovative solutions to coastal and marine conservation problems. I look forward to continuing this work as editor of MEAM.

What won't change in these transitions is our bringing you up-to-date, high-quality information that is genuinely useful to your EBM and ocean planning work. We can serve you best if you are active participants in and drivers of the information creation process. **Let us know what information you need, contribute your perspectives and experiences to our articles, send us your opinions in Letters to the Editor, and share relevant resources with us**. I encourage you to contact me at meam@openchannels.org to discuss any ideas you have for MEAM so that we can better serve the marine community and marine ecosystems.

Best wishes for your work,

Sarah Carr

MEAM Editor

Planning Canada's Pacific Coast: What Made it Work [3]

In April 2015, the Marine Planning Partnership for the North Pacific Coast (MaPP) released plans for over 100,000 km^2 of the coastal waters of the Canadian province of British Columbia — making it the largest area in North America covered by ocean plans. The MaPP process was formally initiated in November 2011 and is co-led by the Province of British Columbia (hereafter BC) and 18 coastal First Nations (Canada's indigenous populations). The process has involved extensive participation and input from coastal communities, local governments, and other stakeholders including the forestry, fishing, conservation, and tourism sectors.

The MaPP plans provide a long-term vision for the area and recommendations for a variety of uses and activities (such as aquaculture, renewable energy generation, mining, recreation, log handling, and research) for identified zones throughout the planning area. The plans focus on uses and activities for which the BC provincial government has legal jurisdiction and regulatory authority. First Nations and the BC provincial government are now transitioning from planning to implementation by redeveloping administrative structures and establishing implementation agreements, work plans, and budgets.

As the MaPP focus now turns to implementation, MEAM spoke with four MaPP team members about the factors that enabled MaPP to successfully negotiate the complex planning process:

- **Steve Diggon** is Regional Marine Planning/Implementation Coordinator for the Coastal First Nations, an alliance of First Nations on the BC coast. He is a member of the Marine Coordination Team that led the process.
- **John Bones**, also a member of the Marine Coordination Team, is the Marine Planning Coordinator for the Nanwakolas Council which represents the interests of seven First Nations along the BC coast.
- **Charlie Short**, also a member of the Marine Coordination Team, is the Manager of Marine Resources for BC's Ministry of Forests, Lands and Natural Resource Operations.
- **Joanna Smith** was the Science Coordinator for the MaPP process from 2011 to 2014 and is currently the Marine Spatial Planning Science Manager for TNC Canada, an affiliate of The Nature Conservancy.

Full copies of the four plans and plan overviews are available atwww.mappocean.org [4]. Many frequently asked questions about the MaPP process — including on MaPP's public-private funding model and how MaPP relates to a separate, federally led ocean planning process in the region — are addressed at http://mappocean.org/wp-content/uploads/2014/04/Things_To_Know_About_MaPP_20140613.pdf [5]. Descriptions of the most important planning tools used in the MaPP process are available in the EBM Toolbox column in this issue of MEAM at https://meam.openchannels.org/node/10841 [6].

MEAM: We're interested in learning about strategies, tools and resources, and realizations that you found useful for the MaPP MSP process. Which ones stand out for you?

Bones: As a representative of a First Nations partner organization in MaPP, I found the most useful strategy was having our member nations prepare in advance for the joint planning process. Specifically, our member nations developed their own plans to reflect their perspectives on existing and future marine uses and activities as well as how to better integrate their governance systems into current systems. These plans were then integrated to provide a common approach and common sets of recommendations and zones/planning units for the area. This enabled our nation groups to take a leadership role in joint planning and reduced the need to constantly go back to our leadership or technical groups for decisions on joint planning issues as they emerged.

Diggon: Having the First Nations develop their own community marine plans was really critical. It helped them bring clear values and issues to the process and ensured that First Nations' traditional knowledge played a key role in informing both the planning process and the plans themselves. Ultimately, these community marine plans were the foundation for developing the MaPP plans.

Some other critical strategies were:

- Making the MaPP process a full partnership and government-to-government relationship between First Nations and the provincial government of BC.
- Developing a coherent management structure for the process. This included an Executive Committee that provided political support; a senior-level Working Group that made key decisions and provided oversight; a Process Management Team that provided support to the Working Group, designed the process, coordinated the regional process, and worked on broader process-wide policies; and sub-regional Technical Teams co-led by First Nations and BC that collaboratively undertook stakeholder engagement and sub-regional plan development. In addition each First Nation had Planning Committees that reviewed, provided input, and negotiated final plan outcomes with BC.

Smith: Coordinating information for this large, dispersed team was critical for completing the MaPP outputs. There were weekly calls with the sub-regional planners and monthly calls with the Technical Teams, and the Technical Team met in person twice a year to discuss frameworks, zoning, and other topics.

Short: There were many important strategies – perhaps too many to list. But one of the key pieces was establishing the understanding and intent of the process between the partners – BC and participating First Nations – through formalized agreements early on to set the structures and scope of the project. This allowed us to focus and be more efficient in designing the MSP process and developing the products.

MEAM: Were there some important tools and resources?

Bones: A number of valuable tools and resources were used to develop zones and zone provisions in the MaPP process:

- The SeaSketch mapping tool (www.seasketch.org [7]) enabled partners to quickly overlay, assess, and generate statistics related to zone boundaries, resource values, and uses in zones. Stakeholders could also use SeaSketch to assess the background data and generate alternatives to proposed zones and zone boundaries.
- The Marxan analytical tool (www.uq.edu.au/marxan [8]) was also useful to the process for locating areas of high conservation value for potential protection.
- And MaPP created a general Zoning System that ensured all sub-areas being planned would have a common approach to identifying zones, zone nomenclature, and uses and activities to be addressed in the zones. This proved very useful for comparison and for implementation purposes.

In addition, without detracting from the technical tools, the identification and documentation of specific issues (whether perceived or real) with resource management and activities in the plans was a significant tool for developing the plans, as was the local knowledge of community members and First Nations traditional knowledge. The documentation of First Nation and coastal community interests and issues definitely assisted in formulating strategies and provisions/conditions for potential uses in the plan (e.g., a use must avoid impact on a critical migrating species). And access to local and traditional knowledge and expertise greatly assisted in making outcomes more reliable. A lot of spatial information initially brought to the process proved to be inaccurate or incomplete, and local and traditional knowledge gave us the ability to vet this information.

Diggon: In terms of tools and resources, the MaPP process also benefitted from incorporating the marine EBM framework developed through the PNCIMA (Pacific North Coast Integrated Management Area) initiative (www.pncima.org/site/how/ecosystem-based-approach.html [9]). This framework provided us with balanced set of principles, goals, and objectives for MaPP. *[Editor's note: The PNCIMA process is a tripartite (First Nation, federal, and provincial) initiative to produce an integrated management plan for the region at a Large Ocean Management Area scale. The MaPP process focused on producing more operational and localized advice for marine uses in the nearshore and foreshore areas of the region.]*

And we were very fortunate to enter into a public-private partnership that provided financial resources for the planning cycle*[Editor's note: The details of MaPP's public-private funding model are spelled out in a Memorandum of Understanding available at http://mappocean.org/wp-content/uploads/2013/10/MaPP_MOU_nosigs.pdf [10].]*

Smith: MaPP had quite a lot of capacity and resources for developing planning tools. I provide descriptions of the most important ones that we used, including some of the ones mentioned already, in the EBM Toolbox column in this issue of MEAM at https://meam.openchannels.org/node/10841 [6].

Short: Overall, I'd say the MaPP process had it all – political will, adequate funding, strong partnerships and relationships, expertise and capacity, a robust local government, stakeholder and public engagement, and a pressing need to actually do MSP. There was a lot of public interest in this given the increasing use of the marine space in BC.

This combined with the many technical tools, data, and sophisticated analyses allowed us to develop four integrated marine plans for one-third of the coast in BC in only three years or so.

MEAM: What lessons did you learn from the process?

Bones: An important realization in the process from my perspective was that the marine planning could be accomplished in a complex multi-jurisdictional environment without all sectors and relevant authorities participating. This reinforced the partners' dedication to creatively resolving many issues associated with planning a multi-jurisdictional space.

Diggon: Some of my realizations were:

- Things tended to take longer than we initially thought they would.
- Building and maintaining good relationships is critical to success.
- In working with multiple sub-regional processes and seeking a level of consistency, we found that we needed to be flexible and willing to adapt the process. We had a saying 'consistent but flexible' though we found it necessary to be consistently flexible in addressing the variation among communities and sub-regions.

Smith: I'd emphasize that patience and adaptability are critical traits for marine planners. Marine planning is about anticipating change. Creating a transparent process for this change is important, and you need to be able to adapt the process as the planning progresses to match the needs of the planning authority and stakeholders.

Some of my other realizations were:

- Time and capacity are always very difficult to manage, and you never have enough of either.
- Understanding and managing expectations is extremely important, ongoing, and needs more time than most people probably realize.

MEAM: Were there any surprises?

Bones: The level and extent of collaborative work was a major surprise, given the process involved many stakeholder groups, eighteen First Nations represented by four organizations, several provincial government agencies, and senior leadership levels associated with all major partners. Despite the divergent objectives of the partners, all

were able to work extremely collaboratively to develop four sub-regional spatial plans and a broad regional actions document.

Short: I agree. I was really surprised by how efficiently the partners, local governments, and stakeholders worked together. This was like one of those big group projects you had to do in university (the kind you sort of dreaded), except that it was real and on a massive scale with multiple partners, diverging interests, politics and many, many moving parts. Nonetheless, we were able to navigate, plan work, and compromise to reach a successful conclusion.

Diggon: The level of dedication that both our partners and participants showed throughout the process was really amazing. There were lots of challenges and changes in the timelines, but people stayed focused and got the work done.

Smith: In terms of the scientific aspects of MaPP, I have to say I was surprised at how difficult it was to find enough skilled capacity to support marine planning in BC, especially for the social and economic aspects of the planning. We were able to build a strong technical team to support the regional and sub-regional planning, but it took us a while.

MEAM: Do you have some advice for others getting started with an MSP process?

Short: This may be common sense, but it's worth repeating: Ensure you have a need to do MSP. What's the driver? What are the issues, pressures, concerns, and interests? What is the future you are planning for? Figuring this out early on will set the stage for determining what you actually need to do. And it will set you up for obtaining other key MSP 'ingredients': political will (with relevant legislation and legal tools), adequate funding and expertise, and capacity.

Smith: I'd second that. It is essential to identify the reason(s) to plan. Having a clear reason to plan is essential for communicating internally and externally and identifying the future conditions that you are planning for. A clear articulation of why and what you are planning for is also important for defining scale and scope and helping the planning process stay on course and meet its objectives.

My other advice is:

- Build a strong team. Ensure you have the staff capacity to deliver a comprehensive, multi-objective marine plan and that there is strong leadership to make transparent, inclusive decisions. From my seven years of marine planning experience, I have in my mind what an essential core team is. At minimum capacity, it should be a Government Authority Lead; an Administrative Lead; an MSP Project Manager and Process Lead or Coordinator; a Science and Technical Lead; a GIS Lead; a Communications Lead; a Community Relations Lead; and a Fundraising Lead. This minimum capacity does not necessarily need to be full-time for the duration of the planning process, and for processes with more objectives, more capacity would be needed under some of these roles. Other members of the team would include staff for mid-term and final evaluations, legal review, media relations, and policy.
- Be prepared to make lots of decisions. Identify early on who is going to make decisions and how they will be made. There will be hundreds (thousands?) of small and large decisions to make throughout the process, and it is essential to get those decisions made as efficiently as possible. Most MSP processes need to move pretty quickly, so identify the trusted staff to make the day-to-day decisions and give them this authority.
- Limit the number of work plan objectives or outputs. During the MaPP process, we had 39 regional and sub-regional objectives for a three-year planning process, and it was very difficult to complete all of these. When people look to the MaPP process for lessons learned, it is important to realize that coastal and marine planning has been underway in the BC and Pacific region of Canada for over 10 years. Thus, some of the resources we needed (e.g., a spatial data atlas) had already been created and could support or inform the MaPP outputs. In new geographies where I support or facilitate MSP processes, I am careful to match the outputs or objectives with both the time frame and resources available and the level of planning that has already been done.
- Identify available data sets and priorities for data creation. Creating a data inventory with available data and developing a data-viewing tool so that the planning team and stakeholders can view these data is important at the beginning of a process. We were fortunate with MaPP because PNCIMA and the BC Marine Conservation Analysis had already compiled hundreds of data layers. An MSP process will usually need to also outline the analytical methods to create new data, such as stakeholder preferences layers or high priority use areas. A planning process will never have all the data that it needs to answer all the questions that are posed. So in addition to identifying new data sets, one needs to figure out how to work with what is available to make decisions. With each plan review in future years, the plan can be revised and adapted based on new data or information.

Bones: In my experience, resource planning processes that rely on stakeholder direction and consensus take a long time to complete, and the resulting plans lack clarity when implemented. My first advice to others would be to ensure that the plan process utilizes stakeholder groups in an advisory capacity. Some more detailed advice would be to hold meetings specifically to review and solicit advice on draft product and minimize debate over advice given by documenting the advice and the response actions in an 'advice log.'

Management structures are also critical, and my advice would be to set up a small coordinating team responsible for keeping the process on track, set a work plan with specific target dates for key meetings and products, and maintain flexibility to adapt to changing circumstances, whether political or technical. Some processes want to determine every conceivable outcome and element before the planning begins, but planning is complex and can't be driven by formulae. It requires constant willingness to adapt ideas, plans, and processes.

Diggon: I have three key pieces of advice. Build and maintain political support for the process and the process products. Be wary of the tendency to allow planning products to devolve to the lowest common denominator as it can become chronic. And hire good consultants. It may cost more, but it's worth it.

For more information:

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Dispatches from the Field: 26 August 2015. Puerto Aventuras, Mexico, along the Mayan coast [11]

By Tundi Agardy, Contributing Editor, MEAM. Email: tundiagardy@earthlink.net

*Editor's note: **Dispatches from the Field** is a new feature in which Tundi will be introducing us to places, experiences, issues, and solutions from her ecosystem-based management and ocean planning work around the world. It will be a bi-monthly feature that will alternate with her Tundi's Take pieces.*

26 August 2015. Puerto Aventuras, Mexico, along the Mayan coast

I, along with 30 other Sustainable Oceans Lab* compatriots, have just stumbled out of vans that brought us from the small fishing town of Punta Allen located on a small island off the Mexican Caribbean coast to our conference center in Puerto Aventuras. We've been on a Learning Journey – not a field trip, but an expedition to help us think beyond our biases and past experiences and look at a community and its marine management challenges with a fresh set of eyes. For some of us, it's not easy letting go of our preconceptions. Having first worked in this region 30 years ago and written about the success of the Punta Allen fishery ever since, I've been trying hard to not be arrogant, to push aside the feeling that I already know the place and its story. But, guided by our very able facilitators, we've just experienced what is for some of us a known place as if we'd seen it for the first time.

Right now we're tired, queasy, shell-shocked – partly from the jarring 90 km journey from the peninsular village that takes a full 4 hours due to the rutted, washed-out dirt and sand road. But we're also off-balance from the experience of moving between the unreal, contrived, garish, and wholly unnatural atmosphere of the mega resort where we are meeting (a resort built atop what was some of the most beautiful mangrove, cenote, and scrub that I have ever seen – of which there is now not even a trace) and the real world. Punta Allen is as real as it gets – an iconic fishing village that has become a case study of how a coastal community maintaining strong links to the sea can prosper from self-regulation. Like everywhere in the real world, life is complicated there, and all is not as it seems.

The community has evolved its practices and institutions largely in isolation from the teeming, touristic world to its immediate north. Locals organized themselves into a fishing cooperative decades ago, and the town grew to depend on the sea for two main sources of livelihood – fisheries and ecotourism (early on, fly-fishing for bonefish and tarpon, now bird-watching and snorkeling as well). The community's primary source of income is a live spiny lobster fishery in which free divers scoop adult lobsters from small structures called 'casitas' that give lobsters shelter. By parceling out tracts of the sea to members of the limited-entry cooperative, they've created real buy-in and fostered a strong conservation and sustainability ethic. The town is small but neat and prosperous; open doors and unlocked boats suggest crime is non-existent. And virtually every person we pass on the street or on the water greets us with a broad smile.

An uncertain future

But the Punta Allen case is also messy. The apparent harmony we see obscures a history of fits and starts in the cooperative's self-organization and periods of financial ruin and discord. The future is uncertain as well. Some recent disappointing harvests raise questions about the lobster fishery's sustainability. If the road is improved, development pressures may well test the will of the community to resist mega-development (though the town is deep within the Sian Ka'an Biosphere Reserve, which one would hope would stave off the kind of horrific resort development taking place along the rest of the coast). There is the Kanan Kay (Mayan for 'guardian of the fish') Alliance**, a coalition of 46 diverse stakeholder groups working to make the region's seas and livelihoods more sustainable. But as with all such efforts, the alliance's fate is uncertain, depending on funding, leadership, commitment, and good will.

And, finally, then there are the bigger issues: climate change, its impact on the reefs and the fishery, and sea level rise and storm risk that make the community more vulnerable. And what is to become of the very real but not well-understood current threat – waves and waves of Sargassum weed washing ashore, creating huge stinking mats of sulfurous decay that threaten both tourism and coastal ecosystems? There is a theory that these massive inundations of weed affecting the shorelines throughout the Antillean islands, Gulf of Mexico, and Caribbean are the result of increased nutrient discharges from the Orinoco and Amazon Rivers in South America. If so, this phenomenon could well be the poster child for the need for an integrated approach to managing ecosystems and illustrate why preserving idyllic communities like Punta Allen may require real and lasting EBM, at a scale much larger than we're used to considering.

Maybe the most important lesson of the Learning Journey is that we still have a lot to learn, even about the places we thought we knew so well.

*Learn more about the Sustainable Oceans Lab including team members and implementing institutions athttp://sustainableoceanslab.org [12].

**Learn more about the Kanan Kay Alliance atwww.alianzakanankay.org/en [13].

The EBM Toolbox: Tools and Resources for Planning the Canadian North Pacific Coast [14]

By Joanna Smith

Editor's note: The goal of The EBM Toolbox is to promote awareness of tools for facilitating EBM and MSP processes. It is brought to you by the EBM Tools Network, a voluntary alliance of tool users, developers, and training providers.

The Marine Planning Partnership for the North Pacific Coast (MaPP;www.mappocean.org [4]) recently released four sub-regional marine plans for the north coast waters of the Canadian province of British Columbia. MaPP used a wide variety of spatial and non-spatial planning tools, some of which were developed for the MaPP process. Many of these tools may be useful for other planning processes depending on their scale, scope, and desired outputs. [*Editor's note: Look for another EBM Toolbox column soon on how some of these tools are being used for MSP processes in Seychelles and the Lesser Sunda Ecoregion of Indonesia.*] Some of the most important tools, resources, and spatial products MaPP used were:

- **EBM Framework** – First and foremost, MaPP's EBM Framework (http://mappocean.org/science-and-planning-tools/ecosystem-based-management [15]) provided the overarching goals and principles by which MaPP conducted its marine planning work. It was based on the Pacific North Coast Integrated Management Area (PNCIMA) Initiative's EBM framework (www.pncima.org/site/how/ecosystem-based-approach.html [9]), which was developed by provincial, federal, and First Nations governments with significant input from marine stakeholders (Integrated Oceans Advisory Committee).
- **Recommended Uses and Activities Tables** – These tables accompanied the zoning designations in each sub-regional marine plan. They provided recommendations and management conditions for uses and activities that were compatible with the objective(s) for zones. These tables are contained with the sub-regional plans on the MaPP website. For an example, see the North Vancouver Island Marine Plan at http://mappocean.org/wp-content/uploads/2015/08/MarinePlan_NorthVancouverIsland_28072015.pdf [16].
- **Uses and Activity Definitions** – This list provided definitions of all the marine uses and activities that were included in the plan. This list was in addition to a Glossary that defined all technical or specific terms used in the plan. In planning processes, there can be disagreements between lumpers – those who like to generalize and combine – and splitters – those who like to split or refine. The master list of all uses and activity descriptions is a place where both lumped and split terms can be defined and archived, even if they are not all used in the final planning products. In the final MaPP sub-regional marine plans, the uses and activity definitions lists include all applicable terms for zoning and recommended uses and activities. These lists are contained with the sub-regional plans on the MaPP website. For an example, see Appendix 1 of the North Coast Marine Plan at http://mappocean.org/wp-content/uploads/2015/07/MarinePlan_NorthCoast_08072015.pdf [17].
- **Marine Planning Portal** – The web-based planning tool SeaSketch (www.seasketch.org [7]) was used for cataloguing data layers, revising zones, analyzing zone impacts, and reviewing marine plans. MaPP's planning portal (http://mappocean.org/science-and-planning-tools/marine-planning-portal [18]) had over 275 data layers for administrative boundaries, existing marine protected areas, marine species and habitats, marine uses and activities, and spatial analyses.
- **Marxan Outputs** – The British Columbia Marine Conservation Analysis (BCMCA; http://bcmca.ca [19]) team and MaPP used the tool Marxan (www.uq.edu.au/marxan [8]) to identify high priority conservation areas within the MaPP planning boundary. This information was used to assess how well proposed protection management zones met representational goals.
- **Atlases** – It was extremely valuable for the MaPP process to have use of two different atlases, the BCMCA Interactive Atlas (http://bcmca.ca [19]) and the PNCIMA Atlas (http://pncima.org/site/atlas.html [20]), that had compiled hundreds of data layers in the 3-5 years before planning began. These two atlas projects meant that MaPP was able to hit the ground running because available data had been identified, compiled, and processed. MaPP worked with the data custodians on data sharing agreements and updating layers with new information.
- **Dropbox** – The file sharing system Dropbox (www.dropbox.com [21]) was essential for enabling dispersed team members to store, organize, and archive information in a central location so it could be accessed by everyone. Finding files among the hundreds of folders was difficult, so it was important to have one person responsible for overseeing folder structure and taking care of backups and permissions.
- **Mendeley** – The reference management system Mendeley (www.mendeley.com [22]) allowed dispersed team members to store and access the more than 1300 published and unpublished documents gathered during the MaPP process. MaPP had a lead person responsible for managing the software and ensuring the customized database was consistent and updated regularly with new information.

In addition, many other resources were critical for MaPP – primary literature, unpublished reports and technical documents, other coastal and marine plans in British

Columbia and globally, websites, conferences, and, perhaps most importantly, colleagues providing collaborations and expertise.

Joanna Smith was the Science Coordinator for the MaPP process from 2011 to 2014. She led the development of regional technical documents and frameworks, use of decision-support tools for zoning, and spatial analyses to support regional and sub-regional plans. She is now the Marine Spatial Planning Science Manager for TNC Canada. Jo works globally to provide leadership, scientific support and process facilitation to marine planning processes and implementation in Seychelles, Indonesia, Mexico, and Canada. Read more about her work at www.nature.org/science-in-action/our-scientists/joanna-smith-marine-spatial-planning-science-manager-tnc-canada.xml [23]. She can be contacted at joanna_smith@tnc.org.

Notes & News: Handbook analyzes EBM policies - European offshore wind power growing rapidly - Construction starts on first US wind farm - MSP process launched in Malaysian biodiversity hotspot - Principles help managers avoid dramatic ecosystem shifts [24]

Handbook analyzes ocean EBM policies from around the world

The "Routledge Handbook of National and Regional Ocean Policies" presents in-depth analyses of the ocean policies of 15 developed and developing nations and 4 regions of the world that have taken steps to implement integrated, ecosystem-based governance of ocean areas under their jurisdiction. These steps include establishing goals and procedures to harmonize existing uses and laws, fostering sustainable development of ocean areas, protecting biodiversity and vulnerable resources and ecosystems, and coordinating multiple government agencies. Analyses are provided for Canada, Australia, the Russian Federation, the United Kingdom, Brazil, Jamaica, Japan, Mexico, the United States, Portugal, New Zealand, Norway, the Philippines, Vietnam, India, the European Union, Pacific Islands, East Asia, and Sub-Saharan Africa. The book is available for USD$225 at www.routledge.com/books/details/9781138788299 [25].

European offshore wind power growing 36% per year

A recent article "Trends of offshore wind projects" in the journal *Renewable and Sustainable Energy Reviews* analyzed the current status of the offshore wind industry in European waters. The authors found European offshore wind power has been growing rapidly, at an average rate of 36% a year, since 2001. There are currently 7748 megawatts installed and 3198 megawatts under construction among 76 offshore wind projects in European waters. The vast majority of this capacity is in the United Kingdom, Germany, and Denmark. Projects have moved farther offshore into deeper water over time increasing average investment costs. Despite these factors, current project plans may allow the European Union to meet its targets of 40 gigawatts of offshore wind capacity by 2020 and 150 gigawatts by 2030. The article is available for a fee at www.sciencedirect.com/science/article/pii/S1364032115003627 [26].

Construction starts on first US wind farm

Construction has started off the coast of the US state of Rhode Island on the nation's first wind farm. The company Deepwater Wind is constructing a five-turbine, 30-megawatt wind farm approximately three nautical miles offshore. The farm is expected to be operational in 2016. Approval of the farm was facilitated by Rhode Island's comprehensive ocean plan – Special Area Management Plan or SAMP – approved in 2011, which identified specific areas for offshore wind development. Additional information about the Rhode Island wind farm is available at http://dwwind.com/project/block-island-wind-farm [27]. Nine other commercial wind energy leases have been awarded by the US Bureau of Ocean Energy Management for the US Atlantic Coast.

MSP process launched in Malaysian biodiversity hotspot

Sabah Town and Regional Planning Department in Malaysia and WWF-Malaysia have launched a marine spatial planning process for the Semporna Priority Conservation Area, one of the most biodiverse marine areas in the world. This process, the first marine spatial planning effort in Malaysia, seeks to balance marine ecosystem protection with development activity including fishing, aquaculture, settlements, tourism, and transport. The main output of the process is expected to be a plan of action and envisioning document for Semporna's marine resource uses.

Principles help managers avoid dramatic ecosystem shifts

Ecosystem tipping points are dramatic shifts in ecosystem structure and function (MEAM 8:2 [28]). They are often costly and hard to reverse. New evidence indicates that explicitly addressing tipping points leads to improved management outcomes. A paper recently published in the journal *Ecosystem Health and Sustainability* — "Principles for managing marine ecosystems prone to tipping points"— provides principles to guide effective management in ecosystems with tipping points. Some principles include: assuming the potential for nonlinear relationships and tipping points in the absence of evidence to the contrary; addressing stressor intensity and interactive, cross-scale effects of human use to avoid tipping points; identifying and monitoring leading indicators of tipping points; increasing precaution to avoid tipping points; tying management targets to ecosystem thresholds; and increasing monitoring and intervention as risk of a tipping point increases. The publication is available at no cost at www.esajournals.org/doi/10.1890/EHS14-0024.1 [29].

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[6] https://meam.openchannels.org/node/10841
[7] http://www.seasketch.org/
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[10] http://mappocean.org/wp-content/uploads/2013/10/MaPP_MOU_nosigs.pdf
[11] https://meam.openchannels.org/news/meam/dispatches-field-26-august-2015-puerto-aventuras-mexico-along-mayan-coast
[12] http://sustainableoceanslab.org/
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