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Blog: First-ever national ranking shows most coastal (US) states failing to protect oceans. By Lance Morgan

Blog: What does the recommendation that the "design and management of MPAs must be both top-down and bottom-up" actually mean in practice? By Peter JS Jones

Come join us!

John B. Davis
MEAM Editor / OpenChannels Supervisor

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Integrated land-and-sea management: Examining three cases where marine practitioners are looking upstream

Coastal systems are linked to upland areas, just as they are to offshore areas. We can think of the connections among systems as two sides of the same coin. On one side, the connections are positive: with land, freshwater, and offshore marine systems delivering critical nutrients, biota, sediments for land accretion, and the physical space to allow passage between ecosystems. On the other side, the connections can be negative, as when upland areas deliver various human-caused stresses to coastal systems — like excessive nutrients from agriculture, sediments that smother nearshore biota, toxins, etc.

A key to effective EBM in inshore and coastal ecosystems is to maintain the natural connections while controlling the stresses that cause degradation. That balance, in large part, comes from integrating land management and sea management. Such integration is more easily said than done, as pointed out in this issue by Tundi Agardy (see page 5). But there are examples of integrated land-sea management in practice. Here we examine three cases.

Case A
Fiji: Developing a way to coordinate upstream and downstream conservation

In the Western Pacific, the nation of Fiji holds roughly 4% of all coral reefs in the world, including the third-longest barrier reef on Earth — the Great Sea Reef, or Cakau Levu. Most of the

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country's population lives along the coast and relies on the sea's resources for food and income. The marine ecosystem is under threat, however, partly from direct overuse (i.e., overfishing of reefs) and partly from the downstream impacts of various upland practices, including rapid land conversion due to forestry and farming.

In the context of this land-sea connection, Carissa Klein of the University of Queensland (Australia) led a study in 2011 to examine how best to coordinate conservation efforts in Fiji, upstream and downstream. Namely her team determined which forest areas, if prioritized for protection against forestry, would in turn protect the greatest amount of nearby reefs from land-based runoff. They found, for example, that protecting 2% of forest in one area was almost 500 times more beneficial to reef health than protecting 2% in another area. The study results are now being used to inform decisions by the Fiji Protected Area Committee (PAC); the PAC is supporting national targets to increase Fiji's protected area estate to protect 20% of land and 30% of inshore waters by 2020.

Below, Carissa Klein describes the research and is joined by Stacy Jupiter, a colleague on the study and the director of the Fiji program for the Wildlife Conservation Society (WCS), which has worked with partner organizations to foster "ridge-to-reef" management in Fiji (MEAM 3:2).

What has been the response of Fiji's Protected Area Committee to your study results?

Carissa Klein: Stacy presented the study scenario and outcomes to the PAC Terrestrial Working Group in February 2013. Overall, the results seemed to validate selection of forest areas that were prioritized in an earlier study of 40 priority forests for Fiji but which missed out when a subsequent ranking exercise was conducted. In May 2013, the Terrestrial Working Group met again to finalize boundaries of priority forest areas for a map that will be distributed to government agencies across Fiji; these agencies are responsible for issuing permits for development or natural resource extraction. Our study was presented again and contributed to designation of some new priority areas, particularly on Fiji's second largest island of Vanua Levu, where certain habitat types had been severely under-represented in the PAC's ranking scheme.

You have written that the results of your study will not be used to determine the exact location of protected areas in Fiji. What are some of the other factors that will be considered?

Stacy Jupiter: The suggested boundaries on the map produced by the PAC Terrestrial Working Group tend to follow edges of intact forest areas, often with some buffer. Because over 87% of land in Fiji is owned by indigenous Fijians at the clan level, legal gazettal of terrestrial protected areas in Fiji requires some sort of leasing agreement with the clans. Given this, protected area boundaries would tend to follow land tenure boundaries of clans, and one would seek to maximize the area of high biodiversity value within the fewest number of clan tenure boundaries — this will help reduce the transaction costs of payouts to different clans. This system actually strengthens protection afforded because a high level of consensus by clan owners is required for sign-off on the lease. This means that they will have bought into the process and will be less likely (in principle) to infringe on management rules.

WCS and partners have been applying a ridge-to-reef approach in Fiji for several years. Has this study led to changes in the strategy of the ridge-to-reef work in any way?

Jupiter: The outcomes of this work may end up influencing where WCS and others prioritize investment as we continue to scale up this ridge-to-reef approach across other districts and their adjacent fishing grounds. I refer regularly to the map of which forests have the greatest return on investment for reef condition and overlay this with areas that we know to be principally beneficial for terrestrial conservation as one measure of good areas to direct donor funding. That said, a lot of what ultimately determines where WCS and others work in Fiji is community willingness to participate in management.

Klein: This work was not meant to influence only ridge-to-reef planning in Fiji. Our general approach can be adapted and applied in other places and can consider other management actions (e.g., improving farming practices). We are currently working with WWF-Australia, WCS-Papua New Guinea, and The Nature Conservancy-Indonesia to help inform ridge-to-reef planning in those places that considers the impacts of other land uses on coral reefs, such as oil palm plantations, farming, and coastal development.

Case B
Monterey Bay, California: Working with upstream farmers to restore prior conservation practices

California's Salinas Valley is the main growing region for leafy green vegetables in the US. It is also upstream from Monterey Bay and the 21,000-km^2 Monterey Bay National Marine Sanctuary (MBNMS). Early last decade, the sanctuary and its partners on the regional Agriculture Water Quality Alliance (AWQA)

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Their study "Forest conservation delivers highly variable coral reef conservation outcomes", published in the journal *Ecological Applications* in 2012, is at **www.esajournals.org/doi/abs/10.1890/11-1718.1**

Klein and Jupiter conducted a webinar in January 2013 on the Fijian land-sea conservation study. A recording of the webinar is at **www.youtube.com/watch?v=lXLWRNgkB_U**

worked successfully with the valley's farmers to apply voluntary conservation practices around their fields, including the addition of wooded natural areas between fields and streams to reduce agricultural runoff. By 2006, most growers in the valley had adopted at least one conservation practice under AWQA guidance. The practices were estimated to prevent 258,000 tons of sediment from entering the sanctuary annually.

In 2006, however, a strain of *E. coli* bacteria contaminated fresh spinach from the valley, leading to a national outbreak of *E. coli*-related illness. Nearly 200 people across the US became sick. It remains unknown how the bacterium came in contact with the spinach. But under pressure from spinach-processing companies and other buyers who wanted to avoid any chance of *E. coli* contamination from animal feces, the spinach growers removed the voluntary conservation practices they had put in place (MEAM 3:1). Within three years of the *E. coli* scare, there was a 13% loss of wetland and riparian habitat in the valley, leading to greater runoff into Monterey Bay again.

Bridget Hoover, Water Quality Protection Program Director for MBNMS, talks here about efforts to restore the conservation practices in Salinas Valley.

What is the current state of the use of wooded buffers and other conservation practices in Salinas Valley agriculture?

Bridget Hoover: We have not gotten back to the amount of buffers and conservation practices that were installed prior to the scare as they relate to food safety. The Agriculture Water Quality Alliance partners continue to work with growers to implement practices to improve water quality, but they have been primarily programmatic in nature such as irrigation and nutrient management — i.e., things that do not affect food safety. There are some growers who have been willing to construct vegetated treatments regardless of food safety, but they are the minority. The problem remains with the very stringent requirements of buyers and auditors that are not based on science and have little to no evidence that there is a risk.

MBNMS and its AWQA partners are working to develop solutions to address both food safety and conservation at once. Can you point to some specific outcomes and advances from this work?

Hoover: The Farm Food Safety Conservation Network continues to meet on a monthly basis, and includes representatives of government, NGOs, and industry. Members hold a bi-annual co-management forum that brings together industry, conservation practitioners, and agencies. The last meeting in 2011 was focused on the food companies — the buyers and auditors of the food grown on the farms. Afternoon field trips got industry representatives into the field to look at how some growers are addressing the conflicts. The next forum will take place this August 2013.

The Network developed an issue brief for large food buyers describing the conflicts between food safety and conservation, and encouraging a positive path forward through coordination of corporate sustainability and food safety programs. Additionally, materials were developed to educate food safety auditors on conservation practices they may see in the fields. The materials also facilitate discussions between auditors and farmers on methods to mitigate any food safety concerns associated with these practices through monitoring and management, rather than removal of the practice. The outreach materials are at **http://ucfoodsafety.ucdavis.edu/Preharvest/Co-Management_of_Food_Safety_and_Sustainability/**

What tips can you offer other marine area managers when it comes to working and partnering with upstream stakeholders?

Hoover: We always find ourselves in a unique situation, be it with local cities working on stormwater issues or with growers addressing agricultural runoff. Because we have no authority in the watersheds, we are able to provide context and justification (i.e., there is a National Marine Sanctuary downstream) for implementing best practices, but on a purely collaborative and voluntary nature. I think it provides a safe environment to tackle hard issues.

My advice is to reach out to a very broad and diverse audience so that everyone feels they are being heard and included. Be persistent and in it for the long-term. These relationships take a long time to establish, and seeing results also takes a very long time. We are trying simply to be able to show progress with efforts to improve water quality. You can't expect drastic changes overnight.

Case C, next page

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A study on the removal of conservation practices around farms in Salinas Valley — "Farm practices for food safety: an emerging threat to floodplain and riparian ecosystems" — was published in the journal *Frontiers in Ecology and the Environment* in June 2013. The abstract is at **www.esajournals.org/doi/abs/10.1890/120243**

More resources on land-sea connections and integrated management

- UNEP Global Programme of Action for the Protection of the Marine Environment from Land-based Activities: **www.gpa.depiweb.org/home.html**
- "Human deforestation outweighs future climate change impacts of sedimentation on coral reefs", *Nature Communications* (open access), published 4 June 2013. **www.nature.com/ncomms/2013/130604/ncomms2986/full/ncomms2986.html**
- "Watershed Management: Putting EBM into Practice, Upstream from the Marine Environment", MEAM 1:4. **www.meam.net/MEAM4.html**

Case C
Queensland, Australia: Ambitious goals for improving water quality in catchments

The Reef Water Quality Protection Plan — or Reef Plan — is a joint initiative of the Queensland and Australian governments, involving an array of coordinated projects and partnerships (**www.reefplan.qld.gov.au**). It is designed to improve the quality of water flowing from inland areas of the state of Queensland to the (nationally governed) Great Barrier Reef. The Reef Plan focuses in particular on non-point source pollution: namely sediments, nutrients, and pesticides released into reef catchments from food-growing and livestock areas.

Established in 2003, the Reef Plan sets ambitious targets for water quality and land management improvement, and identifies actions to improve the quality of water entering the reef. The plan was updated in 2009 (one goal: "By 2013 the Reef Plan…will have achieved world's best practice in efforts to halt and reverse declining water quality from rural catchments"), and is set to be updated again this year. The long-term goal is to ensure that by 2020 the quality of water entering the reef from adjacent catchments has no detrimental effect on the health and resilience of the Great Barrier Reef.

Wendy Craik is chair of the Partnership Committee that advises the Queensland and Australian governments on implementing the Reef Plan. She speaks below about progress so far.

In what ways do you anticipate the forthcoming, updated Reef Plan may be different from the 2009 Reef Plan?

Wendy Craik: The major differences proposed are based on the valuable information and experience gained to date. They are the need to:

- Focus on game-changing practices, such as the introduction and uptake of slow release fertilizer;
- Prioritize areas to focus on for improvement;
- Prioritize pollutants;
- Put greater emphasis on integrated knowledge transfer into extension [outreach and education to farmers]; and
- Increase research into economic and social issues, including assessments of the costs and benefits of Reef Plan actions at various scales (Great Barrier Reef, catchment, and property).

To date, monitoring has shown progress towards targets, but there is much further to go. Monitoring and modeling have been critical to understanding the effectiveness of our actions and what more may be required to achieve desired pollutant load reductions.

Reef Plan focuses on non-point source pollution. Other sources of pollution — such as from coastal development, sewage, and mining waste — are addressed through a variety of other regulatory and planning processes managed by both the Australian and Queensland Governments. Are there benefits to not integrating all pollution sources in management?

Craik: Non-point source pollution from agriculture makes up about 90% of pollution [in the Reef Plan region]. While there is awareness of other point source pollution programs, running separate programs allows for clear focus and enables a greater ability to respond more speedily. I do not believe Reef Plan suffers from non-integration; on the contrary, I think its ability to focus on agriculture is a strength. The Partnership Committee specifically agreed it would not be advantageous to dilute efforts into other, more minor sources of pollution.

To some extent, the Partnership Committee embodies the integrated management that the Reef Plan aims to achieve, with members drawn from state and national government, regional resource management bodies, industry, and conservation organizations. What are the main challenges the Committee faces?

Craik: Committee member fatigue is a potential issue although modest turnover of members seems to have proceeded smoothly, even when some of those departing were long-time players in this area. I think the level of commitment of members facilitates the committee's progress. Obtaining agreement on geographic priority areas can be a challenge due to members being from different areas; similarly, deciding on appropriate management responses can also be a challenge due to the variety of interests represented. Hearing all points of view and seeking new information to assist with resolution over time has so far enabled the Committee to reach agreement, even on some challenging issues. Some of these challenges may become more difficult as we get more information on what might be required to achieve the long-term goal of no detrimental impact on the health and resilience of the reef. M

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The Reef Plan Second Report Card was released in April 2013: **www.gbrmpa.gov.au/media-room/latest-news/water-quality/2013/reef-water-quality-report-card-unveils-encouraging-results**

To comment on this article:

http://openchannels.org/node/3812

In October: Second Global Conference on Land-Ocean Connections

The Second Global Conference on Land-Ocean Connections (GLOC-2) will take place 2-4 October 2013 in Montego Bay, Jamaica. The conference will identify approaches to address current and emerging issues in the marine and coastal sector, with a focus on nutrients, wastewater, and marine litter. UNEP and the Government of Jamaica are co-organizers. For more information, go to **www.gpa.unep.org/index.php/gloc-2** . The first GLOC was held in Manila, Philippines in January 2012.

Tundi's Take: Acknowledge the land-sea connection, even if it takes you from your comfort zone as a marine manager

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

By its very nature, EBM requires that we address how ecosystems are connected and factor that into management. But what does it mean for our community of marine and coastal managers when inland ecosystems are among those connections?

Although the community generally acknowledges that being "ecosystem-based" requires considering both land and aquatic systems when developing our management regimes, doing that is not easy. And it does not come naturally to most marine management agencies.

Part of the problem is our age-old reliance on looking at structure instead of function. Shorelines provide nice boundaries that we can see – leading us into the trap of treating our marine systems as separate. And because the oceans have been marginalized for too long, we in the conservation community have been marketing them as special, different, even unique. While oceans are indeed special, their care must be built on systematic and coordinated management of inland, coastal, and offshore areas simultaneously, using tools developed for land use but adapted for sea use.

It starts with basic understanding of the physiology of the coastal or marine ecosystem of interest. In Marsimas Nacionales — a vast area of mangroves and associated habitats along the Pacific coast of Mexico — government agencies and NGOs work side by side to try to maintain mangrove health. Nonetheless, mangrove dieback continues, affecting the livelihoods of coastal peoples and the socio-economic viability of *ejidos* (cooperatives). There are many factors contributing to the degradation:

- A channel on the seaward side of the mangrove that was widened for navigation, for example, continues to grow to this day due to erosion; this widening has changed the physical processes of water flow and sediment deposition.
- Freshwater flows to the mangrove have been compromised by upland irrigation and hydroelectric installations. Too little water reaching the coast means that typically not enough sediment is being delivered, so mangroves cannot accrete land to keep up with encroaching seas.
- The quality of the reduced water flow to the mangroves has also declined, as the water brings with it the pollutants from farming and municipalities.
- And perhaps most important of all is the problem of occasional pulsing of sediments downstream. Farmers upland construct small earthen dams to divert water to their crops (often illegally), and when the intense rain events characteristic of this region occur, the dams get washed out, bringing huge quantities of soil into the mangrove basin. These pulses of sediment effectively block natural channels in the mangrove, restricting flushing and the passage of organisms that live there or use mangroves as nursery areas.

As a result, no amount of Marismas Nacionales protection alone – be it in the form of National Parks and other protected areas that already cover large areas, or enforcement of regulations concerning mangrove cutting, fisheries, aquaculture, or navigation – will be able to save this vast and valuable mangrove area from decline. The only thing that will is adopting an EBM approach that forces a full diagnosis of pressures and impacts, and uses this information to pinpoint priority management interventions on land, in river systems, on the coast, and at sea.

It is not EBM when we ignore the fundamental ecology, after all. Acknowledging the connections is necessary — no matter how much that acknowledgement may take us from our expertise and comfort zone as marine managers.

To comment on this article:
http://openchannels.org/node/3813

Preparing data and maps for a regional MSP process: Interview with Nick Napoli

In the US, marine spatial planning is a central component of the national ocean policy, and is being carried out on a phased basis across nine regional planning areas (MEAM 4:1). The planning process for the northeast region of the US is underway (**http://openchannels.org/node/3300**).

Nick Napoli is the Ocean Planning Project Manager for the Northeast Regional Ocean Council, which covers the US states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. Much of his work involves ensuring that a wide array of data sets is available to the Northeast

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regional planning process. The data-gathering work grew from a multi-institutional partnership that formed in 2011 — the Northeast Ocean Data Working Group, consisting of government agencies, NGOs, research institutes, and others. MEAM spoke with Napoli about the challenges involved in this and how he anticipates the data needs may change over time.

What are the main challenges you've faced so far in preparing the data and maps for the Northeast regional planning process?

Nick Napoli: First, it is challenging to develop, present, and provide access to maps and data for different audiences. People involved in ocean planning have varying levels of experience and familiarity with the information and different ideas about how they want to interact with it. We are seeing this now more than ever as we have public meetings all around the region.

We have been developing **www.northeastoceandata.org** as the central repository for our information and we are providing different ways for users to interact with our information. We have always had an application, for example, that allows more experienced users to overlay and download datasets from our catalogue and from a variety of relevant external data catalogues. But we heard that people with less technical experience also wanted access — albeit in a form that was simpler and more focused on the information most relevant to them. We reviewed our data and decided that we spent a lot of our effort on some key themes and maps because they were particularly important to planning in the Northeast — like navigation and transportation areas used for maritime commerce; commercial fishing activity; recreational boating; and existing and proposed energy infrastructure. So we developed a series of thematic maps that allows more direct access to this information, focuses more on the presentation (making it more user-friendly), and provides an opportunity to explain the data and the source of the information. Improving our presentation and characterization of these key maps will continue to be a priority.

Another challenge involves ensuring the data and maps we develop are as useful as possible in a planning and management context. The Northeast Ocean Data Working Group began developing regional data three years ago — in anticipation of the need for such data as part of regional ocean planning, but before a Regional Planning Body had been created. As it happens, it was critical that we started early because we now have a website, some applications, and an excellent basis of information to use in conversations with stakeholders and agency staff.

But now that the formal planning process is underway, our focus is changing from developing a lot of contextual data about the region to further developing certain key datasets through extensive stakeholder and agency input. In order for agency staff, industry, and environmental groups to use our maps, we need to focus on those datasets and information that are really key to the types of management, planning, and regulatory decisions in the region. We are going to continue to have, and likely ramp up, discussions with agency staff that have regulatory and decision-making authority to ensure these maps meet their needs.

What other MSP processes have served as guides or inspiration for you?

Napoli: Many of us in the Northeast region have recent experience with state-level planning efforts in Massachusetts (Massachusetts Ocean Management Plan), Rhode Island (Rhode Island Special Area Management Plan), or Maine (Maine Ocean Energy Demonstration Siting Initiative). These provide local models for much of the same data and science we are using, and for understanding the management and stakeholder context. So we tend to rely on these examples when we are thinking about how to engage stakeholders and develop maps and data characterizing a particular use or natural resource.

That said, we definitely benefit and have learned from other processes in the US and abroad, particularly the work in the US state of Oregon, in Northern Europe, and in Australia. I met people involved in efforts in Australia a couple years ago and it was interesting to hear how we share some of these big-picture challenges when integrating data and science for planning purposes.

What advice do you have for data managers in other regional planning processes?

Napoli: My first suggestion is to start developing data, maps, applications, a website, etc. for people to react to. Yes, it is essential to understand user priorities and requirements before making significant investments in data and mapping. But people need to see examples and options: these help them to understand what is possible and to articulate their needs. Some planning efforts get bogged down in negotiating and detailing an end product before getting started on data and maps. I think the best way to make progress is by having a tangible example to discuss.

In addition, be transparent and flexible. It is especially important to be transparent at the regional level, where we are integrating a lot of variable information across a broad geographic area that includes a diversity of public interests and government jurisdictions. You also have to be flexible in order to maximize the benefits of people's input. Data priorities, methods, preferences, and technology can change quickly.

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To comment on this article:

http://openchannels.org/node/3814

Global Ocean Commission: "Need to act swiftly" on high seas governance

The Global Ocean Commission is an independent body of world leaders with the goal of reversing degradation of the high seas — areas of the ocean beyond national jurisdiction (**www.globaloceancommission.org**). Chaired by former Costa Rican President José María Figueres, South African cabinet minister Trevor Manuel, and former UK Foreign Secretary David Miliband, the Commission is focusing on four key issues facing the high seas: overfishing, large-scale loss of habitat and biodiversity, the lack of effective management and enforcement, and deficiencies in high seas governance.

Launched in February 2013, the Commission anticipates presenting a series of recommendations for improved high seas governance roughly one year from now. MEAM asked Simon Reddy, executive secretary of the Global Ocean Commission, for his thoughts on how ocean planning may factor into the Commission's recommendations. His responses are here.

On what roles marine spatial planning and MPAs should play in sustainable high seas management:

Simon Reddy: All mechanisms that lead to sustainable and equitable management of the ocean are potentially valuable. Marine spatial planning, ecosystem-based management, and marine protection all fit that description when they are done well. It is important to note that the Commission is focusing on the high seas, and obviously the issues differ somewhat between high seas and coastal zones, particularly the legal regime.

One important issue is that the future of ocean industries is by definition unknown, so we cannot know whether, in 50 years' time, societies will want to use the high seas for energy technologies, geo-engineering, or something totally new. It is important that we have in place a governance regime under which all of these potential future uses would be managed in a sustainable and equitable way, on the basis of sound science and sound economics.

On whether the Commission will lobby governments on its recommendations:

Reddy: Most of our Commissioners have a track record at the higher echelons of politics, and many are active now as parliamentarians or on the international stage. So they are in any case having conversations with governments. But what is really remarkable is the number of different constituencies that have an interest in reforming high seas management and governance: NGOs and scientists, of course, but also many businesses, security agencies, economists, faith groups, trade unions, and so on. The key to achieving change is probably to have all these groups talking to governments at the same time.

On when he anticipates the Commission will deliver its recommendations:

Reddy: In the first half of 2014, probably in the second quarter. That is largely because the UN General Assembly will begin important deliberations on high seas biodiversity when it meets in September 2014, and some of our recommendations will probably bear on that issue. But there are also other international processes going on that offer a window of opportunity, such as the post-Rio discussions on sustainable development goals, into which our ideas can feed. Another reason for urgency is the ever-growing body of science indicating ecological peril in parts of the ocean. That tells us that we need to act swiftly. M

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To comment on this article: http://openchannels.org/node/3815

Notes & News

Study analyzes IUCN Red List for Ecosystems

The IUCN Red List of Ecosystems, a global standard that is being developed to assess environmental risk, has now been trialed on 20 ecosystems spanning six continents and three oceans. An article in the May 2013 edition of PLoS ONE journal documents the trials, and releases an updated version of the standard's criteria and categories for ecosystem risk assessment. The article is at **www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0062111**

The Red List is designed to compile information on the state of the world's ecosystems at different geographic scales, and its main goal is to assess the risk of ecosystem collapse. It is modeled on the IUCN Red List of Threatened Species. Developers of the Red List of Ecosystems aim to assess all the ecosystems of the world by 2025.

PNCIMA draft integrated management plan open for review

A draft integrated management plan for the Pacific North Coast Integrated Management Area (PNCIMA) — covering 102,000 km^2, or roughly half, of Canada's Pacific waters — is now available for public review. The consultation period for the draft plan will run until 8 July 2013. The review is at **www.pncima.org/site/get-involved/public-review.html**

The PNCIMA initiative is steered by a committee of representatives of the federal, provincial, and coastal First Nations (indigenous) governments. A brief case study of PNCIMA by UNESCO is at **www.unesco-ioc-marinesp.be/msp_around_the_world/canada_pncima**

US releases national strategy for Arctic

The administration of US President Barack Obama has released a national strategy for the Arctic region. The 13-page statement features three "lines of effort": to advance US security interests, to pursue responsible Arctic region stewardship, and to strengthen international cooperation. The strategy is at **www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf**

Ocean Frontiers now available to all planners

Ocean Frontiers: The Dawn of a New Era in Ocean Stewardship, the documentary film that aims to help audiences understand principles of EBM and marine spatial planning (MEAM 5:4), is now available to show within agencies, ports, and coastal planning venues. The film focuses on several groups of stakeholders and their success stories of partnering for improved ocean management. For more information, go to **http://ocean-frontiers.org/calling-all-agencies-coastal-planners-ports**

Study: Eight ingredients for sustainable community-based fisheries management

A study of community-based fisheries management programs in practice has concluded there are eight key ingredients that help ensure the long-term sustainability of such programs. Conducted by Blue Earth Consultants on behalf of the conservation organization Rare, the study analyzed 17 cases worldwide. The key ingredients include having: multiple management tools; transparent processes; adequate fisher capacity to participate; incentives for fishers to participate; good collaboration across all participant groups; strong monitoring plans; a realistic timeframe for results; and sustainable financing. The study results are at **www.blueearthconsultants.com/wp-content/uploads/2013/04/FINAL_RARE_KeyIngredients_Update_BEC_1_14_13.pdf**. For more information, email **info@blueearthconsultants.com**

To comment on any Notes & News items: http://openchannels.org/node/3816

Next events on OpenChannels.org

- **11 July 2013**
  Webinar: SocMon — Social Science Monitoring in Coastal and MPA Management, by Peter Edwards of the NOAA Coral Reef Conservation Program

- **17-18 July 2013**
  Webinar: Citizen Science for Coastal and Marine Environments Webinar #2: Latest Research, Redmap Australia, Reef Watch, and Feral or In Peril

For details and exact times on these events, go to **http://openchannels.org/upcoming-events-list**

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

The EBM Toolbox by Sarah Carr

"In-the-water" tools for MSP

A number of my previous EBM Toolbox columns have covered tools that can be used for marine spatial planning. But a survey conducted this year by the EBM Tools Network and OpenChannels.org provides a wealth of information on which tools MSP practitioners are actually using. It also examines why, in some cases, MSP processes are not using tools.

We received 124 complete responses to the survey, and the tools the respondents mentioned using ran the gamut from open source GIS to aerial photography. The vast majority, however, were geospatial analysis tools. Some highlights from the survey:

- 73% of respondents are using or did use tools for their MSP processes, and 31% are using more than one tool for their MSP process or processes.

- Respondents mentioned roughly 70 different tools. However, only six were mentioned by more than two respondents: GIS, Marxan, Marxan with Zones, MarineMap, Oregon MarineMap, and SeaSketch.

- Many processes are conducting their own custom geospatial analyses using GIS either in addition to "off-the-shelf" tools or in lieu of them.

- Tools are being used for a wide range of tasks including designing, optimizing, and selecting marine protected area sites and networks; finding appropriate areas for offshore renewable energy infrastructure; zoning marine areas; discovering and collecting data; mapping habitats and marine species distributions; assessing areas of current and potential use conflict between diverse human uses and ecological function; collecting information from stakeholders; and helping stakeholders create, evaluate, and share alternative management scenarios

- The vast majority of respondents (95%) say tools have definitely or mostly helped their process.

- In cases where MSP projects are not using tools, the following reasons were cited for the non-use: it is too early in their process to have started using tools; cost of tools; lack of familiarity with tools; lack of appropriate tools; lack of data; lack of time; or their process does not need tools.

Full results — including benefits, challenges, and lessons learned from using tools — can be found at **http://openchannels.org/blogs/msp-tools**

To comment: http://openchannels.org/node/3817

Sarah Carr is coordinator for the EBM Tools Network. Learn more about EBM tools and the EBM Tools Network at **www.ebmtools.org**