

MARINE ECOSYSTEMS *and* Management

International news and analysis on marine ecosystem-based management

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New Media and EBM: Using Twitter, YouTube, and Other Tools to Engage the ‘Crowd’ and Improve Management

It was May 2011 and at the International Marine Conservation Congress in Victoria, Canada, a special panel discussion was underway on global negotiations for ocean issues. The panelists had many years’ experience in international policymaking, and they talked about the advances being made — or not being made — on issues ranging from whaling to climate change and more. When it was time for the audience to ask questions, a young woman stood up.

“You have talked about the frustratingly slow progress in international negotiations on ocean issues,” the young woman said to the panel. “In light of the instrumental role that social media tools like Facebook and Twitter played in the recent ‘Arab Spring’ movement in the Middle East, could the same tools be harnessed somehow to advance ocean negotiations?”

To the panelists, the question might as well have been whether teenagers should be put in charge of the planet. The panelists dismissed the idea with a few short comments: none of them was on Facebook, they had no plans to be, and they generally viewed social media as a waste of time.

Despite that dismissal, the fact is that new online communication tools are already starting to change the face of ocean and coastal management. A marine protected area in the Bahamas is receiving US \$500,000 from online fundraising through social media. The US Fish and Wildlife Service has uploaded more than 200 educational videos on YouTube in five years, with some drawing thousands of views. And an upcoming web tool will soon let the general public help to monitor remote ocean areas from their home computers. Each of these cases is engaging the “crowd” — the public masses — as a way to help advance management.

The field of coastal and marine ecosystem-based management is changing, and changes will continue as more young people raised in the Internet age enter the management workforce. For this issue, MEAM asked several trendsetters to share quick insights on the application and usefulness of online media tools to ocean management:

Mark Richardson coordinates the Surveillance and Enforcement of Remote Maritime Areas project (SERMA), led by the Marine Conservation Institute.

Helping fishers document illegal activity, using smartphones

By Mark Richardson, Conservation Scientist, Marine Conservation Institute, US. E-mail: Mark.Richardson@marine-conservation.org

There are a number of forms that crowdsourcing (i.e., tapping into the collective wisdom and expertise of the community) could take in maritime surveillance. One area with particularly exciting potential has been the widespread adoption of smartphone technology. With smartphones you have the ability to take photographs linked with geographic position and timestamp data, and smartphone apps can be developed to allow users to record specific event data on a standardized form. Putting all of this together within a simple data visualization tool like Google Earth, you can have a low-tech, widely available crowdsourced solution to help underfunded enforcement agencies better understand the scope and nature of illegal maritime activity.

This technology is currently being tested in Liberia, a country that has seen an increase in illegal fishing by large trawl vessels in areas reserved for local fishermen. With support from the World Bank and others, several Liberian fishing communities are using smartphones equipped with a specialized application called Trawler Spotter (www.communitysciences.org/IntPages/News.php) to document the illegal activity. The community data captured on mobile phones are immediately uploaded to a publicly available map, which allows authorities to take action against the offending vessels.

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Dear reader: In the coming months, MEAM staff will be exploring the use of new media tools to broaden our service to the fields of EBM and marine spatial planning. We are interested in your insights and suggestions. If you would like to be involved, please e-mail me. Thank you.

John Davis editor@meam.net



The International Oceanographic Data and Information Exchange (IODE) enhances marine research and management by aiding the exchange of oceanographic information among participating UNESCO Member States. An IODE program called OceanTeacher Academy provides online training courses on topics of oceanography and resource management, including a 2011 course on marine spatial planning taught by Bud Ehler (www.oceanteacher.org).

Using the web as a global training classroom

By Peter Pissierssens, Program Coordinator, IODE, Intergovernmental Oceanographic Commission of UNESCO, Belgium. E-mail: p.pissierssens@unesco.org

The main advantage of web-based training is that you can reach a far larger audience than with traditional classroom-based methods. The classes for our online professional training courses — which are conducted by live video conference — can be any size we want. Students can also revisit a class afterward by watching the recording online via our video library when it is convenient for them.

Our vision for the next decade is to establish a number of regional training centers that are interconnected and use multi-point video conferencing as the main technology (plus desktop sharing). This will allow us to have a class course in India, for example, and broadcast it to Brussels and Nairobi at the same time. The students in each location will be able to see and hear the lecturer and the other students, and will also be able to interact with each other. This means we can have a truly global classroom. Lecturers could also lecture from wherever they are (home, office, classroom), and we can invite the best lecturers for a variety of topics without having to fly them across the globe — not a minor detail in a carbon-conscious world. This technology already exists today but internet bandwidth still needs to grow in certain parts of the world for it to become routine.

COMPASS, the Communication Partnership for Science and the Sea (www.compassonline.org), offers programs to help scientists communicate about their work to a range of audiences, including policymakers and the general public.

Why scientists should use social media

By Brooke Smith (Executive Director) and Liz Neeley (Assistant Director of Science Outreach), COMPASS, US. E-mail: brooke.smith@compassonline.org and lizneeley@compassonline.org

The biggest misconception scientists have about social media is that it is a waste of their time. This is because researchers tend to assume two things about social media: 1) that it is just another broad-

cast medium, and 2) that it is a mindless, antagonistic, narcissistic world primarily catering to teenagers.

Building a large and well-connected network of relationships through social media can be invaluable. From hearing about the latest research and policy developments to troubleshooting protocols, social media can help scientists get information *faster than any other venue*. This is the case with broad platforms like Facebook and Twitter as well as more focused online communities like ResearchGate, which has more than one million scientists as members (www.researchgate.net). Importantly, if you invest a little time in tuning the filter settings for your accounts, you will have real-time access to the information most relevant to you.

Another exciting possibility is the way that collaborative “open science” efforts (including citizen science projects) increase the ability of interested people outside of academia to see, and even participate in, the research process. Ultimately, using social media offers researchers and graduate students a low-cost opportunity for testing their assumptions about how the public wants to interact with scientists, share information, get feedback, and see what works best for each project.

Making use of social media like Facebook and Twitter can help scientists raise their profile, share ideas, improve communication skills, and build a community of active and interested supporters. Each piece pays off individually. Collectively they hold the promise of a culture shift that effectively gets science out of the ivory tower and into the conversation, which is necessary for effective oceans management.

In 2010, WWF Germany produced a 28-page cartoon guide titled “Become a Maritime Spatialist in 10 Minutes”, which used drawings, humor, and limited text to explain marine spatial planning and why it is needed (www.baltseaplan.eu/downloads/WWF_Cartoon_MSP.pdf). Response to the guide has been big: more than 100 websites have linked to its English version alone (the guide is available in six languages). A new animated version of the guide will be available soon on YouTube.

How a cartoon guide on marine spatial planning went ‘viral’ on the web

By Jochen Lamp, Head of WWF Baltic Office, Germany. E-mail: Jochen.Lamp@wwf.de

There were several reasons we did a cartoon guide with limited text rather than a guide with shiny photos and the standard amount of text:

- We wanted to reach non-experts and “quick readers”.
- We wanted to create something different from the usual stuff they see, which would make our guide

“The biggest misconception scientists have about social media is that it is a waste of their time.”

stand out and cause people to be curious.

- We wanted to address the readers' humor, which would make the experience fun.
- And we felt a good illustrator could better translate an idea into a picture than a photo typically could.

We planned for the guide to exist primarily in printed form. But our use of the illustrations at conferences created demand for downloadable versions. When we made the guide easier to access online, the illustrations started showing up in other people's presentations, which in turn created more online demand. It was a snowball effect.

We anticipate our new animated version of the guide will reach a broad audience as well — particularly as internet users hear for the first time about ocean governance and maritime spatial planning, and discover the video via Google, YouTube, Wikipedia, etc.

An online fundraising project has raised US \$500,000 to support a 183-km² no-take marine reserve in the Bahamas — the South Berry Island Marine Protected Area. See MPA News's coverage of this project at <http://depts.washington.edu/mpanews/MPA124.pdf>. The project team used Crowdrise, a web-based platform, to help raise the funds (www.crowdrise.com/summitseriesmpa). Via Crowdrise and similar platforms, ocean management institutions can harness their social media networks to help secure financial support.

Using an online fundraising platform to finance an MPA

By Calvin Falco, spokesperson, Crowdrise, US. E-mail: falco@crowdrise.com

Crowdrise is designed to be super viral and give charities and fundraisers all the tools and features they will need to help get the word out and raise more money for their causes. In short, if Facebook is the place that defines you and Twitter is the platform where you say what you are doing, then Crowdrise is the site to show how you give back. (For a quick tutorial on using Crowdrise, go to www.crowdrise.com.)

Crowdrise takes a different approach to giving and is geared toward making donating and fundraising as fun and easy as possible:

- In addition to being a platform for nonprofits, Crowdrise is also a social networking site for those passionate about giving back.
- We offer points and other incentives, from iPads to t-shirts, in return for donating and participating.
- Our charities and individuals on Crowdrise can populate their pages with photos, text, and videos.

There are also several networking tools that they can use to share their individual projects on and off the site — including Facebook, Twitter, and good old e-mail (useful for people without social media networks).

SkyTruth uses satellite images, digital mapping, and other visual technology to document and analyze environmental incidents, including oil spills (www.skytruth.org).

Coming soon: a tool to let the public monitor remote areas

By John Amos, President, SkyTruth, US. E-mail: john@skytruth.org

SkyTruth is developing a program called "SkyTruth: Home Edition", which will be rolled out in stages as we continue to increase its functions. It is a do-it-yourself monitoring toolkit to allow users to subscribe to a specific geographic area they would like to monitor. As new satellite and aerial images from a variety of free sources become available over that area, our system will download, process, and produce Google Earth-ready chunks of imagery, and will automatically send the user a link to view it. We are already doing this internally with our volunteers at SkyTruth, using radar satellite images to monitor various areas around the world for oil pollution and vessel activity.

Future enhancements will provide simple application-specific tutorials for users so they know what to look for on the images, and can do their own basic analysis and annotation. There will also be a platform for users to publish their analyses so everybody can take a look, critique them, and share with their social networks. It is our hope that this activity will build public pressure for better management, and create market incentives for proactive companies to voluntarily do better even in the absence of strong government oversight.

Relying on free imagery has its weaknesses: we can't control when and where an image is acquired, and it is not the highest resolution imagery available (that becomes expensive). But the SkyTruth: Home Edition product does access the same quality of imagery that we used throughout the Gulf of Mexico oil spill in 2010 to map and measure the size of the oil slick, and to detect recent oil slicks from spills off Brazil and Nigeria. Vessel locations can also be detected on the radar images, so after-the-fact identification of illegal fishing is a possibility. That could help inform enforcement agencies if there are patterns of violation that need to be addressed.

The Re|Source 2012 conference on natural resources will be held 12-13 July 2012 at Oxford University (www.resource2012.org). The conference will incorporate various interactive technologies and enable attendees to continue sharing ideas after the conference is over.

Social media allow for better ideas and policy making

By Kathryn Murdoch, Director, Re|Source 2012 conference, Oxford, UK. E-mail: kmurdoch@resource2012.org

Spreading relevant information and engaging with online communities through social media channels can help policy makers to foster relationships with key stakeholders and generate new sustained discussions that can ultimately lead to better ideas and policy making. Beyond that, social media can be a useful tool for policy makers to trial new proposals and crowdsource ideas before they are implemented more widely.

Green Fire Productions creates video communication tools and social marketing campaigns around issues of conservation, sustainability, and social justice (www.greenfireproductions.org). Its documentary film *Ocean Frontiers: The Dawn of a New Era in Ocean Stewardship* aims to help audiences understand key principles of EBM and coastal and marine spatial planning, profiling success stories that focus on a broad range of stakeholders (www.ocean-frontiers.org). Short clips of the film are available online to draw interest. The film premieres officially in February 2012.

Video engages the public as other media cannot

By Karen Anspacher-Meyer, Executive Director, Green Fire Productions, US. E-mail: karen@greenfireproductions.org

Film allows people to access information that they likely would not read about. Most audiences are not going to read a scientific journal article or a white paper, and a Powerpoint presentation on EBM and marine spatial planning might leave them scratching their head in confusion. But they can relate to the case studies featured in *Ocean Frontiers*, as told by the practitioners themselves — industrial shippers and whale biologists, pig farmers and wetland ecologists, sport fishers and reef snorkelers. Their work comes across as dynamic, which helps make the concepts far easier to understand.

The film is more than a documentary. It is a communication tool — intended to educate, engage, and

mobilize communities from coast to coast in the US to better manage and conserve our coastal and ocean resources. We are providing the film to organizations, agencies, individuals, and businesses to show it, host events, and use our online step-by-step screening toolkit and promotional materials, all for free. And our online social platforms (including Facebook, Twitter, and a blog centered on the film) allow the film's messages and calls-to-action to continue to engage people even after they have viewed the film.

The X PRIZE Foundation creates and manages large-scale incentivized competitions to drive “radical breakthroughs for the benefit of humanity” (www.xprize.org). In October 2011, the Foundation's Wendy Schmidt Oil Cleanup X CHALLENGE awarded US \$1 million to Elastec/American Marine, the team that demonstrated an ability to recover oil from the sea surface at the highest rate and efficiency (www.iprizecleanoceans.org).

Harnessing online video and social media to help drive innovation

By Alan Zack, Senior Director of Marketing and Communications, X PRIZE Foundation, US. E-mail: Alan.Zack@xprize.org

The web has become a very important tool to help us spread the word about the X PRIZE Foundation and our competitions. When looking at the web, our first strategy is to ensure a consistent message so the objectives and outcome of each competition are clear. We

Limits of new media for ocean management in developing nations

In the Philippines, the Coastal Conservation Education Foundation (CCEF) runs programs to sustain coastal and marine biodiversity and improve the quality of life for local communities (www.coast.ph). CCEF uses its website and social networking platforms (YouTube and Facebook) to communicate its work to the general public, both in the Philippines and abroad. But to communicate with its target communities — which are often in remote coastal or island locations where literacy rates are low and internet connections are unreliable — CCEF typically uses more traditional technologies.

“Since most of our target audiences have limited capacity and resources for internet connectivity, we utilize more popular, existing mass media tools,” says Liza Eisma-Osorio, Executive Director of CCEF. “Based on our observations, marginal fishermen can only be reached through radio and other tools like posters, comic books, and the like. To communicate key conservation messages in these communities, we have to use the most convenient and practical methods.”

The reliability and variety of internet connection speeds in the Indo-Pacific region also pose a challenge for the Locally-Managed Marine Area (LMMA) Network, which shares lessons and best practice across the region. “Our website (www.lmmanetwork.org) is our primary knowledge-sharing portal since our audiences are varied and geo-

graphically spread out,” says Toni Parras, communication specialist for the LMMA Network. “However, while some of our countries have excellent, reliable, speedy internet, others have slow, inconsistent dial-up connections that constantly drop out. This makes downloading documents or even accessing ‘heavy’ webpages difficult. We had to carefully redesign our website with this in mind. It is a challenge to have an engaging, eye-catching, fully functional, relevant website that is relatively low-tech.”

The LMMA Network has long considered establishing an official presence on Facebook as a less-formal portal for sharing information, says Parras. But expectations that the Facebook page would grow rapidly have led the program to hold off due to concern its limited staff would be unable to keep up effectively. However, says Parras, personal Facebook accounts have proven useful, namely for reaching some members of the network who respond right away when contacted via that portal. “Some people seem to prefer the less-formal culture of interacting on Facebook, which has been an important discovery,” she says. “It also helps us connect on a personal level, which is important to the work that we do.” ■

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find that tapping into our large following within the various social media platforms — like Facebook and Twitter — is the best way to reach our audiences in an effective and efficient manner.

Second, because the web is a visual medium, we develop compelling videos about our Foundation and competitions that convey our message and end with a call to action. We then push them out via our social video platforms (like our YouTube channel, www.youtube.com/user/xprize), tag them all so that

search engines can find them easily, and encourage our followers to share.

Third, we regularly change the content to keep it fresh. Once the competition has begun, we encourage competing teams to post videos, blogs, and tweets about the competition to their followers. In turn, we help distribute that information to our followers. Since each team has its own unique experience, we always have new, interesting content for the site from different viewpoints. ■

Tundi's Take: Social Media Connects Humans with Ecosystems, Too

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

My children will say that I am the last person on Earth who should be opining on the value of social media. I admit that I am stuck in the past and unwilling to engage in social networking by joining Facebook or Twitter. But even the reluctant can't help but be caught up in the social media wave, recognizing its inexorable value — and not just in connecting people. To me, social media can do something unexpected: it can better connect us with nature and the ecosystems on which we depend.

For EBM, these connections are essential. Forming connections to our ecosystems can be done cerebrally, with information technologies that support scientific understanding, which in turn allow us to understand our place in the world and how we interact with it (both positively and negatively). But these connections can also be made more viscerally, giving us a reason to use that scientific information to better manage our impacts on the natural world.

Take the case of a blog or Twitter feed that tracks the path of a satellite-tagged leatherback turtle through the Pacific Ocean. The female turtle comes ashore in Mexico to lay its eggs then heads way offshore, eventually finding its way to the cold and nutrient rich waters of Chile to feed. People following that turtle might learn of all the ways humans threaten it along its journey: from poaching at the nesting beach, to littering its migratory path with plastics, to creating an obstacle course with dense boat traffic in shipping lanes, to deploying longlines that could lure it to incidental death.

The travails of the turtle tell much about the greater ocean management story — the multiple threats that must be addressed to keep threatened marine species,

and whole ecosystems, alive and well. The leatherback becomes a proxy for how we need to be holistic and integrate management to get it right for other species that depend on ocean health, including our own.

But the turtle story, described by blogs or in tweets, is more than informative — it motivates. The narrative is made even more compelling by the power of video clips, going viral across the cyberspace. On YouTube you can track the turtle in real time, and even see what the turtle sees as it navigates the world ocean. There is nothing like a video clip to create empathy and concern.

Concern matters because those who are concerned can engage. In this new age of social media, ways to engage are almost limitless, and the call to action is communicated across networks in milliseconds. In another example of how social media can help drive better management, consider its power to recruit people to monitor what is going on at sea, and to report trouble. In an instant, volunteers can spring to action to report activity that threatens our leatherback: an illegal fishery, a poaching operation, a case of harassment. The monitoring might spur activism, but it can also supplement conventional (and expensive) surveillance, enhancing management capacity.

EBM planners would do well to recognize the power of social media to inform a wide public that might otherwise not be engaged, and promote and coalesce human interest around marine issues. And managers could be well served by fostering these connections, not just between people, but between people and the rest of the planet that we share. ■

MEAM

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More on Habitat Mapping for EBM: Daily Updated Maps to Manage Migratory Species

The December 2011/January 2012 issue of MEAM examined how detailed mapping of the sea floor has informed marine EBM (MEAM 5:3). Because benthic habitat maps show where particular plants and animals are likely to live, such maps can be invaluable for conserving certain species or for assigning specific uses to compatible areas.

Habitats can comprise more than just the sea floor, of course. In the upper water column, dynamic features such as water temperature and food availability can also determine where species are likely to be at any point in time. These features can shift from year to year or even day to day, and some marine species follow these shifts. In cases where management must track the movement of migratory species, detailed maps of dynamic ocean processes may be very helpful.

An EU research team has suggested that daily maps of temperature and chlorophyll concentration at the sea surface (the latter represents food availability) could help in managing the Mediterranean's dwindling stock of bluefin tuna. In an October 2011 article in the journal *Marine Ecology Progress Series*, a team led by Jean-Noël Druon of the European Commission's Joint Research Centre* showed the region's bluefin tuna closely follow temperature gradients and chlorophyll fronts, both of which are trackable with satellite data. They suggested that regularly updated maps of probable bluefin habitat could be used to restrict fishing grounds (through what would amount to mobile, or dynamic, MPAs) or to direct fishing activity to certain areas — either for greater fishing efficiency or to ease enforcement. Journal articles on the habitat modeling and its potential use in fisheries management are available at <http://fishreg.jrc.ec.europa.eu/fish-habitat>. Druon discusses the research below.

MEAM: Your bluefin tuna habitat maps could be used to restrict fishing grounds or to prompt fishers toward favorable areas. Which of these strategies would you prefer to see applied with your maps?

Jean-Noël Druon: Those two strategies are not exclusive or incompatible. One strategy we have suggested would be to close bluefin tuna fisheries in the spawning grounds and direct fishermen toward the feeding grounds. [Editor's note: Spawning and feeding grounds are associated with different characteristics of temperatures and chlorophyll concentrations.] This strategy would help protect the spawners to ensure sufficient reproduction, while decreasing illegal fishing

by concentrating the fleet and making enforcement more efficient.

The choice of management or enforcement strategies should be driven by the chance of success when implemented. The practical aspects range from equity of fishing opportunities among fishermen to compatibility with current legislation. Managed areas that are open to bluefin tuna fishing, for example, should be well distributed in the Mediterranean Sea to provide comparable fishing opportunities to fishermen from all countries possessing a fishing quota. We have also proposed that some fishing could be allowed in spawning grounds but only in the second half of the favorable period (spawning lasts regionally for 15-20 days), allowing the adult fish to spawn several times before potential capture. Whatever the management measure, it should be evaluated carefully by the various stakeholders involved — fishery scientists, control authorities, fishery technical experts — prior to implementation.

MEAM: The International Commission for the Conservation of Atlantic Tunas (ICCAT), which manages Atlantic bluefin tuna, has not indicated it intends to implement your proposed strategy. As you point out in your research, the chlorophyll and temperature data are freely available. Is it possible that fishers — including illegal ones — could use the data to produce their own tuna maps?

Druon: We may work with the ICCAT Scientific Committee on spatial analysis combining their aerial surveys with our habitat maps in order to better characterize the effective spawning grounds. In the meantime, our maps of mean fortnight habitat have been provided to the European Fisheries Control Agency to better plan the EU joint control. And our real-time maps have been sent to several national control authorities during the fishing season to help guide at-sea enforcement in the favorable spawning grounds.

Because of the high variability of the potential spawning habitat, only the real-time maps are useful to fishermen for increasing their catch. Such maps are not publicly available nor are they easy to produce by non-experts. Purse seiners targeting bluefin in the Mediterranean Sea do not even use satellite-derived temperature or chlorophyll content, in contrast to their colleagues who target other tuna species in tropical latitudes. Therefore the habitat information is in the appropriate hands for combating illegal fishing. A good collaboration between scientists and control authorities (in addition to ongoing enforcement and fleet reduction) should help reduce effective catches to quota levels that enable Atlantic bluefin tuna recovery, as well as re-establishing fairness among fishermen. ■

* In collaboration with Jean-Marc Fromentin of the French Research Institute for Exploration of the Sea (IFREMER).

'Dynamic MPAs'

Discussions of the use of "dynamic marine protected areas" — mobile MPAs whose boundaries change to follow the movement of migratory species — have been ongoing for years. See this 2007 article in MEAM's sister newsletter MPA News: <http://depts.washington.edu/mpanews/MPA83.pdf>.

Some agencies are testing voluntary applications of the concept, such as NOAA's TurtleWatch program. TurtleWatch uses maps of sea surface temperature to help longline vessels avoid areas with higher concentrations of threatened loggerhead turtles — www.pifsc.noaa.gov/eod/turtlewatch.php.

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Perspective: Tips on Communicating about Marine Spatial Planning

By Jen McCann, Rhode Island Sea Grant Program and the Univ. of Rhode Island Coastal Resources Center


Rhode Island was the first state in the US to develop a spatial plan for its marine waters and, in 2011, was the first to have that plan adopted by the federal government — the Rhode Island Ocean Special Area Management Plan, or Ocean SAMP (<http://seagrant.gso.uri.edu/oceansamp>). The planning process provided an opportunity for Rhode Island to be in the driver's seat regarding how our offshore waters are developed and conserved.

When describing marine spatial planning (MSP) to people unfamiliar with it, I say that it is sort of like land use planning. It allows us to better understand a place (the ocean, in our case) so that we can make better decisions for how it is and will be used. In doing so, Rhode Island is able to preserve what is economically, culturally, and environmentally important to us, while directing future development (like offshore renewable energy) to locations with minimal negative impact on our human and natural resources.

The spatial plan also allows Rhode Island and the federal government to provide clearer regulatory responses. If a developer proposes to install wind turbines in the state's new offshore renewable energy zone, for example, the approval process will likely be faster than before because the state has already determined that this is the best area to place turbines.

The Rhode Island Sea Grant Program played a lead role in communicating about the MSP process to the

general public and stakeholders. In terms of the challenges involved in this communication, here are some lessons learned from the Rhode Island experience:

- **Misinformation and misunderstandings about the purpose of the planning are always an issue.** During planning we were in constant contact with the media, our federal and state representatives, resource users, local decision makers, and other stakeholders to ensure they were aware of the truth. That way they could help us communicate the real goals of the process and the actions we were taking. For MSP processes to be successful, the goals must be clear to stakeholders and supported by them.
- **Make sure that all participants and stakeholders feel they have an equal seat at the table and that this is a fair and transparent process.** This includes ensuring that no one gets information sooner than anyone else. It also involves making sure your entire team is communicating the same message to the public. Demonstrate through your process that you have heard stakeholders' issues and are responding to their concerns.
- **Take care of your team.** MSP can be a tough and emotional process. Make sure no one is working alone and there is always an opportunity for team members to share what they are learning. 

Editor's note: Jennifer McCann is a principal investigator and management team member of Rhode Island's Ocean Special Area Management Plan. She directed a training workshop in May 2011 on marine spatial planning in Rhode Island.

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Notes & News

Draft plan released for US national ocean policy

A draft plan for implementing a national ocean policy for the US was released for public comment in January by the interagency National Ocean Council. The draft plan comprises more than 50 action items, with each action including milestones, responsible agencies, and the expected timeframe for completion. The structure is designed to provide a clear layout of what will be accomplished when, and by whom.

The draft plan is the latest step in the National Ocean Council's effort to develop — and to assist federal, state, and local agencies with implementing — a national ocean policy consistent with priorities set by President Barack Obama in 2010 (MEAM 4:1). The comment period for the draft implementation plan ends on 27 February 2012. To view the draft plan or provide comments, go to: www.whitehouse.gov/administration/eop/oceans

New website helps conservation organizations create more effective partnerships

The Nature Conservancy has launched an online resource center to help conservation practitioners learn how to create and manage more effective partnerships for greater conservation impact. With lessons drawn from The Nature Conservancy's own experience, as well as the experience of partners and experts both in and outside of the conservation community, the website leads users through six interactive lessons, addressing such questions as "Do I need to partner?", "How do I negotiate a partnership?", "How do we implement our joint work most effectively?", and more. The resource center also provides a searchable library of reports, case studies, and sample documents on how to put partnership concepts into action. The Conservation Partnership Center is at: www.conservationpartnerships.org

Report: Analyzing cumulative impacts of activities

A new report provides maps and analysis of the cumulative impacts of human activities on marine ecosystems in the northeastern US state of Massachusetts. Combining a survey of ecosystem scientists with spatial information on ecosystems and human stressors, the study examines which areas are most vulnerable and which human uses (alone and in combination) are likely putting the most stress on marine ecosystems. The findings are intended to help clarify ocean planning decisions, highlight areas of potential conflict among ocean users, identify areas that may merit conservation, and assess ecological values of particular places. The report *Mapping Cumulative Impacts of Human Activities on Marine Ecosystems* is available at: www.seaplan.org/ocean-planning/tools-to-inform-decision-making/cumulative-impacts/project-summary

Report: Greening the marine economy

A brief new report outlines ways to reduce the environmental impact, and improve the sustainability, of traditional and emerging ocean-oriented economies. Co-produced by UNEP, FAO, and several partner institutions, the 24-page report *Green Economy in a Blue World* highlights how shipping, fisheries, tourism, and other industries can transition to a low-carbon, resource-efficient stance. The report is at: www.unep.org/pdf/green_economy_blue.pdf

www.MEAM.net

Back issues, conference calendar, and more

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

The EBM Toolbox by Sarah Carr

Yes, There Are Apps for EBM (Part 1)

A year ago in this column, I remarked on a problem for the field of coastal and marine EBM tools. Namely, although the number and functionality of these geospatial tools had grown rapidly, the complexity of the tools often made it difficult for managers to use them.

The column also noted a shift occurring in personal computing in general: from complex, multifunctional desktop tools to “apps” — easier-to-use, limited-functionality tools appropriate for mobile devices. In that context I asked, “Is there an app for EBM?” Having some simple apps could make it easier for managers to conduct geospatial analysis for EBM, assuming the apps’ lesser functionality could still accomplish some tasks adequately.

The EBM Tools Network spent the past year polling the EBM community on ways that apps could (and, it turns out, already do) support coastal and marine conservation and management. We found that the characteristics of mobile devices — e.g., their small size; extreme portability; ability to capture high-resolution images and sounds; ability to receive, store, and transmit data; ability to determine location; and ability to communicate with environmental sensors — provide a host of new opportunities for collecting and sharing data and information, particularly between communities/stakeholders and managers. Some specific uses for mobile device apps include:

Increasing and improving data collection by professionals

Apps can provide forms to speed field data collection, georeference photos and other observations, serve as memory and input-output devices for environmental sensors, read identification tags, rapidly

transmit data from the field to centralized databases/analytical tools, and in turn receive data from centralized databases/analytical tools to guide next steps for field data collection (e.g., starting a new transect). Some of these tasks are currently done with relatively expensive hand-held devices, but apps for consumer-grade devices will make these capabilities more affordable and widespread. Examples of apps for field data collection include:

- iGeoTrak (<http://gisroam.com/igeotrak>), which helps users develop customizable geospatial collection forms for field data.
- Open Data Kit (<http://opendatakit.org>), which provides tools for building data collection forms and collecting data on mobile devices and uploading to servers.

Enabling more meaningful and useful “stakeholder science”

Apps can facilitate “stakeholder science” by enabling the public to contribute data, such as through participation in species inventories. Observations can be recorded, georeferenced, and sent to relevant management bodies in a structured manner that facilitates their use. This allows traditional scientific data collection to be supplemented with customary knowledge and observations from community members. Some examples of relevant apps include:

- Mobile field guides for identifying species.
- Apps that harness new technologies such as face recognition software to identify species (e.g., LeafSnap; <http://leafsnap.com>).

Part 2 of this column, in the next issue of MEAM, will describe apps that provide stakeholders and communities with greater access to data and information, as well as apps to increase monitoring and enforcement effort.

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