

# MARINE ECOSYSTEMS and Management

International news and analysis on marine ecosystem-based management

MEAM  
www.MEAM.net  
Vol. 5, No. 5  
April -  
May 2012

## Managing Trade-offs: Viewpoints from the Negotiation Table

The essence of natural resource management is making decisions about trade-offs. At the most basic level, there are the trade-offs between managing for short-term benefits now or foregoing them for greater benefits later. Then there are trade-offs between different types of benefit: the benefits from trawling in a particular bay, for example, versus the benefits from laying an undersea cable there.

One lesson from humankind's use of the oceans is that the services provided to us by these ecosystems are finite: often the demand for benefits from ocean resources exceeds their sustainable supply. There is a maximum amount of fish an ecosystem can supply for human consumption, for instance. Or there is a particular amount of space a wind farm can take up before it impacts local fisheries. This means that trade-offs need to be made among different services, including the requirements for sustainability of the ecosystem itself.

How best to evaluate trade-offs is a challenging question. Clear, relevant, and well-presented information is essential — on ecology and economics, on threats and impacts, on the consequences of various potential policies. Software tools can help analyze these factors.

Ultimately, however, it comes down to individuals. What incentives and disincentives do they face? And what is their willingness, and opportunity, to compro-

mise? In this issue, MEAM asks several people with experience in trade-off negotiations, or who have advised such processes, for their views: what lessons they have learned, and what tips they have for others entering such negotiations. To aid comparison, they each draw lessons from the fisheries management realm.

Nici Gibbs is the owner of Fathom Consulting Ltd. based in New Zealand. She has provided policy advice from the fishing industry perspective for multiple trade-off negotiation processes — from MPA planning, to catch allocation, to space allocation between fishing and other industries, and more. Kevin Stokes is owner of stokes.net.nz Ltd., a consulting firm, and previously served as chair of the New Zealand National Rock Lobster Management Group from 2001-2009, as well as in various roles in government and industry. Gibbs and Stokes are also partners in Shoal Ltd., a new collaborative group with a focus on marine-related policy, business, and science.

### A. Negotiate only with those who have something to bring to the table

By Nici Gibbs (nici@fathom.net.nz) and Kevin Stokes (kevin@stokes.net.nz)

#### On the roles of government in trade-off negotiations

**Gibbs:** Where the allocation tradeoffs are made between two commercial users of ocean resources (such as fisheries and undersea cables), government should not be involved in the negotiations. Instead, the appropriate role of government is to put in place the legislative framework (including any necessary environmental bottom lines) that enables the parties to reach an efficient and agreed allocation themselves.

Where allocation tradeoffs are required between commercial and non-commercial users, government should seek to maximize direct involvement of the affected parties and minimize its own role. Inappropriate government intervention (e.g., intervention that is perceived to favor one party over another) is the simplest way of destroying

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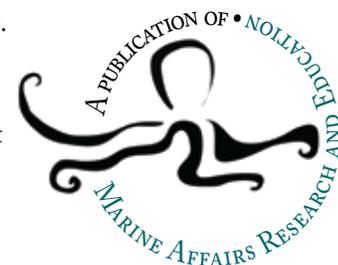
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*Marine Ecosystems and Management* is published bimonthly by Marine Affairs Research and Education (MARE), a 501(c)(3) not-for-profit corporation, in association with the School of Marine Affairs, University of Washington. Financial support is provided in part by a grant from the David and Lucile Packard Foundation.

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trust and reducing any opportunity for an enduring solution.

**Stokes:** I would add that many parties are not experienced in negotiations, and there is a potential role for government to help parties understand negotiation processes and perhaps to frame positions and identify bottom lines. To the extent that it is helpful, government could play a useful facilitation role, helping to expose bargaining ranges and looking for suggestions to expand the benefits of compromise.

### On tips for multi-party allocation processes

**Gibbs:** Multi-party allocation processes should: (1) involve negotiators with a clear mandate to represent the parties on whose behalf they are acting; (2) have a simple, agreed objective; (3) have access to "neutral" scientific advice (i.e., science providers should play a technical role in the process rather than advocate for a particular outcome); (4) occur within the context of a rational policy framework, supported by appropriate policy guidance; (5) have an agreed set of ground rules at the start – e.g., how to deal with dissenting views, dispute resolution, meeting protocol, etc.; (6) have a timeframe and end point; and (7) lead to a transparent decision-making process (for example, it is no good having a stakeholder negotiation that then goes into the "black hole" of government only for an entirely different decision to emerge, or for no decision to be made).

Government-run negotiation processes should be designed to remove any incentives for parties to "opt out" and seek to run an "end game" directly with government rather than deal directly with other users. For example, any party that withdraws from the process and seeks to lobby the government should be rebuffed. Government should also avoid changing the rules or the goal posts during a negotiation process.

**Stokes:** I agree wholeheartedly. Many jurisdictions have clear legislation and policies on consultation but it is often hard to believe that consultation is carried out with an open mind and in good faith due to constant examples of late-run influences or clear political moving of goal posts during processes. I would recommend the use of neutral facilitators for negotiations: too often, governments are parties to negotiations, run the negotiations and control the advisory processes. This does not engender confidence.

**Gibbs:** Most importantly, do not pretend that a resource allocation decision is a negotiation if it is not. For example, three years ago a new NZ government asked the inshore fishing industry to give up large areas of coastal waters as exclusive "recreational fishing havens". The industry was prepared to discuss this, but only in the context of a true negotiation (i.e., if the industry were able to obtain some

government undertakings in return for loss of spatial access — for example, a requirement for recreational catch to be reported, or agreed policies on catch allocation). Government was not prepared to come to the table, so from the industry perspective there was nothing to negotiate.

### On negotiation advice for stakeholders

**Gibbs:** • Negotiate only with those who have an ability to commit to negotiated outcomes — i.e., mandated representatives who are capable of binding their constituents to agreed outcomes.

- Negotiate only with those who have something to bring to the table (i.e., those who are prepared to "give" rather than just take).
- Where possible, negotiate directly with other affected parties and present an agreed solution to government.
- Use the best available information, and seek agreement on the quality of available information (e.g., identify any uncertainty, etc.).

In March 2012, private negotiations between bottom trawl fishermen and environmental groups in British Columbia, Canada, reached a breakthrough agreement. The pact, designed to protect certain seafloor habitats from trawl gear, effectively ended years of disagreement between industry and environmentalists. It also required trade-offs from both sides.

Here Scott Wallace of the David Suzuki Foundation and Bruce Turris of the Canadian Groundfish Research and Conservation Society (CGRCS), an industry group, discuss the negotiation process and the compromises each side made. (In the negotiations, the CGRCS was assisted on the industry side by the Deep Sea Trawlers Association; on the environmental side, the David Suzuki Foundation was assisted by Living Oceans Society.)

## B. How bottom trawlers and environmentalists found common ground

By Scott Wallace ([swallace@davidsuzuki.org](mailto:swallace@davidsuzuki.org)) and Bruce Turris ([bruce\\_turris@telus.net](mailto:bruce_turris@telus.net))

### On the negotiation process

**Wallace:** This collaboration was focused on the common goal of making sure the industry was not impacting highly sensitive habitats for deepwater corals and sponges, as well as systems deeper than 600 meters characterized by slow growth and low productivity. We used the Monterey Bay Aquarium's Seafood Watch methodology (<http://bit.ly/SeafoodWatchcriteria>) as the common objective. The goal was to demonstrate that the British Columbia bottom trawl fishery was no longer operating as a

“red” fishery (to be avoided by consumers) under the Seafood Watch’s habitat criterion. To get to that, we sat down and developed measures that we thought could achieve this end goal.

The first measure was to define the boundary of where the fishery could operate. This was to ensure that no further expansion could ever take place, as science shows that the bulk of the damage occurs with the first few passes of a bottom trawl. To operationalize the boundary we removed “low effort areas” as this allowed for the most important areas for trawling to be identified. This fishery has had 100% observer coverage for over 15 years so the data are very good.

We then took these boundaries and compared them to various ecosystem layers because we had a mutual goal (as guided by the Seafood Watch criteria) of having no more than 50% of any habitat type within the boundaries. This process involved a lot of negotiation. Ultimately we could not reach the 50% threshold on all 200 ecosystem types we identified, so conservation organizations compromised a little here. However, industry also gave up some large amounts of previously fished area to make this threshold for several of the ecosystem types, particularly the deep sea. In addition, some known areas of highly sensitive habitat were also removed from the boundaries at this stage.

Within the defined boundaries we knew there would still be areas of sensitive habitat types (for coral and sponges). If we had waited for government to identify these areas, it could take decades. We developed a highly restrictive individual bycatch quota to essentially put the onus on industry to avoid coral and sponge areas. If a vessel exceeds its individual bycatch quota, it is either taken off the water or it needs to purchase quota from other vessels. However, given that the quota is so low, no one will readily give up their quota. This Habitat Conservation Bycatch Limit will essentially provide a tow-by-tow incentive to change behavior.

#### **On the trade-offs each side made**

**Turris:** The industry had to give up current fishing

ground to protect corals and sponges and to protect a percentage of different substrate types by depth strata. We also surrendered the opportunity to bottom-trawl historical fishing ground not fished since 1996, and the opportunity to bottom-trawl new ground outside of the footprint. And we gave up unrestricted catches of coral and sponges within traditional bottom-trawl fishing locations. Furthermore, industry allowed the environmental community to have meaningful input into the management of the groundfish bottom trawl fishery.

In return, the environmental community has to work cooperatively with the groundfish trawl industry on achieving recognition in the market for improved management measures. These measures will help to ensure the sustainability of the groundfish resources and the ecosystem. The environmental community has also agreed to refrain from publicly criticizing the British Columbia groundfish bottom trawl fishery regarding habitat issues addressed in the agreement. Rather, issues are to be addressed through a newly established Habitat Review Committee that includes industry, the environmental community, and the federal Department of Fisheries and Oceans.

#### **On advice for trade-off negotiations elsewhere**

**Turris:** Keep the big picture in sight, and find stepwise solutions that move you in the right direction. Compromising generally results in shared benefits and constructive change. It moves you closer to your goals and objectives, and makes future change more realistic and achievable.

**Wallace:** The main tip to others is to have a clear set of mutually agreed-to conservation objectives. If this is in place, then the solution can be flexible, creative, and innovative.

[For more information on the agreement, go to [www.livingoceans.org/media/releases/ocean-ecosystems/environmentalists-and-bottom-trawl-industry-deve](http://www.livingoceans.org/media/releases/ocean-ecosystems/environmentalists-and-bottom-trawl-industry-deve).]

#### **Analyzing trade-offs of ecosystem services in Massachusetts Bay**

A study by researchers at the University of California, Santa Barbara, assessed potential conflicts among offshore wind energy, commercial fishing, and whale watching sectors in Massachusetts Bay (US), and analyzed the potential value of wind farm designs that minimized conflict among these sectors. The results: according to the model, it would be possible to develop plans that saved the fishing and whale watching sectors more than US \$1 million while generating \$10 billion in extra value for the energy sector. (These figures would accrue over 27 years.) This was as compared to outcomes from wind farm designs generated under a “business as usual” permitting process focused just on regulating wind energy. In other words, accounting for all the sectors upfront could reduce their potential trade-offs and generate spatial planning scenarios that benefit them all.

Analyzing inter-sectoral dynamics in such a detailed, quantitative way remains uncommon in marine spatial planning.

“Trade-offs are rarely considered explicitly in natural resource management decision-making, although they are considered implicitly — in people’s minds or during discussions — all the time,” says Crow White, lead author of the study.

The study model was designed from scratch with the Massachusetts Bay sectors in mind. But White says it could be adapted to apply to different ecosystems and spatial planning situations. The study is at [www.pnas.org/content/early/2012/02/27/1114215109.full.pdf+html](http://www.pnas.org/content/early/2012/02/27/1114215109.full.pdf+html).

Kevern Cochrane is a consultant on fisheries and sustainable development, based in Cape Town, South Africa. Previously at FAO he served as director of the Resources Use and Conservation Division, in the Fisheries and Aquaculture Department. Over the course of his career, he has engaged in processes worldwide involving many types and scales of trade-offs, usually in the role of providing scientific advice to facilitate planning and decision-making.

## C. The drive for trade-offs should come from stakeholders themselves

By Kevern Cochrane (kevern.cochrane@gmail.com)

### ***On convincing stakeholders to accept trade-offs***

The need for making trade-offs — or compromises — and the drive to do so ideally should come from the stakeholders themselves. In most cases the conflict predates the search for a solution, whether between short- and long-term interests of a single user or competition between different stakeholders. As a result, the stakeholders will often already know that they have a problem and will be looking for a solution before the government negotiator brings them together. They will recognize that compromise will be necessary, even if they choose to adopt an apparently short-sighted and intransigent position at the start of the negotiations.

In contrast, government negotiators are already in trouble if they have to convince stakeholders that there is a problem and they must make trade-offs. Unless the stakeholders are aware of the problem — and that they are part of *both the problem and the solution* — successfully negotiating a voluntary agreement is very unlikely, no matter how good the scientific advice or the decision-making tools that are thrown at the problem.

A good, albeit unfortunate, example of this is the ongoing discussions between CITES Parties on criteria for listing commercially-exploited aquatic species on the CITES Appendices. The conflict here is between two groups of countries that can be summarized, with some oversimplification, as:

- Those that see a CITES listing as being an important conservation symbol, a means of raising awareness, and a core component of fixing the problems being experienced in managing many fisheries for species involved in international trade; and
- Those that hold the view that a listing would not strengthen fisheries management and that CITES has no place, or at most

a very restricted place, in fisheries management. (This is not least because of concerns about the difficulty of getting agreement to remove a species from an Appendix once it has been imposed, even when the species has recovered.)

Experience over the last eight years suggests that both groups see the status quo, which is effectively an impasse, as suiting their own goals better than any compromise approach. Their views are reinforced by a very low level of trust between the two groups. Therefore at present there seems to be little hope of finding a solution that would enable CITES to be used effectively for species and fisheries where it could play a useful role, although I would like to be proven wrong on this view.

Fortunately, I have also experienced many more positive cases that have ended with improved management to meet multiple, potentially conflicting criteria. Examples include the progress being made in several countries and regions toward implementing an ecosystem approach to fisheries (EAF). In these cases, a number of factors have created an awareness in the fishing industry of the need to take a broader view of management. Those factors have included their own observations of problems in the ecosystem around them, public and consumer pressure, and awareness-building by government authorities, conservation NGOs, and global bodies such as FAO. On the other side of the negotiations in these successful cases, the conservation and non-consumptive stakeholders pushing for implementation of EAF have also recognized the place of fisheries and other legitimate resource users within the ecosystem and the importance of accommodating their needs as far as possible. This environment of mutual acceptance creates fertile ground for successful negotiations.

### ***On the need to respect stakeholders***

Most importantly, it is vital for government negotiators to understand and have respect for the perspectives, needs, and hopes of all the different, legitimate stakeholders. Truly cynical and predatory stakeholders are, fortunately, the exception and can usually be identified quickly. The majority of stakeholders bring to the table sincere and important fears and hopes. Identifying these and sharing them among the participants is an important step in building trust and a constructive environment for discussion.

Fundamental to understanding the stakeholders' positions is knowing where they stand in relation to their basic needs. Government negotiators and decision-makers cannot always be expert psychologists. But they need to be able, as far as possible, to understand why particular stakeholders hold the positions they do and therefore what alternatives and incentives may open the way to compromise.

There is, ideally, no convincing by government negotiators involved — just provision of information, guidance, and encouragement for the stakeholders themselves to work toward a common solution. 

### **Links to more information on trade-offs**

#### **EBM Roadmap: Trade-offs among Human Activities**

[www.ebmtools.org/roadmap/coreelements/6](http://www.ebmtools.org/roadmap/coreelements/6)

#### **Environment Australia: Contingent Valuation**

[www.environment.gov.au/about/publications/economics/value/chapter5.html](http://www.environment.gov.au/about/publications/economics/value/chapter5.html)

#### **SeaPlan: Ecosystem Services Trade-off Modeling**

[www.seaplan.org/ocean-planning/tools-to-inform-decision-making/ecosystem-tradeoff-modeling/intro/](http://www.seaplan.org/ocean-planning/tools-to-inform-decision-making/ecosystem-tradeoff-modeling/intro/)

## Tundi's Take:

# In Trade-offs and Choices, There Is One Simple Rule

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

Only a fool would suggest that trade-off analysis is a simple process. But I will propose a simplifying principle. No matter how sophisticated the analysis, how rich the data on values and consequences of choices, and how large and complex the scale of analysis, there is one rule:

Avoid points of no return.

What are these points of no return? Habitat conversion that leads to loss of wetlands, seagrasses, mudflats is essentially irreversible (recognizing that restoration is possible for some systems, but generally at great cost of time and resources). Not mitigating the effects of nutrient overloading in coral reef systems can lead to critical thresholds being passed and alternative stable states — coral reefs converting to algal reefs. Action (or inaction) that leads to extirpation of a major population of organisms, or indeed extinction of a species, is an obvious point of no return.

There is faith that looking at trade-offs will naturally steer us away from such drastic consequences. But the decision to invest in a particular management scheme that balances conservation and development — or, in fact, allows development interests to override conservation — is a societal decision best made with full information, through a participatory process. Like all democratic processes, not everyone may be pleased with the choice.

Yet the right mix of protection and use is the key to long-term sustainability, which presumably is in

everyone's best interests. This is why it is assumed that if everyone has a place at the table, and decision-making is based on good ecological and social science information, then consideration of trade-offs will steer management toward EBM.

Nonetheless, we see cases in which even carefully considered decisions lead to development that constrains ecosystem functioning, and sends ecosystems near or past critical thresholds. In these cases, the decision not to steer clear of tipping points may be made consciously (who really cares about mudflats anyway?), or based on flawed information — an incomplete understanding of what is valuable and in need of protection. It might also be based on a short-term view that masks the longer-term consequences of embarking on paths that culminate in ecological dead ends.

All decisions concerning marine management have short- and long-term consequences. The power of trade-off analysis is that it allows decision-makers to understand the consequences of choices — to the best of our knowledge given the vagaries of marine systems. It also has the great value of promoting transparency: decision-makers can no longer say that they did not anticipate the results that may come to pass (although they can always claim the trade-off analysis was faulty, or poorly communicated). In the end, the responsibility for the choice resides with the decider. And who that is may be the most important choice of all. **M**

“There is one rule: Avoid points of no return.”

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## Perspective: 13 Myths of Marine Spatial Planning

By Charles N. Ehler

Over the past decade, marine spatial planning (MSP) has been recognized internationally as an operational approach for implementing marine ecosystem-based management. Several marine spatial plans have been completed; a few have already been implemented and revised. About 50 plans will be prepared over the next five years in at least 20 countries.

However, despite the increasing global implementation, many myths exist about MSP — promulgated by disparate parties interested either in promoting, or slowing and stopping, its application. This article identifies some of these myths and shows through international examples the realities of what MSP already is — or can be.

### Myth No. 1: MSP is the ultimate goal.

Some interest groups advocate the delivery of MSP as the ultimate goal. However, establishing MSP should not be an end in itself, as establishing the MSP process does not guarantee actual outcomes. The real goals of MSP should be achieving outcomes such as sustainable fish populations, sustainable energy supplies, robust coastal and marine economies, reduced conflicts among human activities, and the maintenance of critical marine ecosystem services. Real outcomes, not the process, should be the goals of MSP.

### Myth No. 2: MSP is only about planning.

MSP is sometimes characterized as only planning that

### Editor's note:

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results in little or no action toward real outcomes. This is particularly true when planning is extended over many years. An integrated planning process for Canada's Eastern Scotian Shelf took 10 years to move from initiation to the completion of a "strategic" plan that, among other recommendations, called for more planning.

MSP is really about marine spatial *management*. Marine spatial management consists of at least three distinct phases: (1) *planning and analysis* that generate information for developing a management plan; (2) *implementation*, including enforcement of management measures of the plan; and (3) *monitoring and evaluation* of plan performance that could result in changes to the plan over time. All of these elements of management must be carried out for MSP to be successful. It is not just about planning.

**Myth No. 3: MSP will replace single-sector management.**

MSP is often seen as a threat to the authority of existing governmental agencies and their authorities. However, in reality, integrated MSP will never have enough authority, information, or expertise to replace single-sector management, nor should it try. MSP will require participation and cooperation across governmental agencies; *implementation* of integrated plans will need the authorities of single-sector agencies to ensure the carrying out of management measures consistent with the plan. Sectoral planning and management will continue, but with a comprehensive vision of the future upon which to base incremental, single-sector decision-making.

**Myth No. 4: MSP is anti-development.**

Some interest groups and their advocates characterize MSP as "anti-development" and biased toward marine conservation. Anyone who thinks MSP is biased against development should have a look at the management plans for the seas of Norway and the Netherlands. The Norwegian integrated management plan identifies one of its goals as "harvesting of living marine resources to promote value creation and secure welfare and business development to the benefit of the country as a whole". The Government of the Netherlands goes further in identifying a goal "...to enhance the economic importance of the North Sea...by developing...sustainable economic activities..." That language is hardly anti-development.

**Myth 5: MSP is a "win-win" process.**

Some advocates of MSP promise that it will result only in outcomes in which all interests win. However, MSP is about the *allocation* of marine spaces to specific uses (wind farms, marine reserves, pipeline corridors) or goals (development areas, protected areas, security areas). As marine space is allocated, some

users will win; some will lose. While some uses may be compatible with others, some uses will preclude others.

It is important that MSP management measures are evaluated not only for their *effectiveness* in achieving management objectives and their *efficiency* (achieving management objectives at least cost), but also their *equity* (who benefits, who loses) before implementation.

**Myth No. 6: MSP will lead to more government regulations.**

MSP should not lead to more "blue tape". In fact, regulations can be reduced and certainly made more efficient through MSP. In almost every application, *existing* regulations will be used to implement marine spatial plans. Developing an integrated plan can reduce redundant requirements for data collection and environmental impact reviews. Proposals for development projects in marine areas that have been designated for general development or specific uses should receive expedited reviews, i.e., streamlined permitting.

**Myth No. 7: MSP is the same as marine protected area planning.**

Many users of marine areas often express concern that MSP is simply "back-door" planning for marine protected areas with the goal of closing large areas of the ocean to other users. In fact, MSP is *multi-objective planning* that seeks to integrate and balance economic, social, and environmental objectives through an integrated plan. The appropriate "balance" among the goals and objectives should be determined by active stakeholder participation throughout the MSP process.

However, identifying ecologically and environmentally important areas is an important analytical activity early in the MSP process, and a network of MPAs is often one output of MSP. Over the past 10 years, Australia has been actively developing marine planning for its entire exclusive economic zone. A major output of the Australian bioregional planning process will be a representative national network of MPAs. Experience shows that MPAs are more effectively planned and managed in the context of MSP.

**Myth No. 8: MSP is only about maps.**

MSP is not just about producing maps. In fact, drawing lines on maps can be counter-productive early in the MSP process, as shown in several attempts to identify marine reserves in California, and more recently the United Kingdom and New Zealand.

Maps help recognize and visualize the patterns and processes that occur in time and space and are invaluable at the appropriate time in the MSP process, especially when stakeholders participate. Mapping important biological or ecological areas in time and space (such as fish spawning areas) and areas of special economic interest to human activities (such as areas

of sustained winds) are important MSP activities. However, geospatial information systems and decision support technologies are only tools for analysis and planning — not ends in themselves.

**Myth No. 9: MSP is too complicated.**

MSP should be based on the best information available. Opponents of MSP often try to discredit the process by arguing that we do not have enough information to start the process, and that we should not begin until “better” information is available. Most of the time additional data collection will contribute very little to reducing the uncertainty of management decisions, at least in the short run. In fact, we often have more information than we need for the first round of planning. The best way to find out what you really need and may not know is simply to begin planning.

**Myth No. 10: MSP is too expensive.**

Opponents of MSP often argue that the process is too expensive. However, the relevant question is, expensive compared to what? Planning efforts by single-sector agencies often carry out duplicative research and data collection with each other that could be reduced through integrated planning across agencies. If agreement is reached on where development can take place with least environmental impact, costs to the private sector for environmental reviews and impact assessments of development projects can be reduced. Developers often spend millions of dollars and years of time in preparing permit applications and reviews. These costs can be reduced through a streamlined permitting process based on an integrated plan for a marine area.

For example, in Germany an environmental assessment for a wind farm permit costs about US \$1.4 million to prepare. Because the national government has already prepared a “strategic environmental assessment” for its marine spatial plans that includes the designation of priority areas for wind farms, costs of preparing and reviewing permits proposed in a pre-approved area have been reduced or eliminated.

Since MSP is a new field, few data exist in terms of overall cost. However, the United Kingdom estimates that the one-time costs of setting up its marine planning system at around £34 million (US \$54 million) and the operational costs of maintaining the system to be around £1 million (US \$1.6 million) per year. At the same time, the benefits of a UK marine planning system are estimated to be around £47 million (US \$74 million).

**Myth No. 11: MSP is the same as “ocean zoning”.**

MSP is often characterized as “ocean zoning”. However, if land use planning is used as an analogy for MSP, then MSP is equivalent to the process of “comprehensive planning”, not ocean zoning. Zoning is simply

one tool with which to implement MSP. We already designate a large number of “zones” in the ocean, e.g., marine protected areas, traffic separation lanes, dredged material dump sites, exclusionary zones around wind farms, and fishery closure areas. These zones are often designated with little if any consideration of other human uses in the same area. The result of *zoning without MSP* is a chaotic pattern of overlapping and conflicting zones.

**Myth No. 12: MSP is always “top-down”.**

It is true that most marine spatial plans have been developed at the national level, led by national governmental agencies. However in Sweden about 180 local governments have responsibility for marine planning, although only a few have exercised it. (As a result, a Swedish Commission on the Marine Environment recently recommended that the national government should have overarching responsibility for planning in the entire Swedish marine area, and further, that planning should be conducted on a regional basis rather than by the municipalities.)

An example of where a “bottom-up” approach is working well is the MSP activities of Coastal First Nations — an alliance of indigenous communities along the marine waters of British Columbia, Canada. During the past five years, each of the 12 Coastal First Nations communities has developed a marine plan. This local capacity is now being scaled up to the regional level.

**Myth No. 13: MSP is not needed today.**

The argument is often heard that if a particular region has no problems today, MSP is not needed: Why invest in MSP if the level of human activity is small, or if there are no conflicts among human uses or between human activities and nature? In fact, the best time to begin planning is before problems arise.

No place illustrates the need for MSP more than the Arctic. Driven by outside economic forces and the effects of climate change, the Arctic, its ecosystems, and its people face substantial change, including the loss of natural services provided by Arctic ecosystems. Once new economic activities begin in the Arctic, it will be difficult for policy makers and managers to put limits on them.

Planning for the future begins today. Avoiding future problems through decisions taken today is a smart way to do business.

**Conclusion**

Emerging lessons about good practices from actual experience can be used to dispel most of these myths about MSP. As the French novelist Victor Hugo said, “An invasion of armies can be resisted, but not an idea whose time has come.” MSP is clearly an idea whose time has come. ■

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# Letters to the Editor

## Coastal communities have led way on new media

**Dear MEAM:**

This is to acknowledge the important contribution of MEAM in directing our community to the potential for new media tools in EBM (“New Media and EBM: Using Twitter, YouTube, and Other Tools to Engage the ‘Crowd’ and Improve Management”, MEAM 5:4). This is a commendable effort. As you may be aware, several coastal communities in developing countries — the south Indian State of Kerala being an outstanding example, where fishermen have been using technologies like mobile phones and community radio long before their comrades in the North — have been exploiting the power of new media for quite some time.

**KG Kumar**

Editor, *SAMUDRA Report*, International Collective in Support of Fishworkers. E-mail: [kgkumar@gmail.com](mailto:kgkumar@gmail.com)

## Facebook holds value for the oceans

**Dear MEAM:**

I strongly agree with the positive comments in MEAM on the value of social media for the oceans. Despite my age, I am a member of Facebook and find that it aids communication at all levels of expertise — not only to adolescents. I suspect that those “experts” who reject such value may suffer from a form of intellectual elitism.

**Graeme Kelleher AO**

Former chairman, Great Barrier Reef Marine Park Authority Canberra, Australia. E-mail: [graempa@home.netspeed.com.au](mailto:graempa@home.netspeed.com.au)

**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

### Yes, There Are Apps for EBM (Part 2)

A year ago in this column, I noted a shift in computing from powerful, multifunctional desktop tools to “apps” — easier-to-use, limited-functionality tools appropriate for handheld devices. I asked, “Is there an app for EBM?”

The EBM Tools Network spent the past year polling the EBM community on ways that apps could (and already do, as it turns out) support coastal and marine conservation and management. We found that the characteristics of mobile devices — from their small size to their ever-increasing functionality, including the ability to capture high-resolution images — provide many new opportunities for management.

Part 1 of this column, in the last issue of MEAM, described apps that already support field data collection and stakeholder science. Now we examine other uses:

### Apps for monitoring and enforcement

Apps can help increase monitoring and enforcement effort by allowing stakeholders to report problems (e.g., sightings of invasive species or pollution) and infractions, like fishing inside an MPA. In the case of species invasions, public reporting of potential sightings — including uploads of high-resolution photos that would allow scientists to make positive identification — can facilitate a more timely and effective response. In the case of illegal fishing, rapid and anonymous reporting can help law enforcement catch perpetrators and track trends in such activity.

Examples of apps for monitoring and enforcement include:

- IveGot1 ([www.eddmaps.org/florida/report/index.cfm](http://www.eddmaps.org/florida/report/index.cfm)) allows users to identify and report sightings of invasive species in Florida;

- What’s Invasive ([www.mobilethinkers.com/2010/12/mobile-app-tracks-invasive-species](http://www.mobilethinkers.com/2010/12/mobile-app-tracks-invasive-species)) enables park visitors to document and record the exact location of invasive species within parks; and

- Marine Debris Tracker ([www.marinedebris.engr.uga.edu](http://www.marinedebris.engr.uga.edu)) allows users to report trash on coastlines and in waterways. The data can be uploaded for beach cleanups.

### Apps to provide easier access to data and information

In general, apps are ideally suited for providing stakeholders and practitioners with easier and more rapid access to data and information, particularly from field locations. Some examples include:

- NOAA Buoy and Tide Data (<http://itunes.apple.com/us/app/noaa-buoy-and-tide-data/id292148184?mt=8>) and NOAA Ocean Buoys ([www.appbrain.com/app/noaa-ocean-buoys/com.asburymobile.noaaocceanbuoys](http://www.appbrain.com/app/noaa-ocean-buoys/com.asburymobile.noaaocceanbuoys)) provide users with real-time oceanographic data for planning maritime activities; and
- Hawai’i Tsunami Information Service ([www.appbrain.com/app/hawaii-tsunami-info-service/com.noaa\\_psc.mobile](http://www.appbrain.com/app/hawaii-tsunami-info-service/com.noaa_psc.mobile)) provides interactive tsunami evacuation zone maps and other risk and preparedness information.

Finally, while apps in general do not expand the range of analytical and visualization capabilities available for conducting EBM, they are making the existing capabilities much more readily available — both to new users and users in the field. This is occurring through mobile GIS and map solutions such as iGIS, ArcGIS Apps, Google Earth for mobile, and My Maps.

Acknowledgments: We would like to thank participants in the EBM Tools Network listserv for providing the information and sources for this article.

Sarah Carr is coordinator for the EBM Tools Network. Learn more about EBM tools and the EBM Tools Network at [www.ebmtools.org](http://www.ebmtools.org).