

International news and analysis on marine protected areas

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You can even set up a private area of the site for your planning group, allowing you to hold easily organized discussions, share media, and post an internal event list — all via our independent and secure platform.

In less than one year, we've already passed the 10,000 visitor mark for OpenChannels — that's a lot of ocean planners and managers! Thank you for letting us serve you.



John B. Davis
 MPA News Editor /
 OpenChannels Supervisor

Here is some of the new content on OpenChannels.org this month:

- (Blog) **Large, meaningless MPAs divert attention from policies that could really make a difference**
 By anonymous
- (Blog) **The strange case of the Bowie Seamount: The least-protected protected area in the sea**
 By Linda Nowlan, WWF-Canada
- (Blog) **The 'elephant in the room' for European fisheries reform**
 By Laurence Mee, SAMS, Scottish Marine Institute
- ('Office Hour' chat) **Complete Q&A with Betarim Rimon on current and future management of the Phoenix Islands Protected Area (Kiribati)**
- ('Office Hour' chat) **Complete Q&A with Jon Day on misconceptions about zoning of the Great Barrier Reef Marine Park**
- And much more.

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Advances in MPA Enforcement and Compliance: Practitioners Describe Cutting-Edge Techniques and Tools

You are a fisher. You are on the water with your boat and gear, looking to catch some fish to take to market. There is a no-take marine protected area nearby that you suspect is full of fish. Do you:

- A. Avoid fishing in the MPA because you agree with its goals and purpose?
- B. Avoid fishing in the MPA because you are concerned about getting caught?
- C. Go fishing in the MPA?

This is the basic decision that resource users (fishers or otherwise) face with MPAs. In short, do you follow the rules or not? The ideal for MPA practitioners would be that most or all of their local users go with

Choice A. In that scenario, there would be no need for active enforcement because resource users would police themselves. Unfortunately, total voluntary compliance is rarely the case. At least some enforcement presence — to encourage compliance (B), catch violators (C), or both — is necessary.

The challenge of fostering greater compliance when possible, and applying effective enforcement when necessary, is a central one for MPA practitioners. Ultimately the success of MPAs can depend on it. In this issue, practitioners discuss their views on compliance and enforcement, and describe some of the latest advances on both fronts.

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I. Why the risk of fishing illegally increases with reserve size; plus how INTERPOL could play a role in MPA enforcement

Jay Nelson directs the Global Ocean Legacy project (www.globaloceanlegacy.org) for the Pew Charitable Trusts. The project actively works with national governments and other partners to designate very large, fully protected marine reserves. Pew has been a principal driver behind the surge in recent years in designation of very large no-take areas. Its achievements with partners include the 640,000-km² Chagos MPA and the 502,000-km² no-take zone within Australia's new 1 million-km² Coral Sea Marine Reserve, among other sites.

Enforcing large, remote no-take areas like Chagos is a major challenge. Will it ever be possible to ensure compliance in these large, remote areas?

Jay Nelson: Just as theft and other crimes can never be completely eliminated, enforcement against determined violators of no-take reserves will never be 100% perfect. Even the most efficient surveillance and enforcement regime can only reduce the likelihood of violations. However, there are several reasons for optimism regarding surveillance and enforcement against illegal fishing, particularly for large, no-take marine reserves.

First, in all cases where there is some surveillance and enforcement, the risk of being caught goes up as the size of the reserve *increases*. Partly for this reason, on a per-area basis, it's both cheaper and easier to enforce fishing restrictions in large marine reserves. The likelihood of a vessel entering the edges of a marine reserve of any size will always be relatively high, but as

a vessel penetrates deeper into a closed area, the risk of its detection goes up. For this reason, large marine reserves can effectively provide their own buffer; and for the largest reserves, illegal fishing in the core area becomes very risky.

As laws are tightened and improved, illegal fishing will become more difficult in all marine reserves, but particularly for large no-take marine reserves. For example, the presence of vessels in large reserves will always be lower than in surrounding waters, so any vessel that is present is

more noticeable, easier to detect, and more likely to be investigated.

Our oceans, just as with the terrestrial world, are getting 'smaller'. The use of remote sensing technology, satellites, acoustic buoys, and drones is gradually getting cheaper and more sophisticated. The use of Vessel Monitoring Systems (VMS) and Automatic Identification Systems (AIS) is becoming more widespread, which makes it increasingly difficult for legal vessels to engage in illegal fishing and for illegal vessels to hide. In addition, these technologies gradually will improve vessel identification so that it will, in many cases, no longer require the presence of enforcement vessels to identify and seize illegal vessels. Similar to the use of cameras that allow for remote traffic enforcement, illegal fishing enforcement will take place in port.

The Global Ocean Legacy project is working with a number of governments to designate large new reserves, including in Bermuda and around New Zealand's Kermadec Islands. How much does the need for effective enforcement influence your planning of such reserves?

Nelson: Surveillance and enforcement are among our primary concerns in establishing a new marine reserve. In fact there are some areas we would like to see protected as no-take marine reserves but we believe they present too many enforcement challenges. We restrict our marine reserve proposals to areas in which we believe the government has both the will and the capability to enforce a management regime that will protect the marine reserve and benefit the environment.

There are two ways we can assist governments with this issue. First, we spend considerable time assembling a comprehensive portrait of the available values and resources in the proposed marine reserve. That includes biological information, ecological information, and economic information as well as cultural, historic, and other kinds of data that are necessary in order to do a cost-benefit analysis. The government and local residents will act to create marine reserves only if they believe it is in their long-term interest — and to inform that decision, information is essential. Part of that cost-benefit equation has to be the cost of surveillance and enforcement.

Second, we can provide specific ideas and technical expertise regarding surveillance and enforcement. Global Ocean Legacy has engaged a number of consultants to help us with this work, which includes examining the use of the remote sensing technologies I mentioned earlier (satellites, buoys, drones, etc.). There are also other projects of the Pew Charitable Trusts that are

More MPA News coverage of enforcement and compliance

MPA Enforcement: How Practitioners Are Developing New Tools, Strategies, and Partnerships
www.mpanews.org/MPA113.htm

Managing a Changing Set of Enforcement Challenges: Tubbataha Reefs Natural Park, Philippines
www.mpanews.org/MPA113.htm

Experiences in MPA Enforcement, Part II: More Tools and Strategies
www.mpanews.org/MPA114.htm

MPA Perspective: Autonomous Vessels Offer New Tool for MPA Research and Enforcement
www.mpanews.org/MPA118.htm

LMMA Lessons: Strategies for improving community compliance and enforcement
www.mpanews.org/MPA130.htm

looking at global solutions to illegal fishing, which will apply to no-take marine reserves and other areas alike.

In one of those projects (Project SCALE), Pew is supporting work by INTERPOL to combat illegal fishing. Would you like for INTERPOL – an international organization that coordinates policing activities across 190 member states – to get involved directly in MPA enforcement?

Nelson: Project SCALE is focused on fisheries crime and the crimes associated with illegal fishing. INTERPOL's involvement in the fight to combat such activity will provide an important set of tools needed at a national and international level to prevent illegal fishing operators from benefiting economically

from these activities. If MPAs are being exploited and experiencing illicit activity, then Project SCALE should be able to help on several levels by:

- Raising awareness regarding fisheries crime and its consequences;
- Establishing National Environment Security Task Forces to ensure institutionalized cooperation between national agencies and international partners;
- Assessing the needs of vulnerable member countries to effectively combat fisheries crimes; and
- Conducting operations to suppress crime, disrupt trafficking routes, and ensure the enforcement of national legislation.

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II. Developing an International Center for Compliance Management in MPAs

John Knott is a Queensland-based consultant who advises on legal compliance issues. Over the past decade, he has worked closely with the Great Barrier Reef Marine Park Authority (GBRMPA) to develop and refine all aspects of its compliance management model — from leadership and risk management to investigation and intelligence analysis. The park's compliance system is now among the most sophisticated in the world for MPAs. Drawing in part on lessons and expertise gained from the GBRMPA experience, Knott is now establishing an International Center for Compliance Management in MPAs, which will provide participating MPA agencies from around the world with instruction and other services. (Reg Parsons, GBRMPA compliance manager, introduced and supported the concept of this international center at the 2012 MPA Enforcement Conference, hosted last November by WildAid in San Francisco.)

Can you describe your plan for an International Center for Compliance Management in MPAs, including where it stands at this point?

John Knott: The vision of the Center is of a global network of compliance management practitioners applying best practice models, processes, and systems, and successfully delivering critical environmental outcomes. The Center will have three principal dimensions — teaching, consultancy, and applied research — with a network of expert consultants at the intersection.

The concept of the Center will evolve from the model currently in place that has delivered the GBRMPA Compliance Management Unit, as well as compliance management services to other regulatory agencies. The Center will seek funding to prepare models, templates, and training packages in generic format that are ready for adaptation to the requirements of specific MPAs.

The Center plans to deliver an International Executive Manager Program for MPAs in the second half of 2013, and regularly thereafter as required. It is proposed that at this four-week program to be delivered in Townsville (Australia), 15 participants from a number of countries will be introduced to the policies, models, processes, and systems of a “best practice” MPA and provided with a generic set of management frameworks and templates. Upon the participants' return to country, the Center will provide them with consultancy and facilitation support to adapt the approach to their MPAs.

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More sources on MPA compliance, enforcement

- **2012 MPA Enforcement Conference**

www.wildaid.org/event/2012-mpa-conference

Presentations from this conference, held in November 2012 and hosted by WildAid, are available on the conference website. Speakers from 20 countries explored common obstacles to MPA management (e.g., weak legal frameworks, insufficient budgets, poor surveillance capacity, lack of community buy-in) as well as solutions.

- **Marine Conservation Institute**

www.marine-conservation.org/what-we-do/program-areas/enforcement

MCI has three publications available on MPA enforcement, including *Surveillance and Enforcement of Remote Maritime Areas* and *Protecting America's Pacific Marine Monuments: A Review of Threats and Law Enforcement Issues*.

- **Pacific Islands Managed and Protected Area Community (PIMPAC)**

www.pimpac.org/activities.php?pg2=2&pg3=6

This webpage contains links to several publications for developing MPA management capacity on enforcement and compliance in the Pacific, particularly in Micronesia.

- **Enhancing Law Enforcement for the Caribbean Marine Environment**

www.car-spaw-rac.org/?Enhancing-Law-Enforcement-for-the,376

MPA managers and rangers from across the Caribbean gathered in August 2012 to share best practices for enforcement of coral MPAs in the region.

In the context of MPA regulations, you and GBRMPA talk about *compliance management*, not necessarily *enforcement management*. What is the difference?

Knott: By its nature, enforcement is reactive, punitive, expensive, and, if improperly applied, a risk to the reputation of the MPA management. Although it is an important strategy in dealing with a particular category of non-compliant individual, it must not be the only strategy in the approach to compliance management. The focus must be on achieving voluntary (informed) compliance and on assisted self-regulation where individuals unintentionally fail to comply. Enforcement, especially prosecution, should be used as a strategy of last resort.

In an enforcement-focused park, visitors will feel that failure to comply with requirements will be addressed using a punitive approach. This has the potential for spoiling their experience, and their behavior is focused on avoiding contact with MPA personnel.

In contrast, in a balanced compliance management approach, the staff is skilled to respond in a way that is appropriate to the behavior of the visitor. The focus is on seeking visitors' co-operation through an understanding of the impact of their behavior.

This approach results in a more satisfying experience overall. It leads to visitors and residents reporting behaviors that they believe are inappropriate to the long-term health of the MPA. This working environment and its strong educational basis are also far more rewarding for staff.

In your view, is setting up an effective MPA compliance system about understanding human behavior?

Knott: Human behavior and the impact of that behavior must be understood and managed. There are ecological impacts linked to the type of human activity and to people's attitudes and motivations toward compliance. It is necessary to develop an understanding of behaviors, impacts, demographics, motivations, and methods (of non-compliance) and to devote effort to managing all categories of non-compliance. Failure to do so will result in behaviors that are biased toward non-compliance, with normally compliant people developing non-compliant behaviors simply because "no one is looking". This is especially the case where there is competition for access to marine resources, particularly fishing.

For more information:

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III. Using marketing to build community-led enforcement programs for MPAs

Eleanor Carter is the marine technical director for Rare, an NGO that works with local communities to inspire conservation (rareconservation.org). With activities worldwide, the Rare approach involves determining human behaviors that are causing threats to biodiversity in a particular area (such as overfishing), then launching social marketing campaigns in that area to encourage adoption of alternative behaviors. At the 2012 MPA Enforcement Conference in San Francisco, Carter described Rare's efforts to market the development of community-led and collaborative enforcement programs. These efforts involve 54 MPAs in more than a dozen countries from SE Asia and the Pacific Islands to Central America.

You are working to foster community-led or collaborative enforcement programs in MPAs where the site budgets may not support robust top-down enforcement activities. When you talk about 'social marketing' to local communities for surveillance and enforcement of MPAs, how is that different from traditional education and outreach approaches?

Eleanor Carter: In many of the MPAs with which we work, enforcement systems are either non-existent, or have only recently started to be developed, or have been heavily top-down historically (implemented solely by the MPA agency). The surveillance and enforcement mechanisms we tend to promote aim to engage and involve local fishers and community members.

Traditional environmental outreach and education approaches can be very effective at helping fishers understand the benefits of no-take zones, the importance of surveillance and enforcement, and the like. However, as every smoker can tell you, simply 'knowing' something (i.e., that smoking is bad for you) doesn't inherently lead you to change your behavior. The same is true for most behavior change paradigms.

Therefore getting community members actively engaged and involved in surveillance and enforcement efforts requires promotion on all fronts: not just in terms of knowledge, but also addressing community members' attitudes toward becoming active in site management, and interpersonal communication from their peers in support of the behavior change being targeted. There also needs to be a clear call to action, letting the community members know what they can actively do to get involved. The call to action varies from site to site, and may involve fishers actively volunteering their time on community-led patrols, or establishing cooperatives with surveillance/enforcement mandates to manage particular portions of an area. It may also involve each fisher having a hotline reporting number on speed-dial on his mobile phone: this allows him to report in real-time any zone violations to an on-call agency patrol team.

What does setting up one of your social marketing campaigns look like?


Carter: Each 'Pride Campaign' begins with about seven months of in-depth on-site research, undertaken by our MPA partners after considerable training with and mentoring by Rare staff. This research includes identifying target audiences and key influencers in each society, gathering baseline data to measure the level of change from pre- to post-campaign, analyzing the barriers to behavior change, and understanding the range of messaging channels available at each site (including media outlets, religious groups, community-gathering events, etc.), among numerous other research activities. Our partners will even know the levels of mobile phone coverage in the area and what a typical day in the life of the target audience looks like. Armed with this information, the campaigns are then designed to ensure that the appropriate communication tools and channels are used to target for behavior change.

The campaigns are led and managed day-to-day in each case by selected members of staff or leading community representatives from the MPA itself (individuals who know the people, the culture, the nuances) with one-to-one coaching, mentoring, and training from Rare staff. The intense training received over the two-year campaign period is also an accredited Masters degree in Communications for Conservation – the only one of its kind in the world.

What are some results from your campaigns to market community-led or collaborative enforcement efforts?

Carter: Examples from recently completed campaigns in Indonesia include:

- **Bunaken National Park:** A rolling system for volunteer participation in park-led patrols, promoted by a Rare Pride Campaign in partnership with the park authority, correlated with a 75% reduction in fisher activity in no-take zones within one year.
- **Ayau Asia MPA (Raja Ampat region):** Community-led patrols with representatives from previously disparate clans in the area, promoted by a Rare Pride Campaign in partnership with Conservation International, led to a 64 percentage point increase in patrol participation across seven clan communities in one year.

To sustain change, all Pride Campaigns enter an alumni phase post-campaign with ongoing support from Rare to continue marketing for change. With campaigns in more than 50 MPAs around the world completed or currently active, demand for such support is growing globally. 

To comment on this article:
<http://openchannels.org/node/3076>

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New software tools to encourage compliance, manage enforcement

As technology marches forward in general, new tech tools are becoming available to MPA management — including for compliance and enforcement. Here are two recent additions to the manager's toolbox: one that helps fishers be aware of MPA boundaries, and one that helps rangers catch rulebreakers.

Can I Fish Here?

Parks Victoria manages 24 no-take marine national parks for the Australian state of Victoria. To help recreational fishers keep track of their position in relation to these sites, the agency (in partnership with Fisheries Victoria) has introduced the "Can I Fish Here?" tool. Included as part of Fisheries Victoria's Recreational Fishing Guide app for mobile phones, the tool uses a phone's geolocation ability to show fishers whether they are inside a no-take zone (a red warning message), close to one (an orange message), or safely clear of one (a green message). Maps of the MPAs are also included.

Mark Rodrigue, program leader for marine and coasts with Parks Victoria, says boundary awareness of MPAs

has always been a challenge. "Marine managers have relied in the past on traditional methods such as markers on shorelines, in-water markers in areas that are relatively shallow and low energy, maps at key access points or in park publications, or other methods," he says. "While these tools are all useful and will continue to be used, they also have limitations and rely on the users being adequately prepared with maps or within visual sight of boundary marks."

People who are caught fishing inside Victoria's no-take areas often claim to have no knowledge of the boundaries, says Rodrigue. "Since many people these days are using smart mobile phones or devices, one of our marine rangers suggested using the fishers' phones to help them locate in relation to the boundaries." Parks Victoria created the tool with Fisheries Victoria and a small team of in-house software developers. For more information on the tool, go to www.dpi.vic.gov.au/fisheries/recreational-fishing/recreational-fishing-application-for-smartphones.

[Editor's note: the US state of California also offers an MPA boundary awareness tool for MPAs in its waters. Like the Victoria tool, it is designed for smartphones and provides positional information; technically, though, it is a Web-based resource rather than a standalone app. It is at www.dfg.ca.gov/m/MPA/Map.]

SMART anti-poaching software

Debuted at last year's World Conservation Congress in South Korea, the SMART software tool allows for measuring, evaluating, and improving the effectiveness of


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wildlife law enforcement patrols — both on land and at sea. SMART (which stands for Spatial Monitoring and Reporting Tool) includes a desktop application, training and implementation manuals, and web-based training materials. The entire package is free and open-source, allowing it to be modified to meet varied and changing needs (www.smartconservationsoftware.org).

“This characteristic of SMART means that add-ons can be programmed that could focus on marine specific applications, such as environmental monitoring of sea surface temperatures,” says Olivia Needham of the Zoological Society London (ZSL). ZSL is part of a consortium of conservation organizations that developed the software; the group also includes WWF, Wildlife Conservation Society (WCS), Frankfurt Zoological Society, North Carolina Zoological Park, and the Monitoring Illegal Killing of Elephants program of CITES.

Consortium members aim to pilot SMART at various MPA sites within the next year. ZSL will pilot the soft-

ware at 34 community-managed MPAs in the Philippines. WCS will support the Belize Fisheries Department in using the software to centralize its enforcement data.

The SMART consortium would like to hear from individuals and organizations interested in helping develop the software in marine systems over the coming year. “In the near future, we could be using detailed law enforcement monitoring information, collected with the SMART system from MPAs around the world, to inform our decision-making on MPA designations and management,” says Needham. “That is a very exciting prospect.” 

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To comment on this article:
<http://openchannels.org/node/3077>

New website tracks and analyzes loss of protected areas

A new website created by WWF documents cases worldwide in which protected areas or their regulations have been lost or significantly weakened through legal or regulatory changes. Inspired by research on the phenomenon by Michael Mascia, director of social science for WWF, the PADDTracker.org site identifies and profiles thousands of protected areas that have been:

- Downgraded — in which the relevant authority has decreased legal restrictions on the number, magnitude, or extent of human activities within the protected area;
- Downsized — in which a boundary change has decreased the size of a protected area; or
- Degazetted — in which legal protection for an entire protected area has been lost.


PADD stands for protected area downgrading, downsizing, and degazettement.

MPAs in the database; how you can help identify more

The PADDTracker database does not yet categorize sites by biome or habitat, although a word search for “coastal” or “marine” in the database does find a few MPAs. So far the database has many times more terrestrial protected areas than marine ones. “There are a

few MPAs in PADDTracker.org, but not many,” says Mascia. “Partly this may be the result of a terrestrial bias. More importantly, the starting point is different in marine systems: MPAs are fewer in number and, on average, more recently established than terrestrial sites. So, given equal probabilities of PADD in a year, we would expect fewer cases of marine PADD than terrestrial ones.”

Still, he says, marine PADDs are out there, and he invites the MPA community to help identify them. “We know that our current data are not complete, since we keep identifying new PADD events every day,” says Mascia. “With this in mind, the readers of MPA News can play a pivotal role in expanding the breadth and depth of our coverage.”

To add to the roughly 3300 PADD events that have already been identified, go to www.PADDTracker.org, register (just a name and email address), and click the “Add PADD” button. Via the website, WWF aims to document the patterns, trends, causes, and consequences of PADD. 

For more information:

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To comment on this article:
<http://openchannels.org/node/3078>

Notes & News

Public consultation ends 31 March on downsized plan for English MPAs

A proposal announced by UK Environment Minister Richard Benyon last December to designate a significantly smaller system of MPAs in English waters than previously recommended is open for public consultation through 31 March.

From 2009-2011, UK agencies oversaw a public process to design a national MPA system, featuring several rounds of multistakeholder consultation. The process resulted in a recommendation to designate a system of 127 MPAs throughout English waters. That recommendation is available here:

<http://publications.naturalengland.org.uk/publication/2030218?category=1723382>

However, Benyon discarded most of that plan, paring the proposed system down to just 31 of the sites. He also changed the plan so that none of the sites would be no-take. Benyon has defended the downsizing in an editorial in the Guardian newspaper: www.guardian.co.uk/environment/2013/mar/08/marine-conservation-management-numbers

Input on Benyon's proposal can be submitted at www.defra.gov.uk/environment/marine/protect/mpa/mcz

New protective measures announced for 1 million-km² MPA in south Atlantic

In January 2013 the Government of South Georgia and the South Sandwich Islands, a remote UK territory in the southern Atlantic Ocean, announced additional protective measures for its existing MPA. The MPA, designated in February 2012, covers more than 1 million km², accounting for most of the EEZ of the islands (mpanews.org/MPA125.htm).

The new measures include:

- A seasonal closure of the fishery for Antarctic krill to avoid competition with krill-eating predators (particularly penguins and fur seals);
- Pelagic no-take zones extending 12 nm from each of the South Sandwich Islands, protecting 18,042 km², including feeding areas for penguins;
- A ban on all bottom fishing deeper than 2250 m, which covers 920,000 km²; and
- Additional closed areas, covering 12,662 km², to protect sensitive benthic fauna and provide refuges for Patagonian toothfish.

Fishing shallower than 700 m was already prohibited in the MPA. With the new restrictions, this means that only 83,500 km² (8%) of the MPA's seafloor is

available for bottom fishing. Bottom trawling was already banned throughout the MPA. The Government's announcement of the new measures is at www.sgisland.gs/download/MPA/SG%20MPA%20Press%20Release.pdf.

Timor-Leste designates first no-take zones

In February, the Southeast Asian nation of Timor-Leste (formerly East Timor) designated its first no-take zones: seven sites totaling 16.47 km² within the country's Nino Konis Santana National Park. The goal of the new no-take areas is to help replenish local fish stocks and protect coral habitats. The zones will be enforced through a co-management approach involving local, district and national fisheries authorities.

A 2012 marine survey of Timor-Leste's coastal waters by Conservation International found that the country's coral reefs were among the healthiest and most diverse in the world, and also exhibited no signs of past coral bleaching. The report from that rapid assessment is at www.conservation.org/Documents/MRAP_CI_Timor-Leste_Aug-2012.pdf.

Special issue of *Marine Policy* on MPA governance

A forthcoming special issue of *Marine Policy* journal will focus on marine protected area governance, with 15 case studies drawn from around the world. Although the issue has not yet been published, the articles are already available online at www.sciencedirect.com/science/journal/aip/0308597X. For non-subscribers to the journal, the abstracts and figures in each article are viewable for free.

Guide on developing MPA business plans

A relatively new guide is available on how to develop simple business plans for MPAs. Published in late 2012 by RAMP AO (the regional MPA network for West Africa; www.rampao.org), the 61-page booklet walks readers through the purpose of a business plan for MPAs and the main steps in creating one.

According to the guide, a business plan for protected areas has four objectives:

- To determine long-term financial needs;
- To present existing funding sources;
- To identify other possible funding; and
- To identify and set up Payments for Ecosystem Services programs.

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MPA News

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The *Guide for Preparing Simplified Business Plans for Protected Areas* is available at <http://lrampao.org/view/eng/accueil.php>.

Research agenda announced for large MPAs

Big Ocean, the network of managers and partners of existing and proposed large-scale MPAs, has released its first research agenda, highlighting the unique scientific needs and challenges of its member sites. The agenda is intended to set research priorities and provide a framework for collaborative research among Big Ocean sites, as well as other large MPAs.

The agenda identifies three main research themes:

- Biological and ecological characterization (what natural resources are present at the sites);
- Biological, physical and anthropogenic connectivity (how the resources are connected to each other, as well as to external sources); and
- Monitoring of temporal trends, including patterns caused by both anthropogenic sources and natural variability (how the resources change over time).

Big Ocean member sites comprise seven MPAs that collectively encompass 3.2 million km² of ocean. For more information and to view the research agenda, go to www.bigoceanmanagers.org.

Video series provides instruction on fishery management and MPAs

A new five-part video education series uses animation and interviews to explain concepts in marine ecology, fishery management, and marine protected areas. Co-developed by James Cook University Senior Lecturer Simon Foale and marine communication consultant Russell Kelley, the *Fish and People* series was originally developed for use in high school-level classes in the Solomon Islands and Papua New Guinea. Each module is supported by a lesson plan for teachers. The videos are at <http://vimeo.com/channels/fishandpeople>.

Marine World Heritage releases new film

In February the UNESCO Marine World Heritage Programme released a short film profiling its work. The eight-minute film *The Crown Jewels of the Ocean* premiered at a star-studded gala in Paris, attended by British actor Clive Owen and French actor Jacques Perrin. Perrin also narrates the film, which is at www.youtube.com/watch?v=ofwUTyTilgc.

www.mpanews.org

Searchable back issues, Spanish translations, conference calendar, and more

To comment on Notes & News items:
<http://openchannels.org/node/3079>

Editor's note: The LMMA Network supports learning, advocacy, partnership, and institutional development for community-driven marine resource management and conservation, including through the use of locally-managed marine areas or LMMAs (www.lmmanetwork.org). In this recurring feature "LMMA Lessons", the network offers insights that its practitioners have gathered over the past decade.


LMMA Lessons: Sustainable management outside of MPAs is just as important as inside

Compiled by the LMMA Network

In December 2012, practitioners from the Fiji Locally Managed Area Network (FLMMA) gathered to share lessons and best practices. Among the topics addressed was the importance of good governance and management *outside* of MPAs, not just inside those areas. In the LMMA Network, efforts to manage activities outside protected areas are combined with implementation of protected areas to promote sustainable benefits to communities and ecosystem health.

Good management of the waters surrounding MPAs should include:

- Proper guidelines for fishing licenses or use rights to those fishing and using marine resources in the area.

- Effective limits on fishing practices during harvesting periods (such as on catch quantity, sizes, spawning species, periods, etc.).
- Identification and monitoring of illegal or destructive fishing practices (e.g., night diving, undersized fishing nets, harvesting using SCUBA, etc.).
- Careful management of the harvest of herbivorous fish species — such as unicorn fish, parrotfish, and rabbitfish — that may play a role in maintaining healthy coral habitat in areas prone to high algal growth.
- Effective communication among coastal property owners and government agencies to ensure compliance with and support for regulations, including on waste management and erosion control. 

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