

## OpenChannels.org: Serving our 14,000th visitor

Selected highlights from OpenChannels.org this month:

- **The debate over inshore vs. offshore MPAs: Are we wasting time arguing over this?** By anonymous (blog)
- **The Business of Marine Reserves: Achieving Financially Sustainable Ocean Conservation.** By Rod Fujita, Environmental Defense Fund (blog)
- **Marine Protected Area Network Planning in the Bay of Fundy Scotian Shelf.** With Maxine Westhead, Fisheries and Oceans Canada (webinar recording)
- **Does marine spatial planning need to involve ocean zoning to be effective?** With Bud Ehler and Tundi Agardy (debate transcript)
- **Q&A on the Global Ocean Legacy project of the Pew Charitable Trusts.** With Imogen Zethoven (chat transcript)
- **Voices in Ocean Planning: Lessons from Leaders** (video series)

Last year when *MPA News* and *Marine Ecosystems and Management* launched OpenChannels.org to help ocean planners and managers find information more easily, we figured the number of visitors would top out around 10,000 people — the combined subscribership for the two newsletters. But the website passed that milestone a couple months ago and visitation keeps accelerating. We will serve our 14,000th visitor in the next few days.

With blogs by leading practitioners, live chats with experts, our extensive literature library, job and grant listings, private discussion groups, and more, OpenChannels is designed to be your regular resource for knowledge-sharing on ocean planning and management. If there is additional content you'd like to see, let us know — we're here to serve you.



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## What Does “Ocean Wilderness” Mean, and Should We Prioritize Its Protection? Experts Respond

Over the past decade, several large MPAs have been designated in remote offshore areas. In some of these cases — like Papahānaumokuākea (US), Chagos MPA (UK), the Coral Sea Marine Reserve (Australia), and others — the areas set aside have not been under immediate or significant threat from human use. There was relatively little extraction of resources occurring, and no adjacent human populations. The ecosystems were healthy, before and after designation.

This has raised a question: Are these areas truly worthy of these dramatic protection efforts, or are they more a way to dress up relatively uncommercialized tracts of ocean as MPAs? Some conservation planners have argued the designations are intended more to avoid impacting human activities than to protect ecosystems against those activities. They say efforts should focus instead on threatened, typically inshore, ecosystems. (Bob Pressey of the Australian Research

Council Centre of Excellence for Coral Reef Studies made this argument regarding Australia's newly designated system of MPAs: <http://openchannels.org/node/2437> .)

But an uncommercialized tract of ocean could be viewed another way — as relatively pristine marine habitat. Lately the concept of marine wilderness has appeared more frequently in the MPA conversation. This is due in part to new research (by Nick Graham and Tim McClanahan, described in this article) showing that remote, unharvested areas tend to have abundant fish life. It is also due to arguments that marine wilderness areas should be protected for the same reasons terrestrial wilderness typically is: namely, these ecosystems are still intact. (That argument appears here: <http://openchannels.org/node/3230> .)

continued on next page



## MPA News

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Although the concept of marine wilderness is gaining traction, a common understanding of the term remains hazy. There is no globally accepted definition. In this article, we talk with three experts about

what the term means to them, and whether we should prioritize protecting remote, healthy marine ecosystems wherever they may be.

## A. Wilderness areas need to be “very large, sparsely populated and fairly intact”: Nick Graham

Nick Graham of the ARC Centre of Excellence for Coral Reef Studies at James Cook University (Australia) and Tim McClanahan of the Wildlife Conservation Society conducted a study of the composition and biomass of fish in the remote Chagos archipelago in the central Indian Ocean. They found six times more fish in Chagos waters — designated by the UK in 2010 as a 640,000-km<sup>2</sup> no-take MPA — than in even the best-managed small MPAs elsewhere in the Indian Ocean. Their conclusion: large-scale marine wilderness reserves are better for conserving fish than the far more common small, coastal MPAs. Their findings were published in an article, “The last call for marine wilderness?”, in the May 2013 issue of *Bioscience* ([www.coralcoe.org.au/news/scientists-call-for-large-ocean-wilderness-parks](http://www.coralcoe.org.au/news/scientists-call-for-large-ocean-wilderness-parks)).

**MPA News: In your paper, you cite a definition by Russell Mittermaier for wilderness: “large areas (greater than 10,000 km<sup>2</sup>) that host over 70% intact biodiversity and human densities of five people per km<sup>2</sup> or less.” If you wrote your own definition for marine wilderness, would it be the same or different?**

**Nick Graham:** I think the definition by Mittermaier captures the concept of a very large, sparsely populated and fairly intact area. However, if I were to alter the definition I would increase the area, as 10,000 km<sup>2</sup> seems rather small. (An area 100 km by 100 km that fits the criteria, but is surrounded by dense human populations and consumption, would seem pretty vulnerable to me.) The 70% intact biodiversity element is probably a good target, but often very hard to quantify due to shifting baselines etc.... Resource extraction is in some ways captured by the biodiversity measure, but biomass and abundance can also be important measures, particularly in fisheries. To this end, potential effects of non-residents — e.g., migrant fishers and long-distance operators — should be considered. The threats to marine resources for example are not limited to local human population densities, but other drivers are also important such as distance to markets, economic development, etc. This is where formal protection of some of the remaining wilderness areas comes in.

**You write that wilderness areas have been widely discussed in the terrestrial conservation literature, whereas the concept of marine wilderness has**

**received scant attention. Why do you think marine wilderness has received less attention so far?**

**Graham:** Partly because working in the marine environment can be a lot more challenging, and this is particularly true at large scales. For example, we have only just gotten to the point in the Indian Ocean where we have good quantitative data on coral reef communities across many countries and a wilderness area to make the comparisons necessary to quantify the effect of this wilderness. As is often the case, marine science is playing a catch-up game. I think another reason may be that the focus in the marine environment on smaller MPAs has taken up a lot of the discourse and research effort. Opportunities for very large marine wilderness MPAs are fairly limited and so the shift in thinking from the smaller MPAs has taken some time. It should also be noted that work on smaller MPAs is often concentrated on coastlines where biodiversity and fisheries are most at risk, and so this research attention has been critically important.

**You write in your Chagos paper that it is likely that large wilderness areas encompassing other marine ecosystems will also represent exceptional ecological communities worthy of protection. Would you recommend that all areas of remaining marine wilderness be protected?**

**Graham:** No, I think it is important to assess different ecosystems and potential wilderness areas on a case-by-case basis. In some ecosystems very large wilderness areas may not offer more than well-managed fisheries (e.g., if the target species of interest have very fast life histories), or a network of smaller protected areas. Furthermore, blanket protection may not be the most appropriate policy, and in some cases may receive poor compliance and thus have little effect. Comparative ecological assessments of potential marine wilderness areas, coupled with appropriate analyses of social drivers and potential governance structures, should be conducted in order to make decisions about protection.

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## B. Stewardship of ocean wilderness should be much like that on land: Brad Barr

Brad Barr is the senior policy advisor for the US Office of National Marine Sanctuaries. In his spare time over the past three years, he completed a Ph.D. degree at the University of Alaska, studying the concept of ocean wilderness. As part of his dissertation research, he surveyed 250 marine resource managers and scientists in the US and Canada on their thoughts about wilderness and its management. His remarks here are his alone and do not represent the Office of National Marine Sanctuaries or the National Oceanographic and Atmospheric Administration. (A significantly longer and complete interview with Barr is available at <http://mpanews.org/Barr.pdf>.)

### MPA News: What did you find in your survey of resource managers and scientists?

**Brad Barr:** The results of that survey were generally unambiguous. The respondents believed that wilderness exists in coastal and ocean waters, and that it includes, in a spatial context, the air over the water, water surface, water column, the seabed, and the creatures that live there and their habitats. Areas that possess wilderness qualities are likely to be located in coastal waters and particularly waters adjacent to upland designated wilderness areas. Something of a surprise: offshore areas were perceived as less likely to be wilderness. I think that wilderness, as a human construct, needs to evoke some deeper emotion, some “place attachment” that these remote areas don’t seem to satisfy. They may indeed be remote, and some are subject to threats that might require additional management, but they don’t seem to inspire at least the survey respondents to call them “wilderness”.

The survey results further suggested that stewardship of ocean wilderness should be much like that on land, where motorized access and commercial activities are generally prohibited, and that access for recreation is important, but should be appropriately conducted, preserving wilderness values and qualities. There was also some agreement expressed by the respondents that Indigenous access for culturally significant activities should be given special status.

### As part of your research, you identified the MPAs in North America that have been designated specifically and formally to protect their wilderness characteristics.

**Barr:** This was to better understand how the prevailing North American perception of wilderness had been translated into actual designations. I found about a dozen areas in the US. Some of these are generally well known for including wilderness waters — such as Glacier Bay National Park and Preserve, Everglades National Park, and Pt. Reyes National Seashore — but the others were less familiar. [Editor’s note:

Barr’s complete list is available at <http://mpanews.org/Barr.pdf>.] This inventory and analysis was obviously not “official”, and is currently being evaluated by the National Park Service and Fish and Wildlife Service (the two wilderness management agencies with sites in the inventory). But it clearly identified that ocean wilderness can be, and has been, designated under the (US) Wilderness Act.

### In your opinion, what is the best definition for marine wilderness?

**Barr:** In 2004 I helped organize a workshop with the WILD Foundation to see if a panel of experts could craft a consensus definition of ocean wilderness. This international working group, over two days of deliberation, developed the following definition:

“Areas of the marine environment that are untrammelled and generally undisturbed by human activities and dedicated to the preservation of ecological integrity, biological diversity, and environmental health. An area of ocean wilderness may provide:

- Opportunities for quiet appreciation and enjoyment in such a manner that will leave these areas unimpaired for future generations as ocean wilderness; and
- Continued opportunities for subsistence uses and Indigenous cultural practices.”

While the Working Group left the discussion with a number of unresolved issues (including the appropriateness of permitting “recreational fishing”, and to what degree an area might be disturbed by human activities and still be worthy of a designation as wilderness under this definition), I thought this definition captured the important link to the language (and spirit) of the US Wilderness Act. It was also reasonably simple and brief, allowing some room for interpretation as this idea evolved and was translated into practice by the wilderness management agencies. I would offer this definition as a pretty good one to consider.

### Would you recommend that all areas of remaining marine wilderness be protected?

**Barr:** I don’t believe it is prudent to suggest that “all” of any type of area or habitat be protected, as some places are more important, for one reason or another, than others. I think that to designate all remaining putative ocean wilderness areas, by any definition, would be a bold, precautionary step, but would alienate many (if not most) ocean users, be subject to low compliance with any regulations that would be put in place to preserve wilderness values and qualities (not to mention ecological integrity and biodiversity), require the expenditure of considerable social and

“To call an area “wilderness” — but not clearly and explicitly address preserving wilderness in the management plans developed for that area — is not wilderness stewardship.”

— Brad Barr

political capital we in the MPA community have fought hard to acquire, and would ultimately only create more “paper parks” (and there are too many of these already).

With specific regard to new ocean wilderness sites, I believe that it would be terrific to add to the inventory, but only if we specifically recognize the wilderness values and qualities of that place in its stewardship. Simply to call an area “wilderness” — but not clearly and explicitly address preserving wilderness in the management plans developed for that area — is not wilderness stewardship, but yet another round of trying to use “wilderness” to sell fully-protected

marine reserves. The US and many other nations around the world possess hard-fought and hard-won laws and policies for establishing wilderness, and these statutory authorities should be utilized. Places we just call wilderness, but don't establish them under these laws and policies — and only pay lip-service to their wilderness qualities and values — not only would ultimately be ineffective in preserving wilderness, but would diminish and de-value the hard work of those who fought tirelessly to create these laws.

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## C. Mapping areas of the ocean no human has seen before: Peter Harris

Peter Harris is an oceanographer with Geoscience Australia. He is co-leading a team (along with UNEP/GRID-Arendal and Conservation International) to produce a new seafloor geomorphology map for the world ocean, both within and beyond national jurisdictions. It will be the most accurate, up-to-date map so far of the global seafloor and is likely to include individual formations (various seamounts, trenches, plateaus and more) never before known or visited by humans. The map is intended to help inform the prioritization of specific high seas areas for management.

**MPA News:** With your mapping, you likely are aware of many seafloor formations that no one knew existed before. Would you consider such areas to be “wilderness”?

**Peter Harris:** The new seafloor geomorphology map provides the first global inventory of different feature categories as well as estimates of their areal coverage.

Many of the “features” per se have never been mapped before and most of them have never been quantitatively enumerated or measured. Furthermore, it is very likely that many features have never been “visited” by humans — that is, they have not been sampled, inspected by video, viewed from a submersible or examined by sonar. I think such places would indeed qualify as wilderness.

**Your map is intended to inform the priority management of areas beyond national jurisdiction. If you were reasonably confident that a particular area of the seafloor on the high seas had rarely if ever been fished nor otherwise directly impacted by humans, would you recommend it as a priority area for management?**

**Harris:** There are several practical reasons why it makes sense for society to take steps to conserve and manage representative areas of remaining undisturbed habitat from future human disturbances. From a scientific and management perspective, such habitats provide valuable baselines for comparison with other sites where activities take place, so that the extent of change (and rates of recovery) can be quantified, and that information can be used to support effective management action now and in the future. Healthy, intact assemblages of species are more likely to be able to re-colonize following disturbance, and be able to more easily adapt to changes in the deep sea environment associated with anthropogenic global climate change. Another reason is that undisturbed habitat may harbor an intact assemblage of species, which contain as yet unknown genetic material of interest to medical science, industrial processes, production of biofuels, etc.

**When will the map be published?**

**Harris:** We are aiming to publish our work by the end of this year. 

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**To comment on this article:**  
<http://openchannels.org/node/3525>

### Wilderness, naturalness, and the eye of the beholder

In 2003, MPA News reported on the use of “naturalness” as a common criterion in siting new MPAs, generally defined as an area's relative lack of disturbance or degradation by humans (MPA News 4:11). In that sense, naturalness may not be far off from many people's general concept of wilderness.

How much of the ocean could be considered undisturbed or undegraded by humans is open to interpretation, though. The global map of ocean uses by Halpern et al. in 2008 (<http://sustsci.aaas.org/files/global%20map.pdf>) suggested just 3.7% of the global ocean could be considered “very low impact areas” from cumulative human use. These areas were mostly in polar regions.

However, it is not unusual for resource managers to describe their protected areas as wilderness, even in cases where significant extractive activity has occurred in the past. In such cases, the intent may be to reestablish the wilderness character. The waters around South Africa's remote, sub-Antarctic Prince Edward Islands archipelago, for example, were plundered in the 1990s by illegal fishing for toothfish. Now the country's newly designated Prince Edward Islands MPA includes a 17903-km<sup>2</sup> no-take zone that is intended to restore the stocks (see page 5, this issue). Xola Mkefe, director of coastal and biodiversity conservation in South Africa's Department of Environmental Affairs, says, “The no-take zone is definitely a wilderness area.”

# South Africa Designates 180,000-km<sup>2</sup> MPA; Site to Be Enforced Jointly with Commercial Fishing Industry

In April, South Africa designated its first offshore MPA: a 180,000-km<sup>2</sup> site surrounding two small sub-Antarctic islands. Located nearly 1800 km southeast of the country's mainland, the new Prince Edward Islands MPA is intended to protect the millions of seabirds and seals that visit the islands to breed. It is also intended to contribute to the recovery of toothfish populations in the area, which were decimated by overfishing in the 1990s.

The MPA's zoning system includes a no-take Sanctuary Zone covering 17903 km<sup>2</sup>, or roughly 10% of the MPA. (That zone, in the middle of the MPA, encompasses the two islands, Marion Island and Prince Edward Island.) The other zones feature various use restrictions, but will allow fishing for some species using certain gear types. Continued fishing for toothfish, for example, will be permitted in the MPA by two South African vessels operating under strict quota and longline hook limits.

The new MPA is the culmination of several years of planning. The South African government first announced its intent to declare an MPA there in 2004. It re-announced its intent in 2009, partly in response to the country's National Protected Area Expansion Strategy, which it adopted that year (MPA News 10:11). Soon after that, though, a cabinet reshuffle split the government's marine and coastal responsibilities between two departments — Fisheries and Environmental Affairs — resulting in delays as the respective mandates were worked out. Once the responsibilities were resolved (Environmental Affairs will manage the MPA, including fisheries enforcement there), the final stakeholder consultation process took place.

## Cooperative solutions to enforcement challenge

As with any large and remote MPA, enforcing the use restrictions in the Prince Edward Islands MPA poses a challenge, particularly for a nation with relatively limited offshore enforcement capacity. (South Africa has one dedicated offshore enforcement vessel). So, to add another layer of surveillance ability, the stakeholder consultation process focused on the two South African fishing vessels that work in the region.

“In the stakeholder engagement, the intention was always to try to use the permitted South African fishing vessels to become part of the solution in monitoring illegal fishing within the MPA,” says Peter Chadwick of WWF South Africa, which was instrumental in the planning process. “They will in effect act as crucial eyes and ears in these difficult-to-monitor waters. Through being allowed the opportunity to have a

capped fishing quota, they will aid in preventing other illegal vessels from plundering the recovering stocks.”

Xola Mkefe, director of coastal and biodiversity conservation in South Africa's Department of Environmental Affairs, says the remote location of the MPA requires that it be managed in an array of cooperative ways. In addition to the arrangement with fishing companies, he says, “We are also seeking to further enhance cooperation with the Australian and French governments, who regularly patrol their sovereign territories of Heard Island and the Crozet Islands, located to the east of the Prince Edward Islands. The agreement with France, which has a land-based satellite monitoring control station in the Southern Ocean, is being finalized. We are discussing a treaty with Australia that includes monitoring and surveillance in the sub-Antarctic waters.”

Most of the MPA is also within the regional jurisdiction of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), of which South Africa is a member. CCAMLR requires the fishing vessels of all 20 of its member states to carry Vessel Monitoring Systems, which report regularly to the CCAMLR head office and the country affected.

To put the size of the Prince Edward Islands MPA in perspective, it is more than twice the size of the countries of Jordan, Portugal, or Hungary. Yet the MPA is nearly uninhabited. The only human residence is on Marion Island, which has a small research and weather station and is the larger of the two islands at 290 km<sup>2</sup>. Twenty-eight species of seabirds — including penguins and several types of albatross — are thought or known to use the two islands as breeding habitat. 

## For more information:

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## To comment on this article:

<http://openchannels.org/node/3526>

### Study: Five factors determine effectiveness of MPA networks and large MPAs

There are five key elements that determine the effectiveness of MPA networks and large MPAs, according to a recent study. Conducted by Blue Earth Consultants, the study polled 33 MPA practitioners, primarily in North America, and analyzed 10 cases of MPA network implementation. The five elements are:

- **Legal framework:** A legal mandate needs to be in place at the onset of implementation. It must hold up to legal scrutiny and outline the goal(s) of the network.
- **Strong management plan:** A strong management plan contains a clearly defined vision, as well as measurable goals and objectives that are easily understood.
- **Operational capacity:** Having the necessary skills, staff, infrastructure, and volunteers is key to conducting effective on-the-ground implementation.
- **Social capital:** Trust and buy-in from stakeholders and communities can build long-term compliance, financial support, and political will for the protected areas.
- **Long-term financial sustainability:** Diversified funding streams are key to ensuring long-term financial support.

The study was funded by the Resources Legacy Fund Foundation to inform MPA monitoring efforts in the US state of California. For more information on the study, email Sara Lowell at [sara@blueearthconsultants.com](mailto:sara@blueearthconsultants.com)

# Perspective: An Overview of the Gilbert Bay MPA Oil Spill Case and Successful Prosecution of the Company at Fault

## Editor's note:

Corey Morris is a biologist with Fisheries and Oceans Canada and provided expert testimony on the Gilbert Bay ecosystem in the court case described here. Lee-Ann Conrod is an attorney with the Public Prosecution Service of Canada and prosecuted the case.

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<http://openchannels.org/node/3455>

## By Corey J. Morris and Lee-Ann V. Conrod

An oil spill inside a Canadian Marine Protected Area (MPA) and subsequent legal actions generated considerable interest recently in Newfoundland and Labrador, Canada. The successful prosecution of the offending company illustrates how the particular circumstances of an MPA can inform such cases.

The spill occurred on 20 September 2009 inside the Gilbert Bay MPA, which is located along the south coast of Labrador, within a subarctic ecosystem in Canada's northwest Atlantic. Gilbert Bay has been an MPA under Canada's Oceans Act since 2005, with the conservation objective to protect the unique local cod population and its habitat. The spill happened as diesel fuel was being offloaded from the tanker vessel *Mokami* to the town of Williams Harbour; during the transfer, an estimated 70 liters of fuel leaked directly into the MPA.

A member of the Gilbert Bay Marine Protected Area steering committee living near the MPA reported the spill to authorities. Although the ship's owner, Coastal Shipping Limited, attempted a clean-up, the effort was deemed not suitable by Environment Canada authorities. The primary offenses considered by the court were failure to report the occurrence to an inspector and not taking all reasonable measures to prevent or mitigate impacts on fish and fish habitat. (These are offenses under the nation's Fisheries Act.) Coastal Shipping Limited and the ship's captain each entered a guilty plea in Newfoundland Provincial court in January 2013. The company now must pay a fine of Cdn \$100,000 (US \$101,000); the captain must pay Cdn \$15,000.

Given the volume of fuel spilled, the penalties are relatively severe. MPA status played a significant role in the court's decision to apply charges resulting in the fines. In addition, as part of a creative sentencing process, half of the monetary value was allocated to support education, restoration, and/or research pertaining specifically to the Gilbert Bay MPA.

## Importance of MPA status and an endemic cod population

The MPA status in this case was taken very seriously: the court recognized the area's sensitivity and the potential for harm from the spill. It was thought that extra diligence should be exercised by companies when operating in sensitive areas such as the Gilbert Bay MPA, particularly in the case of handling substances such as fuel oil and anything else that could cause damage.

Scientific research conducted in Gilbert Bay since 1998 has identified a locally adapted resident population of Atlantic cod. Referred to by locals as "golden cod" due to their characteristically golden-brown color, these cod are the most genetically distinct Atlantic cod population investigated in the western Atlantic. The timing and location of spawning is separate from other cod populations: eggs and larvae are retained near spawning areas in the MPA, and the distribution is almost entirely within Gilbert Bay. However, some adult cod migrate a short distance (~10 km) outside the MPA boundaries during a summer and fall feeding migration where they are susceptible to fishing. Currently the Gilbert Bay cod population abundance is low — due in part to fishing pressure during the migration — and there has been an increasing effort to protect the population. An oil spill in this region, given the continuing and increasing efforts to protect the population, was unfortunate.

The *Terroco* case from 2005 ([www.elc.ab.ca/pages/publications/previousissue.aspx?id=288](http://www.elc.ab.ca/pages/publications/previousissue.aspx?id=288)) provides five guiding principles for sentencing environmental offenses, against which the Gilbert Bay MPA oil spill was compared: culpability, acceptance of responsibility, damage or harm, prior record, and deterrence. A mitigating factor in the Gilbert Bay MPA oil spill case was a guilty plea, which demonstrated culpability and acceptance of responsibility. Aggravating factors included the fact that the spill occurred in the sensitive MPA and could have caused significant damage or harm. Furthermore, the company had been fined Cdn \$15,000 for a previous conviction relating to an oil spill that occurred in Nunavut in 2004 (i.e., a prior record of offense). The significantly larger fine in this case was intended to serve as a meaningful deterrent to large oil distribution companies.

Of particular benefit to the MPA is that half the monetary value in this case was placed into Canada's Environmental Damages Fund, to be spent specifically within the Gilbert Bay MPA. Section 79.2 of the Fisheries Act, pertaining to the Environmental Damages Fund, allows the Court to order such creative sentences. In this case the money will be available to fund much needed investment into the MPA, such as for environmental restoration, education, or research. Since its creation in 1995, the national fund has received over Cdn \$4.5 million from 154 offenses and has funded 149 projects across Canada. The fact that the court specified the geographic area in this case — the Gilbert Bay MPA — means that the money will have positive beneficial results on the area directly impacted by the spill. 

## MAIA: Profile of a New Network of MPA Managers in the Northeast Atlantic

MPAs that exist in the same general region often share similar ecosystem features and management challenges. In that light, the idea behind building regional networks of MPA managers is to help these practitioners share their common experience and best practices, and to develop supportive relationships with one another.

MedPAN (in the Mediterranean) and CaMPAM (in the Caribbean) are the longest-established and perhaps best-known regional networks of MPA managers. In contrast, one of the newest networks is MAIA. Established in 2010, MAIA is a network of MPA managers in the “Atlantic arc”, an area of the northeast Atlantic that stretches from the northern tip of the UK southward to the Strait of Gibraltar. The MAIA network currently includes 454 coastal and marine protected areas in five countries: Ireland, the UK, France, Spain, and Portugal.

The following is a profile of the MAIA network:

### Objective:

To develop a consistent, efficient and accepted network of MPAs in the Atlantic arc. In doing this, the network of MPA managers will promote the sharing of experience and approaches, and coordinate international initiatives in support of designation, governance, and management.

### Financing:

MAIA has been financed by the Interreg IV B Atlantic Area programme, an EU initiative between 2010 and 2013.

### The project's first three years (2010-2012):

A) Workshops and conference: MAIA organized three technical workshops on management issues common to MPAs in the Atlantic arc:

- 2010: Establishing indicators and monitoring strategies; held in Sessimbra, Portugal
- 2011: Involving stakeholders in MPA designation processes; held in Totnes, UK
- 2012: Defining and implementing management plans; held in La Coruña, Spain

After each workshop, full-day site visits to MPAs were conducted to enhance knowledge transfer among countries and MPA managers.

The first full conference of MAIA network members was held in December 2012.

B) Documents and website: The project has produced numerous publications, including field studies and global overviews, such as on applicable MPA legislation. These documents are available for download on the MAIA web site ([www.maia-network.org](http://www.maia-network.org)). The project website also includes a private collaboration space for members of the network to interact and plan, as well as a GIS database and GIS viewer of all MPAs in the Atlantic arc.

C) Database: The network's GIS database provides site-by-site information on MPA governance, management, and resources. By informing an evaluation (in progress) of spatial coverage and management effort among MPAs in the region, the database is establishing a baseline on the status of Atlantic arc MPAs. Results of the evaluation are expected to be presented at the IMPAC3 conference this October.

### Working with other networks and institutions:

“We are a little brother of MedPAN,” says Amandine Eynaudi, project manager of MAIA and a staff member of the French MPA agency. “We are working very closely with them: for example, MAIA and MedPAN have developed our GIS databases on the same core attributes — to be able, one day, to compare the two networks.”

Following in MAIA's footsteps, another neighboring project — this one to the north, developing a network of MPA managers in the Channel and North Sea, and called PANACHE — was launched by the French MPA agency in November 2012.

MAIA is also now recognized by the OSPAR regional convention as relevant technical support: at the May 2013 OSPAR Head of Delegation meeting, contracting parties agreed the MAIA architecture will be useful for the development of the OSPAR MPA database. The French MPA agency and the MAIA team will be in charge of coordination.

For further information, please contact the MAIA team at [maia@aires-marines.fr](mailto:maia@aires-marines.fr) or visit [www.maia-network.org](http://www.maia-network.org) 

## Notes & News

### IMPAC3 website releases call for content

The website of the Third International Marine Protected Areas Congress (IMPAC3), scheduled from 21-27 October in Marseille and Corsica, France, is up and running at [www.impact3.org](http://www.impact3.org). In addition to providing information on the conference, the website aims to offer content on MPA developments worldwide, as well as ocean conservation in general. To fulfill that aim, the congress organizers invite the

MPA community to submit news, photos and videos reflecting the full diversity of MPAs, related programs, research, events, and techniques around the world.

“IMPAC3 is a congress for and by the MPA community: we all stand to gain from pooling experience and knowledge,” says Paul Gouin, who is handling communications and multimedia for IMPAC3. To share content, contact him at [paul.gouin@aires-marines.fr](mailto:paul.gouin@aires-marines.fr).

Abstract submissions for the IMPAC3 program closed on 10 May. More than 700 abstracts were received.

## Deep-water coral reefs to be protected in Colombia

On 24 May, the Colombian environment ministry will designate a national park to protect its deep sea coral reefs — the 1420-km<sup>2</sup> Deep-water Coral National Natural Park. The MPA will be 32 miles off Colombia's Caribbean coast, and will include reefs that are at depths beyond 100 meters. According to Colombia's Institute of Marine Research (INVEMAR), the deep-water reefs contain remarkable biodiversity: 19 species of Scleractinian corals, 115 species of invertebrates and fish, and 38 species of echinoderms, among other sea life. Fishing and oil exploration will be off-limits in the MPA, although oil exploration will be allowed in adjacent areas. A news report on the MPA (in Spanish) is at [www.eltiempo.com/vida-de-hoy/ecologia/parque-nacional-corales-de-profundidad\\_12792060-4](http://www.eltiempo.com/vida-de-hoy/ecologia/parque-nacional-corales-de-profundidad_12792060-4)

ters. The articles analyze the challenges, achievements and lessons learned in the public MPA planning process. The issue is available free of charge at [www.sciencedirect.com/science/journal/09645691/74](http://www.sciencedirect.com/science/journal/09645691/74)

## Business model proposed to help marine reserves pay for themselves

The financial value of no-take marine reserves — in terms of tourism revenue generated inside the reserves + enhanced fishing in adjacent areas — may often exceed the value of the site prior to designation, and economic benefits can offset the costs in as little as five years. Those are among the conclusions of a new paper in *PLoS ONE* journal, which proposes a general business model for such reserves. The research team, led by Enric Sala of the National Geographic Society, analyzed peer-reviewed studies of 124 marine reserves in 29 countries. They write, "Our bio-economic model shows that fishing revenue increases after the creation of a reserve, and also that tourism revenue surpasses the revenues from fishing. [T]he typical concern about short-term revenue losses associated to reserve creation, especially for fishers, should be easily addressed with a proper business plan that estimates revenue projections, accounts for costs, and identifies financing mechanisms." The article is available for free at [www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0058799](http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0058799)

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## Special issue of journal: lessons from California's MPA network planning process

The March 2013 special issue of *Ocean & Coastal Management* journal provides 10 articles by key participants in California's multi-year process to plan a coherent network of MPAs in its state waters. The process, called the Marine Life Protection Act initiative, incorporated significant stakeholder input and resulted in a dramatic increase in MPA coverage, from 2.7% of state waters to 16%. Similarly, no-take area coverage rose from less than 1% to 9.4% of state wa-

**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](http://www.lmmanetwork.org)). In this recurring feature "LMMA Lessons", the network offers insights that its practitioners have gathered over the past decade.

## LMMA Lessons: Where, and how big, should a no-take area be?

In 2011-2012, the LMMA Network and the Secretariat of the Pacific Community co-produced a series of information sheets for fishing communities in the Pacific Islands region ([www.lmmanetwork.org/resourcecenter](http://www.lmmanetwork.org/resourcecenter)). The sheets describe the targeted fish species in the region, fishing methods and gear, and various community-based management measures. Among those management measures are no-take areas. Below, MPA News has excerpted some of the sheets' guidance on no-take area planning:

- Position the no-take area so that it includes different habitats. During their lifecycle, many species use more than one habitat. The more corals, seagrass beds and mangroves in a no-take area, the more effective it will be.
- Position the no-take area in a place where it can be watched. It will be necessary for members of the community to protect or guard the closed area.

- Position the no-take area so that currents flow towards nearby fishing areas. These currents may assist in carrying larval stages into the fishing areas.
- If a large no-take area is not possible, plan for a smaller one. Even small no-take zones will benefit less mobile species such as octopuses, clams and some fish. However, they will be less effective in protecting species that move over large territories or feeding ranges.
- Work with neighboring communities to establish a network of no-take areas. A network of no-take areas may maximize the linking of larval sources with suitable settlement areas.
- Don't expect immediate results. Many species take a long time to grow to maturity and reproduce.
- Don't expect the no-take area to work equally well for all species. 

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