

Re-Examining the Role of MPAs in Ecosystem-Based Management

The concept of ecosystem-based management of our oceans involves applying a holistic approach to resource management rather than focusing on a single species or sector. The basic idea is that because the elements of an ecosystem are interconnected — including species, habitats, and humans — it makes sense to attempt to manage them as a whole rather than as a series of unrelated elements.

This concept of applying an “ecosystem approach” has been widely endorsed by management organizations worldwide. As its implementation grows and matures, so does practitioners’ understanding of how MPAs may best fit within it. In the October 2006 issue of *MPA News*, we explored what roles marine protected areas could play in ecosystem-based management (EBM), with examples from Indonesia, Mexico, the Great Barrier Reef, the Wadden Sea, and Antarctica. This month we revisit the topic with more examples, and a particular focus on the impact of EBM on MPA planning and management.

Overseeing MPAs and EBM: TIDE in Belize

In the Toledo District of southern Belize, rivers flow down from the Maya Mountains through one of the largest and most diverse forests in Central America, emptying into estuaries that feed the Belize Barrier Reef. Most of the district’s 22,000 human residents rely on access to natural goods and services from the rivers, forest, soil, and sea. Growth in the region’s human population is accelerating the demand for these resources, while activities such as cattle farming and gillnet fishing are intensifying human impacts on the ecosystem.

The Toledo Institute for Development and Environment (TIDE), a nongovernmental organization, was founded in 1997 to meet the growing environmental and development needs of the Toledo District. TIDE has pursued the sustainable management of the area’s “Maya Mountain Marine Corridor”, covering nearly one million acres of land and 1000 square miles of sea. In doing so, TIDE has emphasized two goals: instilling a sense of ownership among residents in their common resources, and protecting those resources for future generations.

From these efforts, TIDE has become involved both in MPAs and EBM. The organization assists the Belizean government in planning and managing protected areas, including co-managing Port Honduras Marine Reserve

and Payne’s Creek National Park. It also leads the development of responsible tourism in the district and other environmentally sustainable economic alternatives by providing training and support to local residents. Its innovative programs include a scholarship fund for children whose parents agree to stop using unsustainable fishing and farming methods, and a net-exchange program that allows fishermen to trade gillnets for more environmentally sensitive gear.

TIDE’s ecotourism program has conducted tour guide certification, and offers multiple forms of tourism training, including fly-fishing and kayaking. TIDE also implements the annual Freshwater Cup, a tournament in which football (soccer) clubs from the region must first complete an environmental project as a requirement for entry. At the close of competition, the winners of the environmental project portion and the football tournament are announced; the grand prize for each is BZ \$2000 (US \$1000).

“TIDE views its overall efforts as ecosystem management,” says Executive Director Celia Mahung. “We ensure that management has a goal to maintain or improve ecosystems, and that ecosystems are of benefit to present and future generations.”

She says sustainable development in Toledo would be difficult without protected areas as part of the management system. “Protected areas provide a defined boundary of protection that, at the very least, makes people stop and think before taking action,” says Mahung. “Without the presence of the protected areas, Toledo might face uncontrolled development that would damage key resources. Managed development can actually promote sustainability and protected areas as part of its mandate. We recently met, for example, with a developer planning a coastal community and

Poll: For ecosystem-based management to be successful, does it need MPAs?

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With the trend toward applying an “ecosystem approach” to marine resource management, what role should MPAs play in it? *MPA News* would like your opinion. Please take our quick poll on MPAs and ecosystem-based management at the *MPA News* website: www.mpanews.org. *MPA News* will compare the results to those of our similar poll in 2006.

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Table of Contents

Re-Examining the Role of MPAs in Ecosystem-Based Management 1

MPA Perspective: With Three Federal Authorities Protecting Marine Areas, Canada Takes an Integrated Approach to MPA Establishment 4

MPA Perspective: Protecting the Marine Resources of Northwest Ecuador with Local Communities: Creation of the First Marine Reserve in Mainland Ecuador 6

Getting started on EBM

For advice on how to begin applying the ecosystem approach, these two sources may be helpful:

“The Ecosystem Approach”

www.cbd.int/ecosystem

This portion of the Convention on Biological Diversity (CBD) website provides links to CBD principles on applying an ecosystem approach, as well as case studies and an *Ecosystem Approach Sourcebook* that offers guidance for “beginners” and “advanced users”.

Ecosystem-Based Management of Marine Capture Fisheries

http://assets.panda.org/downloads/ebm_report.pdf

This 2006 report by WWF offers principles for applying EBM, along with a 12-step implementation plan. Although most of it focuses on applying EBM to fisheries, the report also addresses managing the impacts of other industry sectors, such as shipping and oil/gas. It draws detailed examples from around the world.

discussed the importance of the beaches that provide nesting areas for the hawksbill turtle. We helped the developer understand that this was not a challenge to be overcome, but an opportunity to market the development — as one that integrated the nesting season of turtles into the development’s lighting and building scheme.”

Mahung says Toledo’s protected areas are an integral part of the surrounding communities. “The Toledo District is poor and many of the inhabitants rely on subsistence farming or subsistence fishing,” she says. “In the case of the Port Honduras Marine Reserve, there are two communities that border the reserve. Sustainable development within these communities is necessary to ensure that people are able to feed, clothe, and house their families. Development that provides some cash for these families, that promotes education for boys and girls, and that considers the importance of incredible natural resources of southern Belize is critical for our health and economy.” For more information on TIDE, including descriptions of its array of sustainable development and education programs, go to www.tidebelize.org.

Role of MPAs in supporting regional EBM: Caribbean MPAs

Georgina Bustamante, Coordinator of the Caribbean MPA Management Network and Forum (CaMPAM), believes well-managed MPAs will be useful in enabling implementation of EBM at larger scales. “MPAs are just one coastal zone management tool, but very few countries have developed a nation-wide coastal management scheme,” she says. “If we learn to manage small areas — like MPAs — with an ecosystem-based approach, that process will promote the scaling up of management to cover larger areas, including entire countries, or ideally ecoregions.”

Bustamante defines a well-managed MPA as having benefits for natural resources and human livelihoods. As management is scaled up from these MPAs, she says, the effect will be of creating larger marine *managed* areas. The core MPAs will essentially become learning centers on how to manage coastal natural resources in a larger and ecologically effective spatial scale.

To enable MPAs to play this role, she says, there need to be capacity-building and networking among MPA managers and planners. “Educated MPA practitioners can understand the scale at which their marine resources are biologically connected with other areas, and this allows them to develop appropriate management interventions,” says Bustamante. “Networking and communication among MPA practitioners facilitate the process of implementing coordinated management, and eventually promote nationwide or transboundary policy development.” She notes that although some Caribbean countries have developed national systems of MPAs, many have not yet recognized the transboundary nature

of the biological connections of their marine populations. This insufficiency, she says, can jeopardize the effectiveness of their management measures — for example, if important regional sources of fish larvae are not covered by national systems of protection.

To build Caribbean regional capacity on MPA planning and management, CaMPAM in recent years has co-sponsored a series of regional “training of trainers” courses on MPAs. The courses instruct managers, who in turn train local MPA stakeholders. The most recent course was held this month in Trinidad and Tobago, and included an overview of the Wider Caribbean’s ecosystems. In addition to the courses, CaMPAM also coordinates site visits and staff exchanges among MPAs throughout the region.

Robin Mahon of the University of the West Indies (Barbados) says that given humans’ history of ecosystem abuse and poor performance in protecting marine ecosystems, “most would agree that MPAs are needed in the Caribbean.” However, he cautions that some policy-makers may consider it sufficient simply to have MPAs. “Most practitioners are certain that MPAs are not sufficient by themselves, and that complementary measures will be required to achieve sustainability,” says Mahon. “Another area of concern is who determines the location and nature of protected areas. So far, tourism agendas have been the primary drivers, and fisheries have often been marginalized or disadvantaged (or the protected areas have simply not been successful). This reflects differences in organization and power among stakeholders that must be considered in how we incorporate protected areas into EBM.”

Both Bustamante and Mahon presented their thoughts on MPAs and EBM in presentations last December at a meeting on EBM in the Caribbean, “Marine Ecosystem Based Management in the Caribbean: An essential component of Principled Ocean Governance”. The presentations from that meeting are available at http://marineaffairsprogram.dal.ca/MAP_Projects/EBM_Symposium.php.

Benefits to MPAs of operating under regional EBM: OSPAR

Since 1972, the Convention for the Protection of the Marine Environment of the North-East Atlantic — the OSPAR Convention — has worked to identify threats to its regional marine environment, and has organized programs to ensure effective national action to combat them. The OSPAR Commission, responsible for implementing the convention, is formally guided by the ecosystem approach to management. Its application of the ecosystem approach includes, but is not limited to, MPAs. Along this line, in 2003, OSPAR ministers representing the region’s fifteen nations recommended establishing an ecologically coherent network of well-managed MPAs in the North-East Atlantic by 2010.

David Johnson, Executive Secretary to the OSPAR Commission, says OSPAR's adoption of the ecosystem approach was an early political acknowledgement of the need to integrate all human activities and evaluate their impact on biodiversity. "OSPAR has worked hard subsequently to determine ways of assessing whether the measures put in place for different strategies have been effective," says Johnson. "A pilot system of 'Ecological Quality Objectives for the North Sea' and an OSPAR list of threatened and declining species are examples of such efforts. Notwithstanding the above, MPAs remain one of the only tools collectively embraced by OSPAR Contracting Parties."

Johnson says the 2010 goal has spurred Contracting Parties to designate MPAs that contribute to the network. "Currently OSPAR is gearing up to 2010, with more nominations of MPAs and pioneering work in areas beyond national jurisdiction," he says. "Currently within areas under national jurisdiction, there is considerable overlap with Natura 2000 sites [an ecological network of protected areas in the territory of the European Union], and OSPAR will look to achieve added value."

For managers of MPAs within the OSPAR area, says Johnson, the existence of an overarching approach across the region allows them to assume that certain human impacts and external effects are being addressed. "They therefore do not need to chase additional resources to tackle such issues, such as eutrophication," he says.

Jen Ashworth, Regional Coordinator of the North East Atlantic for the World Commission on Protected Areas, says MPA managers in the OSPAR region can share lessons with other Contracting Parties. "OSPAR has produced several useful documents on MPA management and stakeholder involvement," she says. (For a list of such publications, visit the OSPAR website — www.ospar.org — and click on "Publications".) Although Ashworth notes it appears unlikely OSPAR will meet its 2010 goal of a coherent MPA network, the effort remains worthwhile. "Planning an MPA network on a regional basis, as opposed to purely a country-by-country basis, is more in line with an ecosystem approach," she says. "Such planning also helps facilitate ecological coherence within biogeographic areas."

Using an ecosystem approach to determine where MPAs would be helpful

In a study to be published soon in the journal *Conservation Biology*, an international team of researchers states that coral reef conservation requires a variety of responses to adapt successfully to climate change. Led by Tim McClanahan of the Wildlife Conservation Society, the team concludes that the most appropriate response for each region will depend on at least three main factors:

- The current pristineness of the reef;
- How susceptible it is to climate change; and
- The adaptive capacity of local human communities,

including their ability to cope with potential management actions (like tolerating the closure of fishing areas).


Failure to understand this context could result in wasted efforts, including designation of ineffective MPAs, say the researchers. The study's integration of natural and social factors in decision-making is consistent with an ecosystem approach to management.

McClanahan's research team analyzed 24 human communities and adjacent coral reef ecosystems in five countries of the Western Indian Ocean. They found that the scale of the threat from climate change varied significantly from place to place, based on several environmental variables. They also discovered that some places were more likely to be able to cope or to adapt their management than others. This was based on multiple indicators of adaptive capacity, such as occupational mobility, infrastructure, and recognition of factors affecting marine resources. Based on its findings, the team concluded that more investment in MPAs could be effective in certain countries — Tanzania, for example — which generally exhibited lower climate change stresses and higher human capacity to adapt to the closure of some fishing areas.

Kenya, however, was a different story, says McClanahan. "Kenya has a high pristine index in the few parks that it has because it has been effective at stopping fishing in the parks, but the coral fauna has been badly affected by a 1998 bleaching event and recovery is poor," he says. "The prognosis is not hopeful given climate change, so the international attraction [of visiting Kenya for its MPAs] is likely to decline in favor of areas with better coral fauna where the fish fauna is also protected."

Over time, he says, tourism to Kenya will likely suffer as a result, and the country should have a policy that acknowledges this potential loss. "Interestingly, we have found that southern Kenya has lower environmental susceptibility and good conditions for corals," says McClanahan. "So in the south we would suggest a policy of creating protected areas and favoring ecotourism developments, in contrast to the north. We are also suggesting that the infrastructure of Kenya needs to be built up to where people are not overly reliant on just tourism or harvesting natural resources. We would like to see a diversified economy that is more typical of countries with higher education and associated infrastructure."

McClanahan says there is always a need for protected areas, but they need to take different forms and finance models in different contexts. "There are tradeoffs, lost opportunities, and social contexts that will not allow the transfer and adoption of poorly contextualized ideas and technologies," he says. "This is a call for being practical. You cannot have it all, but have to make hard decisions and drop some of the idealism that frequently motivates, steers, and many times paralyzes the utility of the environmental movement."

For a PDF copy of the forthcoming paper "Identifying Reefs of Hope and Hopeful Actions: Contextualizing Environmental, Ecological, and Social Parameters to Respond Effectively to Climate Change", e-mail Tim McClanahan at tmccclanahan@wcs.org. 

For more information:

Celia Mahung, TIDE, Punta Gorda, Belize. E-mail: cmahung@tidebelize.org

Georgina Bustamante, CaMPAM, Hollywood, Florida, U.S. E-mail: gbustamante@bellsouth.net

Robin Mahon, Centre for Resource Management and Environmental Studies, University of the West Indies, Cave Hill Campus, Barbados. E-mail: rmahon@caribsurf.com

David Johnson, OSPAR Secretariat, London, U.K. E-mail: David.Johnson@ospar.org

Jen Ashworth, Natural England, Peterborough, U.K. E-mail: jen.ashworth@naturalengland.org.uk

Tim McClanahan, Wildlife Conservation Society, Mombasa, Kenya. E-mail: tmccclanahan@wcs.org

MPA Perspective With Three Federal Authorities Protecting Marine Areas, Canada Takes an Integrated Approach to MPA Establishment

Editor's note

Within Canada, three federal authorities each have a mandate to designate and manage marine protected areas: Fisheries and Oceans Canada, the Parks Canada Agency, and Environment Canada.

This essay, written collaboratively for *MPA News* by MPA experts in the above authorities, outlines how they are working together to integrate their MPA planning to achieve efficiencies and maximize conservation benefits.

By the Federal Marine Protected Areas Strategy Working Group

The three Canadian federal authorities with jurisdiction to protect important marine sites — Fisheries and Oceans Canada, the Parks Canada Agency, and Environment Canada — are each mandated to establish different types of protected areas:

- 1) Fisheries and Oceans Canada designates Marine Protected Areas under the *Oceans Act*;
- 2) Parks Canada Agency designates National Marine Conservation Areas under the *Canada National Marine Conservation Areas Act*; and
- 3) Environment Canada designates Marine Wildlife Areas and National Wildlife Areas under the *Canada Wildlife Act*.

Each of these federal authorities takes related but different criteria into consideration in identifying its marine protected areas (these are described below). To advance a cohesive, complementary network of marine protected areas and maximize program efficiencies, the three authorities developed a cooperative approach that is outlined in Canada's 2005 Federal Marine Protected Areas Strategy (available at www.dfo-mpo.gc.ca/oceans-habitat/oceans/mpa-zpm/fedmpa-zpmfed/index_e.asp).

Internal guidelines are currently being finalized to assist the federal authorities in gathering and sharing the best available natural and social science information, including key marine areas that have been identified by each federal authority according to its mandate. Protocols are being completed to help determine whether protected area status is needed and which federal marine protected area tool is best suited to the protection needs of a given candidate site. The placement of future federal marine protected areas will be guided by a gap analysis of where new sites will best contribute to a set of agreed-upon conservation imperatives.

Although this essay focuses on Canada's federal protected areas, there are also other management, policy, or regulatory instruments that may contribute to marine conservation outcomes, such as *Species at Risk Act* areas of critical habitat, fisheries closures, variation orders, voluntary closures, national parks with marine components under the *Canada National Parks Act*, and migratory bird sanctuaries under the *Migratory Birds Convention Act*. These areas, together with federal, provincial and territorial protected areas, all have potential to contribute to Canada's national network of marine protected areas, which will take shape over the next few years.

Protection of representative marine areas and providing opportunities for Canadians to experience and learn from them is the explicit legislative mandate of Parks Canada. Fisheries and Oceans Canada's and Environment Canada's MPA policies are not directly focused on the protection of representative areas. However, protecting ecologically significant ecosystem components in an MPA indirectly helps protect representative portions of Canada's marine ecosystems and associated biodiversity. In fulfilling their complementary mandates, Canadian federal MPA authorities contribute to the national network of marine

protected areas by keeping broad network objectives in mind while implementing their specific components.

Fisheries and Oceans Canada criteria for Marine Protected Areas

The Government of Canada under the *Oceans Act* has adopted an ecosystem-based approach to integrated oceans management (IOM), a component of which involves the establishment of *Oceans Act* Marine Protected Areas (OAMPAs). (The *Oceans Act* legislation is available at <http://laws.justice.gc.ca/en/showtdm/cs/O-2.4>). The Act sets out possible reasons for designating these OAMPAs, namely to protect and conserve important fish and marine mammal habitats, endangered marine species and their habitats, unique habitats, and areas of high biological productivity or biodiversity.

Incorporating OAMPAs into broader IOM-planning initiatives ensures that OAMPA conservation measures are consistent with management of the surrounding area. This approach helps to maintain the integrity of the OAMPA. Fisheries and Oceans Canada's candidate OAMPA sites are typically located within one of the five Large Ocean Management Areas (LOMAs) delineated as a basis for ecosystem-based management. Ecological components within a LOMA, such as identified Ecologically and Biologically Significant Areas, Ecologically Significant Species, and Ecologically Significant Community Properties will inform selection of the candidate sites, as will the proximity to Environment Canada and Parks Canada Agency areas of interest. Candidate sites are then prioritized according to their ecological importance and the level of threat from human activities or influences. Feasibility/practicality considerations are also taken into account.

One or more conservation objectives are identified for each site relating to the reasons for its candidacy, to anchor development of the designation regulation. Prohibitions within each OAMPA depend on the area's conservation objectives. A general prohibition (with associated specific prohibitions, in some cases) specifies environmental impacts that must be avoided. Sustainable economic opportunities compatible with these conservation objectives are permitted within the OAMPA, or within specific zones.

Parks Canada Agency criteria

The *Canada National Marine Conservation Areas Act* (available at <http://laws.justice.gc.ca/en/showtdm/cs/C-7.3>) mandates that national marine conservation areas (NMCAs) are established for the purpose of protecting and conserving representative marine areas for the

benefit, education and enjoyment of the people of Canada and the world. Akin to its long practice in expanding the country's system of national parks on land, Parks Canada Agency has divided Canada's ocean and Great Lakes waters into 29 marine regions. Each region is distinct from its neighboring marine regions on the basis of significant differences in oceanographic and biological characteristics. At least one representative NMCA will be established within each marine region.

Accordingly, the manner of determining where NMCAs should be established begins with a process of identifying a list of candidate sites within a marine region that are representative of the natural (biotic and abiotic) and marine cultural diversity of the region in question. Criteria such as uniqueness, rarity, and species-at-risk status are considered in this analysis. However, they are secondary, mindful in part that the complementary marine protected areas programs of Fisheries and Oceans Canada and Environment Canada are more tailored to respond to those area-selection criteria.

Following the identification of such potential NMCA sites within a marine region, a site-selection process follows. Criteria such as the status of current and potential human activities within the candidate sites, and their proximity to other existing or proposed marine or coastal protected areas (with both ecological network and administrative considerations in mind) are among those used. The legislation precludes exploration for and development of non-renewable resources in NMCAs, so the nature and extent of legal third-party rights must be determined. Other criteria of high importance in identifying potential sites for NMCA establishment under the *Canada National Marine Conservation Areas Act* include their potential to provide opportunities for visitor enjoyment and education, and to help foster sustainable coastal communities. Generally speaking, candidate sites that have scored highest in the area-identification stage have emerged at or near the top of this subsequent site-selection step. It is those sites that then advance to the step of assessing the feasibility of NMCA establishment.

Environment Canada criteria

The *Canada Wildlife Act* provides for the establishment and management of National and Marine Wildlife Areas, to ensure the conservation and protection of key breeding, feeding, migration and over-wintering sites for birds, species at risk, and other wildlife of national importance. As well, coastal Migratory Bird Sanctuaries established under the *Migratory Birds Convention Act* will also contribute to the national network of marine protected areas.

The first step is to identify key marine areas for migratory birds and species at risk that support appreciable populations (greater than or equal to 1% of the species' Canadian population) or important species assemblages, for any portion of the year. Rare or

unusual wildlife habitat may also be considered as key sites. These include areas identified as critical habitat for a migratory bird or other species listed under the federal *Species at Risk Act*; areas having special value for maintaining the genetic and ecological diversity of a region; and/or areas possessing high research potential for restoration or enhancement.

Sites may be proposed by Environment Canada employees, conservation partners, Aboriginal people, provincial and territorial governments, non-government organizations, and the public. The proposed sites must meet one or more of the above-mentioned criteria.


Preferred candidate protected areas are then selected from key marine sites based on the sites' biological and ecological importance and feasibility considerations:

- Are the characteristics of that key site particularly valuable in meeting one of the criteria listed above?
- Does the site contribute to the protection of landscape/seascape features, plants and animals in ecoregions underrepresented by existing protected areas?
- Does it complement or enhance other sites?
- What, if any, are the uses, threats, local/regional support, potential to cooperatively manage the area, implications of land claims and treaties, etc., associated with the site?

Current status

Fisheries and Oceans Canada currently has seven *Oceans Act* MPAs designated and another four proposed areas are in the designation process. The designated sites are described at www.dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/mpa-zpm/index-eng.htm.

Parks Canada Agency has designated three NMCAs so far and has another four proposed areas in progress. Information on the designated NMCAs is available at www.pc.gc.ca/progs/amnc-nmca/index_e.asp.

Environment Canada currently has 64 protected areas with a significant marine component (encompassing 1.6 million hectares). Three new National Wildlife Areas protecting marine species are currently being designated in Nunavut covering approximately 450,000 ha on the east coast of Baffin Island. Designation is also underway for Environment Canada's first Marine Wildlife Area in the Scott Islands region off the north coast of Vancouver Island. Information on Environment Canada's protected areas is at www.cws-scf.ec.gc.ca/habitat/default.asp?lang=En&n=7F335AFF-1. 

For more information:

Mary Rothfels (on behalf of the Federal Marine Protected Areas Strategy Working Group), Acting Manager, Marine Protected Areas Program, Fisheries and Oceans Canada, Ottawa, Canada. E-mail: Mary.Rothfels@dfo-mpo.gc.ca

MPA News

Editor-in-Chief

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Direct correspondence to:
MPA News, School of Marine
Affairs, University of
Washington, 3707 Brooklyn
Ave. NE, Seattle, WA 98105,
USA. Tel: +1 425 788 8185;
Fax: +1 206 543 1417; E-mail:
mpanews@u.washington.edu

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MPA Perspective Protecting the Marine Resources of Northwest Ecuador with Local Communities: Creation of the First Marine Reserve in Mainland Ecuador

By Soledad Luna, Patricia Zurita, Tannya Lozada, Manfred Altamirano, and Luis Suárez

The Galera-San Francisco area on the northern coast of Ecuador is part of both the Chocó-Darién-Tumbes-Magdalena hotspot and the Eastern Tropical Pacific Seascape. This area features an outstanding variety of coastal and marine habitats including mangroves, estuaries, rocky reefs, and coral patches, with high levels of biodiversity. However, these ecosystems are threatened by overfishing, habitat destruction, deforestation, pollution, and uncontrolled coastal development. Local residents are strongly dependent on natural resources for their subsistence, and artisanal fishing is one of their main activities. Unsustainable fishing practices — including high bycatch rates and extensive trawling activity by industrial vessels from elsewhere in Ecuador — have resulted in the collapse of marine resources, jeopardizing the biodiversity of the area and the well-being of the local community.

To address this, Ecuador's Ministry of the Environment and the Ecuadorian NGO Nazca — with the support of Conservation International (CI), The Nature Conservancy (TNC) and EcoFondo — began a complex but successful process to designate the country's first MPA off its mainland coast, the Galera-San Francisco Marine Reserve. (The offshore Galápagos Islands already had a marine reserve.)

Marine resources in Ecuador are managed by multiple institutions and legal systems. Thus, the creation of an MPA requires a participatory process with a wide variety of stakeholders. In the case of Galera-San Francisco, the process led by the Ministry of the Environment included multiple government institutions (the Ministry of Tourism, the Ministry of Defense, the Fisheries Under-secretariat) and local communities, with the support of national and international NGOs. The objective: to reach consensus on designating a co-managed protected area that would benefit local people and conserve biodiversity.

For more information:

Soledad Luna, Director, Nazca Institute for Marine Research, Quito, Ecuador. E-mail: soledadl@gmx.de

Patricia Zurita, Senior Director, Conservation Steward Program, Conservation International, Arlington, Virginia, U.S. E-mail: p.zurita@conservation.org

Tannya Lozada, Undersecretary of Natural Capital, Ministry of the Environment, Quito, Ecuador. E-mail: tlozada@ambiente.gov.ec


Manfred Altamirano, Undersecretary of Coastal Environmental Management, Ministry of the Environment, Quito, Ecuador. E-mail: maltamirano@ambiente.gov.ec

Luis Suárez, Executive Director, Conservation International Ecuador, Quito, Ecuador. E-mail: l.suarez@conservation.org

test the concept and provide benefits to local communities during the political and technical process of MPA planning. Under the proposed agreement, local fishermen will receive gasoline payments to support their assistance with the zoning process, and funds to help organize their fishing associations. These legal associations are necessary in order for the Galera-San Francisco fishing community to access benefits that the government provides to fishing communities.

While the conservation agreement was negotiated, Nazca and the Ministry of the Environment organized a multi-institutional management committee for the MPA. The management committee comprises all the institutions involved in planning the MPA, and is responsible for the development and implementation of the site's management plan. A longer-term conservation agreement will be negotiated to implement the conservation activities proposed in the area.

From this open and participatory process, the 546-km² Galera-San Francisco Marine Reserve was established on 31 October 2008. Final zoning and fishing regulations are still being negotiated. Access by trawlers from outside the area will be regulated throughout the MPA, and certain zones will be off-limits to local fishermen, too. The restrictions on local fishermen and the management activities to be included in the management plan are the reasons for a longer-term conservation agreement, in support of which CI is now seeking funds for an endowment. The endowment is intended to complement government funding to ensure the provision of MPA-related benefits to local communities over time. CI is committing five years of financial support to complement government funding for the agreement, allowing time for the endowment to be established.

The strong leadership of the Ministry of the Environment and the technical and financial support of local institutions like Nazca and international organizations (CI, TNC, The Lighthouse Foundation and the Jeffrey Cook Trust) have made the conservation of Galera-San Francisco a reality. The vision of the Ministry of the Environment has established a model that can be replicated in building an MPA system in Ecuador. The combination of political leadership and transparent, participatory processes with mechanisms that provide tangible benefits to local communities has provided an effective mix for protecting rich marine biodiversity in this South American nation. 

Conservation agreements

The local communities supported the idea of the MPA and were willing to engage in its management. However, they wanted to see benefits from their involvement. Nazca and CI proposed using conservation agreements to maintain the local communities' support.

Under conservation agreements in general, local resource owners agree to protect natural ecosystems in exchange for a steady stream of structured compensation from conservationists or other investors. Financial mechanisms such as endowments and trusts allow for the long-term provision of the compensation, and rigorous monitoring ensures that both conservation and socio-economic results are being achieved. CI has tested conservation agreements in 17 countries around the world and was interested in using the tool for the creation of MPAs. [Editor's note: For a description of such agreements, see "A Role for Marine Conservation Agreements" in our October 2008 issue (*MPA News* 10:4).]

In the case of Galera-San Francisco, Nazca and CI instituted an introductory conservation agreement to