

Use of Volunteers in MPA Management: Opportunities, Challenges, and Advice

Budgetary shortfalls are a chronic challenge for MPA managers worldwide. It is rare for a MPA to have the funds to pay for all the equipment, material support, and personnel it needs to fulfill its purpose. To meet management goals within financial constraints, the use of volunteers can be invaluable. Many MPAs have set up formal programs to recruit, train, and retain volunteers for a wide array of projects — resource monitoring, enforcement, facility maintenance, and more.

But the management of volunteers can also present challenges, including the time required to train and oversee these personnel, which can be substantial in some cases. This month, *MPA News* examines how several MPA practitioners have set up volunteer programs in diverse sites, and what they have learned from their experiences.

Establishing volunteer programs for a national MPA system

When you visit the website for the Florida Keys National Marine Sanctuary in the USA (<http://www.fknms.nos.noaa.gov>), the homepage offers a link for “Volunteer Opportunities”. Click on that link and you are provided a list of initiatives with needs for volunteer assistance: cleaning reefs, monitoring coral bleaching, testing water quality, restoring conch populations, and more. Information on how to contact each initiative and get involved is readily available.

Mary Enstrom is largely responsible for this. In 1992, she was hired by the sanctuary and by The Nature Conservancy, a NGO, to design and implement a volunteer program for the 9600-km² Florida Keys site. This MPA became the first within the National Marine Sanctuary Program (NMSP) to include a volunteer action plan as a chapter within its management plan. Based on her success in the Florida Keys, Enstrom contracted with NMSP to help develop volunteer management programs for all 13 national marine sanctuaries across the nation, a task completed in 2005. Tools developed for the sanctuaries include a handbook for volunteers, safety manuals, tip sheets for supervisors, and inventories of existing and recommended volunteer projects. Information on each volunteer is entered into

a national database for tracking purposes, and staffers at each site have been trained in volunteer management.

Enstrom says the benefits of recruiting volunteers — and hiring staff to supervise them — are many. “A manager is always able to achieve more once an established volunteer program is up and running,” she says. “Furthermore, operating a volunteer program reduces the cost of monitoring a MPA and reflects to the public that the MPA cares about them and their needs.” It can also lead to funding opportunities, she says. “Governments love to see community involvement and will thus be more likely to provide funding. In addition, citizens who are actively engaged with an organization or government agency will often give more in donations to that group than will those who are not involved.”

Enstrom acknowledges there can be costs as well to managing volunteers, including the time necessary for training and supervision. It is not unusual, she says, for a manager who is already overextended with responsibilities to say that the trouble of adding volunteers would outweigh the benefits. “When a manager says this, I have two responses,” she says. “One, you should not start a volunteer program if you don’t fully support the idea of involving the community in protecting the MPA. Public involvement is a reality for the future of our MPAs. Two, the manager needs to understand how community involvement could help the MPA. In this time of budget constraints, the public can be your best advocates for an adequate budget if they see the value of the site.”

For MPA managers who are considering establishing a volunteer program for their sites, Enstrom advises them to embrace the concept. “Convene a meeting of all agencies and NGOs in your community to discuss the reality of starting a new volunteer program or adding to an existing one,” she says. There are experts out there, she says, to assist in the development. “There are many volunteer program consultants in the world,” she says. “Paying someone to facilitate that meeting for the manager would be worth the cost: an outside consultant is not invested in any of the current programs.” She adds that consultants can also be asked to write an action plan for implementing a MPA volunteer program.

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Chumbe Island, Zanzibar: Attracting volunteers from nearby and worldwide

At Chumbe Island Coral Park, located 13 km southwest of Zanzibar, Tanzania, the help of volunteers has become an essential part of operations. Run on a tight budget by a small, private not-for-profit company, the park works to minimize costs while pursuing the goal of sustainable development through ecotourism-supported conservation and education. An average of 10-20 volunteers per year — from Tanzania and far-away nations — have served in an array of activities, geared to take advantage of the strengths of each individual.

The volunteer jobs have ranged from specialized assignments of a couple days in length, to ecological baseline surveys, nature trail development and maintenance, staff training, production of education materials, and management support for several months or even years. Management has sometimes coordinated with international volunteer agencies (e.g., Germany's Senior Expert Service, the UK's British Executive Service Overseas) to recruit experts on specific matters like solar voltaics, boatbuilding, graywater filtration, and rat eradication. But many of the volunteer arrangements are fortuitous, driven by the initiative and flexibility of volunteers themselves. An American woman, Molly, visited Chumbe for a day trip in 2004 and ended up volunteering as an administrative assistant for eight months. In 1999, when the park had an urgent need for temporary island managers, the project manager conducted a search for suitable candidates among tourists in Zanzibar, finding an enthusiastic Canadian couple who seized the opportunity and moved to Chumbe within days. They spent half a year there.

"Volunteers are very enthusiastic and usually have a lot of initiative," says Helen Peeks, project manager for the park. "Many of the volunteers have decided that they want to work in the area of conservation or ecotourism in Zanzibar and contact us directly, using information from the internet." For housing arrangements, the company can accommodate volunteers in its office building in Zanzibar town (off the island) and in the manager's house on Chumbe; some also reside with friends.

Notably, Chumbe management does not advertise the need for volunteers on its website, <http://www.chumbeisland.com>. Says Sibylle Riedmiller, project director, "At this point, we don't need to advertise volunteer jobs. We're getting more applications than we can accommodate all the time."

On the challenges of supervising these volunteers, Peeks says that although briefing and supervision of new volunteers can be time-consuming, it is the longer-term volunteers who require more work by administrators. The reason: work permits. "When we have international volunteers for less than three months, they come on a tourist visa, which minimizes administration for us," she says. "However, volunteers who stay for longer

have a lengthy immigration process that I have to organize and process. Recently I had a Ugandan intern for whom I had to get separate permission from the Commission of Tourism before I could apply for his immigration status of student. After his internship we offered him a job, and the resulting process of changing his immigration status took nearly a month of form-filling and visits to immigration — very expensive." In some cases, volunteers badly needed by Chumbe have been turned down by immigration officials for their work permits.

Although most volunteers arrive at Chumbe ready to get to work, Peeks says some come with misunderstandings over job descriptions or priorities. "This usually happens with international volunteers rather than national," she says. The remote location leads some internationals to expect a Robinson Crusoe-like paradise — perhaps why some of them first dream of volunteering there — but find only part of this true. Peeks adds, "There can also be challenges caused by cultural differences, such as appropriate dresswear in a Muslim society or communication problems because of language and attitude. These can be overcome by better preparation from the volunteer and guidance from the company."

A "volunteer mentality" involves a person being flexible and open to living in a local manner rather than an expatriate lifestyle, says Peeks. "Supervision really depends on the volunteers. If they have had African experience before and are clear with their objectives, they are usually very self-reliant."

The Seaflower MPA, Colombia: Using volunteers to build community support

Colombia's San Andrés Archipelago in the southwest Caribbean is a UNESCO biosphere reserve. Within it is the multiple-use Seaflower MPA, which covers 65,000 km². Overseen by CORALINA, a regional Colombian government agency that manages natural resources and sustainable development of the archipelago, the MPA was mapped and zoned through a four-year, cooperative process involving local stakeholder groups (*MPA News* 6:10).

Marion Howard is former coordinator of the MPA project of CORALINA and now a MPA advisor to the agency. "Stakeholders share responsibility for managing the MPA with CORALINA, so volunteers are involved in many ways," says Howard. "Our volunteer programs can be loosely categorized as formal and informal. The formal programs are quite structured, with defined relationships, substantial training, and agreements signed between volunteers and CORALINA to formalize responsibilities on both sides." One of the most important formal programs, she says, is the MPA Stakeholder Advisory Committee (SAC), made up of invited volunteers from primary user groups: artisanal fishers, professional divers, other water sports, marinas, the tourist sector, and traditional users (the indigenous

community). The SAC is consulted on all aspects of MPA management. Other formal programs include volunteer inspectors, who conduct surveillance of the MPA, and a mooring buoy program that involves siting, installation, and maintenance of buoys by volunteers.

Community-based monitoring in the MPA, including monitoring of coral health, fish, sea turtles, and beaches, is a less-formal volunteer program, says Howard.

“Monitoring programs are open to everyone (CORALINA finances dive courses for interested people who cannot afford training). More people are trained, participation is flexible, and networks are less structured,” she says. “Volunteers also support research — working with scientists, for example, on baseline ecological studies, household surveys, and identification of spawning aggregation sites. Because poverty is widespread and the archipelago has very high unemployment (over 50%), knowledgeable stakeholders like artisanal fishers are also hired to help with research when funding is available.” The most informal volunteer programs, Howard says, include events like beach clean-ups and information campaigns and are open to the entire community.

Nearly all CORALINA volunteers come from the archipelago. The exceptions are graduate students who participate in ongoing research projects, divers from the mainland who engage in annual marine clean-ups, and a number of international marine scientists and MPA experts who serve on an International Advisory Board (*MPA News* 5:2). “Since all of our work is participatory, CORALINA maintains strong ongoing relationships with local NGOs, the private sector, schools, churches, and neighborhoods — all of which provide volunteers,” says Howard.

The volunteer-based linkages between the Seaflower MPA and the community provide great benefits for management, says Elizabeth Taylor, CORALINA general director. “The SAC is essential for effective management,” she says. “These volunteers keep in close contact with other users and are the strongest link between CORALINA and the people who work in the MPA. They share information openly with management and take information back to the community. The Seaflower is a very large MPA, so managers and staff can’t stay informed about what is going on there on a day-to-day basis without maintaining close ties to users.”

Involving the community in a wide array of MPA activities also generates overall support for the MPA, says Taylor. “As volunteers learn more about marine conservation and management, they in turn become informal educators, raising awareness throughout the community,” she says. “In addition, the volunteer programs promote transparency in MPA management and provide a mechanism for the community to share responsibility for MPA effectiveness with CORALINA.”

Challenges for the volunteer programs include the region’s poverty — which makes it difficult for people

to commit themselves to volunteer work — and the fact that, historically, volunteerism has not been part of the local culture. Howard says, “It was particularly unheard of to volunteer with government. Government was not trusted and did not communicate with the public, and corruption was widespread, so the custom was to keep out of the way of authorities.”

These and other factors combine to mean that the same people tend to get involved in community affairs, including being the most committed volunteers, says Howard. “These people can get spread too thin. Reaching new people and getting them involved in the MPA on an ongoing basis requires the development of a new environmental consciousness through constant outreach and communication with stakeholders,” she says.

Edmonds Underwater Park, USA: Management by volunteers

For nearly 30 years, Bruce Higgins has coordinated the volunteer program at tiny Edmonds Underwater Park in Edmonds, Washington, USA. Overseeing dozens of volunteers per year at an annual program-wide average of 1500 hours of volunteer time, Higgins has not been paid a dollar. He is a volunteer himself.

The municipally owned Edmonds Underwater Park — located a few miles north of Seattle and measuring just 0.1 km² in area — attracts 20,000 dive visitors per year with its assortment of man-made reef structures (e.g., sunken vessels, a dry dock, milk crates, piles of rocks) and the marine life these items nurture, including some of the largest lingcod in Puget Sound and more than 100 lingcod nests. Viewed by some as an unnatural oddity for its abundance of infrastructure — including a three-mile system of rope trails and markers to aid diver navigation in the sometimes murky water — the no-take park has nonetheless gained a measure of international recognition for the size and abundance of some fish species within its boundaries. Much of the recreational and ecological features of the park owe to the work of volunteers since 1977, when Higgins took charge of coordinating volunteer efforts, including placement of the sunken structures.

“The protected status for the park took effect around 1970, and I first started diving it in 1974,” says Higgins. “The no-harvest protection already provided more diversity compared to other Puget Sound sites that did not have such protection. My involvement came out of the need to manage conflicting user groups in the park — boaters vs. divers. I coordinated the placement of buoys to keep boaters away from divers and to better define the unique protected area. Projects just grew from there.”

Higgins does not have a formal title with the City of Edmonds, which owns and manages the park. The city treats him as a park user who happens to share the city’s

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value system for the area — namely that the site should be managed for recreational and biological purposes. The city oversees management of facilities on-site including restrooms, a shower station, parking lot, and signage, and provides public safety services (police, first aid, etc.). The volunteers, coordinated by Higgins, maintain the existing underwater infrastructure, lay new “enhancement” structures (with city permission), inspect wear on the marker buoy system, and carry out various other activities as needed. “Each year we try to install one diver-scaled feature, like a wooden hull that was placed in 1999,” he says. “Since this is a [recreational] park as well as a protected area, we blend our projects to support marine life and diver interest.”

The level of volunteer support has varied over time, says Higgins, but can be grouped into two camps. “There are about 10 individuals who commit to a schedule that involves monthly or more frequent dives during the year, and they provide much of the horsepower to get things done. The second group of individuals, numbering about 50 a year, help less frequently and typically just show up a couple times,” he says. Higgins hosts work dives each Saturday, no matter the weather. Over the course of a year, the average is about 2.5 divers per work dive, with 156 dives per year.

The consistent Saturday schedule aids in attracting a steady supply of volunteers, he says: divers know they can show up on any Saturday and volunteer. He adds that a simple set of priorities established by the park’s

volunteers — i.e., safety, security, maintenance, and improvement — serves to attract like-minded individuals. In addition, rewards for participation kick in after a few dives when volunteers see the response to their efforts, with marine life moving in on newly placed features and users commenting on how the volunteers’ effort is appreciated.

Over the long term, a danger of volunteerism is burnout — when a volunteer tires from devoting so much of his or her energy and time to a cause with no financial payback. Higgins says this has not been a problem for himself. “Avoiding burnout has been very easy,” he says. “The needs of the park have evolved over time, and so our chores in fulfilling our priorities have changed.” There are new projects (including a recent initiative to combat an invasive tunicate species in the park), constant variation in weather and tides, and new volunteers with different skill sets, he says.

In the three decades since assuming his position, and showing up 52 weekends per year, Higgins has become an institution at the park. What will happen when he is no longer able to do what he does? “My hope is that someone with a similar attitude will elect to invest and connect with the City of Edmonds,” he says. No one is in place yet to take that role. “The decision to be a partner is not something that occurs overnight,” he says. “The pattern and value system represented by the priority list will exist, and if someone elects to take it on, it will be ‘their’ turn.” 

Dependence on volunteer, low-wage labor can have downsides

Over-reliance on the use of unpaid or underpaid labor in natural resource management — particularly full-time volunteers and interns — can be unfair to these workers, according to Darroch Whitaker, a postdoctoral fellow in biology at Acadia University, Canada. In a paper published in the journal *Conservation Biology* in 2003, Whitaker argued that providing less than a minimum wage to full-time workers causes undue personal hardship to these personnel, and excludes potentially valuable individuals from lower economic classes who cannot afford to work for low, or no, wages.

“The use of volunteers, which can be a great thing if done with due consideration, can become problematic when reliance on them becomes engrained in the professional culture,” Whitaker told *MPA News*. “We conservationists often complain about being underfunded, and of course this is quite often true, but we become our own worst enemies when we

grow complacent and stop asking for or expecting legitimate wages for our employees. In doing so, we fail to convey the true cost of conservation to policy makers and governments, and may exclude people from less privileged economic backgrounds from our profession. Both of these factors will impede conservation in the long term.”

Whitaker’s article in *Conservation Biology* (“The Use of Full-Time Volunteers and Interns by Natural-Resource Professionals”, Vol. 17, No. 1, pp. 330-333) is available online in PDF format at http://www.earthscape.org/r2/ES14744/scb17-1_whd01/scb17-1_whd01.pdf.

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MPA Perspective Managing Recreational Fishing in MPAs through Vertical Zoning: The Importance of Understanding Benthic-Pelagic Linkages

By Charles Wahle, Rikki Grober-Dunsmore, and Lisa Wooninck

Policy-makers and stakeholders increasingly demand that new MPAs have clearly articulated conservation objectives and that user restrictions be demonstrably linked to significant environmental threats. These concerns are often reflected in disputes over whether a proposed MPA must be a no-take reserve to be truly effective, or whether recreational fishing for pelagic species could be permitted without compromising the integrity of the underlying benthic communities — often the primary target of MPA protections.

In such situations, managing recreational fishing through “vertical zoning” that restricts fishing to the MPA’s upper waters might represent a practical way to facilitate existing uses consistent with the site’s primary conservation goals. Clearly, the advisability of this management strategy depends on the scope of the MPA’s conservation objectives (i.e., benthic communities vs. the entire water column), the degree to which its benthic and pelagic communities are linked ecologically and vulnerable to fishing, and the MPA’s ability to monitor and enforce complex fishing restrictions.

To date, the answer to this timely question has been in the eye of the beholder. Without a more transparent scientific basis for evaluating potential threats posed by common activities such as recreational fishing, MPAs will continue to spark opposition from user groups that question their underlying ecological rationale and equitability. In November 2005, the US National Marine Protected Areas Center convened 30 fisheries scientists, marine ecologists, MPA practitioners, and key recreational fishing leaders in Monterey, California, to address this increasingly critical issue. The purpose of this diverse gathering was to synthesize what is currently known about benthic-pelagic (BP) linkages in US marine ecosystems, to identify significant gaps in our scientific understanding of BP linkages, and to lay the preliminary groundwork for practical guidelines and best practices for managing recreational fishing in MPAs.

Benthic-Pelagic Linkages in Marine Ecosystems – General Trends

The workshop participants synthesized current knowledge about the strength, direction and complexity of benthic-pelagic linkages among different taxa and ecosystems. While local BP linkages will differ, three important general trends emerged from the group:

- First, BP linkages can generally be expected to be stronger and more direct in shallow water habitats (i.e., seafloors 50-100m deep); among coastal pelagic fish species (e.g. jacks, mackerel, bluefish); in predictable spawning

aggregations that feed heavily on the benthos; in upwelling zones and other areas of localized biophysical coupling; and in habitats with pronounced three-dimensional relief (e.g., coral reefs, shallow sea mounts, kelp beds).

- Second, BP linkages may be generally weaker and more indirect in deeper habitats where pelagic predators rarely encounter benthic prey and among oceanic pelagic species (e.g., tuna, sharks, marlin).


- Third, there are many circumstances in which ecologically important interactions are likely to be complex, unpredictable, and/or poorly understood. Local ecological factors contributing to complex BP linkages include multiple interactions within and among trophic levels (e.g., with mid-water forage or bait fish); complex behaviors and life histories among key local species; the ephemeral appearance of highly mobile predators; and/or the size of pelagic predator populations.

Thus, while the extreme ends of the BP linkages spectrum are relatively straightforward and intuitive, the vast ecological center is considerably less clear for designers of future MPAs.

Implications of Benthic-Pelagic Linkages for MPA Design

Based on these general ecological trends in the potential occurrence and importance of BP linkages, the workshop participants agreed on some preliminary rules of thumb to help guide MPA planners when evaluating proposals to allow pelagic recreational fishing in an MPA. Vertical zoning of fishing might be appropriate to consider in areas with weak and indirect BP linkages, where pelagic fishing may not impact protected benthic communities. In contrast, vertical zoning might not be an appropriate management design in areas with strong and direct BP linkages, where pelagic fish prey heavily upon benthic or mid-water species. Finally, for the many areas in which the nature, direction, strength, and predictability of the BP linkages are poorly understood, a more precautionary and adaptive approach to MPA design might be most appropriate to adopt, pending additional scientific information about the site.

Next Steps

By identifying the general circumstances in which we may know enough to evaluate the advisability of using vertical zoning of fishing to design and manage benthic-focused MPAs, these scientists, fishermen and managers overcame significant differences in experience and perspective on an important and contentious marine policy issue. Ongoing follow-up actions include developing a more detailed scientific publication, organizing a scientific working group to address the emerging research needs on BP linkages, and working with the recreational fishing community to develop best practices for low impact pelagic fishing by, and for, fishermen. Ultimately, we hope that the workshop’s results, and the subsequent efforts that it has already spawned, will help inform a new direction of science-based collaboration in MPA policy deliberations in the United States and abroad. 

Editor’s note:

The authors of this essay work with the National Marine Protected Areas Center of the USA, established in 2000 to provide science, information, and tools for an effective national system of MPAs (<http://www.mpa.gov>).

Letters to the Editor

Ballantine's view on New Zealand MPA policy

Dear *MPA News*:

As reported in the February 2006 issue of *MPA News* (7:7), the New Zealand government has issued a *Marine Protected Areas Policy and Implementation Plan*, available at http://www.biodiversity.govt.nz/seas/biodiversity/protected/mpa_policy.html. My views on it are below:

(A) The bad side

1. The document's Foreword states, "The aim is to have 10% of New Zealand's marine environment in some form of protection by 2010." This suggests that 90% of NZ's marine environment will have no form of protection by 2010 — ignoring the fact that all of NZ's seas have *some* form of protection *now* (e.g., no whaling, as well as a raft of fisheries controls).

2. Despite being based on the need for biodiversity protection, the policy still gives the Ministry of Fisheries a more-or-less equal partnership with the Department of Conservation, and generally assumes that only one or two examples of each habitat or ecosystem will be protected until there is evidence of actual or potential damage.

3. Lengthy delays could easily occur while classification of habitats/ecosystems/bioregions, etc. is agreed *and* the definitions of the protection standards are decided. Neither of these things will achieve total agreement or permanency — they are always going to be opinions.

4. The policy insists on a spectrum of levels of protection while ignoring the need to establish a sustainable system of highly protected marine reserves. Such reserves are the only practical way of ensuring the protection of marine biodiversity — much of which, as the policy states, has not even been described.

(B) The good side

1. The MPA policy is a step forward if we compare it to what we had before, which was, effectively, no policy.

2. The policy, at last, puts marine reserves on the official radar screen. Arguments in favor of more and better marine reserves now have some official standing.

3. It provides some noteworthy guidance on marine reserves. A summarizing brochure released with the policy, for example, includes the statement, "The government intends that at least one example of each habitat or ecosystem included in the MPA network will be protected by a marine reserve. Marine reserves will also be used to protect outstanding and rare sites."

The policy itself includes the statement, "Marine reserves will be used under the MPA Policy to contribute to the network via:

a) Selection as the most appropriate tool(s) in the MPA planning process; and

b) Selection to meet the government decision that marine reserves will be used to protect:

- (i) representative examples of the full range of marine communities and ecosystems that are common or widespread;
- (ii) outstanding, rare, distinctive, or internationally or nationally important marine communities or ecosystems; and
- (iii) natural features that are part of the biological and physical processes of the marine communities and ecosystems referred to in (i) and (ii), in particular those natural features that are outstanding, rare, unique, beautiful, or important."

The above will probably be used to create a representative system of marine reserves, and could be used to develop a sustainable one.

Bill Ballantine

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Ethical argument for MPAs

Dear *MPA News*:

I strongly support Bill Ballantine's statement of the rationale and principles behind MPAs ("A Marine Reserve Manifesto", *MPA News* 7:7). The oceans are experiencing a crisis driven by human impacts. Fishing, pollution, habitat damage, and the translocation of organisms have caused huge and increasing damage. Are these impacts wise or ethically right?

To quote the *National Strategy for the Conservation of Australia's Biological Diversity 1996* (<http://www.deh.gov.au/biodiversity/publications/strategy/>): "There is in the community a view that the conservation of biological diversity also has an ethical basis. We share the earth with many other life forms which warrant our respect, whether or not they are of benefit to us. Earth belongs to the future as well as the present; no single species or generation can claim it as its own."

It is time that MPA experts and advocates begin using an ethical argument to support the creation of reserves: that we need to set aside large areas of the oceans simply to provide peaceful coexistence with ocean inhabitants. It is one thing to kill a fish and eat it. It is another to destroy ecosystems and their inhabitants. We share this planet; we don't own it.

Jon Nevill

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Notes & News

New Zealand proposes large no-trawl zone in EEZ

Deep-sea fishing industry leaders and the New Zealand government have proposed that a total of 1.2 million square kilometers of the nation's Exclusive Economic Zone (EEZ) be placed off-limits to bottom trawling and dredging. The network of closures would amount to nearly one-third of the nation's EEZ. NZ Fisheries Minister Jim Anderton anticipates having regulations in place to implement the proposed closures by 1 October 2006, following a period of public comment.

The proposed closures would extend from subantarctic waters south of Campbell Island to the subtropical Kermadec region, comprising a range of depths and habitats, including seamounts. "These areas have had little or no trawling or dredging in the past, so we expect their ecosystems and habitats are relatively intact," said Anderton in an official announcement, delivered to the first meeting of the South Pacific Regional Fisheries Management Organization (<http://www.progressive.org.nz/modules.php?name=News&file=article&sid=2202>).

WWF New Zealand, a conservation NGO, called the proposal "a bold initiative" that represented "long-range thinking about protection of seabed biodiversity", but added the organization would like to see inclusion of currently trawled areas in the closures to allow for recovery. Greenpeace, another NGO, expressed disappointment with the proposal, saying it included areas that were too deep to bottom-trawl anyway and fell short of Greenpeace's goal of an outright ban on use of such gear.

The closures would be the largest single marine protection measure ever proposed within a nation's EEZ, according to the NZ government. They would indeed be larger than the 950,000-km² trawl closure designated in August 2005 for the Aleutian Islands of Alaska, USA ("Huge Aleutian MPA approved", *MPA News* 7:3). They would be smaller than the 1.6 million-km² network of trawl closures designated in 2005 for the Mediterranean and Black Seas, which primarily comprises waters outside national jurisdictions ("Bottom trawling prohibited below 1000 meters in Mediterranean", *MPA News* 6:9).

Laffoley is named Vice Chair Marine of World Commission on Protected Areas

Dan Laffoley of English Nature, the UK's statutory advisory body for nature conservation in England, has been named Vice Chair Marine of the IUCN World Commission on Protected Areas (WCPA), replacing Bud Ehler in the post. For the past decade, Laffoley has headed the marine conservation program for English Nature, and has held organizational roles in major conservation initiatives with marine themes, including the World Parks Congress in 2003 and the First

International Marine Protected Areas Congress (IMPAC1), held in October 2005 in Geelong, Australia.

In a statement upon taking the Vice Chair position, Laffoley said, "We will need to continue to strengthen, globally and regionally, our efforts on putting in place individual MPAs as the backbone of our work. As IMPAC1 recently demonstrated, though, we need to move from sites to developing networks with an increased sense of urgency, and from poor underlying data to improved inventories that help identify priorities for future work and funding." He also indicated his desire to improve public education on MPAs, involve young people more effectively with MPA-related initiatives, encourage the use of MPAs as benchmarks of sustainable development, and deepen WCPA's engagement in discussions of marine climate change adaptation and mitigation. He anticipates developing a plan of action for the WCPA Marine theme in the coming year. Laffoley's statement is available on the WCPA Marine website at <http://congress.iucn.org/themes/wcpa/biome/marine/programme.htm>.

New regional network for Dutch Caribbean protected areas

Practitioners and conservationists have created a regional network of marine and terrestrial protected areas on the Dutch Caribbean islands of Aruba, Bonaire, Curaçao, Saba, St. Eustatius, and St. Maarten, with the goal of sharing a combined pool of knowledge and expertise on the protection of these areas. An "umbrella" NGO, the Dutch Caribbean Nature Alliance, has been formed to build capacity for the new network through programs including fundraising, staff training, and strategic planning. The DCNA website (<http://www.DCNAnature.org>) will make information gained from the network available to colleagues worldwide.

Report: Mapping human activities for MPA planning

A new report describes methods for collecting spatial data on human use patterns to inform local and regional MPA-planning processes. Produced by the (US) National Marine Protected Areas Center, the report summarizes the results of a workshop on this topic held in late 2005 in California. Workshop participants, including social scientists, geographers, and GIS specialists, discussed and identified data associated with human activities in the marine environment, and assessed the applicability of GIS for storing and analyzing these data. Ultimately, the findings of the workshop are intended to aid the planning of effective and equitable MPA sites and networks, and complement efforts to conduct ecosystem-based management. The report *Mapping Human Activity in the Marine Environment: GIS Tools and Participatory Methods* is available in PDF format at http://www.mpa.gov/information_tools/pdf/hupi-workshopreport-fdraft.pdf.

Report: Protection of reefs, mangroves is bargain

Coastal coral reefs and mangroves play an important role in shoreline protection during extreme weather events, and the cost of protecting such ecosystems — with MPAs or other management tools — amounts to a fraction of their estimated global value, according to a new report from the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC). The report *In the Front Line: Shoreline Protection and other Ecosystem Services from Mangroves and Coral Reefs* estimates the average management cost of a marine protected area to be US\$775/km² — or less than 0.2% of the estimated global value of a square kilometer of coral reef or mangrove. (The estimated ecosystem values are based on the various services that reefs and mangroves provide, including shoreline protection, fisheries, tourism, and recreation.) The report discusses management of these ecosystems and the pros and cons of rehabilitating or restoring them following degradation. It is available online at http://sea.unep-wcmc.org/resources/publications/UNEP_WCMC_bio_series/24.cfm.

Report available from European MPA conference

A conference on the use and implementation of MPAs for fisheries management and biodiversity conservation, held in November 2005 at the European Parliament, has produced a report of the presentations and discussions that occurred. The conference was co-organized by IUCN and the European Bureau for Conservation & Development, and involved representatives from EU and non-EU state governments, the UN Food and Agriculture Organization, fishing industry, environ-

mental NGOs, and other institutions. The 28-page *Report of the Conference on Marine Biodiversity, Fisheries Management, and Marine Protected Areas (MPAs)* is available in PDF format at <http://www.ebcd.org/News/Report%2018-1-2006%20final.pdf>.

Course to be held on Caribbean MPAs

Students, practitioners, and others interested in MPAs in the Caribbean region are invited to enroll in an international course to be held 17-25 June 2006 in Puerto Morelos, Quintana Roo, Mexico. Co-led by researchers from the National University of Mexico and Florida International University, the seven-day course “Marine Protected Areas for the South Florida, Mexican Caribbean, and Mesoamerican Region” will analyze ecological and socioeconomic aspects of MPA design and management. Registration is US\$350/person. For more information, e-mail Ligia Collado Vides at colladol@fiu.edu.

Master's degree available in Marine Environmental Management

Starting October 2006, the University of York (UK) is offering a new master's degree program in Marine Environmental Management, aimed at those who want to pursue a career in marine conservation or marine resource management. Directed by biologist Callum Roberts, the course will feature instruction on design, implementation, and management of MPAs, among other issues. For more information, visit the program website at <http://www.york.ac.uk/depts/eeem/gsp/mem>.

Question: In what cases will no-take marine reserves be ineffective as a management tool?

Tim McClanahan, a marine biologist in Kenya for the Wildlife Conservation Society, has studied how various resource management tools — including but not limited to no-take marine reserves — can best be applied to different ecological, socioeconomic, and political situations. A study he co-authored with Eric Verheij and Joseph Maina in the January 2006 issue of the journal *Aquatic Conservation* compares the management effectiveness of a no-take marine park in Kenya with a multiple-use collaborative fisheries management area located in adjacent waters in Tanzania. It concludes that collaborative fisheries and large permanent closed areas have different attributes that, when combined, “can achieve multiple purposes of sustainable fisheries, ecosystem functions, and protection of fishing-sensitive species.”

MPA News asked McClanahan whether there were some situations in which permanently closed areas would simply not work as an effective management tool. Below is his response.

McClanahan: “Permanently closed MPAs are always a necessary part of marine management. But the likelihood that they will succeed is not very high at two ends of the political spectrum: namely, complete control of resources by local communities, and repressive top-down control by central governments. In the former case, the local communities will seldom agree to large and permanent closed areas that may jeopardize their local control of

resources. In the latter, people will be antagonistic and devious, and will find ways to bypass laws and enforcement.

“Local control is more likely to lead to smaller and less permanent systems of closure. Repressive top-down control will need to insure that the economy is functioning well-enough that resource users have other options for survival and will not need to risk the consequences of bypassing strict laws. Moderate political systems that balance national and local needs are likely to be able to create and successfully enforce permanent closures.”

For more information

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