

## MPAs and Tourism: Stakeholders Work to Build a Productive Relationship

Managing the relationship between tourism and marine protected areas requires a balancing act on the part of MPA practitioners. The unique ecological features found in MPAs often make them popular tourist attractions for scuba diving, sightseeing, or other activities, and these can generate revenue for the MPA and the local community. But tourists, if not managed carefully, can quickly degrade the very resources they have come to see.

This month, MPA News examines how some stakeholders in the global MPA community — divers, researchers, recreational fishers, and environmentalists — are working to influence the way that MPA practitioners balance tourism and conservation.

### Teaching divers to be conservationists

Researchers have documented the negative impacts that scuba divers can have on the underwater environment, including through disruption of habitat and fish populations. However, Angelo Mojetta believes that if scuba divers are adequately trained on how to minimize those impacts, there is no reason to restrict them from an MPA.

A marine biologist on the science and environment committee of ASSOSUB (the Italian diving equipment marketing association), Mojetta would like to see an easing of diving restrictions that exist in many Italian MPAs. “The increasing number of marine protected areas in Italy — which represents a great opportunity for our seas — is creating some difficulties for divers,” he said.

Both MPAs and diving are relatively new to his country, he said. When Italy officially designated its first MPA in 1986, diving was an uncommon pastime for Italians. Now, said Mojetta, the country has 15 federal marine reserves and more than 300,000 registered divers.

All Italian federal marine reserves feature some restrictions on diving. Under federal law, the reserves are required to be zoned, with all recreational diving forbidden in the most highly protected zones. Each reserve, however, is free to set its own regulations with regard to diving permits. Some authorities require dive

centers to pay a fee, and restrict market entry to those dive centers that existed at the time of the reserve’s designation. In others, diving is permitted for groups of no more than six to eight divers with a guide, with reservations required: all diver names, the site, and the time of diving must be communicated in advance.

Mojetta views these restrictions as too severe. Although many divers are open to the idea of daily or annual limits on the number of divers, he says, the reserve authorities should devote more attention to educating divers on how to be better conservationists. Currently, that responsibility has been left to diving schools, aquaria, and diving magazines. Mojetta himself teaches an annual, two-month course on marine biology at the Aquarium of Milan; the course regularly has more than 100 students, many of whom are divers, he said.

“Communication is a valuable process for transmitting not only knowledge of, but sensibility toward, the aquatic environment,” said Mojetta. “The idea should be to change divers from being mere consumers of the sea to real living resources of the aquatic environment, modifying their interests and involving them in sustainable protection.”

### Fish size and dive tourism

Murray Rudd also sees the value that can come from linking MPAs and dive tourism. An economist and former director of the Center for Marine Resource Studies in the Turks and Caicos Islands (TCI), Rudd has researched the potential economic value of increased grouper size and abundance to the dive tourism industry in TCI. His research suggests that such value may have a large impact on the economic viability of no-take reserves in the islands.

In a paper presented at the July 2000 International Conference on the Economics of Marine Protected Areas in Vancouver, British Columbia (Canada), Rudd and his co-investigators hypothesized that viewing healthy coral reefs and vibrant fish communities added value to the experience of visiting tourists. The team set out to assess the added value through surveys of divers and recent visitors to TCI.

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## Tourism

*continued from page 1*

Their simulation results showed that the economic value that respondents held for increased grouper abundance and size was potentially large. In the case of abundance, 47% of respondents indicated they would be willing to pay an extra US \$10 or more for a trip that featured 12 grouper per dive than for a trip featuring one grouper. This increase in abundance would lead to a 13% increase in net dive expenditures. Similarly, 20% of respondents were willing to pay an extra US \$10 or more for a trip with large grouper (13.6-kg) than for a trip with small grouper (2.3-kg), resulting in a 5.6% increase in net dive expenditures.

Rudd points out that efforts to protect grouper, such as through establishment of finfish no-take zones around TCI, would undoubtedly result in loss of revenue for artisanal fishers. The TCI tourism industry is growing at an annual rate of 10%, with demand for grouper and other local finfish at tourist restaurants increasing apace. Although spiny lobster and conch have been the traditional target species in TCI, said Rudd, "It's clear that some fishers are starting to more actively target grouper and other reef fish."

Nonetheless, any negative effect on the fishery could be offset by a US \$5 increase in the price of a dive, says Rudd, which, according to his team's calculations, could lead to revenue of up to US \$750,000. If the \$5 charge were instituted as a user fee, some of the revenue could be redirected to fishers as compensation for lost catches. The implication, said Rudd, is that "there is potential to implement a system of user fees that could be used to help fund conservation efforts."

He says the two conservation-oriented bodies in the TCI government — the Department of Environment and Coastal Resources (DECRC) and the Coastal Resources Management Project (CRMP), essentially an evolving national parks service — have both responded favorably to the study results. However, implementation of a user fee remains unlikely in the near future. The TCI government instituted a 1% sales tax on restaurant meals and accommodations in 1999 to fund CRMP operations, and has expressed reluctance to institute new fees for the time being, said Rudd.

In addition, there would likely be opposition to a user fee from the dive industry. "The consensus within the dive industry seems to be that the government has been unable to efficiently use revenue and in-kind labor to protect existing parks effectively," said Rudd. "Until the new national park service gets fully organized and operating smoothly, the dive industry will probably remain skeptical that user fees would be used to enhance dive site quality."

## The role of recreational fishing

In the US, recreational fishing is big business. According to one industry estimate, recreational fishing adds more than US \$100 billion to the US economy yearly. The recreational fishing community has become increasingly organized, forming associations with tens of thousands of members or more, and has begun lobbying in earnest on an array of state and national regulatory issues. One of the key issues is MPAs.

"We don't oppose marine protected areas," said Pat Murray, communications director for the Coastal Conservation Association (CCA), a 75,000-member recreational fishery association. "What we oppose is the arbitrary exclusion of anglers in cases where there's no scientific reason to support those restrictions."

CCA's position is that it will fight to protect access for recreational fishers to all public fishing areas unless:

- There is a clear indication that recreational fishers are the cause of the conservation problem, and that less severe conservation measures (such as gear or size restrictions) will not adequately address the problem.
- The closed-area regulation includes specific, measurable criteria to determine the conservation benefit of the closed area and provides a timetable for periodic review of the continued need for the closed area.
- The closed area is no larger than that which is supported by the best available science.
- Provision is made to reopen the closed area to recreational fishing whenever the targeted conservation problem no longer exists.

CCA has filed suit against the US National Fisheries Service to challenge a regulation to close two areas of the Gulf of Mexico for the protection of gag grouper, which spawn at those areas. Besides banning fishing for grouper, which live near the sea bottom, the no-take zones would ban fishing for non-threatened species (including mackerel, wahoo and other pelagics) that live higher in the water column. Murray said discussions are ongoing to reach a settlement in the suit.

CCA and the American Sportfishing Association, another recreational fishing organization, backed a bill in the last session of the US Congress that would amend the nation's fisheries law to include most of CCA's positions on MPAs. As drafted, the bill could also influence the way fisheries inside national marine sanctuaries are managed. Called the "Freedom to Fish Act", the bill did not make it to a vote of the full Congress; its congressional sponsors are expected to reintroduce it in the current session, however.

Murray says recreational fishers get caught in the crossfire between fisheries managers and commercial fishers. The latter, he says, cause much more negative environmental impacts than do recreational fishers.

"Regulators tend to act with a broad brush and they group all fishermen together, despite the many differences in gear and impacts between commercial and recreational groups," said Murray. "We don't want recreational fishermen to be excluded just because it's easy to do."

### Establishing principles for tourism

Tourism in the Arctic has grown significantly in recent years, with sightseers, recreational fishers, hikers, and others taking advantage of an expanding regional tourism infrastructure. The World Wide Fund for Nature (WWF) views this development as an opportunity to increase awareness of Arctic environmental issues and provide a sustainable income source for northern communities.

Recognizing the positive potential for tourism and the potentially negative impacts if tourism were left unmanaged, the WWF Arctic Programme generated a set of principles and codes of conduct for Arctic tourism in 1997. To develop the set of rules, the Norway-based Programme facilitated a multistakeholder process with the involvement of local communities, governments, the tourism industry, and researchers.

The set includes 10 principles for governing the overall development of tourism in the region, including the sustainable use of natural resources and the economic benefit of Arctic communities from tourism. The codes of conduct — including a code for tour operators and one for tourists — detail how the principles can be applied. The entire set of rules is available on the web at <http://www.grida.no/wwfap/library/tourism.html>.

Miriam Geitz, assistant project coordinator for the WWF Arctic Programme's Linking Tourism and Conservation Initiative, said that although the principles and codes were designed to fit the Arctic environment, their potential application could be broader. "It would be no problem to adapt these guidelines to other pristine regions of the world — or to tourism destinations in general," said Geitz.

The WWF Arctic Programme has encouraged the application of its rule set through several pilot projects, in which private tour operators have incorporated the rules in their daily operations and assessed their applicability. In addition, the Programme has teamed with the (US) state of Alaska and the Alaska Wilderness and Recreation Association to develop a circumpolar, voluntary accreditation program for tourism businesses, called LINKS. Businesses that can demonstrate compliance with the rule set will be awarded a special label and receive marketing and technical support for their operations. Geitz said a website for the LINKS program would be posted soon.

Although much of the WWF Arctic Programme's work linking tourism and conservation has not been specifically MPA-based, the Programme has applied its set of principles to discussions on the future of the Svalbard archipelago in the Norwegian high Arctic. In June 2001, the Norwegian Parliament will consider passage of a special environmental law for Svalbard to provide additional management of human activities on the archipelago. The government has also proposed the creation of nine new terrestrial protected areas in the region. WWF would like to see the archipelago, outside of current settlements, managed as one integrated system of protected areas. 

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### For another perspective on MPA tourism

See page 5 of this issue for Kreg Lindberg's essay on the charging of user fees in MPAs

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## Manual Offers Quick Reference for Management Strategies

The US Man and the Biosphere Program, a federal multiagency initiative, has published a reference manual to help MPA practitioners develop user-access strategies. It is a product of a five-year, peer-reviewed project to assess impacts of various MPA management schemes.

*Alternative Access Management Strategies for Marine and Coastal Protected Areas: A Reference Manual for Their Development and Assessment* offers a flowchart of the major components of managing MPAs. Its chapters — short, relatively introductory essays — follow the flowchart and offer references to sources of additional information. The topics range from establishing a legal framework and vision statement, to assessing ecosystem health and involving local stakeholders in decisionmaking.

The editor, Michael Crosby of the US Agency for International Development, said the project team

purposefully kept the book succinct. It is not intended to be a comprehensive document covering all aspects of marine and coastal protected areas. Rather, said Crosby, it should serve as a quick-reference "cookbook" for managers interested in adapting its guidelines to their own operational situations.

Practitioners who are already familiar with most aspects of MPA management may still benefit from the book's mini-case examples distributed throughout the text. The cases — featuring management strategies in the Florida Keys, Hawaii, and the Channel Islands (California) — help illustrate how particular access-management strategies can be applied. Although the cases are US-based, the book's target audience is global, said Crosby. 

### To order the book:

Hard copies of *Alternative Access Management Strategies...* are available free of charge. To order, or to get more information on the book, contact Michael Crosby, Agency for International Development, Global Environment Center, Room 3.08, Ronald Reagan Building, 1300 Pennsylvania Ave., NW, Washington, DC 20523-3800, USA. Tel: +1 202 712 1750; E-mail: [mcrosby@usaid.gov](mailto:mcrosby@usaid.gov).

## New Book, Website Provide MPA Inventory for British Columbia

With each year's designation of new marine protected areas around the world, analysis of the coverage fostered by this patchwork of MPAs is becoming increasingly difficult.

For managers to assess gaps in habitat protection, they must first document where MPAs already exist. In regions where dozens — or hundreds — of marine protected areas have been designated under various regulatory regimes, such documentation can be painstaking. Nonetheless, inventories of MPAs are necessary for effective marine resource planning, and efforts to create regional MPA databases are becoming more common.

The new book *Marine Protected Areas and Fishery Closures in British Columbia* may offer a useful model for MPA practitioners interested in pursuing their own MPA-inventory process. Created by two Canadian fisheries researchers, the book profiles the 125 legislated MPAs and 579 spatially-persistent fishery closures along Canada's Pacific coast. (The book defines "fishery closures" as restricting only fishing activity, while "marine protected areas" may address a variety of human activities.)

An accompanying website (<http://www.pac.dfo-mpo.gc.ca/oceans/closure/default.htm>) allows visitors to search more detailed maps of each MPA and closure than the book offers. In addition, the geographic information system (GIS) database on which the project was based is now available to managers to consult directly. With a baseline year of 1997, the book and website are designed to be living documents, and will incorporate newer data (from 1998 to the present) as they are added to the database.

### Obstacles to creating an inventory

The project, which began in 1997, had to overcome an array of challenges, according to co-authors Glen Jamieson and Joanne Lessard, both biologists with Canada's Department of Fisheries and Oceans. "When we started, we thought we could get this done in a year," said Jamieson. "It turned out to be a two-and-a-half year process."

Among the first challenges was finding where and when the MPAs and closures had been designated. "Some MPAs were designated with arcane measurement systems, such as 'chains'," said Jamieson. For the fishery closures, the project had to comb through old management plans to see when they were established.

Converting the information to an electronic format for mapping offered additional obstacles. One of the most difficult was that of creating a seamless digital shoreline for the entire province, necessary for calculating the

area of each MPA or closure. Although a basic shoreline had been mapped previously, it did not offer the detail necessary for the inventory project, and required the creation of new software.

"The biggest challenges we faced were the database design, the coastline digitizing, and the sheer amount of data we faced," said Lessard. Some of the calculations necessary to compute datasets took hours to complete on the project workstations.

### Tips for other inventory projects

Jamieson recommends that other efforts to inventory MPAs around the world should avoid "reinventing the wheel", and should contact those who have gone before them, including himself. "They don't need to go through the learning pains we did," he said.

In fact, he and Lessard based much of their book's format on the past work of Deborah McArdle, who created an MPA inventory for the US state of California (*California Marine Protected Areas*, 1997, California Sea Grant College System, Publication No. T-039). They followed McArdle's lead to allow for easier comparison with measures that may be undertaken by other US and Canadian agencies in the northeast Pacific.

Lessard encourages the managers of future inventory projects to design their databases first. "There were a number of changes I had to make to the database as we went along, which slowed the process," she said. "You can't forecast everything, but when you're designing a database, think about what you want to get out of it and the types of questions you'll want to ask in the end."

The Department of Fisheries and Oceans has already begun using the database for its management work. Managers are using it to site a reopening of the Pacific gooseneck barnacle fishery away from MPAs and closures, and Lessard herself is using it to assess whether known beds of geoducks, a type of clam, are in open or closed areas.

As for the future of the database, Jamieson envisions its serving as a keystone for similar work along the entire Pacific coast of the US and Canada. He'd like to overlay habitat type and depth contours on the maps, which presently lack such detail. And he'd like to bring the project's GIS database fully online; currently, the project website is limited to showing static picture files of the MPA and closure maps, rather than allowing for complete online interactivity.

"Eventually, we'd like to have a system where anyone could log on and experiment with siting MPAs here or there, or determine what portion of any resource is located in a particular type of protected area," he said. 

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[Note from the editor: Kreg Lindberg, author of the following perspective piece, is a senior research fellow at the School of Tourism and Hotel Management at Griffith University (Queensland, Australia) and also works with Australia's Cooperative Research Centre for Sustainable Tourism. He is currently consulting on a project to review the economics of user fees in MPAs around the world, a joint effort of two NGOs — The International Ecotourism Society (TIES) and the Programme for Belize (PFB). Lindberg invites MPA News readers to contact him with information on user fees at MPAs with which they are familiar. Results from the review will appear on the TIES website ([www.ecotourism.org](http://www.ecotourism.org)).]

## MPA Perspective: MPA Revenue Generation and the User Fee Option

By Kreg Lindberg, Griffith University, Queensland, Australia

As illustrated in the recent MPA News article on self-financing (March 2001), user fees like the US\$10 dive fee at Bonaire can make important contributions to the funding of MPAs. Nonetheless, there are several conceptual and practical issues facing MPA managers when deciding whether to charge fees. This article briefly discusses some of these issues in the context of user fees at Belizean MPAs.

### Four-step process

Ideally, as part of their decision making regarding fees, MPA managers should follow a simple four-step process. In this process — which I've based on general planning principles and the experiences of fee implementation in various countries — managers should:

1. Consider both the advantages and disadvantages of fees
2. Consider and state the fee objectives
3. Conduct research necessary to guide decision making, and
4. Work with relevant stakeholders, including tour operators and local communities

Some of the advantages and disadvantages of instituting fees are listed in the box at right. It is worth considering which of the advantages and disadvantages are relevant in a given context, both in terms of which are important and whether fees will lead to the desired or feared result(s).

If a decision is made to charge fees after review of the advantages and disadvantages, consideration of possible fee objectives can help guide determination of the appropriate fee type and amount. Possible objectives include:

- cost recovery, which involves generation of sufficient revenue to at least cover tourism's financial costs (e.g., construction and maintenance of a visitor center) and possibly tourism's other costs (e.g., ecological damage)
- generation of "profit," with the excess of revenue over cost being used to finance traditional conservation activities (at the destination or at other sites) or to achieve other objectives

- generation of local business opportunities, which may involve low fees in an effort to maximize number of visitors and/or the earmarking of fees to enhance site or experience quality
- provision of maximum opportunities for learning and appreciation of the natural resource, which may also involve low fees, and
- visitor management to reduce congestion and/or ecological damage, which would involve fees high enough to influence visitor behavior.

Of course, a combination of objectives may exist. For example, in the case of a developing country, cost recovery or profit generation may be the primary objective for foreign visitation while maximum learning opportunities may be the primary objective for domestic visitation.

### Belize

As of August 2000, there were 12 MPAs in Belize, of which seven were designated World Heritage Sites. However, only five of these 12 (and only four of the seven WH sites) have had active management for at least one

## Advantages and disadvantages to user fees

### Advantages

Revenue generation

Economic efficiency (society is best off, economically, when price is set to the marginal cost of supplying the visit)

Equity insofar as the users of a good or service should pay for it

Visitor management when fees are used to distribute visitors away from heavily used places or times

Enhancement of site quality when revenues are used for this purpose

### Disadvantages

Cost of collecting fees

Possible conflicts with societal values regarding free access to nature

Equity concerns if fees will have a disproportionate effect on low-income citizens (not usually a concern in the case of international visitation)

Concerns that fees will commercialize the experience (again, may be irrelevant for international visitation, which often is already commercialized)

Reduction of local business opportunities if fees reduce visitor numbers

*Source: Kreg Lindberg, 2001*

*continued on next page*

year. As in other countries, a key reason for this lack of management is lack of funding — government resources are extremely limited. Adequate management of the eight marine reserves under Fisheries Department jurisdiction is estimated to cost \$80,000 per reserve per year excluding capital expenditures, yet the whole department, with responsibilities that go well beyond reserve management, receives government funding of only \$225,000 per year (all figures in US\$).

Two MPAs, Hol Chan Marine Reserve and Half Moon Caye Natural Monument, currently charge fees (\$2.50 and \$5.00, respectively), and the Fisheries Department has proposed expanding the use of fees in order to generate funding for reserve management. Though this proposed “Marine Protected Areas Network Initiative” (MPANI) remains under discussion, the approach involves dividing the country’s MPAs into three zones and charging a trip pass to each zone. The proposed fee is \$25 per zone.

The extent to which the Fisheries Department considered the various advantages and disadvantages is unclear. However, the MPANI document and the system’s features indicate that revenue generation is a key objective. In terms of research, the MPANI document refers to past visitor surveys in Belize that indicated a general willingness to pay substantial fees. The document also advises that “the most accurate revenue projection can only be derived from a minimum two-week comprehensive visitor survey.”

Another project, developed independently of MPANI, includes visitor surveys at three Belizean MPAs, spread over high and low seasons. The project is a joint effort

of The International Ecotourism Society (TIES), a US-based NGO, and Programme for Belize (PFB), a Belizean NGO promoting the country’s natural heritage. The survey work is ongoing, but results from the pilot test suggest that a \$25 fee will not discourage many visitors (the effect may be greater for snorkelers than for divers).

The Fisheries Department has sought stakeholder input in response to its draft plan, and the TIES/PFB project has undertaken a complementary consultation process. Fee increases have been reversed in other countries, including Costa Rica and Australia (at the Great Barrier Reef Marine Park), due to opposition by a tourism industry that was inadequately consulted in the planning process — which highlights the importance of stakeholder consultation.

It is rare for countries to fully implement the four-step process recommended above; the reality is that fees often are implemented to achieve a specific objective without full consideration of their unintended consequences, research to better understand these, or consultation with affected stakeholders. Belize has been a leader in nature tourism in many respects, including the use of innovative funding mechanisms. The fee system proposed in MPANI is an important step for MPA revenue generation, and TIES/PFB is working with the Fisheries Department to help ensure that the final system is as effective and as widely-accepted as possible. 📧

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## Conference Calendar

June 24-29, 2001 — “30th Scientific Meeting of the Association of Marine Laboratories of the Caribbean (AMLC)”. La Parguera, Puerto Rico. Providing opportunities for sharing research and promoting cooperation. Web: [amlc.uvi.edu/01meeting.html](http://amlc.uvi.edu/01meeting.html).

August 27-23, 2001 — “Putting Fisher’s Knowledge to Work”. Vancouver, British Columbia, Canada. International conference on how fisher knowledge can improve fisheries management; sponsored by the Fisheries Centre of the University of British Columbia. Web: [www.fisheries.ubc.ca/Announce/FKnowledge.htm](http://www.fisheries.ubc.ca/Announce/FKnowledge.htm).

November 16-17, 2001 — “Caribbean Marine Protected Areas: Practical Approaches to Achieve Economic and Conservation Goals”. Providenciales, Turks and Caicos Islands. This symposium will be held in association with the 54th annual meeting of the Gulf and Caribbean Fisheries Institute (GCFI). Web: [www.gcfi.org/marine\\_protected\\_areas\\_Symposium.htm](http://www.gcfi.org/marine_protected_areas_Symposium.htm).

### 2002

May 21-24, 2002 — “World Recreational Fishing Conference”. Darwin, Northern Territory, Australia. Providing a forum for members of the recreational fishing community to discuss issues relevant to sustainable management. Web: [www.nt.gov.au/dpif/fisheries/confsem/wrfc3/](http://www.nt.gov.au/dpif/fisheries/confsem/wrfc3/).

### 2003

September 8-17, 2003 — “Fifth World Parks Congress: Benefits Beyond Boundaries”. Durban, South Africa. This congress occurs once each decade; sponsored by the IUCN (World Conservation Union). Web: [wcpa.iucn.org/wpc/wpc.html](http://wcpa.iucn.org/wpc/wpc.html).