

Australian Parliament Passes Re-Zoning Bill for Great Barrier Reef, Creating World's Largest Reserve System

The largest marine protected area in the world now also includes the largest network of no-take areas. In late March, the Australian Parliament passed a bill to re-zone the multiple-use Great Barrier Reef Marine Park, setting aside one-third of the 344,000-km² park as off-limits to all extractive activity. In doing so, legislators created a 115,000-km² network of no-take zones, representing all 70 marine bioregions throughout the park. (For perspective: The new no-take network is roughly the size of Bulgaria or North Korea. The next largest no-take area is Australia's 65,000-km² Heard Island and McDonald Islands Marine Reserve.)

The new zoning plan — raising the no-take percentage of the park from its current 4.7% to 33% — will take effect 1 July 2004. Approval of the bill, which faced no challenge from legislators, marked the culmination of years of public consultation and planning by officials of the Great Barrier Reef Marine Park Authority (GBRMPA), including hundreds of meetings with stakeholders.

Australian Environment Minister David Kemp says the increased protection provided by the new zoning was about more than just protecting the unique biodiversity of the Great Barrier Reef. "Threats such as increased nutrients entering reef waters and global warming are placing reefs everywhere under stress," he said in a public statement. "The best scientific advice is that the most effective way to ensure that reefs are healthy enough to cope with these sorts of pressures is to protect at least 20% of all bioregions in no-take zones. That is exactly what we have done." Considerably more than 20% was achieved in some bioregions, thus accounting for the 33% no-take figure for the re-zoned park as a whole. Kemp says the new zoning will ultimately aid the local tourism and fishing industries, as both depend on healthy reefs for their business.

The environment minister delivered the re-zoning plan to Parliament last December (*MPA News* 5:6). That plan was a revision of a mid-2003 draft: based on public comment on the draft, GBRMPA redrew boundaries for many no-take areas ("green zones"), primarily to lessen negative impacts on users.

In concert with the bill's passage by Parliament, Kemp announced the formation of a four-person independent

panel to design a "structural adjustment package" to aid those adversely affected by the new zoning, including commercial fishermen. Like the new zoning, the structural adjustment package — also called an assistance package — will become available on 1 July.

The complex process to re-zone the Great Barrier Reef was remarkable for several aspects, including the size of the area involved, the amount of public consultation, the quantity of data necessary to inform its ecosystem-based approach, and the goal to set aside at least 20% of each distinct habitat type as no-take. There are lessons to be taken from this process, adaptable to other MPA-planning efforts worldwide, and *MPA News* will follow these in future issues. Below, we consult several stakeholders about the planning process, its results, and some of the challenges faced in crafting the new zoning scheme.

Pat Hutchings, Australian Coral Reef Society

GBRMPA enlisted the aid of scientists throughout Australia to track down and interpret sets of biophysical and socioeconomic data, allowing planners to base their zoning on scientific understanding of the ecosystems and human interests involved. The planning process used a number of GIS-based tools, including MARXAN, to incorporate such information as habitat type, species, and resource use, among many other factors.

Pat Hutchings, president of the Australian Coral Reef Society (a scientific association), was involved in the extensive data search. "Attempting to find all the available datasets — both published and unpublished — and getting them into a format suitable for use when developing zoning plans was a challenge," she says. "It was critical that the information be available to people in an appropriate format for them. Some people wanted very localized information, for example, while others wanted more general."

The appropriate presentation of information was the key to helping achieve buy-in to the process from stakeholders, says Hutchings. Fishermen at public meetings, for example, were shown with a computer how various datasets, including fisheries data, influenced potential boundaries for no-take zones, overlaying

continued on next page

New zoning is online

The new GBRMPA zoning plan is available online at <http://www.reefed.edu.au/rap/index.html>. The website features maps showing the expanded no-take zones by region and explanations of the criteria considered in re-zoning. For an overview of the planning process (in PDF format), visit http://www.reefed.edu.au/rap/pdf/rap_overview_brochure.pdf.

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economic and social data to see what options were available. "This was very informative to these people, and many now feel they 'own' the plan," she says.

Regarding the 20% no-take goal for each bioregion, Hutchings says there is nothing necessarily "magical" about that figure. "There is no scientific data to say that 20% is sufficient," she says. "While more would perhaps be desirable, it was necessary for the people defining the bioregions to come up with a figure that we considered was achievable, and which would still make a major contribution to maintaining the biodiversity. If pressures continue to impact the reef, we may need more than 20% in the future."

Hutchings says the re-zoning is only one of several management strategies for protecting the Great Barrier Reef, including a reef water quality protection plan that was launched in December 2003. "All of these need to be put in place," she says. "We also still need to develop a monitoring program so that we can show that this zoning plan is conserving, or at least maintaining, reef biodiversity."

Imogen Zethoven, WWF Australia

WWF Australia, an NGO, was a lead voice from the conservation community in the re-zoning process. Imogen Zethoven, the organization's Great Barrier Reef campaign manager, says the new zoning system sets a benchmark for MPAs around the world and offers lessons to other sites considering similar programs.

"Having a good information base on which to identify and map bioregions is crucial to a representative areas program, as is having an agency like GBRMPA that is highly committed to achieving an outcome," she says. "It is also vital to have a scientific community that is willing to speak out in support of MPAs and the benefits they can deliver." To get that message out to the public, WWF ran a high-profile publicity campaign that was able to demonstrate growing local community support for increased protection in the park.

The main challenge faced by supporters of expanded no-take zones, says Zethoven, was to overcome resistance from the commercial and recreational fishing sectors. Over the course of the planning process, she says, much of the latter sector came around to support the re-zoning. "The draft zoning plan contained a variety of zoning types," she says. "One type, which allowed only limited line fishing ["yellow zones"], was supported by recreational fishers." Like the no-take green zones, the yellow zones were to be expanded under the new zoning. "Hence," says Zethoven, "the recreational fishers saw advantages to supporting the whole package of the final zoning plan, including the network of no-take zones."

The commercial fishing industry was more difficult to win over, and Zethoven says the final plan is weaker than its earlier draft version due to changes intended to

address concerns of the commercial fishing industry, particularly the bottom trawl fishery. "The [mid-2003] draft plan contained a comprehensive spread of no-take zones throughout the bioregions of the park," she says. "The final plan reflected a significant shift of no-take zones away from areas of intensive fishing pressure to remote offshore areas with little or no pressure." In addition, she says, compromises in the final plan reduced connectivity among habitats and failed to protect a number of sites identified during planning as "special" or "unique".

Nonetheless, she is thankful the 20% goal was reached in each bioregion. "The real world of politics is inescapable," she says. "The ultimate lesson for NGOs in working to achieve a network of MPAs is to plan well ahead for this inevitability and to develop political networks that are as strong as those of the fishing industry."

Vern Veitch, Sunfish Queensland

Set to benefit from the expanded yellow zones where recreational fishing is allowed but commercial activity is very limited, much of the recreational fishing sector appears generally pleased with the outcome of the re-zoning process. However, Vern Veitch, vice chairman of Sunfish Queensland, a recreational fishing association, says the goals of the process will be compromised if they are unaccompanied by improved commercial fisheries management. Veitch says the areas still open to commercial fishing "will be subject to higher and potentially unsustainable fishing pressure" unless there are programs to reduce overall fishing effort. (Such a program for the bottom trawl fishery occurred in 1999.)

Veitch is also concerned that the re-zoning plan does not account for the impacts of the growing reef-based tourism industry, which contributes AU\$4.5 billion (US\$3.2 billion) to the Australian economy each year. Such impacts can include interference with spawning aggregations and other fish behavior, as well as damage to coral, he says. "The program was supposed to protect bioregions but it ended up as pure fishing closures," he says. "All other activities related to tourism still exist and are expanding."

The zoning plan is giving people a "warm, fuzzy feeling", says Veitch, but he echoes Hutchings in saying that no one may know if it has helped the environment unless a monitoring program for the new closures is put in place. He says zone violations could be an issue, too. "With the massive increase in inshore closure of areas that are easily accessible, there is no funding commitment yet to provide increased enforcement to ensure compliance," he says.

Ryan Donnelly, Ecofish

Ryan Donnelly is executive officer of Ecofish, a commercial fishing organization around the city of Cairns, in the far northern part of the state of

Queensland; Cairns is the hub of reef-based tourism for the Great Barrier Reef and also home to one of the reef's largest fishing fleets. Donnelly says that in the re-zoning process, his sector was unfairly singled out for restrictions, despite the fact that other user groups also impact the park. In effect, he says, the process was one of resource re-allocation rather than biodiversity protection. The tourism sector will benefit from the expanded green zones (no-take), and the recreational fishing sector will benefit from the expanded yellow zones. Meanwhile, some commercial fishing activity — namely bottom trawling — will effectively be excluded from two-thirds of the park. (Under the pre-existing zoning scheme, bottom trawling is excluded from roughly half of the park.)

Donnelly says the planning process should have better accounted for the economic dependence the industry and its families have on the park's resources. "Instead, the process allowed any sector to gather unlimited submissions from any number of parties who had little or no real interest as stakeholders in the outcome and consequences of their input," he says. "Such information gathering gave potentially misleading and inaccurate weighting to the public response in favor of no-take zones."


Now that the re-zoning plan has been approved, the commercial fishing sector is focused on ensuring there is an adequate assistance package for affected fishermen. Donnelly would like for the package to include payments to boat owners, displaced crew, and affected post-harvest businesses, as well as a license buyback program. He would also like job retraining for unemployed workers. There has already been consultation to

address these issues between industry and the panel developing the structural adjustment program, he says.

David Hutchen, Association of Marine Park Tourism Operators

The expansion of the green zones — in which diving, snorkeling, and boating are allowed — is welcome news to the reef-based tourism sector, consisting of a range of operations from large pontoon-based outfits to dive and snorkel guides. David Hutchen, chairman of the Association of Marine Park Tourism Operators, has good things to say about the public consultation that was part of the planning process. "The consultation ensured both understanding and eventual acceptance of the need to assure the future preservation of the Great Barrier Reef," he says.

Although some non-tourism sectors may be dissatisfied with elements of the final result, says Hutchen, there was broad public support for the ideals of the planning process. Such support was achieved through early involvement of representatives from marine industries, followed by wide-ranging, well-publicized, and well-presented information sessions with the public and interested parties. The fact the re-zoning plan passed Parliament with no debate, he says, is testament to the effectiveness of the public consultation.

Hutchen believes the re-zoning could have been improved, however, by enlarging the no-take network even more, to 50% of the park. "While it is a commendable achievement to have expanded the non-extractive areas, I personally do not think that 33% is enough to ensure the preservation of the reef," he says. 

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Notes & News

Caribbean nations meet to build partnerships for marine ecosystem management

As part of a Caribbean-wide project to encourage sustainable development through integrated watershed and marine ecosystem-based management, representatives of more than 20 nations met in Miami (US) in March to build regional partnerships with these goals in mind. The meeting — titled the "White Water to Blue Water (WW2BW) Partnership Conference" and arising from a regional initiative of the same name — aimed to help Caribbean governments, NGOs, donors, and private industry find ways to address common challenges. Generated were partnerships to coordinate use of resources and improve communication among programs, including plans to rejuvenate an existing but largely dormant network for sharing knowledge among Caribbean MPA managers (CaMPAM).

Sponsored by several national and international governmental institutions, the meeting featured sessions on the management of fisheries, tourism, and marine

transportation. "You cannot have sustainable development in the Caribbean without sustainable watershed and marine ecosystem management," said meeting co-chair Tom Laughlin of the US National Oceanic and Atmospheric Administration (NOAA) Office of International Affairs, a WW2BW sponsor. Laughlin said the Caribbean already has many organizations that are working independently to address coastal and marine issues; the meeting was designed to network such efforts and identify gaps.

Among the dozens of partnerships fostered by the WW2BW meeting were agreements on subjects as varied as identifying potential MPAs, developing bilateral oil-spill response agreements, and consolidating existing sustainable tourism certification initiatives in the region. WW2BW organizers say the Caribbean effort could provide a model for future initiatives in Africa and the South Pacific. To learn more, visit the WW2BW website at <http://www.international.noaa.gov/ww2bw>. 

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Mixing Oil and Water, Part I: Examining Interactions Between Offshore Petroleum and MPAs

Discussions of MPAs often focus on the management of fishing inside and outside of protected areas. But the growing presence of another extractive sector — the offshore petroleum industry — contributes its own set of interactions with MPAs, both negative and positive. The 50-year-old industry of exploring and drilling for oil and natural gas from the seafloor continues to expand, with new areas — such as West Africa and Western Canada — either in active development or under consideration for development. As the industry grows, so will its interactions with MPAs.

In a two-part series beginning below, *MPA News* examines the relationships that exist between the offshore petroleum industry and MPAs. This month, we provide an overview of the negative environmental effects posed by the offshore industry, as well as the potentially positive opportunities that can come from the industry and MPAs working together. Next month, we will examine how some resource managers are involving industry in MPA planning to balance ecological and economic concerns.

MPAs as protection against offshore oil impacts

Although the environmental and safety record of the global offshore petroleum industry has improved over time, there remain numerous environmental impacts associated with the development and production of offshore oil and gas. These include, among others:

- Immediate and long-term ecological effects of oil spills, either from drilling platforms or pipelines;
- Physical damage to coastal wetlands and other fragile shore areas by drilling-related infrastructure and pipelines;
- Physical damage to seafloor communities;
- Discharge of contaminants and toxic pollutants present in drilling wastes, such as lubricants containing heavy metals;
- Emission of pollutants from fixed facilities, vessels, and helicopters; and
- Impacts on marine mammals and other wildlife from seismic exploration (using powerful sound waves to test below the seabed) and general production noise.

In cases around the world, the risk of these impacts has been viewed as serious enough to warrant designation of MPAs with restrictions on drilling. Australia's Great Barrier Reef Marine Park, for example, was designated in 1975 to protect the reef from proposals to prospect there for oil (as well as to mine coral for limestone). Simon Woodley, former director of research for the Great Barrier Reef Marine Park Authority, says the

park's enabling legislation effectively banned all drilling and exploration by the petroleum industry within the protected area, which totals 344,000 km².

"The risks to the environment from petroleum activities were judged to be too high," he says. "There have been some attempts since then to develop shale oil deposits on the coast adjacent to the park, but these have proven costly and have not resulted in a viable industry to date." (More information on the history of the park is available in the book *The Great Barrier Reef Marine Park: Finding the Right Balance* [2002, Melbourne University Press], which Woodley co-authored with David Lawrence and Richard Kenchington.)

Other cases of using MPAs to prevent impacts from the oil and gas industry include:

- US: The 13 national marine sanctuaries in the US generally prohibit drilling for oil and gas. There are some exceptions, such as where activities pre-dated designation or where development is confined to a small zone. Although none of the sanctuaries was designated exclusively to thwart oil and gas interests, the issue of oil and gas exploration was a leading factor in some designation processes, including for the sanctuaries in Monterey Bay and the Florida Keys.
- Norway: In September 2003, Norway designated the Hopen Nature Reserve, comprising Hopen Island and its territorial waters in the northern Barents Sea. Its designation, with a ban on oil and gas activity, was spurred in part by reports of industry interest in using the island as a base if and when the northern Barents Sea was opened for petroleum development. (Hopen Island is a critical denning site for Barents Sea polar bears and breeding area for sea birds.)
- Australia: In October 2003, the environment minister of the Australian state of Victoria refused a request to allow seismic exploration for petroleum within the Twelve Apostles Marine National Park. Although the state already prohibited drilling in its marine national parks, deep directional drilling from outside Twelve Apostles to access resources underneath the park could have occurred: marine national parks in Victoria extend only to a depth of 200 m below the seabed. Explaining his move, the environment minister said there was insufficient evidence that there would be no impact from the exploration on marine flora and fauna in the park.

In some cases, companies have taken steps on their own to avoid impacts on protected areas. In recognition of the environmental impacts of its extractive activities, the Royal Dutch/Shell Group of Companies declared in 2003 that natural World Heritage sites would be "no-

go” areas for its oil and gas exploration and development. (World Heritage sites are designated by the United Nations Educational, Scientific, and Cultural Organization, or UNESCO.) This pledge, the first of its kind in the oil and gas sector, followed a similar declaration by a mining industry group, the International Council on Mining and Minerals.

Potential MPA benefits from offshore oil industry

Not all interactions between the offshore petroleum industry and MPAs are negative. MPAs that exist to protect industry installations, such as no-fishing zones around submerged oil and gas pipelines, serve their purpose while also yielding benefits for biodiversity in some cases. In waters of the small, oil-rich sultanate of Brunei, for example, where one-mile buffer zones surround all pipelines and offshore drilling platforms, these protected areas have had the side effect of boosting fish populations: fish biomass has remained relatively high in the sultanate while generally declining through the rest of the South China Sea. (This is according to research by Gerry Silvestre, a consultant to the WorldFish Center in Malaysia.)

In the US, one MPA is particularly noteworthy for the interactions it has with the offshore petroleum industry. The coral-laden Flower Garden Banks National Marine Sanctuary (FGBNMS), off the states of Texas and Louisiana, has within its boundaries an active offshore gas-production platform, which was there prior to the sanctuary’s 1992 designation (*MPA News* 3:7). The sanctuary is also surrounded by two-dozen more platforms within kilometers of its limits.

FGBNMS Manager G.P. Schmahl says that although sediments around the sanctuary’s gas platform have exhibited elevated levels of heavy metal contamination — as did several barracuda (a sport fish) caught within the sanctuary in 2002 — the petroleum industry in the Gulf of Mexico has demonstrated an excellent safety and environmental compliance record. “A long-term coral reef monitoring program conducted at the Flower Garden Banks since the mid-1970s has been unable to identify any significant detrimental impact associated with nearby oil and gas development in measures of coral reef health,” says Schmahl.

In fact, he says, there has been an open and congenial relationship between the sanctuary and the industry. Industry has provided access to platforms near the sanctuary for scientific research, including for installation of environmental monitoring equipment and for use as a base during short research projects. Companies have also provided transport to the sanctuary via industry helicopter for special purpose needs and emergency response. In addition, some companies have contributed funds to assist sanctuary-oriented education programs. “Many people who work for the industry in


this part of the country are avid SCUBA divers and marine enthusiasts who have had personal experience diving and fishing here,” says Schmahl. “A number of environmental professionals now associated with the oil and gas industry also carried out their graduate research at the Flower Garden Banks. Because of this, there are some very strong voices within industry for protection of and cooperation with the sanctuary.”

Vigilance remains necessary, of course: the risk of spills is always present, and one big spill could effectively negate the industry’s good deeds. However, says Assheton Carter, director of energy and mining for the Center for Environmental Leadership in Business (CELB), the risk of spills should not prevent industry and MPAs from at least exploring ways to work together. (CELB is overseen by Conservation International, a US-based NGO).

“Possibly the biggest opportunity lies in harnessing the energy industry’s technical capacity,” says Carter.

“Energy companies carry out, commission, or support a great number of environmental studies in the locality of their projects. Throughout the project cycle, biological data are gathered for baseline studies, scientific analysis, and monitoring programs. These data, if shared, can be an important resource for managing protected areas.” Statoil, the Norwegian oil company, discovered Norway’s first cold water coral reef in 1982 using multibeam sonar, a technology used for seismic exploration activities and routing pipelines. Since then, says Carter, the company has worked with scientists to study the reef and others like it, and the research has led to designation of protected areas around some of these sites (*MPA News* 5:1).

Carter manages the Energy & Biodiversity Initiative (EBI), a partnership among several international NGOs and major energy companies to develop best practices for integrating biodiversity conservation into oil and gas development (<http://theebi.org>). Begun in 2001, the EBI has produced a report with guidelines and recommendations, designed to be a practical guide for ensuring that biodiversity is protected through the entire span of oil and gas operations, from exploration to decommissioning. The EBI’s energy companies are now working to integrate the guidelines in their operations, says Carter.

In the EBI report, the energy companies state that in some cases, oil and gas activity is fundamentally incompatible with efforts to protect biodiversity. Says Carter, “Conservationists should continue to make clear to governments and companies that some environments cannot withstand development, however well-managed.” He adds, though, that as the global MPA system expands, and oil and gas exploration and development enter new areas, the opportunity for companies to demonstrate their commitment to biodiversity conservation will be abundant. 

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Measuring MPA Effectiveness: New Guidebook Provides Framework and Cases

This May, a new guidebook on measuring the management effectiveness of MPAs is scheduled for release. Titled *How Is Your MPA Doing?*, the book aims to help improve management by offering a framework to identify site goals and analyze how well those goals are being achieved. Featured are case studies of 18 MPAs around the world, both tropical and temperate, that used the framework to evaluate their management effectiveness.

The book has been co-produced by the IUCN World Commission on Protected Areas-Marine, the (US)

National Oceanic and Atmospheric Administration (NOAA), and the World Wide Fund for Nature (WWF). The publication will complete a four-year project by these organizations — the MPA Management Effectiveness Initiative — to design and test a flexible evaluation system that can be adapted by individual MPAs. The system's framework was developed by specialists in the field of management effectiveness, and refined by a team of MPA experts. Project organizers also brought together managers of the participating MPAs to improve the framework and share lessons learned on how to implement it, including how to incorporate existing monitoring programs in the evaluation.

Monitoring is essential: within the framework, managers choose, measure, and analyze up to 44 indicators of MPA effectiveness, depending on each site's conditions, goals, and objectives. The indicators are biophysical (like species abundance or water quality), socio-economic (including local use patterns), and governance-related (including existence of a management plan).

Improving effectiveness

Many MPAs worldwide do not meet their management goals. The reasons for this are several, including ineffective management, lack of funding, and lack of local support. In some nations, the percentage of MPAs that qualify as “paper parks” — existing only on paper, in essence — are believed to range as high as 90% (*MPA News* 2:11).

Organizers of the MPA Management Effectiveness Initiative say the mixed success in MPA performance demonstrates a need to help management teams evaluate the effectiveness of their actions and improve the impact and scope of their efforts. Theoretically, when evaluation results are combined with adaptive management, practitioners can demonstrate and provide for long-term positive impacts on biodiversity and human communities.

The guidebook will be available on the project website in PDF format at <http://www.effectivempa.noaa.gov>. Earlier drafts of the book have been available on the website over the past two years. Translation of the book into Spanish and French is in progress. 🌊

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Convincing managers of need to measure effectiveness

Below, *MPA News* speaks with Bud Ehler, vice-chair (marine) for the IUCN World Commission on Protected Areas (WCPA), about presenting the concept of effectiveness evaluation to MPA managers. Ehler has served as a project lead for the MPA Management Effectiveness Initiative, described in the adjoining article.

MPA News: Your initiative has designed a framework to help MPA managers evaluate how well their sites are achieving their goals, and the framework involves monitoring potentially dozens of criteria. Implementing it will require time and money. How would you respond to managers who say they don't have the resources necessary to do this?

Ehler: An MPA manager can use some or all of the tools in the book and gain some insight or benefit. All of the pilot sites that field-tested the guidebook, for example, reported that the exercise of identifying clear and measurable objectives was beneficial in itself, especially since some of the sites had not previously had goals and objectives that were defined adequately. When pilot sites were asked why the guidebook was useful to them, they reported that it was flexible enough to adapt the process and indicators to the particular situation at each of the pilot site MPAs. This was reported even in the case of MPAs that were community-managed and at sites with low to modest financial and technical support.

MPA News: Some managers may feel that an effectiveness evaluation of their MPA is unnecessary, or is even something to be avoided if results could embarrass management. How could you convince these managers that effectiveness evaluation would still be in their interest?

Ehler: We understand that evaluation may not be endorsed by some managers who fear that a “bad” evaluation may put their positions or programs in question. We are not suggesting evaluation for this external purpose. The idea of the guidebook is to help managers improve the effectiveness of their MPAs and facilitate adaptive management. Managing a protected area in the marine environment is challenging and complex. I think few managers would say they have no need to find new ways to spend their scarce resources more efficiently.

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