

New Zealand Designates Network of Deep Sea Protected Areas Covering More than One Million Square Kilometers

On 15 October 2007, the New Zealand government designated an enormous network of protected areas spanning 1.2 million km² of the nation's deep sea. The 17 "benthic protection areas" (BPAs) that comprise the network will be off-limits to bottom trawling and dredging. The network covers 30% of New Zealand's entire Exclusive Economic Zone, and is considered to be the largest single marine protection measure ever designated within a nation's EEZ.

The BPAs, which take effect on 15 November 2007, extend from subantarctic waters south of Campbell Island to the subtropical Kermadec region, comprising a range of depths and habitats, including seamounts. Most of the area is beyond current trawlable depth (1000+ meters deep), so the areas have experienced little or no bottom-fishing activity in the past.

Other fishing activity, including midwater trawling, will still be allowed in the BPAs in accordance with existing New Zealand fisheries law. The new regulations governing the BPAs are available at <http://gpacts.knowledge-basket.co.nz/regs/regs/text/2007/2007308.txt>.

Initiated by industry

The BPA designation represents the completion of a process begun by the New Zealand fishing industry in early 2006 ("New Zealand proposes large no-trawl zone in EEZ", *MPA News* 7:8). The industry's initial proposal for a network of deep-sea trawl closures consisted of 14 sites, and was developed in response to the government's then-emerging biodiversity strategy and marine classification system. Government invited public comment on the BPA proposal, and industry amended it following this consultation period and discussions with the Minister of Fisheries.

Jeremy Helson, a senior policy analyst with the New Zealand Ministry of Fisheries, notes that three sites were added to the network in response to concerns that the industry-proposed network contained few habitats of special value. (A 2006 report by the National Institute of Water & Atmospheric Research found that the initial set of proposed BPAs were generally located in areas with low current value both for fishing and for fish biodiversity — www.cbd.int/doc/meetings/mar/ewsebm-01/other/ewsebm-01-leathwick-en.pdf.) Helson says, "The

Minister of Fisheries suggested to industry that the proposal would be considerably strengthened if particularly sensitive habitats were included, such as hydrothermal vents. In response, the fishing industry offered to close the three additional areas to increase the conservation value of BPAs." One of the additional BPAs, Tectonic Reach, is situated along a submarine mountain chain and contains ten seamounts greater than 1000 meters in elevation as well as ten active hydrothermal vents.

Kevin Stokes, chief scientist for the New Zealand Seafood Industry Council, says there is a history in New Zealand of government and industry "talking and then doing", followed by legislation where necessary. "Motivations for action have come from government and industry on different occasions," says Stokes, who wrote an essay for *MPA News* in April 2006 on the proposed BPA network ("New Zealand Seafood Industry Proposes Huge Closures: Cynicism Or Pragmatism?", *MPA News* 7:9).

Stokes says the Deepwater Group Ltd (DWG), an organization that represents the large majority of middle-depth and deepwater quota holders in New Zealand, was mindful of developing biodiversity protection goals, MPA policy, and classification work. "The DWG sought a way of maximizing the achievement of government goals [for conservation] while minimizing the impacts on commercial operations," he says. "It undertook and contracted quality independent advice to help it put together the BPA proposals and worked hard for a long time with government to put effective measures in place." As part of the BPA negotiations, government agreed to delay establishment of further MPAs in the EEZ until at least 2013.

Compliance with the network, and criticism of it

Compliance of fishing vessels with the new BPAs will be monitored by satellite. Under existing New Zealand law, all vessels that would be capable of fishing in the BPAs are already required to carry and use an automatic location communicator, which transmits the vessel's positional data. The Ministry of Fisheries is able to track the location of each vessel from land. (Any vessels, foreign or domestic, that do not use automatic location communicators and operate outside the legitimate

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Other large trawl closures around the world

New Zealand's network of benthic protection areas is the latest large-scale trawl closure to be designated worldwide, amid growing concern of the impacts of such activity on sensitive deep-sea habitats:

- In 2005, the US designated a 950,000-km² trawl closure in the Aleutian Islands of Alaska ("Huge Aleutian MPA approved", *MPA News* 7:3);
- Also in 2005, a 1.6 million-km² network of trawl closures was designated for the Mediterranean and Black Seas, primarily comprising waters outside national jurisdictions ("Bottom trawling prohibited below 1000 meters in Mediterranean", *MPA News* 6:9);
- In 2006, major fishing companies announced a voluntary halt to trawling in 11 deep sea areas of the Indian Ocean ("Four Companies to Halt High-Seas Fishing in Southern Indian Ocean", *MPA News* 8:1); and
- In early 2007, more than 20 nations agreed to strict, voluntary limits on bottom trawling on the high seas of the South Pacific region ("Agreement Places Strict Limits on Bottom Trawling in the South Pacific", *MPA News* 8:10).

commercial system are subject to New Zealand's normal compliance monitoring, regardless of whether they are fishing in a BPA or elsewhere in New Zealand waters. This monitoring includes cooperative efforts with the New Zealand Defence Force for aerial and surface surveillance.)

The new BPA regulations require vessels to notify the fisheries ministry before entering a BPA with the intention to trawl in midwater. In addition, vessels must carry at least two observers and an electronic net monitoring system (ENMS). The ENMS continuously records the depth of the ground rope in relation to the seabed and positional data. If the ENMS records the ground rope coming within certain buffer zones above the seabed, that vessel is in breach of the regulations and may be criminally liable. "Nets that come within 100 meters of the seabed will be liable for up to a NZ \$20,000 fine," says Helson. "Those that come within 50 meters will be deemed to have hit the seabed, and will be liable for a fine of \$100,000 and forfeiture of vessel."

Chris Howe, executive director of conservation organization WWF-New Zealand, says it will not be difficult for New Zealand to manage the BPAs. "There are few if any practical challenges in managing the BPAs because the vast majority of the area is below trawlable depth," he says. "Since the BPAs are closed only to bottom trawling [and dredging], only the small areas that are within trawlable depths will require avoidance by bottom trawling vessels."


Howe is disappointed by the network, which he says is not representative of known benthic biodiversity and will lack real conservation impact. "Although the BPAs are technically representative according to a very broad-based classification of marine environments, we do not believe they are representative of benthic habitats of biodiversity significance," he says. "On the whole the BPAs protect some habitats, whose nature is largely unknown, against a single activity that does not threaten them now and is unlikely to threaten them in the foreseeable future. This is not to say that the habitats the BPAs protect are not valuable — they almost certainly are, even though we know little about them. But the benthic habitats that are within trawlable depth and that are already recognized by scientists as important are largely excluded from the BPAs." He cites a 2004 WWF-New Zealand report, *Shining a Spotlight on the Biodiversity of New Zealand's Marine Ecoregion*, in which scientists identified several benthic areas of biodiversity significance, including some at currently trawlable depths. (The report is available online at www.wwf.org.nz/fck_image_uploads/file/documents/NZ-marineBiodiv-screen.pdf.)

The fact that currently trawled areas are not part of the network has been a point of contention for conservation groups from when industry first released its proposal. Conservationists would prefer that trawled

areas be allowed to recover inside BPAs. "The BPA network suggests that fished areas are not valuable for benthic biodiversity, which is plainly wrong," says Howe. He adds that New Zealand's national MPA Policy calls for protection of areas representative of biodiversity — fished or unfished. (The MPA Policy, established in 2005, is available at www.biodiversity.govt.nz/seas/biodiversity/protected/mpa_policy.html.)

Helson of the fisheries ministry points out that the national MPA Policy includes a principle that representative protection should, where possible, be sought in areas that minimize the impact on existing users of the marine environment. "Protection of fished sites may be necessary for the purposes of fisheries management, but this is outside the scope of the BPA proposal," says Helson. "Under the MPA Policy, additional closures may be necessary to meet the full set of biodiversity protection objectives. Until such time, the BPAs provide immediate protection to a range of habitats."

Helson says the extent to which the BPAs are representative of the full range of benthic habitats will be determined at a later stage. "There is not yet sufficient scientific information to determine whether the BPAs are sufficiently representative of New Zealand's offshore marine habitats and ecosystems — but they are certainly comprehensive," he says. "The objective of the MPA Policy is to protect marine biodiversity by establishing a network of MPAs that is comprehensive and representative of New Zealand's marine habitats and ecosystems."

One milestone toward that objective, according to the MPA Policy, is for New Zealand to set aside 10% of its waters in MPAs by 2010. The BPA network appears to achieve that target by itself. Helson says, though, that the MPA Policy will continue to be implemented in coastal areas that were largely excluded from the BPA network. In addition, he says, government will take another look at the EEZ in 2013 to determine whether there are other habitats there that also need protection. "There are other policy initiatives that need to be fulfilled despite the comprehensive nature of the BPA proposal," he says. "One thing is for sure, though: the BPAs make a significant contribution to marine protection in New Zealand." 

For more information

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Special Feature More Lessons from the European Symposium on MPAs

The European Symposium on Marine Protected Areas, held in September 2007 in Murcia, Spain, provided a wide range of findings and perspectives on the use of MPAs for ecosystem conservation and fisheries management (www.mpasymposium2007.eu).

MPA News attended the symposium and featured selected presenters and findings in our October 2007 edition (*MPA News* 9:4). Coverage of the symposium continues in this and next month's editions as well. This month, we offer lessons on two aspects of MPA planning:

- Why it is useful for fisheries and conservation agencies to decide how they will resolve future conflicts in MPA planning; and
- Why it is important for MPA scientists to acknowledge what they do not yet know.

Why agencies should consider the use of pre-arranged agreements in MPA planning

It is common for countries to divide the management of their ocean resources among more than one part of government. Fisheries, for example, are usually managed by a fisheries department, while the conservation of habitats may be managed by an environment- or parks-oriented department. As a result, jurisdictional questions frequently arise when MPAs are proposed. Resolving these can result in significant delays in decision-making and planning, and frustration among stakeholders and planners.

Agencies can avoid such delays by anticipating what jurisdictional issues may arise in future MPA planning, then negotiating agreements ahead of time, says Simon Jennings. Jennings is lead scientist for the Environment and Ecosystems Division at the Centre for Environment, Fisheries and Aquaculture Science (Cefas) in the UK. He also works as an advisor on international marine conservation and fisheries issues. In a presentation at the Murcia symposium, Jennings said pre-arranged agreements between agencies could help guide those agencies in resolving questions to come during MPA establishment.

"Pre-arranged and pre-negotiated agreements are preferable to arrangements made in more of an ad hoc or case-by-case manner," he tells *MPA News*. Crafting agreements ahead of time, he says, has several benefits:

- They help to support faster decision-making in the future;

- They can buffer the planning process against inconsistencies associated with changing administrations and personnel;
- They guarantee institutional memory; and
- They ensure that all those involved in the designation process know their role at the outset.

"Of course, the initial development of pre-agreed arrangements will require a significant time investment by all parties," says Jennings. "But this short-term cost is countered by the expectation that a single, higher-level negotiation process ahead of time will attract contributions from more and better-prepared participants, and will help to reduce 'stakeholder fatigue' in the future."

Jennings cites New Zealand as an example of a country that has instituted pre-arranged agreements on MPAs. "In New Zealand there are agreements that deal with collaboration at policy and administrative levels," he says. "At the policy level, the national Government's *Marine Protected Areas Policy and Implementation Plan* identifies the purpose of MPAs and helps to achieve a consistent cross-Government approach to identifying potential MPAs based on agreed criteria. This is needed because several parts of Government 'own' the right to implement MPAs. The Department of Conservation, for example, can create marine reserves, while the Ministry of Fisheries can close areas to avoid, remedy, or mitigate unwanted fishing impacts. At the administrative level, there is also a formal agreement to cover the 'signing off' [designation] of MPAs. This helps to minimize the impact of staff changes and the changing relationships among parts of Government on the signing-off process."

Anthony Grehan, a biologist at the National University of Ireland, Galway, agrees with Jennings that pre-arranged agreements can be useful. He says the European Commission has indicated interest in developing a pre-ordained response to particular marine conservation scenarios. This interest was articulated, he says, during a recent meeting of a Scientific, Technical and Economic Committee for Fisheries (STECF) working group evaluating the effectiveness of EU policy measures for using closed areas in fisheries management (<http://stecf.jrc.cec.eu.int/>).

"In the European Union, all Member States have ceded competence to manage fisheries beyond their territorial seas to the European Commission under the Common Fisheries Policy (CFP)," explains Grehan. "The group of experts at the STECF meeting, drawn from fisheries and conservation backgrounds, considered that, in

addition to fisheries closures, conservation areas requiring management of fisheries through the mechanism of the CFP should also be evaluated.”

In early 2007, says Grehan, Ireland became the first EU Member State to request that the Commission establish appropriate measures under the CFP to allow the management of fisheries activities in offshore Special Areas of Conservation, or SACs. The SACs in question were four areas off the west coast of Ireland that had been designated under the EU Habitats Directive to protect deep-water coral. The Irish request led to the establishment of an ad hoc working group and a series of consultations with scientists and stakeholder groups. The Commission eventually adopted a proposal from the Irish Government for measures to protect these coral reefs.

What should be included in pre-arranged agreements on MPAs?

Simon Jennings says agencies should consider the use of pre-arranged agreements to help streamline the process of MPA planning and avoid delays caused by jurisdictional disputes [see adjoining article]. *MPA News* asked Jennings about the range of topics that such agreements could cover. His answer is below:

“In relation to pre-arranged agreements dealing with policy and implementation, a non-exclusive list of the main characteristics would be that the agreements should:

- Define an MPA for the purposes of the agreement;
- Specify an agreed rationale and criteria for MPA designation based on clearly articulated management objectives;
- Describe the rules for engagement between relevant authorities during the designation process (including the conduct of persons and authorities involved); and
- Provide mechanisms for dealing with appeals and ensuring the progressive improvement of the agreement and designation process.

“In addition, prearranged agreements could be developed to guide the practical aspects of the designation process including the scientific analyses necessary to predict the impacts of an MPA or MPA network.

“It is surprising that simple and obvious consequences of MPA implementation, such as the displacement of human activity and its effects on meeting management objectives that are set at scales larger than the MPA, are rarely considered on a systematic basis. A prearranged process for the provision of science advice could therefore consist of a simple checklist of analyses that need to be conducted when assessing the effects of designation and guidance on interpreting the outputs of these analyses. The analyses would focus on determining whether an MPA or network of MPAs would meet the stated management objectives. The outputs of the analyses would contribute to identifying and resolving any incompatibilities among management objectives at multiple scales — from within the MPA to regionally and internationally.”

“Reaching this decision was a lengthy process taking several months as well as engaging a large number of actors,” says Grehan. “As it is likely that other Member States will designate offshore conservation areas requiring similar measures, I assume that the Commission would like to avoid duplication and delay when requested by Member States to act in the future.” He adds that an important consideration when adopting pre-negotiated agreements, particularly with stakeholders, is to build in a review mechanism to facilitate adaptive management. By revisiting the agreement every few years, management and stakeholders can incorporate advances in scientific understanding and technology. Grehan, a participant in the EU-funded MPA research project PROTECT (www.mpa-eu.net), notes his comments for this article reflect his personal views and are not intended to represent the position of the European Commission.

Jennings says that pre-negotiated agreements remain relatively rare in the global MPA field despite their merit. “The scarcity of these arrangements is surprising given the institutional and political challenges that have been identified during MPA planning and designation,” he says. “Although pre-agreed rules may limit political ‘wiggle room’, there is growing awareness that the processes for identifying and reviewing proposed designations need to be streamlined. In part, this is simply a consequence of the higher profile of MPAs following commitments made at the World Summit on Sustainable Development and the increased time spent on MPA issues by governments. It is also based on the recognition that MPAs have often failed to meet their management objectives when they were not supported by all agencies with potential jurisdiction.”

For more information

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What the MPA science community “knows it doesn’t know”, and what this implies for management: Interview with Tim Stevens

Tim Stevens is a senior lecturer in Marine and Coastal Ecosystem-based Management at the University of Plymouth in the UK, and served for 11 years as senior principal conservation officer in the Marine Parks Branch of the Queensland (Australia) National Parks and Wildlife Service. In a presentation titled “Where to for MPAs in the UK?: Assessing the management of MPAs in the UK in a global context”, Stevens said there

were certain questions about MPA design for which scientists knew they did not yet have good answers. "In essence," he said, "the MPA science community knows what it doesn't know." *MPA News* interviewed him, below, to examine what he meant by this.

MPA News: In your view, what does the science community know that it does not yet know about MPA design?


Tim Stevens: It is important to set this in context. Where MPAs fail, they do so more often from poor governance than from failures in design, even allowing for bias in the literature. I have said this before and been taken to task for implying that all the issues pertaining to quantitative design of MPAs have been resolved, which of course they have not.

The science community is active and engaged in good science for MPA design, and is certainly aware of the shortcomings of current methods and available information. For MPAs designed primarily with biodiversity conservation in mind, the science community knows, for example, that it often lacks habitat (or biotope or assemblage) mapping at the requisite scale, and is forced to use surrogates. The science community knows that it often lacks detailed information about current and future patterns of human use. It knows that it lacks detailed information about the coupling between different functional or trophic components of biodiversity. For MPAs designed primarily for fisheries management, the science community knows that it often lacks detailed information about levels and distribution of effort (the behavior of the top predator — i.e., man). It also knows that it lacks detailed information about the movements of target species within and across reserve boundaries, and so on.

This is of course far from an exhaustive list. But the point is that there is no such thing as perfect data or methods. We have to manage, and manage effectively, with what we have, while identifying and filling the gaps.

MPA News: Why is it important for the MPA science community to acknowledge what it does not yet know?

Stevens: There are two reasons. First, it is so that we — the science community, fishers, conservation groups, managers, etc. — understand the limitations of what can be achieved at present, and are therefore able to frame realistic goals and objectives for MPA science and management within those bounds. But secondly, and perhaps more importantly, it is so that we can prioritize research and monitoring resources toward those gaps that are important in realizing the longer-term aspirational goals that are currently beyond our reach.

We can work toward that knowledge — i.e., the things we do not currently know — in a structured way by using well-designed adaptive management methods. The 2001 report *Adaptive Management: A Tool for Conservation Practitioners* by Salafsky et al. is a good place to start [available at http://fosonline.org/resources/Publications/AdapManHTML/Adman_1.html]. But in essence we should accept the reality that all policies, including MPAs, are experiments, and treat them as rigorously as we would any other experimental trial, improving them with each iteration. 

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Notes & News

Report offers priorities for coastal and marine conservation in South America

A new report published by The Nature Conservancy, an NGO, examines threats to coastal and marine biodiversity in South America and identifies priority areas for conservation in the region. The report is the result of a five-year collaboration between The Nature Conservancy and the national governments of Brazil, Chile, Colombia, Ecuador, Peru, and Venezuela. In each country, the planning process involved comparable methods for assessing the status of coastal and marine environments. "It is clear where efforts need to be directed, both in terms of where additional protected areas should be created and what threats need to be abated at the continental and the national levels," states the report. It identifies the top three threats to coastal

and marine biodiversity in South America as fisheries, urban development, and pollution. The report *Priorities for Coastal and Marine Conservation in South America* is available in PDF format at <http://conserveonline.org/docs/2007/08/South%20America%20Coastal%20Marine%20Priorities.pdf>.

European Commission proposes integrated maritime policy, high seas trawl ban

In October, the European Commission proposed a framework for an integrated maritime policy for the European Union. The framework would coordinate ocean-related policies in European waters and on the high seas, based in part on the ecosystem approach to management. The policy document and its accompa-

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nying action plan do not specifically call for MPAs in EU waters, but they do propose the designation of MPAs on the high seas. The action plan states that by 2009 the Commission will “put forward a strategy for the protection of high seas biodiversity through the designation of marine protected areas.” The proposed policy and action plan are available at http://ec.europa.eu/maritimeaffairs/index_en.html.

Also in October, the Commission proposed a strategy to protect vulnerable deep sea ecosystems from destructive fishing practices. The strategy outlines initiatives the EU will take to strengthen international action on this in Regional Fisheries Management Organizations (RFMOs), at the United Nations, and under relevant international conventions. For fishermen to operate in areas of the high seas that are not yet covered by RFMOs, the strategy would require them to obtain a special permit from their EU member state. Such permits would be issued only after the member state has assessed the potential impacts of the ship’s intended activities. In addition, fishing at depths of more than 1,000 meters would be prohibited to EU vessels. The proposed strategy is available at http://ec.europa.eu/fisheries/press_corner/press_releases/com07_68_en.htm.

Report: Best practices for regional fishery management organizations

A new report describes best practices in the implementation of regional fisheries management organizations and identifies priorities and goals that RFMOs should

address to meet the challenges of global fisheries management. The report discusses MPAs as a best practice for protecting and conserving habitats, and describes examples of effective coordination between RFMOs and regional seas bodies toward implementing MPA networks. Funded by the governments of Australia, Canada, New Zealand, and the UK, as well as WWF International, the report is the product of an independent panel hosted by the Royal Institute of International Affairs, Chatham House, in London (UK). *Recommended Best Practices for Regional Fishery Management Organizations: Report of an Independent Panel to Develop a Model for Improved Governance by Regional Fisheries Management Organizations* is available in PDF format at www.chathamhouse.org.uk/publications/papers/download/-/id/523/file/10394_rfmo0807.pdf.

Paper suggests prehistoric fishermen used BOFFFF hypothesis

A new paper published in the *Journal for Nature Conservation* examines a 1500-year history of aboriginal fishing at a coastal village on the Pacific coast of Canada. By excavating and studying the skeletal remains of rockfish (*Sebastes* spp.) consumed by prehistoric inhabitants of the area, the paper concludes that aboriginal populations intentionally targeted smaller-sized rockfish individuals. Consistent with the BOFFFF hypothesis described in the September 2007 *MPA News*, this strategy of targeting smaller, younger fish would have facilitated a higher overall catch rate without removing reproductively potent older fish, states the paper. (The BOFFFF hypothesis proposes that maintaining old-growth age structure can be important for replenishing fished populations because larger, older females often produce significantly more offspring — and sometimes stronger offspring — than younger females do. It applies particularly well to long-lived, slow-maturing species like rockfish.)

Study author Iain McKechnie of Simon Fraser University notes that the fishery in this marine area was sustained for roughly 75 human generations. “This stands in marked contrast to the dramatic and potentially catastrophic fishery declines witnessed during the past 40 years throughout the Pacific coast of North America,” he writes. The marine area around the study site is part of the Pacific Rim National Park Reserve and was designated a no-take rockfish conservation area in 2002. For a copy of the paper “Investigating the complexities of sustainable fishing at a prehistoric fishing village on western Vancouver Island, British Columbia, Canada” (*Journal for Nature Conservation* 15[3]:208-222), e-mail Iain McKechnie at iain@sfu.ca.

MPA Tip: Management plans should be clear and simple

“MPA Tip” is a recurring feature in *MPA News* that presents advice on planning and management gathered from various publications on protected areas. The purpose is two-fold: to provide useful guidance to practitioners, and to serve as a reminder of valuable literature in the MPA field.

MPA News adapted the following tip from *Guidelines for Management Planning of Protected Areas* (IUCN, 2003) by Lee Thomas and Julie Middleton, available online at <http://app.iucn.org/dbtw-wpd/edocs/PAG-010.pdf>.

Tip: The simpler the management plan, the easier it will be to develop and implement. It will take less time to prepare, will cost less, will be more flexible to change, will be easier to read and understand, and will require fewer staff with lower levels of training. Detail and complexity will evolve naturally as the plan is regularly updated and as increased support becomes available. Modest management planning efforts are also likely to be more cost-effective than elaborate ones, thus freeing funds and resources for other purposes. 