

Managers of Cultural MPAs Face Unique Challenges

In global discussions on the practice of MPAs, the focus is usually on how to manage marine natural resources most effectively – namely fish stocks and habitats. But several MPAs around the world exist for the protection of *cultural*, rather than natural, resources. These MPAs, often designated around historic shipwrecks, present some unique challenges for their managers.

This month, MPA News examines these challenges and, in an adjoining feature at right, assesses what a pending United Nations agreement on protecting “underwater cultural heritage” could spell for cultural MPAs.

Role of archeology in management

The USS *Monitor* is among the most famous vessels in US maritime history. The first of a class of low-slung, ironclad warships, she engaged in close cannon-fire with the Confederate States’ ironclad *Virginia* in 1862 – a Civil War battle that spurred the end of the age of wooden warships. Just a few months later, the *Monitor* was lost in a storm off Cape Hattaras, North Carolina (on the US East Coast), sinking in 72 meters of water, 16 nautical miles from shore.

More than 100 years afterward, in 1975, the US government designated the resting place of the *Monitor* as the nation’s first national marine sanctuary. Measuring approximately one mile in diameter and stretching from seabed to sea surface, the sanctuary now features a range of regulations to protect the wreck – among them, prohibitions on anchoring, salvage, drilling, and trawling.

Bruce Terrell, maritime historian for the US National Marine Sanctuary Program, says appreciation for history and archeology is essential for the effective management of cultural MPAs like the *Monitor* site. “A lot of the information you get from a shipwreck site is available only through archeological examination,” he said. The reason is because the spatial relationship of artifacts on a wreck, as well as the kinds of artifacts present, can tell much about the life of sailors aboard – what different classes ate, how they passed the time, etc. Archeologists, if allowed to maintain control over a site, may examine the relationships of its artifacts carefully.

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UNESCO Draft Convention on Protection of Underwater Cultural Heritage: An Introduction

At present, there is no international instrument to provide significant legal protection to underwater cultural heritage – shipwrecks, sunken cities, underwater cave paintings, and so forth. Although some nations possess laws to provide protection in their own waters, others don’t. This has led to confusion about the rights of a nation to protect its cultural heritage, whether submerged in its own waters or another nation’s, or on the high seas.

This could soon change. From October 15 through November 3 of this year, the General Conference of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) will meet to discuss, among other things, the adoption of a draft convention for the protection of underwater cultural heritage. If adopted by a two-thirds majority of UNESCO member nations, the draft convention would become international law, at least for its signatories.

Below is a snapshot of some of the pertinent issues. The full text of the draft convention is available online in PDF format at <http://unesdoc.unesco.org/images/0012/001232/123278e.pdf>.

Main feature of the draft convention: Among signatories, no activity directed at underwater cultural heritage may occur without a permit, no matter where the heritage is located. The draft convention provides guidance on the permitting process, including from which party the permit must be sought depending on the location of the heritage.

UNESCO, continued on page 2

Editor’s note:

The adjoining articles use the word *cultural* – as in, cultural resources or cultural heritage – as an umbrella term. It is intended to describe all underwater heritage of human existence, including archeological and historic character.

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Cultural MPAs

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The natural rivals of the maritime archeologist are the salvor and looter, searching for artifacts of financial value and sometimes compromising the stability of a wreck in the process. Such activities, in fact, are the main drivers in the designation of cultural MPAs. The main intent of Congress in designating the *Monitor* sanctuary was to protect it from looting and unwanted salvage (see box, facing page).

Providing fair protection for a wreck is not always as simple as drawing a line around it, however. Some salvors have accused archeologists and site managers of unfairly trying to keep artifacts for themselves, in spite of the long maritime tradition of salvage. Terrell says he doesn't mind seeing salvors take some items, particularly duplicative ones like gold coins or gold bars that he says do not hold as much archeological interest. "These

kinds of items can be allowed back into the stream of commerce," he said. "Personally, I don't have a problem with salvors who obey the law. I am more concerned with illegal looting."

Fostering respect for a site

Education of local stakeholders is a critical part of managing most any MPA. For cultural MPAs, it involves encouraging an ethic of respect for protected shipwreck areas. "A lot of people don't understand the importance of underwater historic preservation," said Terrell. "They might not consider picking up an artifact at a terrestrial site, but would snatch one from an underwater site without thinking about it – it's a gold-digger mentality."

When the Florida Keys National Marine Sanctuary (US) set out to create a "Shipwreck Trail" for divers in the sanctuary, planners had two goals in mind: to

UNESCO

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What would be covered: The draft convention covers "all traces of human existence having a cultural, historical, or archeological character which have been partially or totally underwater, periodically or continuously, for at least 100 years...." Lyndel Prott, director of the UNESCO Division on Cultural Heritage, explains that the 100-year minimum is primarily a matter of administrative convenience. "[It] corresponds to much national legislation on archeological research on land, which applies to objects more than 100 years old," she said. It also corresponds to customs practice, which has given preferential treatment to antiques, defined as more than 100 years old.

Some of the objectives: The draft convention requires the consideration of on-site preservation of underwater cultural heritage as the first option before allowing any activities directed at it. Responsible non-intrusive access to observe or document on-site underwater cultural heritage "shall be encouraged to create public awareness, appreciation, and protection of the heritage...." Underwater cultural heritage may not be commercially exploited.

Rights of signatory nations: Signatories have the exclusive right to regulate and authorize activities directed at underwater cultural heritage in their territorial sea and contiguous zone, and may enforce this right. On matters in a signatory's exclusive economic zone (out to 200 nautical

miles), however, the draft convention does not provide any new enforcement authority. There are several provisions making it clear that the convention must be interpreted consistent with international law, including the UN Convention on the Law of the Sea. Accordingly, enforcement would be allowed, at least among the signatories, to the extent consistent with international law.

Responsibilities of signatory nations: Signatories must require their nationals to report any discovery of underwater cultural heritage (even if discovered in another signatory's waters), and must prohibit them from engaging in activities directed at the heritage without a proper permit.

What it means for MPAs: The convention, as drafted, would strengthen the protection of cultural MPAs. This would come mainly by bolstering the authority of signatories to prescribe regulations for existing and future MPAs, and to enforce those regulations against foreign-flag nationals and vessels, at least in the territorial sea and contiguous zone. 

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educate divers about maritime heritage and its protection, and to redirect diving pressure from the sanctuary's major natural reefs. Officials consulted with local dive operators to decide which nine shipwrecks – of the many lining Florida's southern coast – should compose the trail. The finalists were selected, in part, for their ability to educate not only about history but also for protection of key features. One site was chosen for, among other reasons, its ability to show the after-effect of salvage and looting.

The Florida Division of Historical Resources operates a separate collection of seven shipwreck-based "underwater archeological preserves". Della Scott, an underwater archeologist for the division, says the purpose of the program is to educate the public – both tourists and locals – about the state's maritime past. People from out-of-state can come to enjoy the sites, she says, but even more important is the goal of encouraging local Floridians' appreciation of their common heritage.

"The idea behind the preserves is to get the community involved," said Scott. "Community members are in charge of nominating sites, then our office will check to see if those sites meet certain criteria." The criteria, she said, include whether it is a safe diving site; whether it has enough structure to attract marine life; and whether it has an established vessel identity. Once the state designates a preserve, it is basically up to the local community to keep it clean of debris and encourage compliance with no-looting regulations – hence the importance of community support for the idea of the preserves.

Time is a factor

In deciding to designate a preserve, Scott's office also looks at the stability of a nominated site. If a site is unstable and in danger of disintegration, the state won't designate it. Her program is small and on a tight budget – with three staffers at most – and can't afford financially to be in charge of site upkeep. The costs of restoration are too high.

"Most of our sites are in pretty good shape," she said. "One of them is a 350-foot-long chrome-nickel-steel battleship, and not much is going to hurt that." One currently nominated site – the remains of an old wooden steamboat in shallow water, covered in thin sand – could be degraded by divers' brushing away the sand, she says. As a result, she questions whether that site will be designated.

The gradual deterioration of shipwrecks can be the most significant challenge to managers. "The biggest enemy of the *Monitor* is time," said Jeff Johnston, research assistant for the *Monitor* sanctuary. "She's falling apart." Consisting of a wood/metal frame, and located in a fairly dynamic environment with relatively high-

Designation of the *Monitor* sanctuary

When the US Congress designated the *Monitor* National Marine Sanctuary in 1975, its main intent was to protect the site from looting and unwanted salvage. At the time, however, the US Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 – under which the sanctuary was designated – did not provide for the protection of historic heritage. Rather, it focused on the protection of an area's "natural resource and ecological qualities." It was not until an amendment of the MPRSA in 1984 that Congress expressly included historic resources under the scope of the law.

temperature saltwater, the *Monitor* is in danger of corroding away.

In the past three years, *Monitor* sanctuary personnel, in conjunction with the US Navy, have sent divers down to recover features of the vessel, most recently her engine. Artifacts from the ship are now on display in the more hospitable climate of a museum, and more recovery expeditions – including for other major features of the wreck – are on the way.

As such recovery continues, will there come a time when the *Monitor* sanctuary will no longer contain the *Monitor*? "That is a key issue that we've had to address," said Johnston. "But there are still a lot of artifacts there. Once the major recovery operations are over, we will continue to sweep forward, examining the wreck square foot by square foot. I see the *Monitor* as remaining a viable sanctuary for many, many, many years to come."

What might buy time for the sanctuary, and for other cultural MPAs, will be technological solutions to slow the sites' degradation. Cathodic protection – or the use of metal anodes to divert corrosion away from ships – is one option, at least for metallic wrecks, says Johnston. Widely used by the offshore oil industry to slow corrosion of pipelines, these cylindrical anodes can change the electric field of a wreck, causing the anodes to corrode rather than the ship. The sacrificial anodes are made of more electrochemically active metal than the wreck. Once a set of anodes is fully corroded, another must be attached in its place.

The *Monitor* sanctuary has already done some limited experiments with cathodic protection, says Johnston. "You can't reverse the deterioration, but you can arrest it," he said. 

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New Atlas of World's Coral Reefs Sheds Light on Status of MPAs

UNEP-WCMC protected areas database is partially online

The UNEP-WCMC protected areas database has been in development since the early 1980s. An online prototype of the database, containing an incomplete register of the database's information, is at http://www.unep-wcmc.org/protected_areas/data/nat2.htm. Access to the complete database may be conducted through the publication *United Nations List of National Parks and Protected Areas*, or through direct inquiries to UNEP-WCMC.

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A new atlas prepared by the World Conservation Monitoring Centre of the United Nations Environment Programme (UNEP-WCMC) provides what it describes as the first detailed accounting of the state of coral reefs around the world. The glossy, 424-page *World Atlas of Coral Reefs* offers full-page maps depicting reefs and associated MPAs, and assesses the threats facing both.

The atlas divides its subject into three broad geographic realms: the Atlantic and Eastern Pacific; the wider Indian Ocean and Southeast Asia; and the Pacific. These are then subdivided into regional chapters, then smaller sections. Each section covers a range of issues, including the physical geography of each region or country and the structure and biodiversity of the reefs.

The book should be useful to practitioners of coral reef MPAs interested in comparing their sites to others around the world, in terms of biodiversity, threats, and protection efforts. "The atlas gives a flavor of the global network of protection for coral reefs, and of the gaps in this network," said lead author Mark Spalding, senior program officer for UNEP-WCMC's Marine and Coastal Programme. "There are some great stories arising from different management approaches around the world, and there may be opportunities to apply lessons learned in one country to those in another." (Spalding's co-authors were Corinna Ravilious and Edmund Green, both of UNEP-WCMC.)

Challenge of mapping reefs

The first major global treatise prepared specifically on coral reefs, including a map of coral reef distribution, was produced by Charles Darwin in 1842. Aside from a somewhat more detailed map by the French scientist Joubin in 1912, most coral reef mapping has since occurred at the local level, although at ever higher resolutions and with greater technological capability.

The new atlas has incorporated remote sensing data – including from satellite sensors and aerial photography – with existing base maps and some ground-truthing to produce maps with scales as fine as 1:250,000. In other words, 1 millimeter on the map represents 0.25 kilometer on the ground. The maps are contained in a GIS database maintained at UNEP-WCMC. (A full electronic version of the atlas will not be available online, says Spalding. He is hopeful, however, that UNEP-WCMC will soon post on its website much of the atlas's underlying map and statistical data.)

"One real challenge was to make sure we captured the remote, isolated and little-known reefs and islands," said Spalding. "Amazing though it may seem in the modern world, there are still a few places that are really unknown. In quite a few places in the Pacific, the best

[general] maps were actually drawn up by Captain Cook and others in the 19th century. There are probably still reefs out there that have never been mapped, or even seen." The authors relied on networks of scientists and managers to track down details on little-known reefs, including on their structure and biodiversity.

The book provides a new estimate of the total area of coral reefs worldwide: 284,300 sq. km, or about half the size of Madagascar. Of that, the book calculates the percentage of each country's reefs perceived to be "at risk" – that is, experiencing a medium to high level of threat from fishing, pollution, or sedimentation. Some countries' reefs are listed as being 100% at risk, although the authors point out that these percentages are meant to measure potential threat rather than actual reef state. "In a number of countries, threatened reefs remain in good condition," write the authors.

Coral reef MPAs

Of interest to MPA practitioners is the book's mapping of more than 660 MPAs that incorporate coral reefs. Taken from the UNEP-WCMC database of protected areas (see margin note, at left), the MPAs are described by name and IUCN management category, providing an indication of the legal regime intended to protect the site (MPA News 1:4), although not always an indication of the site's effectiveness.

"Unfortunately, many protected areas exist on paper only – they are poorly managed and have little or no support or enforcement," write the authors. "Equally worrying is that in almost every single case, protected areas are aimed solely at controlling the direct impacts of humans on coral reefs. Fishing and tourist activities may be controlled, but the more remote sources of threats to reefs, notably pollution and sedimentation from adjacent land, continue unabated. Without a more concerted effort to control all of the impacts of humans on coral reefs, even the best managed marine protected areas may be managed in vain."

Akin to the challenge faced by producers of other visual inventories of MPAs, the atlas authors were unable to find exact boundary details for many MPAs. As a result, they write, it is not yet possible to calculate accurately the proportion of the world's coral reefs that are protected.

The atlas costs US \$45, and may be ordered directly from the publisher (University of California Press) at <http://www.ucpress.edu/books/pages/9635.html>. For a free limited time, there will be copies made available free of charge to organizations in developing nations – namely conservation programs and libraries. If your organization is eligible, contact Mark Spalding (contact information at lower left) by September 28, 2001. 

Workshop Results: Tips from Scientists on Improving Science in MPA Management

Scientists and managers from more than 20 countries gathered in July to share information on the role of science in MPA management. In a workshop held prior to the Coastal Zone '01 conference in Cleveland, Ohio (US), attendees discussed ways to improve coordination of science and management, including through the enhanced participation of local stakeholders.

The three-day international workshop – directed by the US National Ocean Service and sponsored by several organizations – culminated in a brainstorming session to provide advice on improving the conduct and use of MPA science. The workshop participants and their results were divided into two general groups – scientists and managers.

MPA News has excerpted below the advice of the scientist group, which had members from eight countries on four continents. The group included both natural and social scientists. (Advice from the managers will be printed in the next issue of MPA News.)

The advice from scientists:

On how communication could be improved between scientists and managers:

First there has to be a willingness to communicate.

There need to be partnerships and linkages, including technical advisory boards for MPAs that include both scientists and managers. On research, education, and extension, managers and scientists should work together at all times.

Managers should be trained to ask scientific questions, and scientists should be trained to think in terms of management.

It would be good if, after setting up a management process, managers then came to scientists and told them what they needed and how they would use that information. Conversely, scientists should be more open and available to managers and stakeholders. In

some cases, managers should not be able to move forward without technical approval and support from scientists.

In terms of global communication, there is a need for the creation of international research and management networks for MPAs, as well as electronic discussion groups.

On how traditional knowledge can be woven into science and management discussions:

Scientists and managers should treat communities as peers – listening to them, getting instructions from them, and involving them in some of the data collection. Locals should be involved as translators between the community and scientist/manager team. Scientific information should filter back to the communities so that local stakeholders can see that their involvement in the science has formed a contribution.

Scientists and managers should live in the community for an extended time, allowing for their gathering of first-hand information.

Each group in the community – categorized by gender, age, employment, etc. – should be spoken to individually so that all voices are heard. Politicians should also be involved in the scientific dialogue.

On how stakeholders can play roles in MPA science:

Involve and motivate all stakeholders throughout the policy and management process, including through voluntary monitoring efforts, education, data collection, and self-reporting.

Scientists and managers must maintain stakeholder interest and long-term commitment to the site's protection. One way this can be done is through annual festivals of monitoring that include training and data collection.

Provide incentives for community participation without being paternalistic. 

For more information on the international workshop:

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For more information on the advice of the scientists group:

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MPA News is on the web

To view all back issues of MPA News in HTML or PDF format, please visit the MPA News website, at <http://www.mpanews.org>. Stay tuned: In October, the new MPA News website will go online, offering visitors a more visually attractive interface and the ability to search through back issues.

Reader Challenge: When Was the First MPA Designated?

The past two decades have experienced a surge in the number of marine protected areas designated around the world. Some are small, some larger; some are no-take, some multiple-use. The global collection of MPAs – consisting of thousands of sites worldwide – has evolved to feature a broad range of designs, management regimes, and goals.

But from what did this MPA constellation evolve? How has MPA practice changed since the first marine protected area? And what do those changes mean for how practitioners should plan for the future?

To begin to answer these questions, one must first decide on when the first MPA was designated. This point is surprisingly unclear. Last month, in the *coral_list* online discussion group (see left), the question of when the first MPA was designated elicited answers suggesting sites across the globe, with designation dates ranging decades or more.

In the interest of getting to the bottom of this, MPA News presents a challenge to its readers. It consists of one question, to which we'd like your best effort to answer:

When was the first MPA designated?

Entries will be featured in an upcoming issue of MPA News. In addition, the oldest MPA nominated for each continent will be listed.

Here are the ground rules:

1. Each entry should provide the name of the MPA, year of its designation, country name, and some sort of documentation or reference to verify the entrant's claim.
2. For purposes of clarity, please use the IUCN definition of marine protected area: "An area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment."
3. Nominated MPAs must exist currently. (We realize that this turns the contest into more a question of the *oldest* MPA – which is not necessarily the same as the *first* MPA. That said, if a really old, nonexistent MPA is nominated, we very well might mention it.)
4. The entrant who submits the entry for the oldest existing MPA will receive an official MPA News tote bag as a prize.
5. Submit entries to MPA News at mpanews@u.washington.edu. Entries must be received by October 15, 2001.

Thanks! We look forward to hearing from you. 

To join the *coral_list* online discussion group

For directions on subscribing to *coral-list*, go to <http://www.coral.noaa.gov>, move your mouse over "Popular" on the menu bar, then click on "Coral-List Listserv".

Notes and News

Clarification: The correct address for the website co-managed by the US Departments of Commerce and the Interior to provide news and information on national MPA efforts is <http://mpa.gov>. The August 2001 issue of MPA News incorrectly printed the address as <http://www.mpa.gov>. Both addresses direct the visitor to the same website, but the departments refer to the site by the shorter address.

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Due to the tragic events of September 11 in the US, the nomination period for the US national MPA Advisory Committee has been extended to September 30, 2001. The call for nominations is at <http://mpa.gov>.

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Designing Effective Coral Reef Marine Protected Areas, a synthesis report based on presentations at the 9th International Coral Reef Symposium – held October 2000, in Bali, Indonesia – is available online in PDF format. The website address for the 23-page document is <http://wcpa.iucn.org/pubs/pdfs/ICRSreport.pdf>.

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The Center for Coastal and Watershed Systems at the Yale School of Forestry and Environmental Studies (US) is holding a 12-week lecture series this fall titled "Marine Protected Areas: Translating Science into Practice". The website for the series is <http://www.yale.edu/ccws/munson2001.html>.

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