

Should MPAs Play a Role in Reducing Poverty?

Poverty can have a profound impact on protected areas. When surrounding communities are desperate for money or food, public support for protected area regulations — including rules against harvesting wildlife — will often decline. As a result, conflicts and enforcement costs increase, and protected area goals may be compromised.

At the World Parks Congress in 2003, delegates formally agreed that the long-term sustainability of protected area networks and the achievement of poverty reduction were inextricably linked (see box, right). Calling on governments to “maximize” the contribution of protected areas to sustainable development and poverty-reduction efforts, the delegates declared that protected areas “should strive to contribute to poverty reduction at the local level.”

The concept makes sense. But with many MPAs worldwide already struggling to achieve their biodiversity conservation goals, is it realistic to expect managers to add poverty reduction to their list of responsibilities? Or is there no other choice? This month, *MPA News* takes a conceptual look at what role MPAs can, or should, play in reducing poverty.

MPAs and “pro-poor” management

To the extent that an MPA actively works to aid poor populations nearby, such management might be referred to as “pro-poor”. This term was the basis for an international study from 2001-2003 in which researchers explored opportunities for pro-poor management at existing MPAs throughout the Caribbean. Such opportunities could include providing alternative and fishery-related livelihoods, increasing benefits to local communities from tourism, and involving locals more fully in management decisions. The project was funded by the UK Department for International Development and conducted by scientists from the University of the West Indies (Barbados) and MRAG, a UK-based consultancy.

“Several studies had shown the ecological benefits of MPAs,” says Caroline Garaway, an anthropologist formerly with MRAG and now at the University College London. “But fewer had shown their socioeconomic benefits — and costs — or researched the barriers to their benefit provision to poorer groups. This project was born specifically to fill that gap.” The project analyzed the institutional designs, policy

frameworks, and community impacts of four MPAs in particular: Princess Alexandra Land & Sea National Park, Turks & Caicos; Negril Marine Park, Jamaica; Hol Chan Marine Reserve, Belize; and Glover’s Reef Marine Park, Belize. Ultimately, the research team determined that management at each site could do more to help reduce poverty, including by developing other options for local livelihoods.

However, when the research results were presented to MPA practitioners and scientists, the concept of pro-poor management of MPAs was questioned.

In a workshop held to discuss the project at the November 2002 annual conference of the Gulf and Caribbean Fisheries Institute, attendees challenged the term “pro-poor” and whether poverty reduction should be an explicit objective of MPA management.

“The objection to ‘pro-poor’ came from several angles,” says Garaway. “For some, the term suggested that poverty alleviation was an objective of MPA management, and this was something they did not agree with. If poverty alleviation occurred, that was all well and good. But MPAs were about environmental conservation first and foremost, and that should not be deviated from.” She says other attendees objected to the division of stakeholders into subgroups — poor and not poor — rather than considering communities as a whole.

Biologist Hazel Oxenford of the University of West Indies, a co-investigator on the project, admits that tying poverty to MPAs is somewhat awkward. “The

WPC Recommendation 5.29

Delegates to the 2003 World Parks Congress in Durban, South Africa, approved a formal recommendation on the subject of poverty and protected areas. In the recommendation, delegates to the once-a-decade meeting of government officials, scientists, and conservationists stated the following:

“Given the fact that many local communities living in and around protected areas have limited development opportunities, protected areas offer a currently untapped opportunity to contribute to poverty reduction while continuing to maintain their vital function in conserving biodiversity. Recognizing the importance of people in conservation, we need to support poor communities to act as the new frontline of conservation. This implies new ways of working with local communities to act as custodians of biodiversity through working with protected area authorities, and to build their ability to manage their own areas....”

The complete recommendation, including general instructions for governments, intergovernmental organizations, NGOs, and donors, is available online at <http://www.iucn.org/themes/wcpa/wpc2003/pdfs/outputs/recommendations/approved/english/html/r29.htm>.

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Planning alternative livelihoods

Where can MPA practitioners go for practical guidance on making poverty reduction a part of their activities? For those interested in developing alternative livelihoods for local stakeholders, a guidebook by the United Nations Development Programme (UNDP) offers straightforward advice. *Local Business for Global Biodiversity Conservation: Improving the Design of Small Business Development Strategies in Biodiversity Projects* helps readers determine whether and how a business development strategy should be pursued, and describes the most suitable types of products or services to develop. The 76-page publication is available in PDF format at http://www.undp.org/gef/undp-gef_publications/publications/localbus_globalbdconserv.pdf.

Also, the lead article in the August 2003 issue of *MPA News* (5:2) — “When Fishing Grounds Are Closed: Developing Alternative Livelihoods for Fishing Communities” — provides examples of how resource managers have worked to help fishermen and communities adjust economically to fishing closures. The examples are from eastern Canada, Komodo National Park in Indonesia, and the Indian Ocean.

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idea that MPAs are for poor people seems wrong,” she says. “MPAs are about conserving and sustaining resources and livelihoods of those who rely on the resources — poor or otherwise.”

Some attendees suggested that instead of looking at how MPAs could reduce poverty, researchers should examine how reducing poverty could improve management. Garaway sees the difference: one mindset views poverty reduction as an end in itself, while the other sees it as a means to improved conservation. But she suggests that the two views are not mutually exclusive.

“MPA agencies should be interested in addressing the needs and concerns of poorer groups,” she says.

“Apart from anything else, support of such people will be crucial for policing MPAs when the MPA management resources for doing so are scarce. At the same time, those primarily interested in poverty reduction should take an interest in MPA management. The long-term effects of environmental degradation that may come from ineffective MPA management are likely to have a long-term detrimental impact on poor user groups who rely on that environment. From our point of view, it is in the interests of MPA agencies and those interested in poverty reduction to identify opportunities and constraints to implementing MPAs, and to do so in a way sensitive to the needs of poorer groups living in and around them.”

For more information on the project, titled “Institutional Evaluation of Caribbean Marine Protected Areas and Opportunities for Pro-Poor Management”, visit <http://www.mragltd.com/e-LandWater.htm>. (Scroll down the page to find the project.)

Weighing conservation and poverty reduction

Following the 2003 World Parks Congress, biologist Tim McClanahan of the US-based Wildlife Conservation Society wrote an essay that was published in the journal *Aquatic Conservation: Marine and Freshwater Ecosystems* (14:1-4). Reviewing recommendations from the congress, McClanahan asked readers how protected areas could solve poverty and other problems while still maintaining their core goal of biodiversity conservation. *MPA News* turned the question back to him.

“If I had the answer I probably would not have posed the question,” says McClanahan, who has studied tropical marine ecosystems worldwide, including extensive research on Kenyan MPAs. “We need to constantly ask, attempt to answer, and return to this question as we develop and monitor conservation and poverty reduction programs. Otherwise, we will continue to fool ourselves about what is conservation and poverty reduction, and continue to confuse the two issues in our attempt to include all the underdogs.”


McClanahan says there is a shifting baseline not only for the state of nature but also for what we consider to be conservation. “This will trouble those of us who would like to see the maintenance of indigenous biodiversity and self-organizing ecosystems,” he says. “We like to imagine that by assisting both the poor and nature that we will ultimately triumph. But this is naïve. We need to work beyond the good feelings and dissect the relationship to develop a long-term functional relationship that does not compromise biodiversity. Ultimately an objective measure of success is needed, which is the state of indigenous biodiversity and ecological processes.”

He says that the ability of MPAs to reduce poverty is situation-dependent, based largely on the local economy, the state of fisheries, and whether tourism is feasible in the area. Where the likelihood of tourism is low, for example, the benefits of no-take zones to local communities may be minimal in many cases, at least until resource abundance increases in the closed areas and starts to replenish surrounding fishable waters, he says. That could take years to occur. (He notes that if overfishing were occurring beforehand, then the no-take zones would be beneficial — tourism or not — by protecting the existence of the resource.)

Poverty on agenda at World Conservation Congress

The impact of poverty on protected areas and other conservation programs will be a major topic of discussion at the Third IUCN World Conservation Congress, to occur 17-25 November 2004 in Bangkok, Thailand. Several workshops and roundtable discussions will focus on poverty reduction and conservation, and one workshop will specifically assess the impact of poverty on protected areas. The congress is the general assembly of IUCN members, which takes place every three to four years. IUCN, also called the World Conservation Union, has members from 140 countries, including 77 nations, 114 government agencies, and more than 800 NGOs. For more information about the congress, including a list of workshops and other events, visit <http://www.iucn.org/congress/index.cfm>. *MPA News* will report on MPA-related outcomes of the congress in a future issue.

In contrast, where tourism is relatively high, MPAs are likely to alleviate poverty when the wealth is equitably distributed — "...which cannot be safely assumed," says McClanahan. He adds that tourism will not be sufficient in most areas of the world to support the size and number of MPAs needed to preserve biodiversity. "Therefore, extrapolating estimates of wealth generation from the few highly successful tourism-dependent MPAs to the rest of the globe will suffer from extreme scaling and assumption problems," he says.

"We are much better at monitoring and giving voice to poverty than we are to the state of indigenous biodiversity," says McClanahan. "Because poverty metrics and the associated political voice are seductive, they can easily tip the balance toward man and away from nature. The shift away from biodiversity will continue until we understand when biodiversity conservation and poverty reduction are compatible and when they are not. This is probably the greatest contemporary challenge of our time." 

New Fund to Channel Tourism Revenues to Mexican MPAs

In many circumstances, tourism offers a powerful opportunity for sustainable funding of MPAs. But harnessing that potential can be daunting to managers unfamiliar with setting up financing schemes. And tourism itself can bring challenges related to potentially negative impacts on resources.

A new fund in Mexico aims to help MPA managers achieve a balance: harnessing the potential of ecotourism to generate revenue for park management, while using part of that revenue to help reduce tourism-related threats and measure success. Called FOSANP (Fondo Sudcaliforniano para Areas Naturales Protegidas), the fund captures voluntary donations from the tourism sector, using a variety of mechanisms. It then distributes the funding among six national MPAs in the Southern Baja California region of Mexico, while also offering programs to build the capacity of managers.

"FOSANP is based on the premise that tourists are interested in supporting protected area management in Southern Baja California," says Gabriela Anaya, director of Niparajá, a Mexican NGO that jointly created the fund. (The other co-creators were The Nature Conservancy — a US-based NGO — and CONANP, the Mexican government's Commission on Natural Protected Areas.) Development of the fund followed a survey in which tourists indicated their willingness to pay to help protect MPAs in the region. Each year, more than 80,000 tourists visit the six MPAs involved with the fund.

Revenue-generating mechanisms

The fund generates its revenue from three mechanisms:


- Souvenir tags for diving and whale watching, offered for sale by tour operators, hotels, and restaurants. Tags cost US\$10 or more.
- Membership in "Friends of Wild Baja", for which members receive a semi-annual electronic bulletin about the MPAs. Memberships cost US\$25.
- An "eco-tariff" program, in which participating hotels agree to donate US\$1-\$3 per guest to FOSANP.

The tags and membership programs have been operational for four months now, while the eco-tariff program is to be implemented this December, says Anaya. In the

opening months of the program, US\$3000 has already been raised, and the high tourism season is only just starting. "We feel optimistic about the fundraising capacity of FOSANP in the coming months," says Anaya. She notes that the idea for each program was adapted from successful efforts elsewhere. The tags, for example, are based on similar programs conducted by Bunaken National Park in Indonesia and Bonaire National Marine Park in the Netherlands Antilles.

FOSANP is overseen by a board of directors consisting of tour operators, hotel owners, NGOs, MPA managers, and academics. The board will decide on how the revenues are to be used by the MPAs, and is also designing a framework for sustainable tourism in the region's MPAs, to

include capacity-building programs, education of tour operators, and tourism-impact monitoring plans for the participating sites. The board ultimately aims to expand the fund to assist all MPAs in the region.

So far, the six participating MPAs in FOSANP are Loreto Bay National Park, Cabo Pulmo National Park, Sierra La Laguna Biosphere Reserve, El Vizcaino Biosphere Reserve, Gulf of California Islands Flora and Fauna Reserve, and Cabo San Lucas Flora and Fauna Reserve. The sites feature ecosystems ranging from coastal lagoons, to deep submarine canyons, to the northernmost living coral reef in the Eastern Pacific. 

Another new fund in Baja California

FOSANP is not the only new fund in Mexico's Southern Baja California region harnessing tourism revenues for MPAs. The Fund for the Conservation of the Gulf of California (FCGC) has been established by Lindblad Expeditions, a cruise line, to collect voluntary donations from its passengers. Each donation will be matched dollar-for-dollar twice: once by WWF, and again by the Mexican Nature Conservation Fund, a large public-private organization responsible for disseminating funds to many of Mexico's federal protected areas.

There will be an annual call for proposals on how the funds may be spent. Only research institutions, NGOs, and certain other organizations may request money from FCGC to implement conservation projects within and outside protected areas in the region.

Lindblad Expeditions, which refers to the program as its "Baja Forever!" campaign, has operated a similar initiative in the Galápagos Islands for several years. Voluntary donations from passengers on Lindblad cruises have helped raise more than US\$2 million since 1997 for conservation programs in the Galápagos National Park and Marine Reserve. An international advisory board meets regularly to select projects for funding. For more information on Lindblad Expeditions' conservation efforts, visit <http://www.expeditions.com/aboutus/ourconservation.asp>.

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Editor's note

William Alevizon is a senior marine ecologist with the marine conservation program of the Wildlife Conservation Society, a US-based NGO. A specialist in population and community ecology of reef fishes, Alevizon has conducted research on Caribbean and Florida reef habitats and fisheries over the past three decades. He recently served as member of a US working group to develop guidelines for watching marine wildlife, consisting of representatives from several federal agencies, NGOs, and other institutions. The working group's guidelines, released in January 2004, are available at http://www.watchablewildlife.org/publications/marine_wildlife_viewing_guidelines.htm.

A list of the literature cited in this perspective piece is available at <http://depts.washington.edu/mpanews/Alevizon-fish-feeding-cited.htm>.

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MPA Perspective Divers Feeding Fishes: A Continuing Issue in MPA Management

By William Alevizon, Wildlife Conservation Society, USA

The feeding of fishes and other marine wildlife by recreational divers and snorkelers remains a problematic issue for MPA managers, particularly where recreational diving and snorkeling are popular visitor activities (Perrine 1989; Quinn and Kojis 1990; Cole 1994; Zabala 1996; Hawaii DLNR 1999). Commercial dive operators often use feeding to concentrate naturally dispersed wildlife to facilitate client viewing and/or other human-wildlife interactions (*e.g.*, touching, handling). Divers and snorkelers operating from private vessels often engage in feeding in misguided attempts to "help" or befriend wild animals. In either case, such practices impact both natural resources and visitor safety. My following comments focus on the resource impacts of fish feeding; human safety issues have been discussed elsewhere (Perrine 1989; Burgess 1999).

The feeding of wild vertebrate animals typically has negative impacts on "fed" individuals, as well as the ecosystems of which they are a part. Through classic conditioning, fed animals learn to associate the presence and/or activities of people with readily available food. This typically leads to the characteristic suite of problems seen with a wide variety of fed species, including bears (Blount 1999), deer (Dick 1995), bighorn sheep (Oberbillig 2000), coyotes and alligators (Wilkinson 1997), raccoons and skunks (Jurek 1997), birds (Conover 1999), and marine mammals (NMFS 1994). Fishes (both sharks and bony fishes) have been shown to be generally as adept as mammals and other vertebrates when it comes to acquiring and retaining conditioned responses (Mcphail 1982). Thus, it is not surprising that as the popularity of sport diving and fish feeding soared over the past quarter-century, the same problems that have long plagued other fed vertebrates have increasingly become apparent in marine fishes as well.

Feeding negatively impacts fishes in several ways. Often, the foods provided are not types that fishes naturally encounter or are equipped to process (Perrine 1989). As a recent report (Maldives 2004) states:


"In the majority of cases, the food that is fed to these fish is radically different from their normal diet. As a result of fish feeding, some very large humphead wrasses died after being fed dozens of eggs, while a great many soldierfish choked to death after wolfing down chicken bones. Large basses have been seen to tear little sacks of food right out of the scuba diver's hand, devouring both sack and contents."

Even frozen fish may prove harmful or lethal; the deaths of fed wild dolphins have been linked to bacteria of a type frequently associated with spoiled fish (NMFS 1994).

Feeding has been shown to disrupt or alter normal distribution/abundance patterns and behavior of marine fishes. The US state of Hawaii (Hawaii DLNR 1998) concluded, "Fish feeding has been shown to change the species composition in areas where the practice is done regularly, and fish become much more aggressive." Some species form disorganized swarms that surround and aggressively approach, follow, and often nip at divers (Perrine 1989; Hultquist 1997). Normally reclusive species (*e.g.*, sharks, moray eels, groupers) may approach and follow divers even near the sea surface, making them easy targets for underwater hunters and poachers (Quinn and Kojis 1990; Cole 1994).

Fish feeding has the capacity to alter fundamental ecosystem attributes at feeding sites, with unknown long-term impacts on affected marine communities. Benthic habitat damage (including loss of gorgonian corals) has been attributed to divers feeding fishes within Mediterranean MPAs (Zabala 1996). Australian MPA managers (GBRMPA 1999) expressed concern over fish feeding in coral reef areas: "The unnatural addition of organic matter and nutrients to reef waters may have adverse environmental impacts, *e.g.*, damage to coral caused by excessive growth of algae." Hawaiian MPA managers reported a case in which fish feeding changed the fish community and degraded water quality: "The feedings caused a naturally balanced ecosystem to turn into something of a petting zoo...so much that it is no longer considered a 'normal' reef ecosystem." (Hawaii DLNR 1999)

The feeding of wildlife has long been recognized by terrestrial wildlife managers as a serious problem, and is expressly prohibited in all US and Canadian national parks and wildlife refuges, as well as many localized jurisdictions. The number of divers and snorkelers worldwide interacting with marine wildlife within MPAs now numbers in the millions annually, and the cumulative impacts of such multitudes cannot be ignored. Because the US Marine Mammal Protection Act of 1972 (as amended) formally defines "feeding or attempting to feed" a wild marine mammal as "harassment", such activities are illegal in US waters. Where MPA management goals include the preservation and/or protection of natural habitats and wildlife, these same common-sense protections should logically be extended to fishes and other marine wildlife as well.

Such regulation would best protect MPA resources. It would also bring more consistency between sound natural resource management and conservation practices in our oceans with those long established to protect wild places and wildlife on land. 

Notes & News

Report available on options for creating seamount MPAs

A new report provides advice on designating and managing MPAs to protect offshore seamounts and similar habitats, with a focus on the northeast Atlantic and the region's relevant legal frameworks. Titled *The Offshore MPA Toolbox*, the report is part of an EU-funded project — OASIS (OceAnic Seamounts: An Integrated Study) — to assess and model two examples of seamount ecosystems in the northeast Atlantic. OASIS is coordinated by the University of Hamburg (Germany) with the participation of several European scientific institutes and WWF, an international NGO.

Building on a regional overview report released in 2003 (*MPA News* 5:6), the new report is aimed at planners and managers of offshore MPAs in the region. But it could also be useful to offshore MPA practitioners elsewhere, says co-author Stefanie Schmidt of WWF Germany. "The report compiles existing approaches to the selection, designation, and management of seamounts all over the world, and so is likely of use to politicians and managers in other regions, with other political frameworks than exist in the northeast Atlantic," she says. "Obstacles to well-managed offshore MPAs are similar in many areas of the world." Such obstacles include fishing pressure on biologically productive but vulnerable seamount communities, she says. So far there are two offshore seamount MPAs in the northeast Atlantic, both in Azorean waters.

OASIS will release a final project report in early 2006, says Schmidt, including an updated status report on seamount ecology and human exploitation in the northeast Atlantic. The ultimate goal, she says, is to link a network of seamount protected areas into a global representative network of MPAs by 2012, as envisaged by the World Summit on Sustainable Development in Johannesburg, South Africa, in 2002 (*MPA News* 4:3).

The 56-page report is available online in PDF format at http://www.ngo.grida.no/wwfneap/Toolbox/Toolbox_Entry.html. As of December 2004, the website will also include a web-based version of the report with internal and external cross-links.

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New website on social science tools for MPAs

Research on the social and economic effects of MPAs on surrounding communities can be invaluable to practitioners, helping them to understand and manage the human impacts of their sites. But not all managers are familiar with the various social science tools

available, including surveys, non-market valuation, and social assessment. To help, a new website provides managers with an overview of social science techniques useful to MPAs, as well as case studies on how they have been applied to sites worldwide.

The *Social Science for Marine Protected Areas* website was developed by the (US) National MPA Center in conjunction with the Coastal Services Center of the National Oceanic and Atmospheric Administration (NOAA). Hansje Gold-Krueck, who oversaw website development, says the goal was to help managers make more informed decisions and determine the role of social science in their MPA management. "Since we realize that managers don't have a lot of time to research a new subject, we tried to keep the text as short and as simple as possible," she says. "Links to additional sources and references are available for those managers who would like to know a little more about the subject." She says the site will expand in the future with more case studies, tools, and a lessons-learned component.

Information on each social science tool was obtained through literature research and interviews with experts. A team of social scientists advised the process. The website is at <http://www.csc.noaa.gov/mpass>.

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Seychelles MPA offers warden-exchange program

The Cousin Island Special Reserve, located in the Seychelles in the Indian Ocean, is now offering a warden-exchange program. Visiting wardens or rangers may stay up to three months in the reserve, which includes terrestrial and marine habitats. Nature Seychelles, an NGO that manages the reserve, will provide a living allowance, local transport, housing, work permits, and on-the-job training if necessary to approved applicants. The partner institutions of approved applicants must provide an international air ticket and insurance, if relevant.

The marine portion of the no-take Cousin Island Special Reserve is 1.5 km². The terrestrial portion includes one of the most important breeding sites for hawksbill turtles in the Western Indian Ocean. The reserve won the *Condé Nast Traveler* Ecotourism Award for 2004 in the category of Destination.

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Proceedings available from SAMPAA 2003 conference

The proceedings of the Fifth International Conference on Science and Management of Protected Areas (SAMPAA V) — held in Victoria, British Columbia, Canada, in May 2003 — are available on the web for free at http://www.sampaa.org/search_a.htm. Several of the papers pertain specifically to MPAs while others offer general guidance for protected areas. The theme of the conference was "Making Ecosystem-Based Management Work: Connecting Managers and Researchers". A copy of the papers on CD-ROM will soon also be available via the SAMPAA website (<http://www.sampaa.org>).

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Conference Calendar

17-25 November 2004

Third IUCN World Conservation Congress

Bangkok, Thailand. This congress is the highest governing body of the IUCN (World Conservation Union). Web: www.iucn.org/congress/index.cfm

29 November – 1 December 2004

Ocean Biodiversity Informatics: International Conference on Marine Biodiversity Data Management

Hamburg, Germany. Discussing management of data on marine biodiversity and the marine environment. Web: www.vliz.be/obi/

29 November – 3 December 2004

Seventh Asian Fisheries Forum

Penang, Malaysia. Theme is "New Dimensions and Challenges in Fisheries in the 21st Century". Web: www.compass.com.ph/~afs/7forum.html

5-10 December 2004

Sixth International Aquarium Congress (6IAC)

Monterey, California, USA. Building connections among public aquaria and other partners to inspire visitors to care about and protect aquatic ecosystems. Web: www.iac2004.org/ENG_Intro%20Frame.htm

16-17 December 2004

Coral Reef Conservation Symposium

London, UK. Discussing problems and solutions in coral reef conservation. Web: www.zsl.org/press/pml_0000001642.html

2005

5-10 January 2005

2005 Conference on Historical and Underwater Archeology

York, UK. Sponsored by the Society for Historical Archeology. Web: www.sha.org/About/Conferences/mt2005.htm

10-14 January 2005

Ten-Year Review of the Barbados Programme of Action: 2004 International Meeting (BPoA+10)

Port Louis, Mauritius. Discussing recommendations for further implementation of the Barbados Programme of Action, supporting sustainable development of small island developing states. Web: www.sidsnet.org/

12-14 January 2005

Fourth International Surfing Reef Symposium

Manhattan Beach, California, USA. Discussing surfing science, artificial surfing reefs, and human impacts on the surf zone environment. Web: surfrider.org/reef4/

20-25 February 2005

ASLO 2005 Aquatic Sciences Meeting

Salt Lake City, Utah, USA. Annual aquatic sciences meeting of the American Society of Limnology and Oceanography. Web: www.aslo.org/meetings/slc2005/

1-3 March 2005

North Sea Conference 2005

Ringkjobing, Denmark. Focusing on the environmental status of the North Sea's coastal zone and management of its coastal resources. Web: www.northsea.org

7-10 March 2005

Coastal GeoTools '05

Myrtle Beach, South Carolina, USA. Promoting understanding and applied uses of geospatial data and tools for managing US coastal programs. Web: www.csc.noaa.gov/geotools/

2-3 April 2005

Second International Coral Reefs Conference of Paris (CIRCoP 2)

Paris, France. Sharing research on, and raising public awareness of, the state of coral reefs. Web: www.circop.com/US_default.html

10-14 April 2005

Eighth International Conference on Artificial Reefs and (and Related) Artificial Habitats

Biloxi, Mississippi, USA. Discussing the use of artificial reefs to enhance and manage marine and freshwater resources. Web: www.cfi.lsu.edu/carah/

13-15 April 2005

Coastal Engineering 2005: Seventh International Conference on Modeling, Measurements, Engineering and Management of Seas and Coastal Regions

Algarve, Portugal. Focusing on computer modeling, measurements, engineering, and management of seas and coastal regions. Web: www.wessex.ac.uk/conferences/2005/coastal2005/index.html

18-20 April 2005

Maritime Heritage 2005: Second International Conference on Maritime Heritage

Barcelona, Spain. Discussing new technologies and discoveries in the preservation of maritime heritage. Web: www.wessex.ac.uk/conferences/2005/mh05/index.html

www.mpanews.org

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