

CHAPTER 11:

Reducing Threats to Reefs

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Internationa



Goal:

Exercise global leadership through commitment to and collaboration with domestic and international partners to protect and conserve coral reefs and associated ecosystems globally.



Coral reefs are found in more than 90 countries, serving important economic, social, and cultural roles and constituting the economic base in many countries, in particular in small island nations. Healthy marine ecosystems are critical to U.S. diplomatic and development strategies in many countries to promote economic and food security, social stability, improved human health, natural disaster protection, adaptation to climate change, and biodiversity conservation. New conservation and management initiatives at international, national, and local levels are showing considerable success in halting and reversing reef decline. To build on these localized activities, the United States needs help countries replicate small-scale successes on national and regional scales. The *National Action Plan* calls on the United States to reduce threats to coral reef ecosystems on an international level and to promote sustainable management of reef resources worldwide.

In response to the continuing global decline in coral reef health, USCRTF member agencies have increased international efforts and leadership to help reduce the pressures on reef ecosystems. USAID, DOS, NOAA, and DOI have engaged domestic and international partners to increase the prominence of coral reefs and associated ecosystems in various international fora. USAID provides the principal U.S. bilateral support for coral reef conservation overseas. The agency supports projects in more than 20 countries in Latin America, the Caribbean, Southeast Asia, the Middle East, and East Africa. NOAA, DOI, the EPA, and other USCRTF agencies primarily provide technical assistance, small grants, and support for targeted workshops and symposiums. DOS continues to provide substantial financial support to the International Coral Reef Initiative (ICRI) and ICRI-related activities, such as the development of the biennial Status of Coral Reefs of the World. The United States, through DOS leadership, will serve as co-host of the ICRI Secretariat for 2007–2009.

Accomplishments by Objective

Objective 1: *Exercise global leadership in the international arena in shaping and developing environmentally sound and comprehensive ocean and coral reef policy.*

On an international level, the United States promotes environmentally sound policies and management practices including—the development of large-scale networks of MPAs—through participation in international fora and support for field programs to build resiliency to coral bleaching, reduce overfishing, and address land-based sources of pollution. USCRTF members have provided leadership through the participation in international fora, such as ICRI, the Convention on International Trade

in Endangered Species of Wild Fauna and Flora (CITES) (see Chapter 12), the 10th International Coral Reef Symposium, the International Tropical Marine Ecosystem Management Symposium, and support for activities such as the publication of the 2004 Status of Coral Reefs of the World, 2005 Status of Coral Reefs in Tsunami Affected Countries, and a focused coral reef conservation event at a meeting of the Small Island Developing States.

Objective 2: *Build human and institutional capacity to manage and conserve reef ecosystems and coastal watersheds through integrated coastal management.*

In an effort to strengthen management of coral reef resources; preserve coastal biodiversity by preventing habitat destruction, pollution, and over-exploitation; and promote sustainable use of coral resources, the United States provides funding and expertise to developing countries. The USCRTF has supported coral reef activities in Latin America, the Caribbean, Southeast Asia, the Middle East, and East Africa. These activities are demonstrating results in several linked areas of vital importance to sustainable development, including the conservation of biological diversity; improved governance at community, local, and national levels; and improved socioeconomic conditions. Activities resulted in enhanced integrated coastal governance; improved marine protected area management, monitoring, and patrolling; improved fisheries management, including the establishment of ecological reserves; and increased coral cover and biodiversity.

USAID helped frame the process for developing Tanzania's Environmental Management Act, which became effective in July 2005. The Act articulates Tanzania's natural resources management policy and the framework for decentralized implementation. Local leadership in managing public resources is encouraged.



Conservation Research Education Action (CREA) Panama Foundation project conducting a lobster-raid during the closed fishing season.

The new law requires mandatory Environmental Impact Assessments prior to undertaking development projects and systemizes user fees and product charges for natural resources in the public domain. This work has set the stage for a substantial shift in emphasis from policy reform to policy implementation.

Through a grant from the NOAA International Coral Reef Conservation Grant Program, Conservation Research Education Action (CREA) Panama Foundation worked closely with the indigenous organization, the BALU UALA Foundation, and the natural resource authority, the General Kuna Congress, to designate five MPAs in this central Caribbean marine ecoregion. The areas were chosen based on their high conservation value and the interest and willingness of their indigenous inhabitants to establish protected areas. The project implemented a methodology based on local participation and ownership of the project and included environmental education, using both scientific and traditional

knowledge, as well as baseline socioeconomic and biological surveys for decision making and future evaluation of the MPAs. This project is part of a comprehensive plan for the sustainable development of the area, and will serve as a model for sustainable marine resource management throughout the region, particularly in indigenous areas.

Objective 3: *Promote efforts to prevent, reduce, and control land-based sources of pollution and their effects on coral reef ecosystems, including beaches, lagoons, seagrass beds, mangrove forests, shallow reefs, deep reefs, and submerged-bank reefs.*

To improve water quality and the overall health of coral reef ecosystems, the USCRF has worked with communities and governments to develop and implement watershed management plans. For example, in Honduras, the USAID—Honduras Integrated Watershed Resources Management project completed six management plans as part of a larger



Local fisher shows off his catch in Quirimbas National Park, Mozambique. WWF, with support from USAID, is building the capacity of local communities and park officials to better manage marine resources.

Enewetak Conservation Area (ECA) on Kwajalein Atoll, the Republic of the Marshall Islands.

watershed management program. Activities in the watershed management plans include: (1) forest management plans and alternative livelihood options in park-buffer zones, such as shade-grown coffee and sustainable harvest of timber; (2) low-cost practices to protect water supplies; (3) improved water storage for farming; and (4) soil conservation practices.

In Honduras, the Integrated Watershed Resources Management effort has targeted 18 terrestrial and marine protected areas for improved management. These areas cover more than 230,000 hectares and serving as reservoirs for biodiversity for improved management. A major focal point of this effort is the implementation of more than 20 flora and fauna inventories to identify potential keystone species in order to develop and implement recommendations for their conservation. Other key results of this program will be strengthened capacity of park managers, improved protected area infrastructure, and increased revenues, all of which will enhance

the ability of park staff to monitor and protect wildlife and important habitats.

Objective 4: *Support the creation of effective management of coral reef MPAs, in particular those that contain substantial ecological (i.e., no-take) reserves.*

Cooperation among USCRTF members, the Mozambique Navy, and the World Wildlife Fund (WWF) has strengthened fisheries enforcement and maritime security in Mozambique. Through this collaborative effort, the Mozambique Navy has received and upgraded their first three boats to protect their coastline, including patrolling marine protected areas. This partnership will allow the Mozambique Navy to carry out their mandate to protect key marine protected areas along the coast from illegal fishing. Increased enforcement capacity will improve the health of the coral reef ecosystems and the well-being of local artisanal fishers and communities. India, South Africa, and France supplied



additional boats for this effort.

In 2004, financial support from DOS provided the impetus for Indonesia, Malaysia, and the Philippines to sign their first tri-national cooperative agreement, thereby establishing the Sula-Suluwesi Sea Ecoregion. This ecoregion is of enormous ecological and economical importance, featuring productive ecosystems such as coral reefs, seagrass beds, and mangrove forests. Its marine biodiversity includes more than 400 species of corals and 650 species of reef fishes, as well as five of the seven species of marine turtles. The ecoregion also serves as an important source of food and livelihood for countless subsistence and commercial fishermen.

The United States agreed to establish the Enewetak Conservation Area (ECA) on Kwajalein Atoll, the Republic of the Marshall Islands, based on a biological opinion on sea turtles and other conservation

recommendations. The ECA extends 300 meters from shore in all directions, and includes documented sea turtle nesting habitat and a wide range of coral reef habitats supporting diverse assemblages of marine species. The ECA will replace the resource losses associated with a current U.S. military project and serve as a type of mitigation bank to provide the means for replacing resource losses from future projects. The ECA will serve as a focus for education, non-consumptive recreation, and other passive activities compatible with conservation.

USAID's Global Conservation Program has been providing long-term support to The Nature Conservancy, World Wildlife Fund, and Wildlife Conservation Society to institute large-scale marine planning and networks of marine protected areas in Raja Ampat, Indonesia; Wakatobi, Indonesia; the Meso-American Reef in Mexico, Belize, Guatemala, and Honduras; and the East



Local fishing villages along Thailand's Andaman Sea coast were devastated from the Indian Ocean Tsunami.

African Marine Ecoregion in Kenya, Tanzania, and Mozambique. As a result of this support, the Indonesian Regent government designated six important areas in the Raja Ampat region as MPAs at the request of traditional leaders in December 2006. The six areas cover 654,000 hectares or 44 percent of the Regency's coast line and will help promote more sustainable resource use.

DoD operates several facilities in Okinawa, Japan, including pier facilities at White Beach in Katsuren-wan and Tengan Pier in Kinwan. Underwater surveys of these military piers were conducted as part of updating the Integrated Natural Resource Management Plan (INRMP) for these facilities. Navy ecologists supported by military divers gathered data on coral reefs, threatened and endangered species, essential fish habitat, and other marine ecosystem parameters. The survey results indicated healthy and diverse ecosystems around the military piers, functioning as de facto mini-sanctuaries. The revised INRMP

recommended fishing restrictions remain in place to protect this habitat.

NOAA's commitment to global coral reef conservation is implemented through two small competitive grant programs—the NOAA International Coral Grant Program and the Coral Reef Conservation Fund, a partnership between NOAA and the National Fish and Wildlife Foundation. In addition to promoting site-based conservation efforts, these programs have advanced the development of tools for addressing threats to coral reefs around the world, including in the United States. During 2004—2006, the two programs contributed to 96 coral reef conservation projects in 34 countries.

Approximately 45 percent of NOAA international coral grants funds were awarded to projects supporting the development and/or enhancement of effective management of MPAs (39 projects). Fifteen percent of NOAA funds supported projects to promote biophysical and socioeconomic monitoring

Interagency Response to the Indian Ocean Earthquake and Tsunami

On December 26, 2004, the Indian Ocean Tsunami struck the Indian Ocean basin, affecting hundreds of thousands of people in 12 countries throughout the region and causing widespread devastation. Over 280,000 victims perished in this natural disaster. Those that survived had their livelihoods disrupted; the tsunami not only seriously affected coastal tourism, fisheries, mariculture and agricultural sectors, but also destroyed housing and public infrastructure. In addition, the tsunami caused massive destruction to coastal resources and the natural infrastructure of mangrove forests, wetlands, and coral reefs. The U.S. Government responded quickly to the disaster through a massive relief and humanitarian assistance package. Within weeks of the disaster, the United States helped design and implement recovery and reconstruction programs in India, Indonesia, the Maldives, Thailand, and Sri Lanka. U.S. efforts were shifted to rebuilding lives, livelihoods, and communities through medium- and long-term rehabilitation, with an emphasis on securing and protecting the future of coastal communities and the natural resources on which many depend.

In response to the tsunami event, USCRTF members and partners:

Supported an assessment of the impact of this natural disaster by the International Coral Reef Initiative and its partners on coral reefs and associated ecosystems. The results were published in a report entitled *Status of Coral Reefs in Tsunami Affected Countries: 2005*.

Worked with the United Nations Environmental Programme (UNEP), experts from the affected countries, and international institutions to develop and adopt 12 principles for guiding coastal zone rehabilitation and management that are consistent with promoting more sustainable and equitable forms of coastal development, empowering coastal communities, and protecting critical coastal resources to mitigate future threats. The United States also worked with partners to promote the use of certified sustainably managed timber in reconstruction activities and the use of properly sourced concrete and lime to prevent the use of coral resources in the production of these construction materials.

Supported the development of a multi-hazard early warning system for the Indian Ocean in concert with the UNESCO/ Intergovernmental Oceanographic Commission (IOC) and the international donor community. The U.S. Indian Ocean Tsunami Warning System (IOTWS) Program serves as the U.S. contribution to the UNESCO/IOC effort to foster the tsunami warning capacity of Indian Ocean countries. The U.S. IOTWS Program works to strengthen “end-to-end” tsunami warning capabilities—from advanced technologies to resilient communities. Targeted technical support is being provided to Indonesia, Sri Lanka, India, Thailand, and the Maldives—the five countries most affected by the December 2004 tsunami. Further information is available online at: <http://www.US-IOTWS.gov>.

for coral reef management (19 projects). An additional 15 percent of NOAA funds were directed to a range of community awareness and outreach initiatives (14 projects).

Objective 5: *Address the impact of global change, coral bleaching, and reef health on reefs and people.*

NOAA initiated a collaborative coral reef capacity-building program as part of the Coral Reef Targeted Research and Capacity Building for Management Program developed and funded by the Global Environment Facility and the World Bank. This program is administered by the University of Queensland (Australia), and includes approximately 40 research institutes and other third parties around the world. It specifically targets coral research and capacity building at four Centers of Excellence in the Philippines, Zanzibar, Mexico, and Australia, and aims to shed light on key unknowns through coordinated biophysical research, and to put this knowledge into the hands of decision makers. Under this program, NOAA has conducted seven Satellite Tools for Coral Bleaching training workshops have been conducted worldwide, with participation by more than 100 local coral reef managers. More information is available online at: <http://www.gefcoral.org/>.

NOAA led an international effort to model the risk of thermal stress related to coral bleaching across the waters of Palau, in collaboration with The Nature Conservancy; the Australian Institute of Marine Science; the Office of the President of Palau; the University of Guam; and various other governmental, cultural, and scientific bodies in Palau. Using oceanographic instruments and hydrodynamic modeling, a map of the thermal capacity of Palauan waters was produced and incorporated into the development of a Protected Areas Network for Palau.

Objective 6: *Address unsustainable and destructive fishing practices and the U.S. role in and impact on international trade in coral reef species.*

To address unsustainable fishing and destructive fishing impacts on an international scale, the USCRTF provides support to understand fishery resources, improve fisheries regulations and management, and develop sustainable harvests. For example, as a result of considerable U.S. Government efforts, the Napoleon wrasse, also known as humphead wrasse, was listed on Appendix II (i.e., species not considered threatened with extinction, but which may become so if trade is not regulated) of the Convention on International Trade in Endangered Species in 2004. Given the vulnerable state of the wrasse, this was a major accomplishment. In another example, scientists conducted baseline inventories of the coral reefs at Diego Garcia, a British Territory in the Indian Ocean used almost exclusively by the U.S. military. DoD conducted a baseline inventory of the coral reefs at Diego Garcia in August 2004 for its own purposes and to address a request from the British government. The inventory documents a flourishing coral reef ecosystem around Diego Garcia. Finfish populations are large and diverse with numerous mature specimens, and threatened species are prominent. Of particular interest, the Napoleon wrasse has a very strong presence at the atoll. As a result of the DoD survey recommendations, the British Representative on Diego Garcia issued orders for the release of accidental catches of the wrasse.

USAID supported efforts of the Philippines Bureau of Fisheries and Aquatic Resources to draft the first-ever Philippine Comprehensive National Fishery Industry Development Plan and the National Plan of Action to Combat Illegal, Unreported and Unregulated Fishing, both of which are required by the 1998 Fisheries

Reef Gleaners conducting community-based monitoring of cockle resources in the Menai Bay Conservation Area in Zanzibar.



Code. Once approved, the plans will provide a cohesive national framework for tackling fisheries management and enforcement issues. In the Philippines in 2005, the USAID programs helped coastal municipalities, the Department of Environment and Natural Resources, and local communities improve the management of more than 500 hectares of marine sanctuaries and 73,300 hectares of coastal-marine areas through ordinances, management plans, financial support, law enforcement, and the delineation of municipal waters. In the Fisheries Improved for Sustainable Harvest (FISH) Project, indicators were selected and baselines were established for monitoring fish stocks in four marine ecosystems with economic significance over a seven-year period. The goal of the FISH program is to increase fish stocks by ten percent in four sub-regions of the country through improved governance and management of these critically important resources.

The Sustainable Coastal Communities and

Ecosystems (SUCCESS) Program is working in Fumba, Tanzania. Fumbia is within the Menai Bay conservation zone and is rich in fishes, coral reefs, and mollusks. The program is working with partners including local bivalve collectors (most of whom are women) to address the accelerating threat of a depleted bivalve population due to over-harvesting. At the root of the problem is poverty (little income to purchase other food protein); inequality (women have fewer alternative employment options than men); and local market forces (with little market for other income-generating products from Fumba, pressure on this one resource for food and income remains constant). Without intervention, continued fishing pressure will change the natural environment and future generations will lose a valuable food and income source. The SUCCESS Program is working to change this by introducing a zoning scheme—e.g., designating selected areas as no-take during certain periods.



Field activity during American Samoa Responding to Climate Change workshop, August 2007.

A Reef Manger’s Guide to Coral Bleaching

In 2003, the USCRTF committed to develop an interagency partnership for planning a comprehensive, integrative program for understanding local and systemwide coral reef responses to climate change, including application of this knowledge for local reef management. In support of this effort, NOAA, the EPA, and DOI sponsored a workshop on Coral Reefs, Climate and Coral Bleaching, and participants included more than 100 scientists and managers from local and federal governments, universities, the private sector, and non-governmental organizations. As a direct result of this workshop, NOAA and the Great Barrier Reef Marine Park Authority— working with International Union for the Conservation of Nature and Natural Resources, EPA, and a variety of other domestic and international partners—developed A Reef Manager’s Guide to Coral Bleaching. The guide articulates the state of knowledge on the causes and consequences of coral bleaching and presents management strategies to help local and regional reef managers prepare for and respond to mass coral bleaching. It includes contributions from over 50 experts in coral bleaching and coral reef management from 30 organizations.

A Reef Manager’s Guide to Coral Bleaching was released in fall 2006, and is available to managers as a resource for developing strategies to reduce the impacts of coral bleaching in coral reef ecosystems. It provides information on responding to mass bleaching events; developing bleaching response plans; assessing ecological, social, and economic impacts; and using tools to identify and build long-term reef resilience. The USCRTF will host three training workshops in 2007 and 2008 to help managers use this guide and develop tools for addressing coral bleaching at a local scale.