

# Reducing Threats to Reefs Internationally



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

## Rationale for Action

Coral reefs are found in more than 90 countries, and the United States has political and economic interests in helping these nations protect their ecosystems. 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 and climate change mitigation, and biodiversity conservation. Coral reef ecosystems are economically, socially, and culturally important, constituting the economic base in many countries, particularly small island nations.

Although the report *Status of Coral Reefs of the World* (Wilkinson 2002) found that coral reefs have continued

## OBJECTIVES

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

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

**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.

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

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

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



to decline from direct and indirect anthropogenic impacts, new conservation and management initiatives at international, national, and local levels are showing considerable success in mitigating the declines. More and more, these activities are addressing direct human impacts and protecting coral reef areas. To build on these localized successes, more work is needed to assist countries in replicating small-scale successes on national and regional scales.

## Summary of Implementation

In response to the continuing global decline in coral reef health, USCRTF member agencies have substantially increased their efforts and leadership roles to address the pressures facing the world's reefs. The U.S. Agency for International Development (USAID), the U.S. Department of State (DOS), NOAA, and the U.S. Department of the Interior (DOI) have engaged domestic and international partners to increase the prominence of coral reefs and associated ecosystems in various international forums. Internationally, the United States promotes environmentally sound policies and decisions, improved human and institutional capacity to manage and conserve coral reefs, and proactive strategies to address impacts of global change by enhancing the resistance and resilience of coral reef ecosystems. For example, the United States:

- Supports the International Coral Reef Initiative, the nonbinding global forum of choice to discuss coral reef conservation and related activities;
- Continues to play a critical role in the Convention on International Trade in Endangered Species to ensure the sustainable management of coral reef resources (see chapter 12);
- Is the largest pledged contributor to the Global Environment Facility, the major multilateral organization supporting coral reef conservation activities in developing countries; and

- Supports such key United Nations (UN) programs as the UN Environment Programme's (UNEP's) Regional Seas Programs, which foster regional cooperation among governments. Funding from DOS has been key to ensuring UNEP's Regional Seas Programs and other such regional environmental programs as the South Pacific Regional Environment Program focus on controlling land-based sources of pollution affecting coral reef ecosystems.

USAID provides the principal U.S. bilateral support for coral reef conservation overseas. The agency has projects in more than 20 countries in Latin America, the Caribbean, Southeast Asia, the Middle East, and East Africa. Activities range from field programs promoting improved management practices and the establishment of marine parks and reserves to the promotion of sustainable tourism and fisheries. For example, in Jamaica, USAID's Ridge-to-Reef Program helps reduce the adverse impacts of agricultural runoff and decreases nutrient-rich sewage flowing from settlements into watersheds and along rivers.

NOAA, DOI, the U.S. Environmental Protection Agency, and other USCRTF agencies primarily provide technical assistance, small grants, and support for targeted workshops and symposiums. These activities create strategic partnerships with other governments, international institutions, nongovernmental organizations, and the private sector in support of conservation. The partnerships have enabled the USCRTF to extend its outreach, leverage funds, and add value to its efforts. For example, NOAA and the Coral Reef Fund (a partnership with the National Fish and Wildlife Foundation) have supported 63 small matching grants in 30 countries between 2002 and 2004. These activities enhance community-based conservation, promote watershed management, improve the effectiveness of marine protected areas (MPAs), promote socioeconomic assessments in management plans, and develop regional MPA systems.

DOS continues to provide substantial financial support to the International Coral Reef Initiative (ICRI) and such ICRI-related activities as development of the biennial *Status of Coral Reefs of the World* (Wilkinson 2002, 2004). USCRTF agencies also provide financial and technical support to international coral reef meetings such as the International Tropical Marine Ecosystem Symposium held in the Philippines in 2003, which brought together more than 200 managers and scientists from around the world to identify and address priority issues in the conservation of coral reef resources.



Local Jamaican fishing community weaving fishnets and traps.

## Highlights of Task Force Member Activities

The following activities exemplify how the Task Force addresses international threats to coral reefs. Other international activity highlights can be found under other pertinent chapters.

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### Coral Reef Issues Included in World Summit on Sustainable Development Johannesburg Plan of Implementation

At the World Summit on Sustainable Development (WSSD), U.S. efforts stressing the importance of coral reef resources led to the inclusion of coral reef issues in the WSSD Johannesburg Plan of

Implementation. This implementation plan includes actions to change unsustainable patterns of consumption and production and to protect and manage the natural resource base of economic and social development.

### White Water to Blue Water: A New Initiative for Integrated Coastal Management

At WSSD, the U.S. government launched the White Water to Blue Water Initiative, which involves U.S. agencies, other governments, nongovernmental organizations, and the private sector in a cross-sectoral approach to improving integrated ecosystem management from the watershed extending into the ocean. To execute this new initiative, an international steering committee was formed to identify existing programs and develop new partnerships that enhance integrated approaches in such areas as wastewater and sanitation, sustainable agricultural practices, integrated coastal management, sustainable tourism, and environmentally sound marine transportation in the Caribbean. In March 2004, a weeklong conference and training institute was held



in Miami, Florida, to facilitate partnerships, exchange best practices, and encourage innovation.

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

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### Capacity Building for Improved Resource Management

USAID's Coastal Resource Management Program in the Philippines has successfully improved coastal governance, built capacity, and empowered local communities to stop and reduce destructive fishing practices and overfishing. During the 7-year life of the project, 110 communities established, monitored, and protected 83 marine sanctuaries covering more than 9,900 acres (40 km<sup>2</sup>) of coral reefs, seagrass, and mangroves. According to project findings, coral cover within the marine sanctuaries increased by 46 percent. Community-managed sanctuaries are helping to regenerate depleted fish populations and act as biodiversity corridors or protected areas to expand the protected habitat for vulnerable plants and animals. These sanctuaries are just part of more than 741,000 acres (3,000 km<sup>2</sup>) of coastal resources now under improved management in the Philippines as a result of this project.

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### USAID Program Improves Environmental Management in Central America

The USAID Guatemala/Central America Regional Environmental Program supports improved

environmental management (including disaster mitigation) in the Mesoamerican Biological Corridor through training and technical assistance. In 2003, 138,000 acres (560 km<sup>2</sup>) of agricultural land met certification and market requirements, reducing the environmental pollution from coffee and banana production. In addition, 35 private industries in the Mesoamerican Biological Corridor implemented low-cost, best management practices in their production processes. Three municipalities improved their solid-waste and wastewater management by introducing low-cost technology in municipal services, leading to improved water quality in regional watersheds affecting the Mesoamerican Coral Reef and other coastal systems.

### Watershed Conservation Plans Developed in Palau

In 2002–2003, the U.S. Fish and Wildlife Service funded a private, nonprofit environmental group in Palau to work with government agencies and communities to develop watershed conservation plans benefiting native forests, mangroves, and coral reefs. The watershed advisor provided technical advice and coordination and has made substantial progress in establishing national policies and planning documents that will reduce soil erosion affecting Palau's spectacularly diverse coral reefs.

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

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### Improving MPA Management

In Bunaken National Marine Park in Indonesia, USAID supported the development and implementation of a sustainable finance plan. A management board now raises and retains sufficient funds through visitor fees to fund park enforcement. Enforcement patrols have stopped blast and cyanide fishing, and, inside the marine park, coral coverage increased by 10 percent in 2002. As a

result of this project, the national government is using Bunaken as a model for drafting national policy guidance authorizing local co-management of all national parks.

### Guidebook Helps Managers Assess MPA Effectiveness

MPA managers and practitioners have a new guidebook to measure management effectiveness of their MPAs, *How Is Your MPA Doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness*. In 2002, NOAA and DOS, in partnership with the World Wildlife Fund and the World Commission on Protected Areas, prepared a draft guidebook providing a framework linking MPA goals and objectives with indicators that measure management effectiveness. The framework was developed by MPA specialists and reviewed by an extensive team of international MPA experts. The framework and indicators were developed over a 4-year period and included field-testing in 20 sites around the world. The guidebook was released in September 2003 at the World Park's Congress in Durban, South Africa, and can be adapted by an individual MPA for its specific needs. Electronic copies are available at <http://www.effectivempa.noaa.gov/guidebook/guidebook.html>.

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

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### First Annual Earth Observation Summit Convened

In 2003, the United States convened the first Earth Observation Summit at which 33 nations and the European Commission began to develop comprehensive, coordinated, and sustained Earth observation systems. This coordinated effort will increase observation coverage, improve data sets, and lead to



a greater understanding of weather and climate as they relate to coral bleaching and global change.

### Coral Reef Watch Satellite-Based Products Operational

As part of NOAA's Coral Reef Watch (CRW) Program, two satellite-based, web-accessible products became operational in 2003. Hot Spots and Degree Heating Weeks (<http://coralreefwatch.noaa.gov/satellite/index.html>) increase the reliability of monitoring and forecasting data on coral reef bleaching for CRW users. These products, which provide stakeholders with current conditions of local and remote reefs, enabled near real-time warnings of several coral reef bleaching events worldwide, including events affecting the Great Barrier Reef in Australia, American Samoa, and the Northwestern Hawaiian Islands. Management practices (e.g., to alleviate additional anthropogenic stressors) or scientific studies may be undertaken in response to information received. Field observations provided by users aid in the continued development of CRW products.

### Research and Development Initiated for CRW Risk Maps

NOAA's CRW program initiated research to develop risk maps—forecasting tools incorporating multiple

data sets to increase short- and long-term forecasting of the location and severity of coral bleaching events. In 2003, NOAA partnered with The Nature Conservancy (TNC) and the Australian Institute of Marine Science to develop a risk map for the MPA network being developed by the Palau government with the assistance of TNC.

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

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## Improved Environmental Law Enforcement in the Philippines

USAID/Philippines Coastal Resources Management Program helped establish three coastal law enforcement councils in the province of Bohol. Training, which included building general capacities and enhancing global positioning system skills and other basic investigative techniques, increased the confidence of officers from councils and other local maritime and fishery enforcement groups. In 2003, the enforcement councils reported a 95-percent success rate in prosecuting cases filed in court against illegal fishing methods. The councils have also helped municipal governments standardize laws and fines related to coastal resource management and launched information campaigns in popular illegal fishing hotspots.

## Future Challenges

The major factors contributing to the declining health of coral reefs are increased sediments and pollution, overexploitation and destructive fishing, and global climate change. Although many different projects are reducing the damage from human impacts, these efforts are often at a small scale. Many coral reef countries do not have the capacity to implement coral reef conservation programs, and some are unaware of the extent of damage to their

reefs. An urgent need exists for greater U.S. leadership on international coral reef issues and for providing technical assistance to developing countries, large and small.

Since the development of the *National Coral Reef Action Strategy* (NOAA 2002), several emerging issues have been identified, including:

- Identifying new approaches to increase the resilience of coral reefs in the face of global climate change;
- Understanding the role of environmental and anthropogenic stressors in the recent worldwide occurrence of increased coral diseases with emphasis on development of strategies to mitigate disease impacts;
- Linking freshwater and marine issues and recognizing the need to maintain the quantity, quality, and timing of freshwater inflows into coastal estuaries and their importance to healthy reefs and fisheries;
- Implementing socioeconomic assessment protocols to link ecological monitoring to human activities on coral reefs; and
- Developing alternatives to reduce human pressures on coral reef ecosystems and promote economic and ecological sustainability, including novel financing mechanisms, aquaculture, and sustainable tourism.

Past successes in integrated coastal management and MPAs underscore the need for consistent funding for technical assistance and for a constant exchange of information. Continued success depends on long-term support of and commitment to capacity building that combines large-scale, integrated coastal management approaches with networks of MPAs to maintain resource productivity, enhance resiliency, and protect marine and coastal habitats. Integrated coastal management can provide a framework for more effective site-based management. Focus is needed on train-the-trainer activities to disseminate information over time.