

# NATIONAL CORAL REEF ACTION STRATEGY

This strategy is divided into two major themes based on the National Action Plan to Conserve Coral Reefs: (1) Understand Coral Reef Ecosystems and (2) Reduce Human Impacts to Coral Reef Ecosystems.

Under these themes, the strategy includes thirteen major goals to guide U.S. action to address the most serious threats to U.S. and international coral reefs. For each goal, the document outlines (1) the importance of the goal in addressing the major threats to reefs, (2) the strategy and major objectives, (3) a partial summary of recent accomplishments to address the goal, and (4) a partial summary of actions needed in 2002-2003 to implement the strategy and achieve the goal and objectives.

Information for the strategy was produced in cooperation with the Working Groups of the Task Force and state, territory and commonwealth representatives of the All Islands Coral Reef Initiative. It is intended to provide brief summaries and access to additional information. It is not intended to be a comprehensive list of accomplishments or future needs. More comprehensive information is available from the member organizations and Working Groups of the Task Force (see <http://coralreef.gov/> or Appendix B for list of contacts), the All Islands Coral Reef Initiative, and other sources and organizations involved in coral reef conservation activities.

The strategy is designed to be revisited biennially (or as need) to track progress and help identify future needs and actions, in cooperation with the Task Force and other organizations, constituents and the public. A comprehensive process for the development of future reports is being prepared in cooperation with the Task Force.

## **A. ROLE OF MANAGEMENT ACTIONS IN REDUCING THREATS TO CORAL REEFS.**

Table 2 is a general summary of the relative importance (H = high, M = medium, L = low) of the Strategy's 13 major goal areas in reducing threats to coral reef ecosystems. A higher ranking suggests that activities under this goal are considered more important to addressing the threat. Lower rankings suggest that although activities under this goal may make significant contributions, they may currently be less important to addressing the threat. The rankings are a summary of input from the Working Groups and contacts of the U.S. Coral Reef Task Force, the All Islands Coral Reef Initiative and other

sources. The actual importance of each goal to addressing threats to reefs will depend on location and other factors (see Tables 3 and 4 for regional comparisons).

The results illustrate that some actions are currently considered high priority to address many threats, while others are high priority for addressing specific impacts on reefs. For example, goal areas identified as high priority actions to address many threats included:

- Assess and Monitor Reef Health;
- Understand Social and Economic Factors;
- Improve Education and Outreach;
- Reduce Threats to International Reefs; and
- Improve Coordination and Accountability.

## **B. ASSESSMENT OF PRIORITY ACTIONS TO REDUCE THREATS TO U.S. CORAL REEFS**

Table 3 is a general summary of the relative importance (H = high, M = medium, L = low) of actions under the goals and objectives outlined in the strategy, to address key threats to U.S. coral reef ecosystems in each region. The rankings were provided by official state, territory or commonwealth representatives to the U.S. Coral Reef Task Force in each region for use in this document.

A higher ranking suggests that conducting activities under the goal and objectives are considered more important to addressing current threats to coral reefs in the region. Lower rankings suggest that although activities under the goal or objective may make significant contributions, they are currently less important to address the major threats to coral reefs in the region. The actual importance of each goal to addressing threats to reefs will depend on conditions, location and other factors.

In general, the results illustrate that the priority ranking of actions to address the goals varies among regions, although some goal/action areas consistently ranked as high priority needs across most or all regions to reduce threats to coral reefs. The following goal or action areas were ranked as high priority needs by all or most U.S. regions:

- Map all shallow U.S. coral reefs;
- Monitor and assess reef conditions (living resources);
- Monitor and assess reef conditions (assess water and substrate quality);
- Improve use of marine protected areas (strengthen existing marine protected areas);
- Reduce adverse impacts of fishing (reduce overfishing);
- Reduce pollution (reduce sediment pollution);
- Improve education and outreach (increase awareness); and
- Reduce international threats to reefs (increase capability for resource management).

## **C. ASSESSMENT OF PRIORITY ACTIONS TO REDUCE THREATS TO INTERNATIONAL CORAL REEFS.**

Table 4 is a general summary of the relative importance (H = high, M = medium, L = low) of actions under the goals and objectives (outlined in the strategy) to address key threats to international coral reef ecosystems by region. The rankings were provided by official representatives to the International working group of the U.S. Coral Reef Task Force for use in this document. A higher ranking suggests that conducting activities under the goal and objectives are considered more important to addressing current threats to coral reefs in the region. Lower rankings suggest that although activities under the goal or objective may make significant contributions, they are currently less important to address the

major threats to coral reefs in the region. The actual importance of the goals or objectives in addressing threats to reefs will vary within and between regions depending on conditions, location and other factors. The results illustrate that (1) actions to address the goals vary in their priority among regions, and (2) there are some actions considered high priority across many regions (e.g., monitor and assess reef conditions, monitor global warming, reduce overfishing, reduce pollution, reduce threats to international reefs, reduce impacts from international trade, and strengthen existing MPAs).

#### **D. ACTION THEME 1: UNDERSTANDING CORAL REEF ECOSYSTEMS**

Coral reefs are imperiled throughout many areas (Bryant et al 1998; Wilkenson 2000; Turgeon et al 2002). Threatened by a growing number suite of natural and anthropogenic stresses, including nutrient over-enrichment, sedimentation, over-fishing, climate change, bleaching, disease and habitat destruction, coral reef ecosystems are deteriorating worldwide at alarming rates. The origin and impacts of these threats range from very localized and potentially manageable events, such as resource extraction or coastal development, to poorly understood global phenomena affecting entire ocean basins (e.g. climate change, bleaching and disease)(Best et al 2002). The challenge of interpreting, predicting and responding to such stressors on coral reefs is further exacerbated by the complexity and variability of reef ecosystems in space and time. Adjacent reefs on the same coastline may be inexplicably different, while a single reef may cycle through significant changes in composition and health in response to unknown events.

Ultimately, our success – or failure – in conserving these highly complex and valuable ecosystems will depend on how well we can develop and apply proactive, precautionary management measures. To do this requires a much more sophisticated level of understanding about their fundamental ecology and response to environmental stressors. As this knowledge base evolves, it will provide invaluable support for management actions such as the siting of new marine protected areas or the development of more effective pollution standards.

To achieve this level of management will require a coordinated effort to determine the status of coral reefs, the causes of coral reef decline, or the impact of natural and anthropogenic stress on coral reef and associated ecosystems (Best et al 2002). To meet these needs, this portion of the strategy builds on the same four goals adopted by the U.S. Coral Reef Task Force in its National Action Plan to increase understanding coral reef ecosystems to implement long-term conservation measures:

- Goal 1: Map All U.S. Coral Reefs;
- Goal 2: Assess, Monitor and Forecast Coral Reef Health;
- Goal 3: Conduct Strategic Research; and
- Goal 4: Understand Social and Economic Factors.