



# Final Report on



## Responding to Climate Change: A Workshop for Coral Reef Managers

**Pigeon Key, Florida  
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**Australian Government**  
Great Barrier Reef  
Marine Park Authority



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## Section 1. Overview

The Florida Keys workshop was the fourth in a series of capacity-building presentations based on *A Reef Manager's Guide to Coral Bleaching (Manager's Guide)*, providing a response framework for mass bleaching and climate change. The workshop brings together world-class tools and expertise:

- **NOAA's Coral Reef Watch Program (CRW)**, which uses satellite imagery to predict the on-set and severity of mass bleaching events globally;
- **The Nature Conservancy's (TNC) Reef Resilience initiative**, which seeks to estimate reef resilience to climate change and integrate resilience into marine protected area design;
- **The Coral Reef Targeted Research Program (CRTR)**, researching climate change impacts on coral reef ecosystems and methods for restoring ecosystem resilience;
- **The Great Barrier Reef Marine Park Authority's (GBRMPA) innovation** on practical, science-based management strategies for climate change;
- **The NOAA Florida Keys National Marine Sanctuary's (FKNMS)** experience with mass bleaching events, including efforts to implement restoration strategies and a grass-roots approach to building support;
- **The Global Socioeconomic Monitoring Initiative for Coastal Management (SocMon)**, an initiative supported by the CRCP and the Global Coral Reef Monitoring Network (GCRMN) that facilitates community-based socioeconomic monitoring of coral reef areas.
- **The World Wildlife Fund's (WWF) initiatives** on climate change adaptation, and its "Climate Camps" that help conservation practitioners start working toward adaptation.
- **Mote Marine Laboratory (MML)** which serves as an information clearinghouse for Florida's early-warning system for bleaching.

Funding was provided by the CRCP and NOAA International Program Office. In-kind contributions by the CRCP, CRW, WWF, TNC, FKNMS, MML, and GBRMPA supported staff time and materials, and the National Marine Sanctuary Foundation hosted a reception. The dedicated staff from the Pigeon Key Foundation was also essential to the workshop's success.

### 1.1 Goals

This effort aimed to present a capacity-building program around the *Manager's Guide*. This workshop was a refinement of the other presentations of these materials in Australia and American Samoa in 2007.

The training package aims to provide coral reef managers with a working understanding of:

- Impacts of climate change on coral reef ecosystems
- Strategies for responding to mass bleaching events
- Approaches for building resilience into coral reef management

## 1.2 Participants

The workshop was mainly attended by coral reef management practitioners. Other attendees serve in roles where they directly influence the design and implementation of coral reef management initiatives. Twenty-one participants were from the US: Florida, Puerto Rico, and the US Virgin Islands. These US attendees were mostly from federal and territorial government. Participants also came from seven nations around the Caribbean basin: Belize, Bonaire, Colombia, Guatemala, Honduras, Jamaica, and Mexico. The international attendees represented nonprofits, universities, and national governments.

The Florida Keys workshop brought together many of the same instructors from previous workshops, plus many local experts from Florida. We were especially grateful to have Paul Marshall from GBRMPA, and Lara Hansen from WWF.

## 1.3 Structure



The workshop's modules were delivered in lectures, hands-on activities, and field exercises. The participants added lively discussion from their personal experience; this enhanced the value of the workshop, and also provided several additions that have been incorporated into the workshop syllabus.

Module 1 was a synthesis of the latest science about observed and expected climate change impacts on coral reef ecosystems. It also presented a strategy for responding to mass bleaching from the *Manager's Guide*.

Modules 2-5 presented the components of a mass coral bleaching response: predicting mass bleaching; monitoring ecological and socio-economic impacts; and implementing management interventions. These components were brought together when participants worked in teams to develop draft bleaching response plans for their regions.

Module 6 was for communicating about mass bleaching to constituents, decision makers, and the general public. As part of this module, participants developed their own key messages on coral bleaching and climate change.

Module 7 included lectures, discussions, and a field exercise on factors that may confer resilience to climate change. Working in groups, participants drafted resilient MPAs for their region. The field exercise took the group to

Sombrero Reef, where participants evaluated the expected resilience of the site and performed a bleaching survey.

In Module 8, participants began drafting bleaching response plans for their regions. This exercise synthesized the lessons learned in the other modules, and many participants considered this the best part of the workshop.

## **Section 2. Outcomes**

### 2.1 Curriculum

In addition to providing training, this workshop also produced an improved library of presentations for future use. The agenda and presentations have been improved based on feedback from Australia and American Samoa participants. The materials are now publicly available on the CRW website: <http://coralreefwatch.noaa.gov/satellite/education/workshop/> .

The CRCP plans to present one more workshop in 2008 following the US Coral Reef Task Force meeting in Hawaii.

### 2.2. Participant Feedback

Participants were asked to complete evaluations at the close of the workshop. Feedback was overwhelmingly positive. 95% of participants either agreed or strongly agreed that the modules presented were useful, interesting, clearly delivered, and helpful to their jobs. Examples of comments included:

“This was a great workshop where I had the opportunity to network with local and international colleagues. I also learned of many interesting efforts done to address coral bleaching and global warming.”

“The activities were excellent and provided real-world application. Conducting the workshop with international involvement was brilliant.”

“I feel that I can return home with a renewed confidence that the work I’m doing is... critically necessary and we need to be more strategic and open in our discussion and information sharing as well, as much as possible. GREAT WORKSHOP!!”

A number of participants made suggestions to improve the workshop and these changes will be incorporated into future trainings. Most of these comments focused time management, and the need to allow more time for the activity on developing a bleaching response plan. We concluded that this should ideally be a full four days, not the 3 ½ days we allocated for this Florida workshop.