



Final Report

on



Responding to Climate Change: A Workshop for Coral Reef Managers

Lady Elliot Island Resort, Great Barrier Reef, Australia
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By

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Section 1. Overview

The Lady Elliot Island (LEI) workshop inaugurated a capacity-building program based on *A Reef Manager's Guide to Coral Bleaching (Manager's Guide)*. This book provides a response framework for mass bleaching and the cumulative impacts of climate change. It 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) innovative implementation of 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.

Funding was provided by the CRCP, GBRMPA, CRTR, and the Australian Government Department of Environment and Water. In-kind contributions by CRW, TNC, and FKNMS supported staff time and materials. Generous support from the Lady Elliot Island Eco Resort was essential to the workshop's success.

1.1 Goals

This effort aimed to develop a capacity-building program around the *Manager's Guide*, building on training initiatives by TNC's Reef Resilience Initiative and CRW. The target audience was senior coral reef management practitioners whose broad expertise would generate good feedback on this new curriculum.

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 senior professionals involved in coral reef management. Participants were either practitioners or serving in roles where they directly influence the design and implementation of coral reef management initiatives. Eleven participants were from Australia, representing Queensland, Western Australia, the Northern Territory, and the federal government. Nine participants were from Southeast Asia, representing Indonesia, the Philippines, Malaysia, and Thailand. One self-funded PhD student from the University of Queensland (UQ) and a visiting scientist from NOAA's Pacific Islands Fisheries Science Center also participated.

The LEI workshop brought together a team of instructors that will play an integral part in taking this training forward. The workshop also provided an opportunity for *Manager's Guide* authors to work with NOAA experts to refine workshop materials and develop knowledge that will enhance future workshops.

1.3 Structure

The workshop's 8 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; communicating about the event; and implementing management interventions. These components were brought together when participants worked in teams to develop draft bleaching response plans for their regions.

As part of the communication module, a public forum was held one evening for the resort guests and staff to hear messages on coral reef conservation issues that were developed by the participants and coaches. Skits, impromptu costumes and musical compositions all featured strongly, as did a real-time animation (avatar) of "Bruce" the shark.

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 used glass-bottom boats that provided a clear view of the coral ecosystem while permitting fervent discussions. Many participants found this exercise to be a highlight.

Section 2. Outcomes

2.1 Curriculum

In addition to providing training, this workshop also produced a library of presentations for future use. The curriculum combines existing training materials from CRW, CRCP, TNC, and UQ with new material from the *Manager's Guide*, CRTR, and new research on socio-ecological resilience.

Following the LEI workshop, the training materials were revised and delivered again American Samoa. After a second round of improvements is completed, the materials will be made publicly available on the NOAA website.

At present, there are plans to present this workshop at least twice in 2008 – at FKNMS, and after 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. On average, 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:

“Well done. Thanks for getting this concept into a working system. This workshop is a good starting point to initiate actions to allow us to address an otherwise overwhelming problem [and provides] a good

toolbox to begin educating other decision-makers, stakeholders, and the community. Thank you.”

“Despite the tight schedule, the combination of lectures, exercises, and workshop activities was very effective in stimulating discussions, sharing of knowledge, and viewpoints as well as uncertainties. The modules are very well-structured and the trainers are very knowledgeable... The concepts and strategies presented (e.g., resilience management) are very useful for integration of a broader framework of coastal and marine management.”

A number of participants made suggestions to improve the workshop and these changes were incorporated into future trainings. Most of these comments focused on the workshop materials and the balance among various modules.