

Responding to Climate Change: A Workshop for Coral Reef Managers

Pago Pago, American Samoa, August 27-30, 2007

The “Responding to Climate Change” workshop was developed by NOAA’s Coral Reef Conservation Program (CRCP) and Australia’s Great Barrier Reef Marine Park Authority (GBRMPA), in partnership with The Nature Conservancy (TNC) and the World Bank/Global Environment Facility’s Coral Reef Targeted Research (CRTR) program. This 3-day workshop for marine park managers, reserve managers, coral scientists, and other interested stakeholders is based on the publication *A Reef Manager’s Guide to Coral Bleaching*, and is designed to increase the ability of coral reef managers to anticipate and respond to coral bleaching events. Participants will learn about satellite monitoring products to forecast coral bleaching events, management strategies and planning tools to help coral reefs survive future bleaching events, the principles of resiliency relevant to designing marine protected areas (MPAs), and developing bleaching response plans. Participants will also conduct a field exercise on monitoring for resiliency.

Instructors:

- Ms. Tyler Christensen, NOAA Coral Reef Watch, Tyler.Christensen@noaa.gov
- Dr. Mark Eakin, NOAA Coral Reef Watch, Mark.Eakin@noaa.gov
- Dr. Scott Heron, NOAA Coral Reef Watch, Scott.Heron@noaa.gov
- Ms. Christy Loper, NOAA Coral Reef Conservation Program, Christy.Loper@noaa.gov
- Ms. Lauri MacLaughlin, NOAA Florida Keys National Marine Sanctuary, Lauri.Maclaughlin@noaa.gov
- Dr. Michael Marnane, Great Barrier Reef Marine Park Authority, m.marnane@gbmpa.gov.au
- Ms. Lizzie McLeod, The Nature Conservancy, emcleod@TNC.ORG
- Ms. Jessica Morgan, NOAA Coral Reef Watch, Jessica.Morgan@noaa.gov

Support for the development of this workshop has been provided by the following:

NOAA Coral Reef Conservation Program: From mapping and monitoring to managing reef resources and removing harmful debris, the CRCP supports effective management and sound science to preserve, sustain and restore the nation’s valuable coral reef ecosystems.

Great Barrier Reef Marine Park Authority: GBRMPA is the principal adviser to the Australian Government on the care and development of the Great Barrier Reef Marine Park. GBRMPA aims to provide for the protection, wise use, understanding and enjoyment of the Great Barrier Reef in perpetuity through the care and development of the Great Barrier Reef Marine Park.

The Nature Conservancy: TNC is a leading conservation organization working around the world to protect ecologically important lands and waters for nature and people. The mission of The Nature Conservancy is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.



Funding and logistical support for this workshop was provided by the following:

I. M. Systems Group, Inc.: Founded in 1987, IMSG is a rapidly expanding company serving Federal Government, Department of Defense, and commercial clients, focusing on mission-critical information technology (IT), software engineering, and scientific services and solutions. IMSG staff provides detailed technical experience in all areas of information technology and engineering services. IMSG has provided staff support and funding for workshop logistics. IMSG has generously provided sponsorship for carbon offsets for all air travel of instructors and participants, via ClimateFriendly.org. IMSG is also the primary sponsor for the Welcome Reception for this workshop.

NOAA National Ocean Service International Program Office: The IPO serves as a single focal point within NOS to coordinate and carry out its international activities, including: improving international capacities to protect, conserve, and restore coastal habitat; improving international capacities to mitigate the impacts of climate change; ensuring safe, efficient, and environmentally-sound maritime navigation in US waters and beyond; and improving international capabilities to reduce impacts from natural disasters on our coastal resources. IPO has provided funding for international travelers to this workshop.

NOAA Coral Reef Watch: The mission of CRW is to utilize remote sensing and *in situ* tools for near-real-time and long term monitoring, modeling and reporting of physical environmental conditions of coral reef ecosystems. CRW aims to assist in the management, study and assessment of impacts of environmental change on coral reef ecosystems. CRW has provided staff and funding in support of this workshop.

NOAA Fagatele Bay National Marine Sanctuary: The FBNMS was designated in 1986 in response to a proposal from the American Samoa Government to the National Marine Sanctuary Program. The Sanctuary program protects and preserves natural and cultural resources in areas of special significance of the United States. We thank the FBNMS for the generous use of their new Visitor's Center for the Welcome Reception for this workshop.

The workshop instructors would like to thank the generous support and aid from many persons from the American Samoa government:

We are grateful to our guest speakers, **Dr. Toafa Vaiaga'e**, Director of the American Samoa Environmental Protection Agency, and **Dr. Bill Kiene**, Superintendent of the NOAA Fagatele Bay National Marine Sanctuary, for their participation in our workshop. **Mr. Douglas Fenner**, Acting Chief Biologist and Coral Reef Monitoring Ecologist of the American Samoa Department of Marine and Wildlife Resources, has generously offered his guidance for our workshop field activity.

Ms. Meredith Speicher, Coral Reef Initiative Coordinator of the Coral Reef Advisory Group, and **Mr. Aokusotino Mao**, American Samoa Department of Commerce, provided logistical support for the workshop.

We also thank the following people from the American Samoa Department of Commerce and the Coral Reef Advisory Group: Director Faleseu Eliu Paopao, Deputy Director Lelei Peau, Ms. Gene Brighthouse, Resource Manager, and Ms. Reinette Thompson-Niko. From the American Samoa Department of Marine and Wildlife Resources, we would like to thank the following individuals: Director Ufagafa Ray Tulafono, Ms. Mary Jane Porter, and Ms. Selaina Vaitautolu.

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Lee Auditorium, Pago Pago, American Samoa
August 27-30, 2007

Agenda

Monday 27th August

- 08:00-08:30 REGISTRATION
- 08:30-08:40 Welcome; Participant introductions; Workshop logistics
- 08:40-08:50 Welcome address by Dr. Toafa Vaiaga'e, Director of the American Samoa Environmental Protection Agency
- 08:50-09:00 Motivation and goals of the workshop
- 09:00-10:30 Module 1: Climate change and coral reef systems: What are the issues?
- 10:30-10:45 MORNING BREAK
- 10:45-11:15 Module 1: Activity: "Are there meaningful actions for responding to climate change?"
- 11:15-12:00 Module 2: Predicting mass coral bleaching
- 12:00-13:00 LUNCH
- 13:00-15:00 Modules 2: SST, Hotspot and DHW products overview and exercises
- 15:00-15:15 AFTERNOON BREAK
- 15:15-15:55 Module 2: Satellite Bleaching Alerts and bleaching weather
- 15:55-16:30 Module 2: Activity: "You make the call"
- 16:30-17:00 Special Presentation: Community early warning systems (BleachWatch)

Tuesday 28th August

- 08:00-08:30 Workshop logistics and feedback
- 08:30-09:45 Module 3: Monitoring Mass Bleaching
- 09:45-10:15 Module 3: Activity: "Identifying bleached corals"
- 10:15-10:30 MORNING BREAK
- 10:30-12:00 Module 3: Ecological resilience
- 12:00-13:00 LUNCH
- 13:00-13:30 Briefing on field exercise
- 13:30-17:00 Field activity: Monitoring coral reefs for ecological resilience

Wednesday 29th August

- 08:00-08:30 Workshop logistics and feedback
- 08:30-10:00 Module 4: Socioeconomic impacts of climate change
- 10:00-10:45 Module 4: Activity: "Bringing in the social dimension"
- 10:45-11:00 MORNING BREAK
- 11:00-12:00 Module 5: Implementing management interventions
- 12:00-13:00 LUNCH
- 13:00-14:00 Module 6: Communicating about mass bleaching and climate change
- 14:00-14:15 Module 6: Activity: "Talking about mass bleaching and climate change"
- 14:15-14:30 AFTERNOON BREAK
- 14:30-15:15 Module 7: Building resilience into coral reef management
- 15:15-16:15 Module 7: Activity: "Integrating resilience into MPA design"
- 16:15-17:00 Module 7: Adapting coral reef management in the face of climate change

Thursday 30th August

- 08:00-08:30 Workshop logistics and feedback
- 08:30-09:00 Module 8: Developing bleaching response plans
- 09:00-10:30 Module 8: Activity: "Develop bleaching response plans"
- 10:30-10:45 MORNING BREAK
- 10:45-11:30 Module 8: Activity: "Share bleaching response plans"
- 11:30-11:45 Course Evaluation: Questionnaires
- 11:45-12:00 Course Evaluation: Feedback from around the room
- 12:00-13:00 LUNCH
- 13:00-13:15 Mechanisms for future feedback
- 13:15-14:00 Activity: Participants Present "Key messages to take home"
- 14:00-14:15 Closing address by Dr. Bill Kiene, Superintendent of the NOAA Fagatele Bay National Marine Sanctuary
- 14:15-14:30 WORKSHOP CLOSURE