



NOAA Coral Reef Watch -- 2013 annual summaries of thermal conditions related to coral bleaching for U.S. National Coral Reef Monitoring Program (NCRMP) jurisdictions

Florida:

NOAA Coral Reef Watch's satellite monitoring indicated little to no coral bleaching thermal stress for this region for 2013.

Puerto Rico:

NOAA Coral Reef Watch's satellite monitoring indicated little to no coral bleaching thermal stress for this region for 2013.

U.S. Virgin Islands:

NOAA Coral Reef Watch's satellite monitoring indicated little to no coral bleaching thermal stress for this region for 2013.

Hawaii:

NOAA Coral Reef Watch's satellite monitoring indicated little to no coral bleaching thermal stress for this region for 2013.

American Samoa:

NOAA Coral Reef Watch's satellite monitoring indicated little to no coral bleaching thermal stress for this region for 2013.

Guam and the Commonwealth of the Northern Mariana Islands (CNMI):

During the summer months (July-September) of 2013 in the Northern Hemisphere, CRW's satellite monitoring detected substantial thermal stress developing around Guam and CNMI. It indicated that throughout most of the region, accumulated thermal stress, measured by CRW's Degree Heating Weeks (DHW) product, reached 8 DHWs and beyond, a level associated with the occurrence of widespread coral bleaching and the onset of significant coral mortality. CRW issued bleaching alerts and Seasonal Bleaching Thermal Stress Outlooks that were used by the local coral reef management community to activate and guide bleaching response plans and enhance reef monitoring efforts for the entire bleaching period. Local coral scientists and managers from numerous agencies and organizations (e.g., NOAA/NMFS/PIRO, NOAA/NOS/OCRM CNMI and Guam Field Offices, the Guam Coastal Management Program, the CNMI Division of Environmental Quality, the Guam Environmental Protection Agency, multiple U.S. Government contractors working with the U.S. Military in Guam, the University of Guam, etc.) conducted reconnaissance-level surveys of reefs to get a better understanding of the current scope of the event; used media, email, and social networking sites to explain the event and request the public's aid to document the spatial extent of bleaching; and photo-documented the bleaching at each reef. They also requested permission for a coral biologist to join the Department of Agriculture on its aerial surveys in September 2013 to view the spatial extent of bleaching across the island as visible by air and then reconvened in early September to review reconnaissance data and discuss a more detailed monitoring plan based on resources and information gathered.

CRW partners in CNMI reported that the period of hot, humid, still conditions throughout August and September 2013 resulted in localized, severe bleaching in Saipan, especially in the Saipan lagoon and Pau Pau Beach areas. *Acropora* stands sustained moderate to severe bleaching, with some bleaching induced mortality, and *Pocillopora damicornis* and *Isopora palifera* colonies suffered substantial bleaching induced mortality. In Tinian harbor, only slight paling was noted on *P. damicornis* colonies, and *Acropora* thickets showed signs of bleaching but very little death. In Guam, partners reported that moderate to severe bleaching was observed throughout August 2013 in several large *Acropora* stands (on shallow reef flats), and fairly widespread paling and either partial or full-colony bleaching was observed in various other *Acropora* spp., *Montipora* spp., *Pocillopora* spp., *Isopora* spp., and several other genera on the reef flat, margin, and outer reef slope to a depth of around 6-8 m. A moderate degree of mortality was observed in bushier *Acropora* spp., but the mortality could not be attributed directly to thermal stress and bleaching. CRW's long-term satellite record indicates that Guam and CNMI are usually free of major coral bleaching thermal stress; however, 2013 suffered the most significant thermal stress seen in the CNMI.

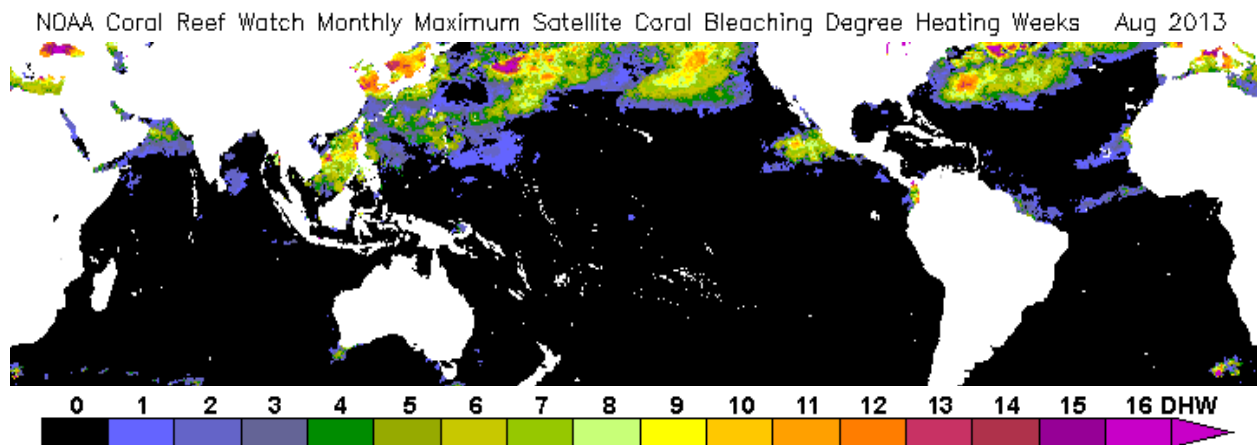


Figure 1. NOAA Coral Reef Watch Monthly Maximum DHW for August 2013.

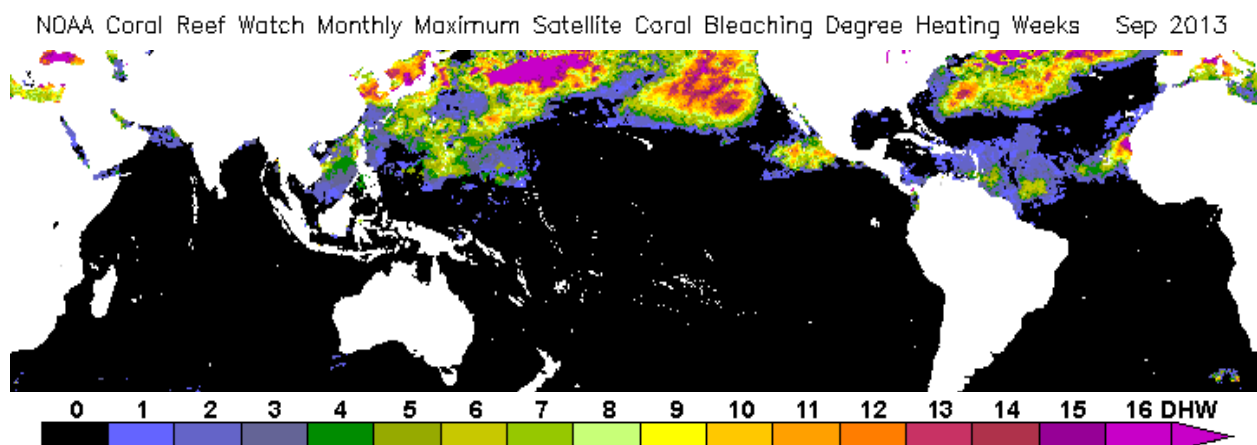


Figure 2. NOAA Coral Reef Watch Monthly Maximum DHW for September 2013.

NOAA Coral Reef Watch Monthly Maximum Satellite Coral Bleaching Alert Area Aug 2013

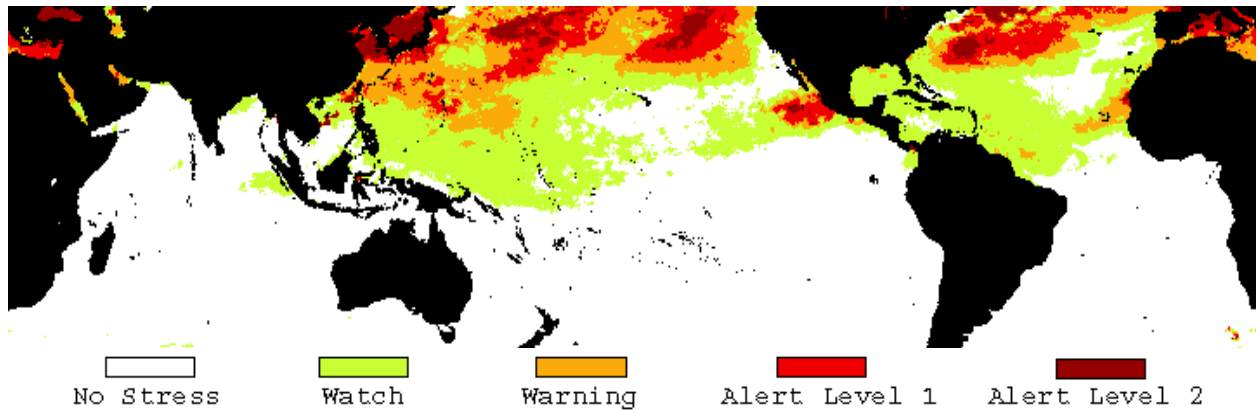


Figure 3. NOAA Coral Reef Watch Monthly Maximum Bleaching Alert Area for August 2013.

NOAA Coral Reef Watch Monthly Maximum Satellite Coral Bleaching Alert Area Sep 2013

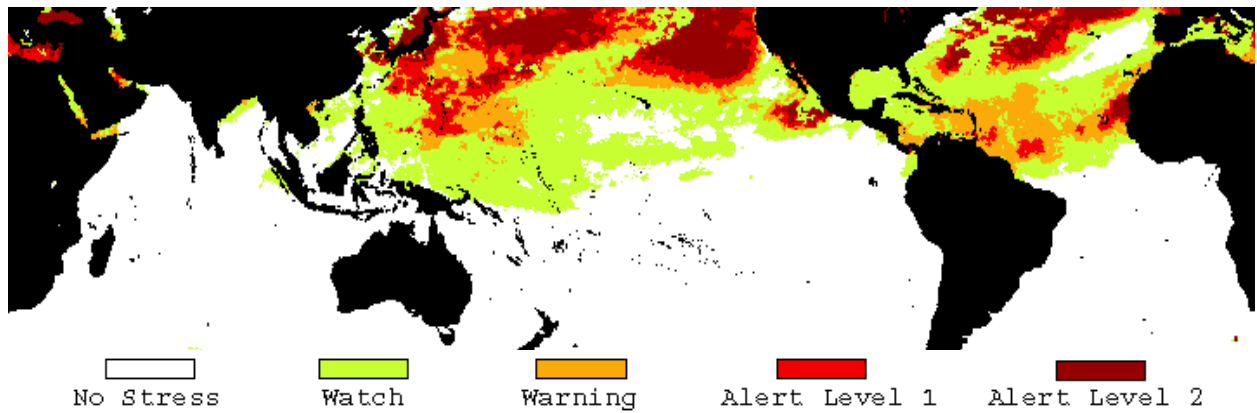


Figure 4. NOAA Coral Reef Watch Monthly Maximum Bleaching Alert Area for September 2013.

Program Partners:

