Pacific Climate Update
Coral Bleaching Thermal Stress Analysis and
Seasonal Guidance through November 2015

(Released August 5, 2015)

NOAA Coral Reef Watch's (CRW) near-real-time satellite monitoring continues to show widespread positive sea surface temperature (SST) anomalies throughout the central and eastern equatorial Pacific Ocean and the entire northeastern Pacific Ocean (Figure 1). The previously observed, significantly high SST anomalies in the central equatorial Pacific Ocean, consistent with an atypical Modoki or central Pacific El Niño event, have been decreasing slowly. The persistent, significantly high SST anomalies along the eastern equatorial Pacific Ocean have further elevated and are consistent with a potentially major, if not record-breaking El Niño event, predicted to continue strengthening through northern hemisphere winter 2015-16. Several tropical storms have originated in this region. The long-lasting warm blob in the northeastern Pacific Ocean remains strong and is now joined by a new warm blob that developed to the southeast of the North American coast. The western equatorial Pacific Ocean has seen cooling with negative SST anomalies appearing around the Federated States of Micronesia and Gilbert and Marshall Islands (Figure 1).
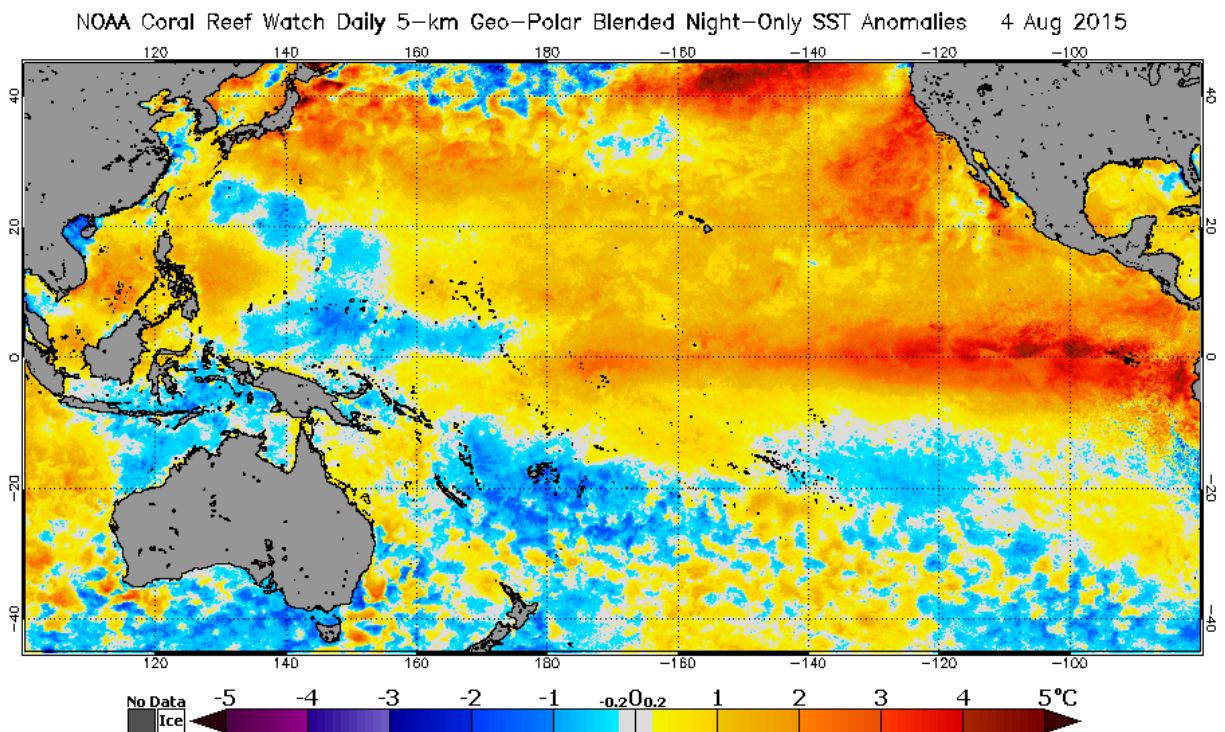

Figure 1. NOAA Coral Reef Watch's Satellite Sea Surface Temperature (SST) Anomaly product.

Coral Bleaching HotSpots persist throughout the central equatorial Pacific Ocean, and new HotSpots have developed stretching into most of the northeastern Pacific Ocean and toward the Main Hawaiian Islands. Tropical Storm Guillermo may bring some temporary relief to the islands. In the northwestern Pacific Ocean, HotSpots have developed near Guam and the Mariana Islands, with higher stress in the southern Mariana Islands, causing bleaching warnings to be issued for these regions (Figures 2 and 3). The Galapagos Islands have seen a retreat of HotSpots and a reduction in bleaching thermal stress, although widespread bleaching is expected to have occurred here over the past few months (Figures 2 and 3). Alert Levels 1 and 2 have persisted over reefs in Kiribati (Gilbert, Phoenix, and Line Islands) and Howland and Baker Islands and are expected to have caused widespread bleaching (Figure 3). Some partial bleaching was reported in American Samoa (Tutuila) in late May and early June, as well as in Micronesia (Ifaluk, Wottegai, and Eauripik) in July 2015.
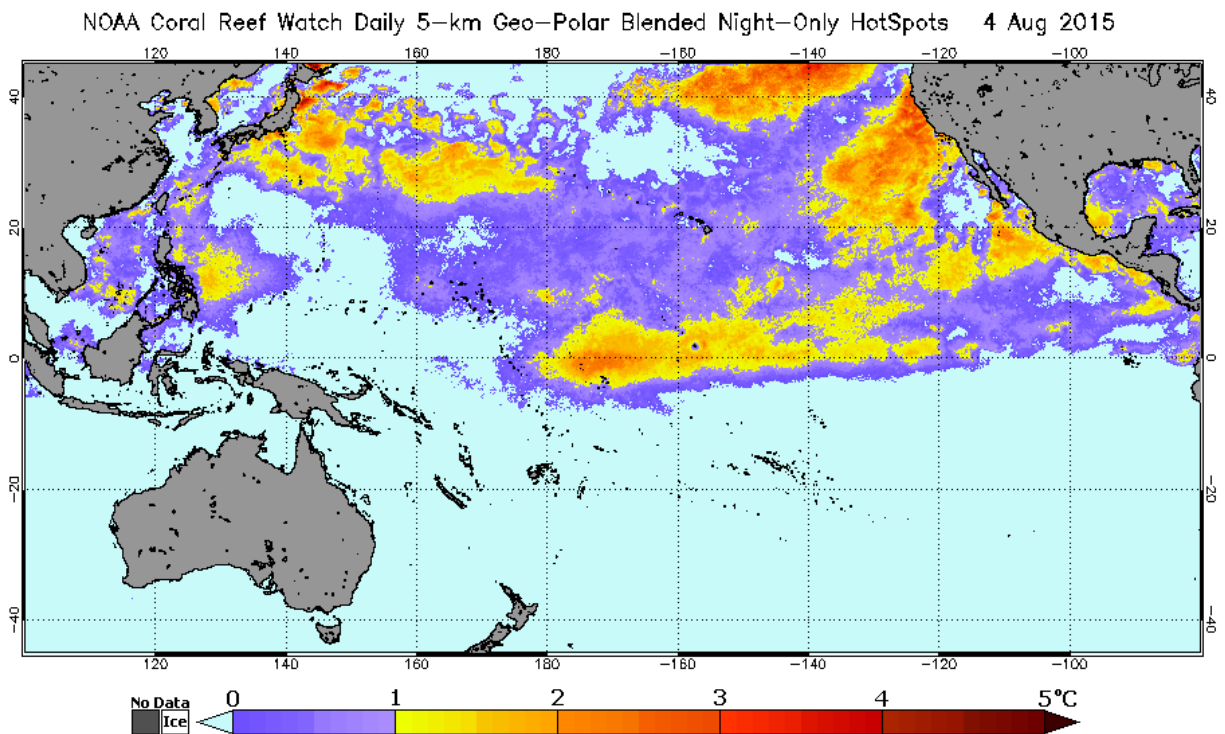

Figure 2. NOAA Coral Reef Watch's Satellite Coral Bleaching HotSpot product.

NOAA Coral Reef Watch Daily 5-km Geo-Polar Blended Night-Only Bleaching Alert Area 7d Max 4 Aug 2015
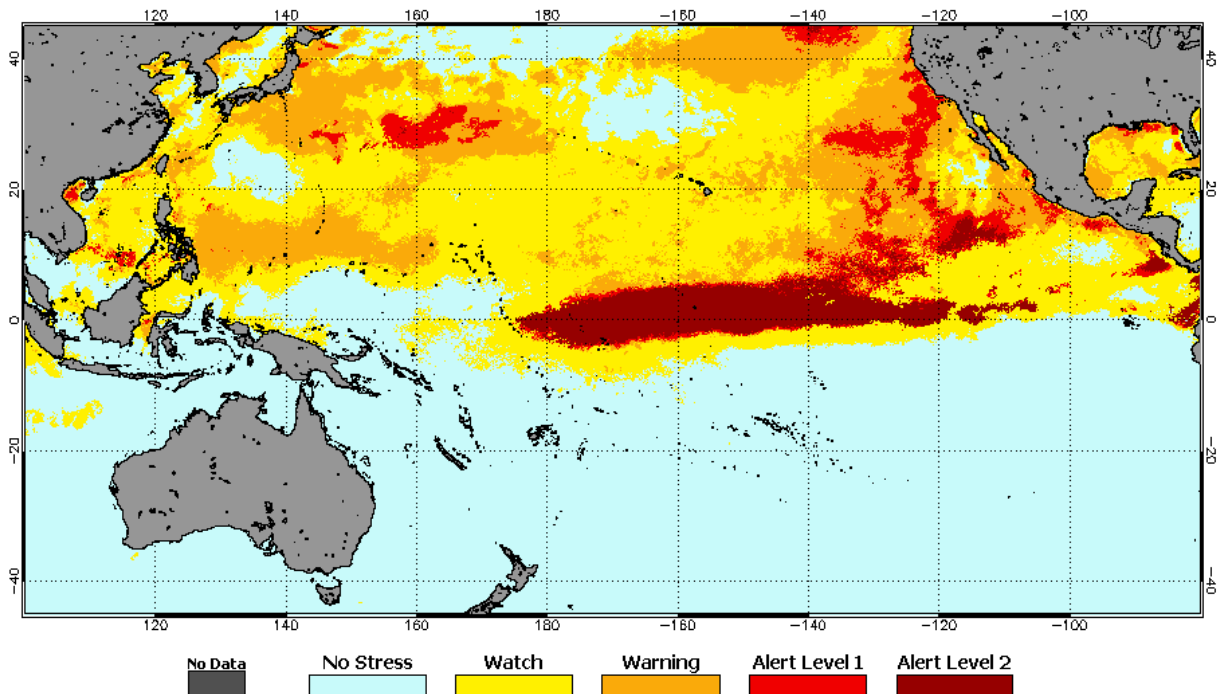
| No Data | No Stress | Watch | Warning | Alert Level 1 | Alert Level 2 |

Figure 3. NOAA Coral Reef Watch's Satellite Bleaching Alert Area (7-day maximum) product.

CRW's most recent Four-Month Coral Bleaching Outlook (Figure 4) projects continued thermal stress to last through at least the end of November 2015 in the central equatorial Pacific Ocean. Alert Level 2 is expected to persist for Kiribati through November while the Marshall Islands may see thermal stress begin to decrease by the end of October. Thermal stress off the west coast of North America, initiated in mid-July, is expected to expand westward and increase around Hawai'i; Alert Level 1 bleaching conditions are now predicted as early as September, increasing to Alert Level 2 in October. The stress in this region should last until mid-November and may cause significant bleaching in the Main Hawaiian Islands.

2015 Aug 4 NOAA Coral Reef Watch 60% Probability Coral Bleaching Thermal Stress for Aug–Nov 2015
Experimental, v3.0, CFSv2–based, 28–member Ensemble Forecast

Potential Stress Level: ☐ Watch ☐ Warning ☐ Alert Level 1 ☐ Alert Level 2
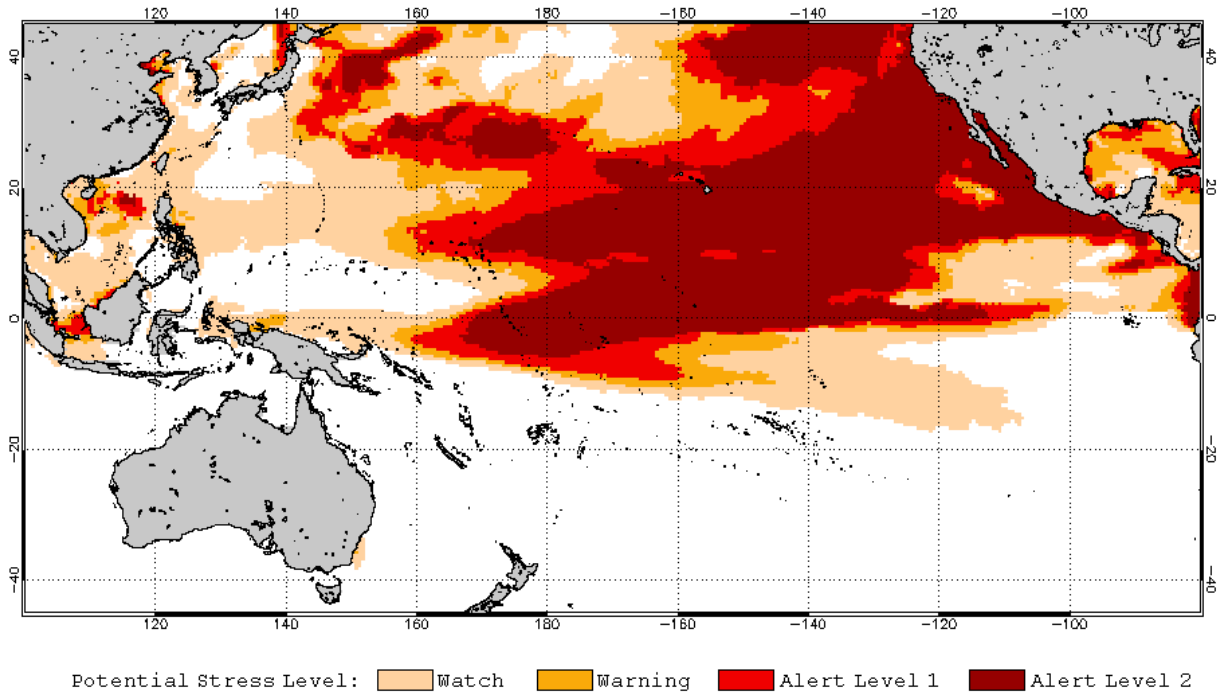
Figure 4. NOAA Coral Reef Watch's Four-Month Coral Bleaching Thermal Stress Outlook for Aug-Nov 2015.

NOTE: This report focuses on NOAA Coral Reef Watch's new 5-km satellite-based products and new v3.0 Four-Month Coral Bleaching Thermal Stress Outlook. The 5-km satellite products presented here use CRW's new color scales, which are already implemented in the images posted on the CRW website.

To monitor the intensity and location of the coral bleaching thermal stress, please follow NOAA CRW's satellite monitoring and Outlook closely in the coming weeks at:
http://coralreefwatch.noaa.gov/satellite/bleaching5km/index.php and
http://coralreefwatch.noaa.gov/satellite/bleachingoutlook_cfs/outlook_cfs.php.

Program Partners: