

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

(Released November 3, 2014)

NOAA Coral Reef Watch's near-real-time satellite monitoring continues to show the presence of positive sea surface temperature (SST) anomalies throughout the eastern equatorial region of the Pacific Ocean, consistent with an El Niño event (Figure 1). Corals in Guam and the Commonwealth of the Northern Mariana Islands (CNMI) experienced significant bleaching. CRW's satellite monitoring showed that thermal stress sufficient to cause bleaching started in mid-June and lasted until late-September 2014 in Guam/CNMI; it also started in late-August and lasted until late-October in the Hawaiian Archipelago. The accumulation of thermal stress over the period August-October 2014 represented by CRW's Degree Heating Weeks (DHW) product is provided in Figure 2. The maximum composite of the Bleaching Alert Area for August-October 2014 is shown in Figure 3. CRW's satellite tools indicated that the northern CNMI and central Hawaiian Archipelago both suffered unprecedented levels of thermal stress. In-situ bleaching observations confirmed that there was more severe and widespread bleaching thermal stress in the northern parts of the CNMI than in the southern parts of the CNMI and Guam. The high thermal stress in the Hawaiian Archipelago started in the central portion of the archipelago, then spread both to the west and east, and reached the main Hawaiian Islands in late-September 2014. Observations of bleaching have been reported from these regions. The true scope and severity of the bleaching are yet to be determined; we are awaiting quantitative in-situ observation data from local surveys.

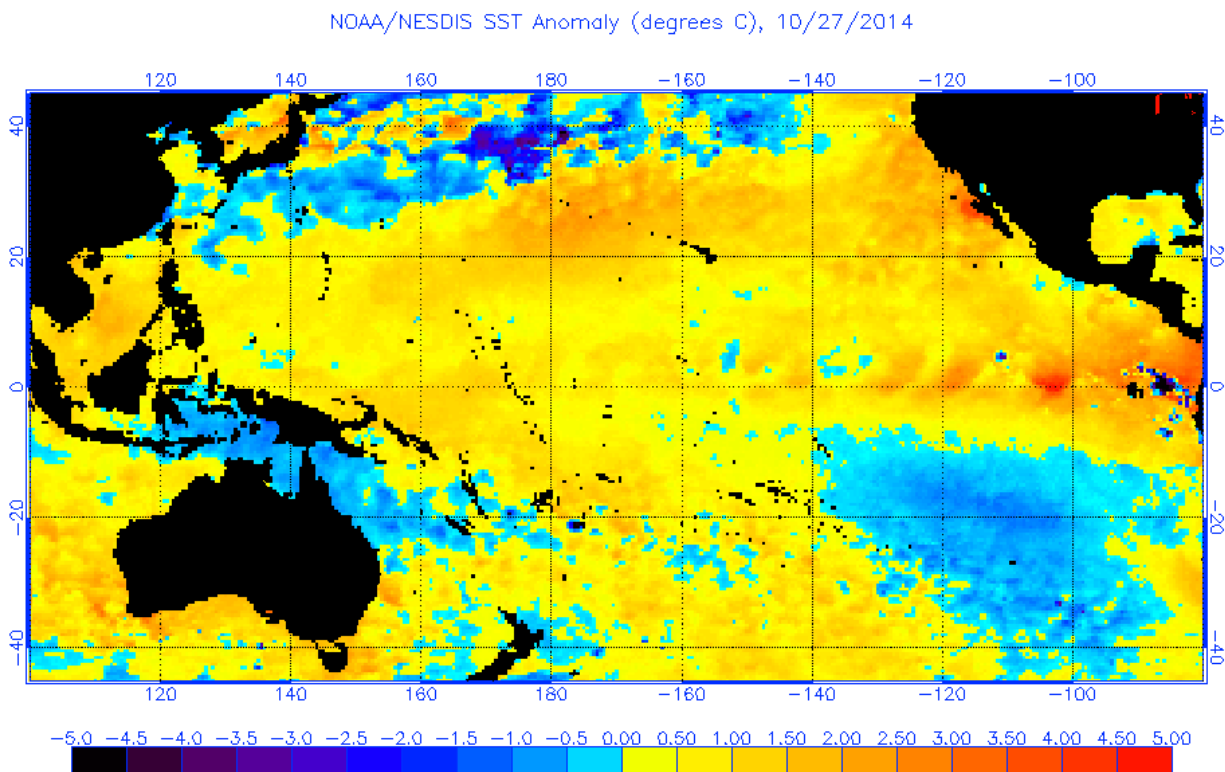


Figure 1. NOAA Coral Reef Watch's Satellite Sea Surface Temperature (SST) Anomaly.

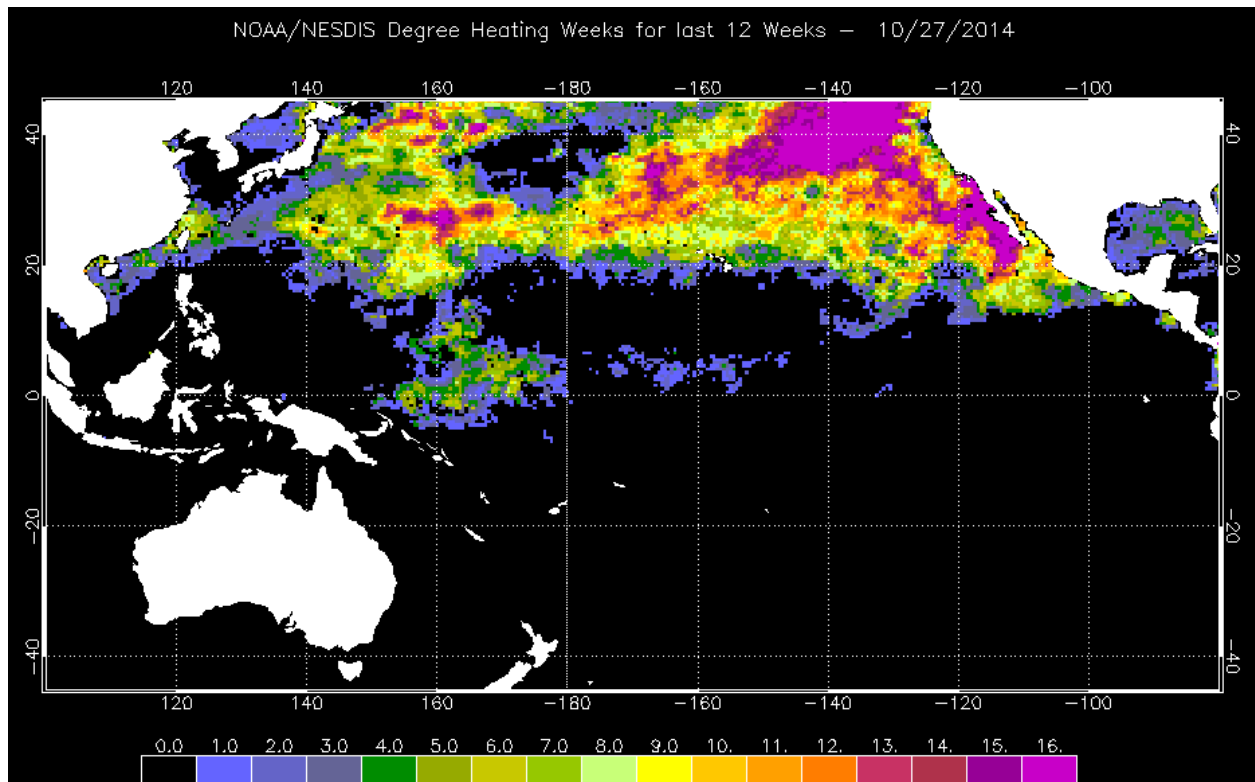


Figure 2. NOAA Coral Reef Watch's Satellite Coral Bleaching Degree Heating Weeks (DHW).

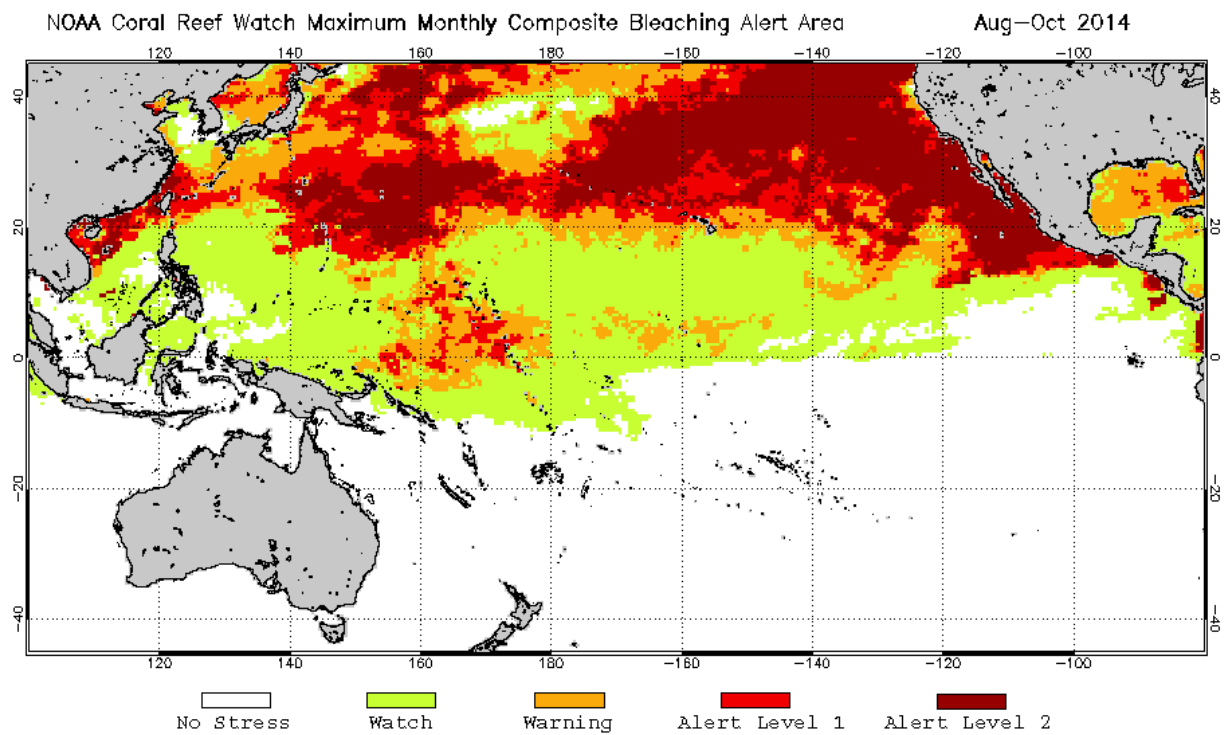


Figure 3. NOAA Coral Reef Watch's Satellite Maximum Bleaching Alert Area Composite for August-October 2014.

CRW's most recent Seasonal Coral Bleaching Thermal Stress Outlook (Figure 4) points to an increased chance of Alert Levels 1 and 2 thermal stress along the equatorial regions of the western and central Pacific Ocean, stretching from eastern Indonesia and PNG (December 2014-January 2015) in the west, to Tokelau and Samoa (December 2014 and thereafter) in the east, and centered at the Gilbert Islands of Kiribati (November 2014-January 2015). The highest potential stress (Alert Level 2) spans from PNG to the Gilbert Islands and Samoa. Alert Level 1 has also been predicted for the Great Barrier Reef, Australia starting February 2015. We recommend you continue to consult CRW's Seasonal Outlook to see if these patterns continue.

2014 Oct 28 NOAA Coral Reef Watch 60% Probability Coral Bleaching Thermal Stress for Nov–Feb 2015
Experimental, v2.0, CFSv2-based, 28-member Ensemble Forecast

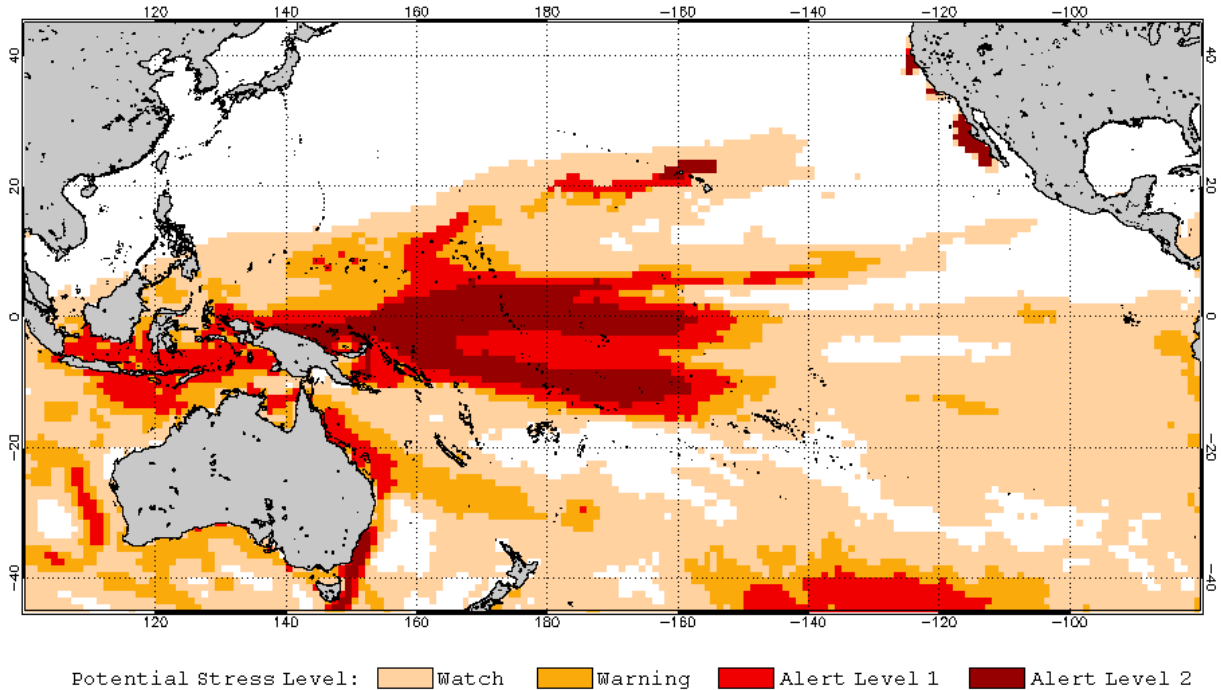


Figure 4. NOAA Coral Reef Watch's Seasonal Coral Bleaching Thermal Stress Outlook for Nov 2014-Feb 2015.

The NOAA Climate Prediction Center's update (http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.html) in early October 2014 predicted that an El Niño would develop during October-December 2014 and continue into early 2015; this El Niño will likely remain weak throughout its duration.

To monitor the intensity and location of the coral bleaching thermal stress, please follow Coral Reef Watch's satellite monitoring and Outlook closely in the coming weeks at:

<http://coralreefwatch.noaa.gov/satellite/index.php> and

http://coralreefwatch.noaa.gov/satellite/bleachingoutlook_cfs/outlook_cfs.php.

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