Mote Marine Laboratory / Florida Keys National Marine Sanctuary

Coral Bleaching Early Warning Network

Current Conditions Report #20090924

Updated September 24, 2009

Summary: Based on climate predictions, current conditions, and field observations, the threat for mass coral bleaching within the FKNMS remains **MODERATE.**

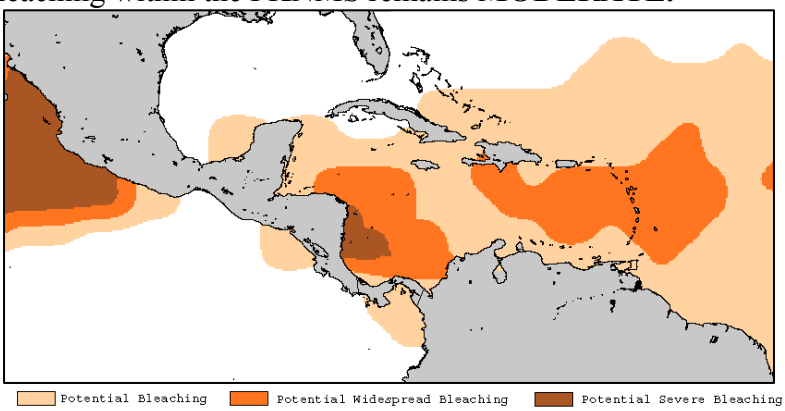

Figure 1. NOAA's Coral Bleaching Thermal Stress Outlook for Sept. – Dec., 2009.
http://coralreefwatch.noaa.gov/satellite/index.html

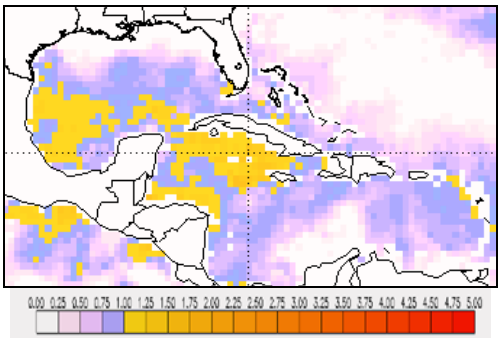

Figure 2. NOAA's Coral Bleaching HotSpot Map for September 24, 2009.
www.osdpd.noaa.gov/ml/ocean/cb/hotspots.html

Weather and Sea Temperatures

According to the latest NOAA Coral Reef Watch Coral Bleaching Thermal Stress Outlook (updated Sept. 22, 2009) the potential for coral bleaching in the Caribbean in 2009 has lessened. While there continues to be an elevated potential for higher than normal temperatures in 2009, severe thermal stress is less likely than earlier outlooks indicated. (Fig. 1).

Current remote sensing analysis by NOAA's Coral Reef Watch program indicates that the Florida Keys region continues to experience elevated levels of thermal stress and moderate potential for coral bleaching. NOAA's recent Coral Bleaching HotSpot Map (Fig. 2), which provides current sea surface temperature (SST) compared to the historically expected SST's for the region, shows that temperature anomalies for the Florida Keys National Marine Sanctuary and surrounding waters continue to remain above-average. Similarly, NOAA's latest Degree Heating Weeks (DHW) map, which illustrates the accumulation of elevated temperature in an area based on the previous 12 weeks, indicates that cumulative temperature stress in the Florida Keys region remains elevated and has increased over the past two weeks as well (Fig. 3). Furthermore, NOAA's Coral Reef Watch program recently increased their Coral Bleaching Alert from a "Bleaching Watch" to a "Bleaching Alert II", indicating that thermal stress in the Florida Keys region continues to increase and observations of significant bleaching is potentially expected. Sea temperature readings at NOAA's Integrated Coral Observing Network (ICON) monitoring stations confirm that sea temperatures at several monitoring stations in the Florida Keys have remained near or above 30°C over the past several weeks (Fig. 4). Fortunately, despite some brief periods of calm weather, winds have increased slightly in the past week, thereby reducing the potential for development of extended doldrum-like conditions in the Florida Keys region (Fig. 5).

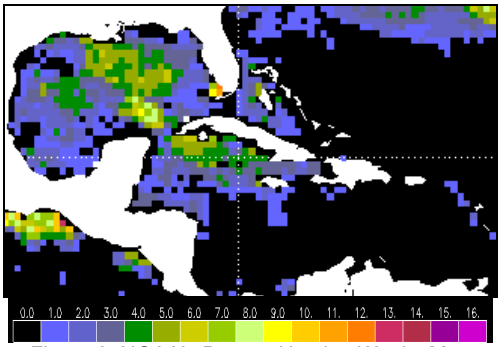

Figure 3. NOAA's Degree Heating Weeks Map for September 24, 2009.
http://www.osdpd.noaa.gov/ml/ocean/cb/dhw.html

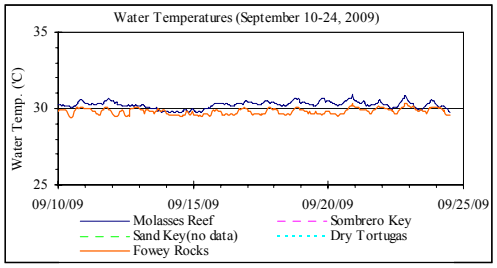

Figure 4. *in-situ* sea temperature from NOAA/ICON monitoring stations (Sept. 10-24, 2009).

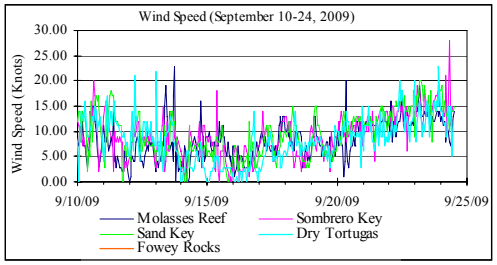

Figure 5. Wind speed data from NOAA/ICON monitoring stations (Sept. 10-24, 2009).

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Conditions of Corals

A total of 47 BleachWatch Observer reports were received during the last two weeks, with 24 reports indicating isolated colonies exhibiting signs of paling or partial bleaching (Fig. 6) and 5 reports of severely bleached coral colonies. The remaining reports indicated no significant signs of coral bleaching. At those sites where partial bleaching or paling was observed (Fig.7), the overall severity of corals showing thermal stress was typically only 1-10% of corals present and 11-30% in some of the reefs deeper than 40 feet.

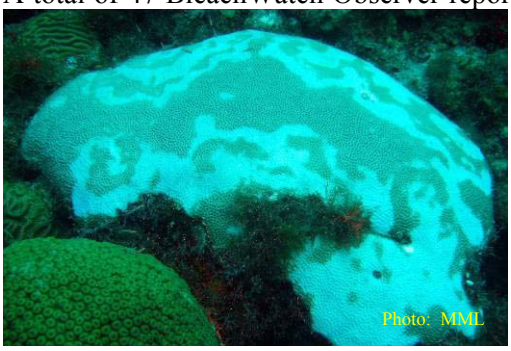

Figure 6. A partially bleached *Siderastrea siderea* at a depth of 50 feet in the Dry Tortugas on Sep.12, 2009

Figure 8. *Erythropodium caribaeorum* bleached and paling *Diploria strigosa* at Looe Key on Sep.22, 2009.

The majority of isolated paling/partial bleaching observations consisted of Mound and Boulder corals (*Montastraea spp., Solenastrea spp. Porites astreoides, and Siderastrea spp.*), Brain corals, (*Diploria spp., Colpophyllia natans, and Meandrina meandrites)*, Branching Corals (*Acropora spp., Porites spp.)* and Plate Corals (*Agaricia spp)*. Other observations included bleached *Erythropodium caribaeorum* (Fig. 8), bleached and paling of *Palythoa spp.* and Fire Coral, as well as several reports of coral diseases.

These isolated observations of paling and partial bleaching do not necessarily indicate the onset of a mass bleaching event; however, continued field observations are needed as more widespread coral bleaching could develop if environmental conditions continue to be favorable.

BleachWatch Reports for September 10-24, 2009

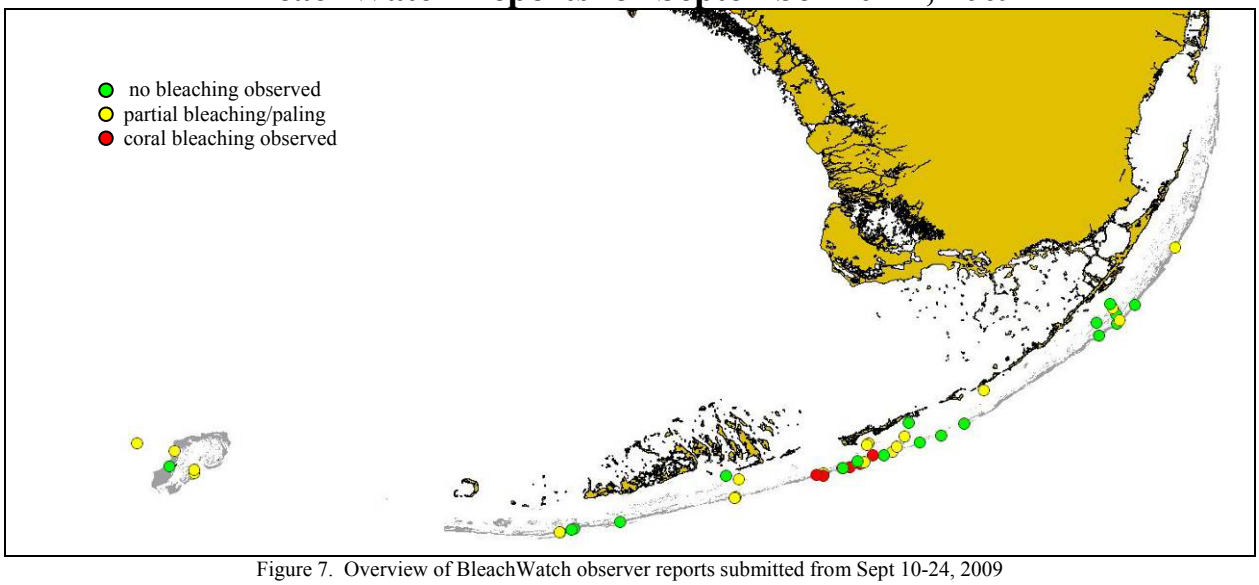

Figure 7. Overview of BleachWatch observer reports submitted from Sept 10-24, 2009

For more information about the BleachWatch program, or to submit a bleaching observation, contact:

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http://www.mote.org/Keys/research/bleaching.phtml

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