



Updated September 10, 2009

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

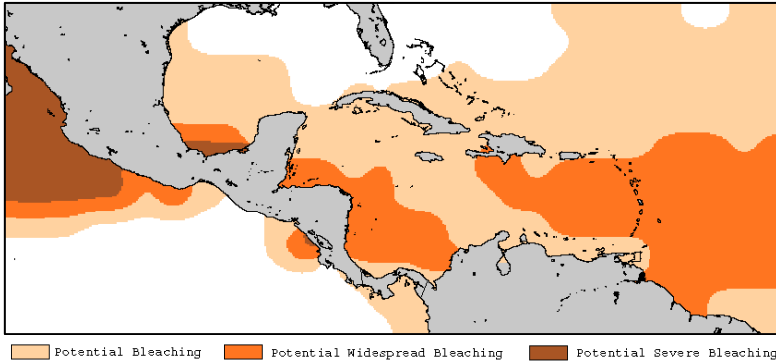


Figure 1. NOAA's Coral Bleaching Thermal Stress Outlook for Sept. - Dec., 2009. <http://coralreefwatch.noaa.gov/satellite/index.html>

Weather and Sea Temperatures

According to the latest NOAA Coral Reef Watch Coral Bleaching Thermal Stress Outlook (updated Sept. 10, 2009) there continues to be significant potential for coral bleaching throughout the Caribbean in 2009, especially in the Lesser Antilles; however, it now appears that the likelihood of significant bleaching in the Florida Keys has been reduced compared to the rest of the greater Caribbean (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 and have increased slightly since the end of August. 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).

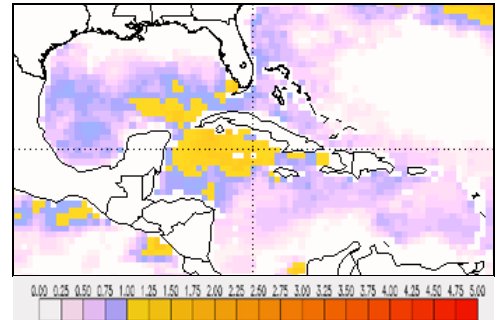


Figure 2. NOAA's Coral Bleaching HotSpot Map for September 10, 2009. www.osdpd.noaa.gov/PSB/EPS/SST/climohot.html

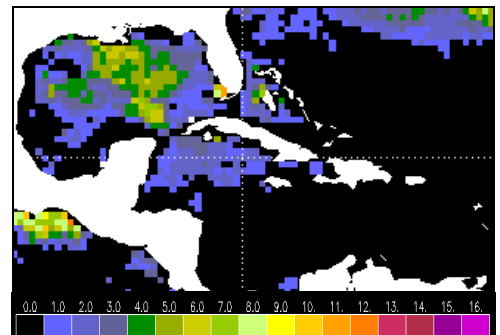


Figure 3. NOAA's Degree Heating Weeks Map for September 10, 2009. www.osdpd.noaa.gov/PSB/EPS/SST/dhw_retro.html

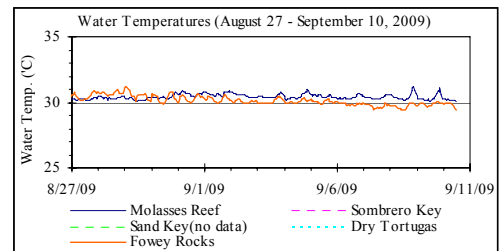


Figure 4. *in-situ* sea temperature from NOAA/ICON monitoring stations (Aug. 12-Sept. 10, 2009).

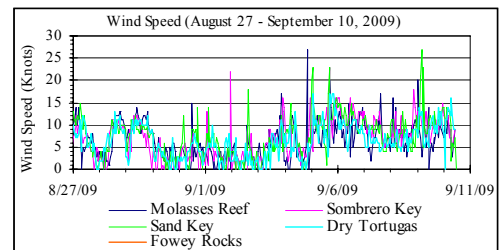


Figure 4. Wind speed data from NOAA/ICON monitoring stations (Aug. 12-Sept. 10, 2009).



Mote Marine Laboratory / Florida Keys National Marine Sanctuary
Coral Bleaching Early Warning Network
Current Conditions Report #20090910



Conditions of Corals

A total of 37 BleachWatch Observer reports were received during the last two weeks, with 15 reports indicating isolated



Figure 5. Two colonies of *Diploria strigosa* where one is paling while the second appears healthy in the Dry Tortugas on Sep.1, 2009

colonies exhibiting signs of paling or partial bleaching (Fig. 5 & 6) and 1 report of severely bleached coral recruits. 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.

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 paling of *Palythoa spp.*, Fire Coral and Gorgonians, as well as several reports of coral diseases, including very active Black Band Disease noted at one reef site in the Lower Keys.



Figure 6. *Montastraea annularis* paling at Looe Key on Sep. 4, 2009.

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 August 27-September 10, 2009

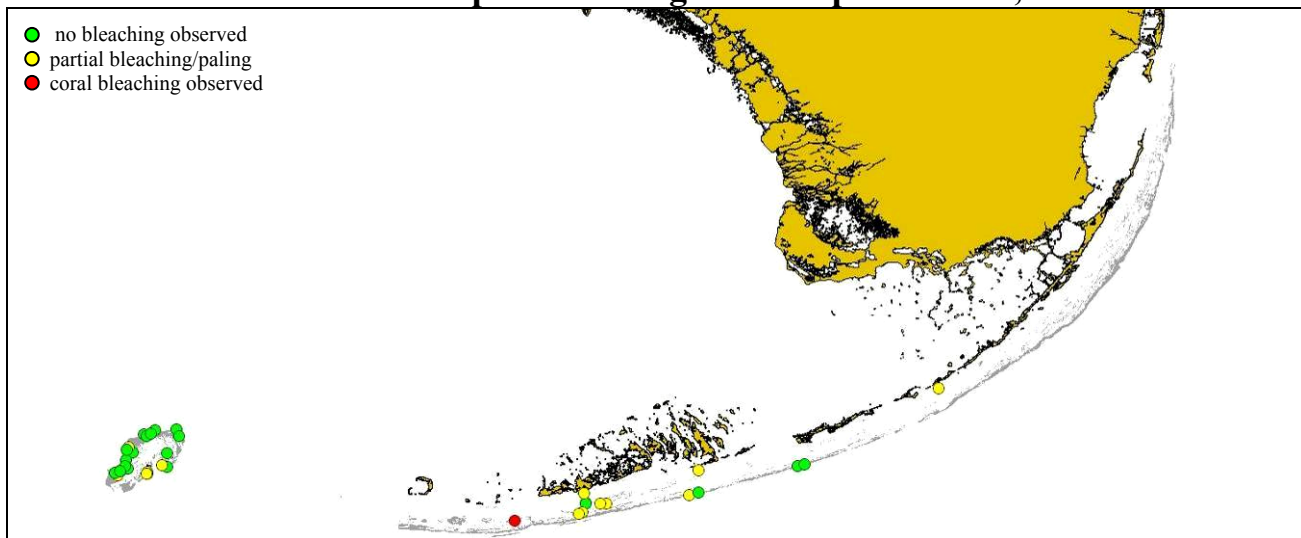


Figure7. Overview of BleachWatch observer reports submitted from Aug. 27 - Sept 10, 2009

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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