Mote Marine Laboratory / Florida Keys National Marine Sanctuary

Coral Bleaching Early Warning Network

Current Conditions Report #20190904

Updated September 4, 2019

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

NOAA Coral Reef Watch Current and 60% Probability Coral Bleaching Alert Outlook September 2, 2019 (experimental)

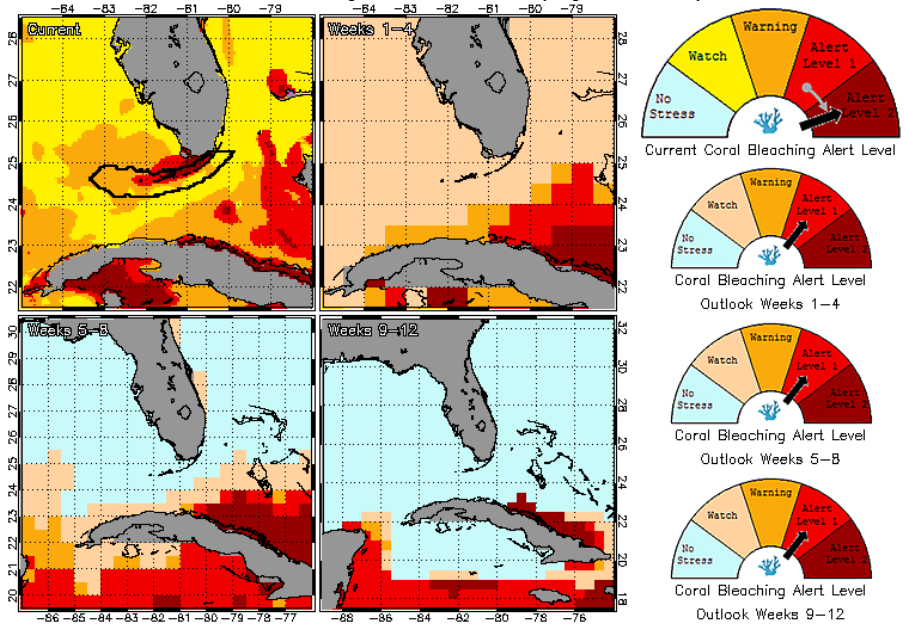

Figure 1. NOAA's 5 km Experimental Current and 60% Probability Coral Bleaching Alert Outlook Areas through December 2019. Updated September 2, 2019. http://coralreefwatch.noaa.gov/vs/gauges/florida_keys.php

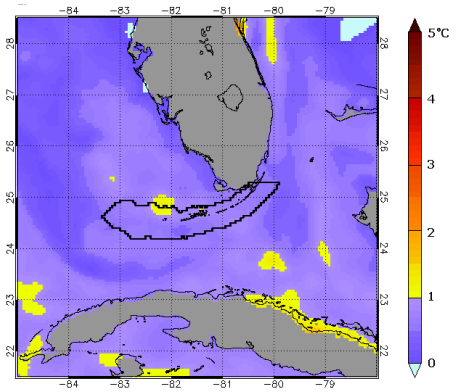

Figure 2. NOAA's Experimental 5km Coral Bleaching HotSpot Map for Florida September 2, 2019. https://coralreefwatch.noaa.gov/vs/gauges/florida_keys.php

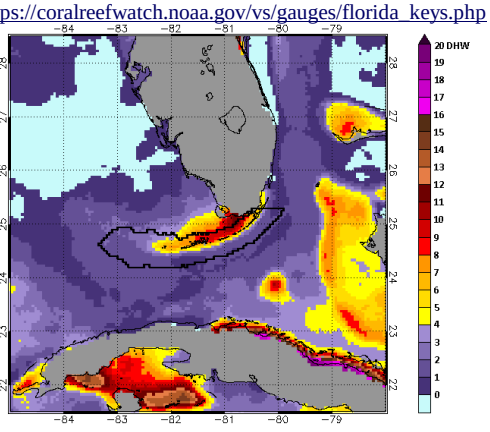

Figure 3. NOAA's Experimental 5km Degree Heating Weeks Map for Florida September 2, 2019. https://coralreefwatch.noaa.gov/vs/gauges/florida_keys.php

Weather and Sea Temperatures

According to the newly released NOAA Coral Reef Watch (CRW) experimental 5 kilometer (km) Satellite Current and 60% Probability Coral Bleaching Alert Area, most areas of the Florida Keys National Marine Sanctuary are under a bleaching Warning, with some areas under an Alert Level 1 and 2, which means significant bleaching with possible mortality is likely, and the potential exists for more bleaching warnings and alerts if sea temperatures continue to be elevated in the next few weeks (Fig. 1).

Recent remote sensing analysis by NOAA's CRW program indicates that all of the Florida Keys region is currently experiencing thermal stress. NOAA's new experimental 5 km Coral Bleaching HotSpot Map (Fig. 2), which illustrates current sea surface temperatures compared to the average temperature for the warmest month, shows elevated temperatures for the Florida Keys. Similarly, NOAA's experimental 5 km Degree Heating Weeks (DHW) map, which illustrates how much heat stress has built up over the past 12 weeks (Fig.3), indicates accumulating temperature stress is currently evident in the Florida Keys region. NOAA's Integrated Coral Observing Network (ICON) and Pacific Marine Environmental Laboratory (PMEL) monitoring stations, which provide near real time *in-situ* sea temperature and/or wind data throughout the Florida Keys reefs, remain at or just above 30°C over the past two weeks (Fig.4); however, there has been a recent temperature decrease due to hurricane Dorian winds (Fig. 5). Mote Marine Laboratory will continue to monitor the NOAA HotSpot maps, DHW maps, and ICON sea temperature data from NOAA monitoring stations on a weekly basis for the remainder of the bleaching season.

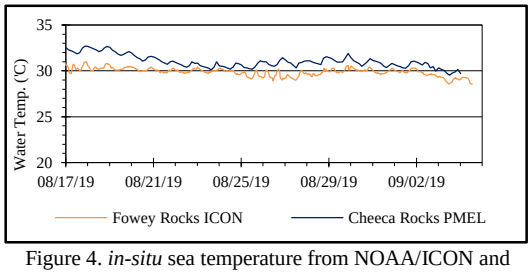

Figure 4. *in-situ* sea temperature from NOAA/ICON and MML monitoring stations (Aug.17-Sept. 4, 2019).

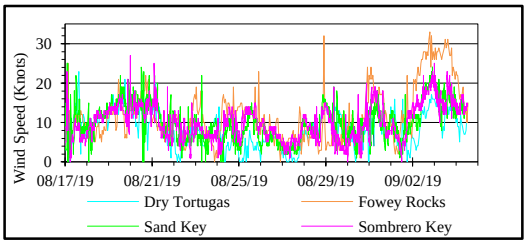

Figure 5. Wind speed data from NOAA/ICON monitoring stations (Aug.17-Sept. 4, 2019).

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Current Coral Conditions

A total of 54 BleachWatch Observer reports were received during the last 2 weeks (Fig. 6), with 50 reports indicating isolated colonies exhibiting signs of paling or partial bleaching and 2 reports of isolated bleaching in the Dry Tortugas (Fig. 7). The remaining 2 reports indicated that no significant signs of coral bleaching were observed. At those sites where paling/partial bleaching was noted, the overall percentage of corals exhibiting signs of thermal stress was mostly 1-10%, however several inshore/shallow reef sites noted up to 75% of corals affected. The majority of paling/partial bleaching observations consisted of isolated colonies of Encrusting/Mound/Boulder corals (*Siderastrea siderea, Siderastrea radians, Montastraea cavernosa, Orbicella faveolata, Orbicella annularis, Porities ssp.* and *Dichocoenia stokesii)*, Brain corals (*Colpohyllia natans, Pseudodiploria strigosa, Pseudodiploria clivosa and Diploria labyrinthiformis)* and Leaf/Plate/Sheet corals (*Agaricia spp.)* Other observations included paling of *Palythoa spp.*, Fire Coral, and Gorgonians (Fig. 8) as well as numerous reports of coral disease (Fig. 7).

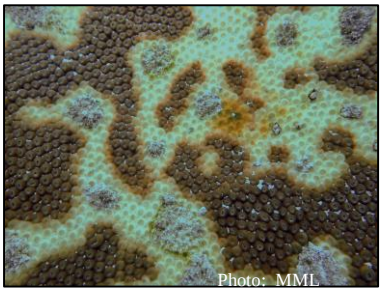

Figure 7. Diseased *M. cavernosa* with partial bleaching offshore of Cudjoe Key on 8/26/19

Figure 8. Bleached Gorgonians at an inshore site off Boca Chica 8/29/19.

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

BleachWatch Reports for Aug. 17- Sept. 3, 2019

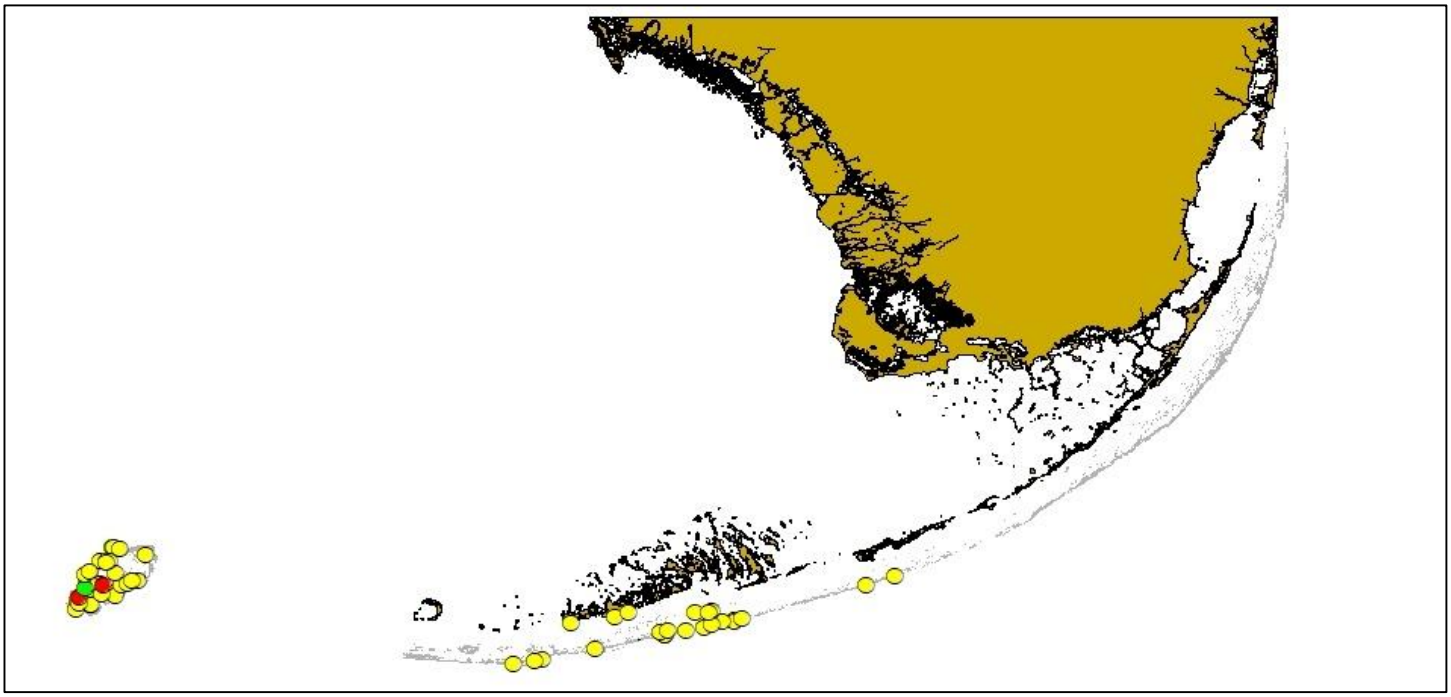

Figure 6. Overview of BleachWatch observer reports submitted from Aug. 17-Sept. 3, 2019

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

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