2010 Coral Bleaching Current Conditions Reports: 7 September for Papahānaumokuākea Marine National Monument

Background

Papahānaumokuākea Marine National Monument (PMNM) is one of the most pristine and best protected coral reef ecosystems in the world. While PMNM's management is designed to best support the ecosystem's resilience to climate change, these measures cannot completely prevent damage from climate change.

One of the effects of climate change is to increase the risk of reef damage through mass coral bleaching events. Mass coral bleaching occurs when unusually warm water temperatures disrupt the relationship between corals and the symbiotic microscopic algae that live within their tissues. Temperature stress causes the coral to expel the algae, and the reef appears white or "bleached" as its calcium carbonate skeleton becomes visible. Coral bleaching was recorded in PMNM in 2002 and 2004, and is likely to occur again in the future (http://ccma.nos.noaa.gov/ecosystems/coralreef/coral_report_2005/NWHI_Ch10_C.pdf).

Papahānaumokuākea Marine National Monument is co-managed through a partnership of the Department of the Interior's U.S. Fish and Wildlife Service, the Commerce Department's National Oceanic and Atmospheric Administration, and the State of Hawaii. PMNM works with a network of leading scientists to assess bleaching risks and impacts by monitoring climate forecasts, sea temperatures, and coral conditions throughout the bleaching season (July-November).

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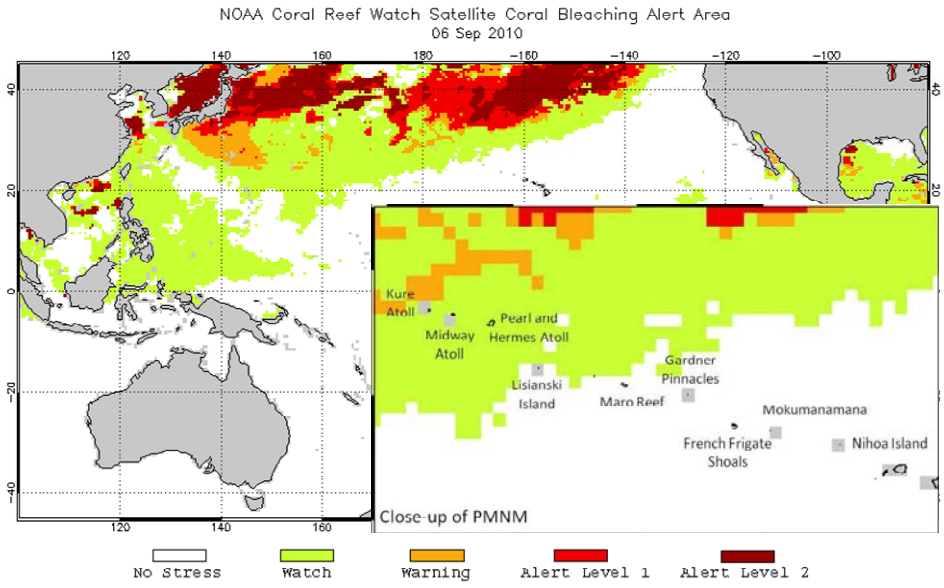
Based on available information, the threat of widespread coral bleaching within PMNM is currently rated as low-moderate.

Analysis of satellite data by NOAA's Coral Reef Watch Program estimates that accumulated temperature stress is approaching thresholds known to cause coral bleaching, but has not currently exceeded these levels (http://coralreefwatch.noaa.gov/satellite/virtual_stations/nwhi_virtualstations.html). Coral Reef Watch predictions suggest that the bleaching risk is greatest to Papahānaumokuākea's northern atolls: Kure, Pearl and Hermes, and Midway (image below).

These findings are consistent with measurements of sea water temperature recorded by a buoy at Kure Atoll. According to NOAA's Coral Reef Ecosystem Division, current temperatures at Kure are above average for this time of year, based on a 30-year record.



A research cruise conducted by NOAA in August did not observe any incidents of coral bleaching. A September NOAA cruise is closely monitoring the situation, with an expectation that sea temperatures will reach their highest levels for the year in mid to late September.

For further information, please contact NOAA's Research Coordinator for PMNM (heidi.schuttenberg@noaa.gov).