SEAFAN BleachWatch Program

CURRENT CONDITIONS REPORT #20231119

NOV. 19, 2023

Summary: Based on climate predictions, current conditions and field observations, the ongoing threat for thermal stress that causes mass coral bleaching in the Kristin Jacobs Coral Reef Ecosystem Conservation Area (Coral ECA), from Miami-Dade to Martin counties, is LOW as of Nov. 19, 2023.

Bleaching Alert Area

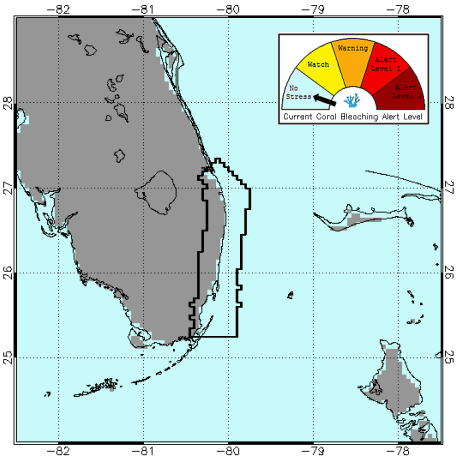


Figure 1. NOAA Coral Reef Watch Bleaching Alert Area for 11/19/2023

HotSpot

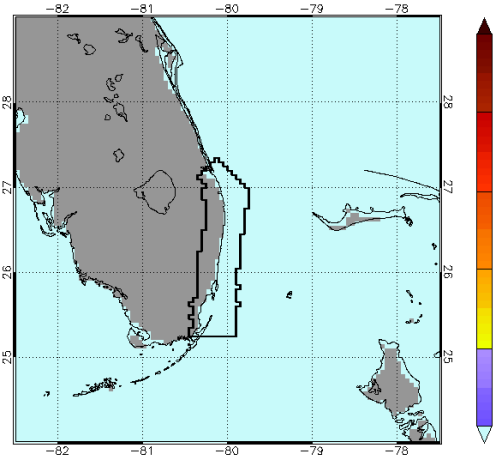


Figure 2. NOAA Coral Reef Watch Bleaching HotSpots for 11/19/2023

Degree Heating Week

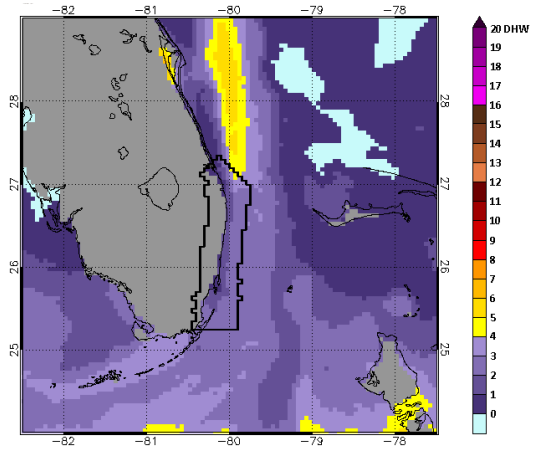


Figure 3. NOAA Coral Reef Watch Degree Heating Week for 11/19/2023

Regional Virtual Station Data

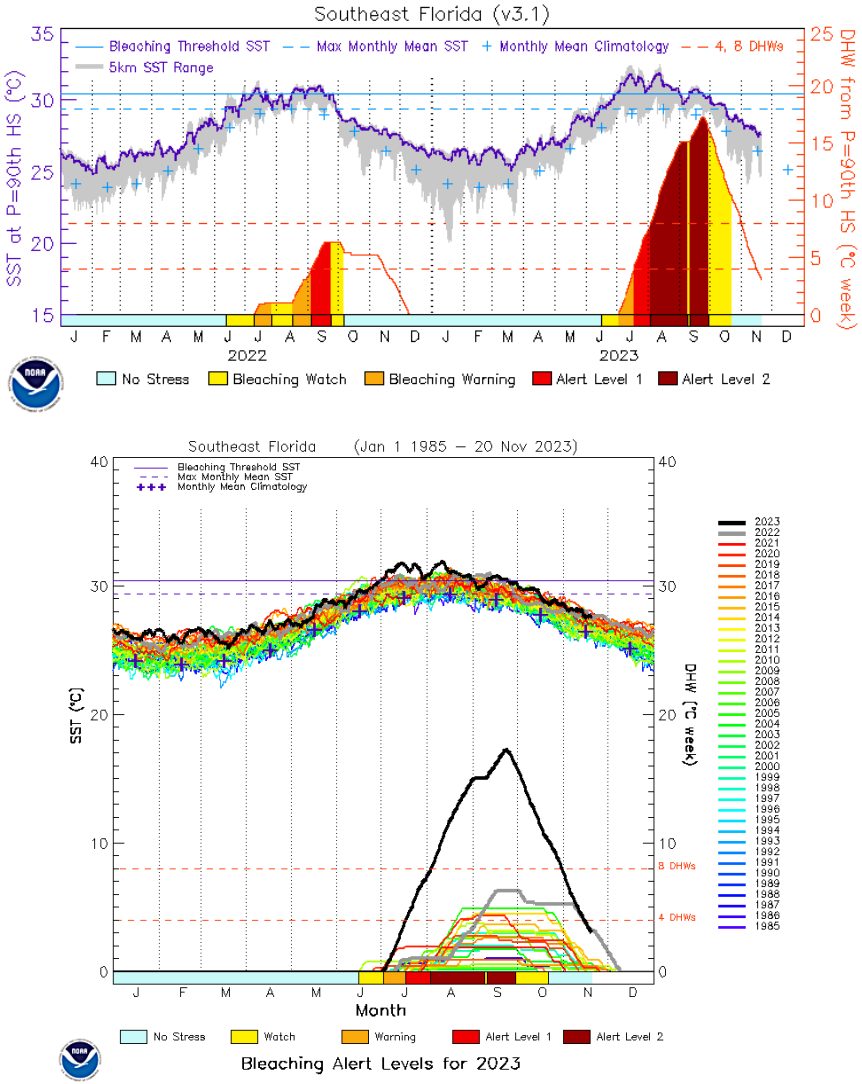


Figure 4. NOAA Coral Reef Watch Southeast Florida Regional Virtual Station Data. Top: Two-year time series graph of 1/1/2022 - 11/20/2023. Bottom: Multi-year time series graph of 1/1/1985 - 1120/2023. In the multi-year time series graph, note that the black line is data from 2023; sea surface temperatures (SSTs) have been among the hottest on record all year, and the most recent spike is unprecedented in the satellite record (dating back to 1985).

ENVIRONMENTAL MONITORING

Climate predictions for this Current Conditions Report are based on the National Oceanic and Atmospheric Administration's (NOAA) Coral Reef Watch (CRW) satellite imagery, which summarizes coral bleaching heat stress conditions derived from satellite sea surface temperature (SST) data and provides an indication of when conditions are favorable for coral bleaching. **As of Nov. 19, 2023, NOAA CRW's daily 5km Coral Bleaching Alert Area indicates that thermal stress in Southeast Florida (from Key Biscayne in Miami-Dade county northward to St. Lucie Reef in Martin County) and the Florida Keys (from Marquesas Keys in Monroe county to Biscayne National Park) has dissipated and the region is now under "No Stress", indicating that there is no longer a threat of mass coral bleaching this season for the region (Figure 1).**

- NOAA CRW's daily 5km Coral Bleaching HotSpots map **(Figure 2)** compares the current SST to the maximum monthly mean (MMM) SST climatology. Corals can start to become stressed and show signs of bleaching when the SST is at least 1^0 C greater than the MMM (i.e., HotSpot is ≥1^0 C). **Currently, the SST is under the 1^0 C HotSpot threshold.**

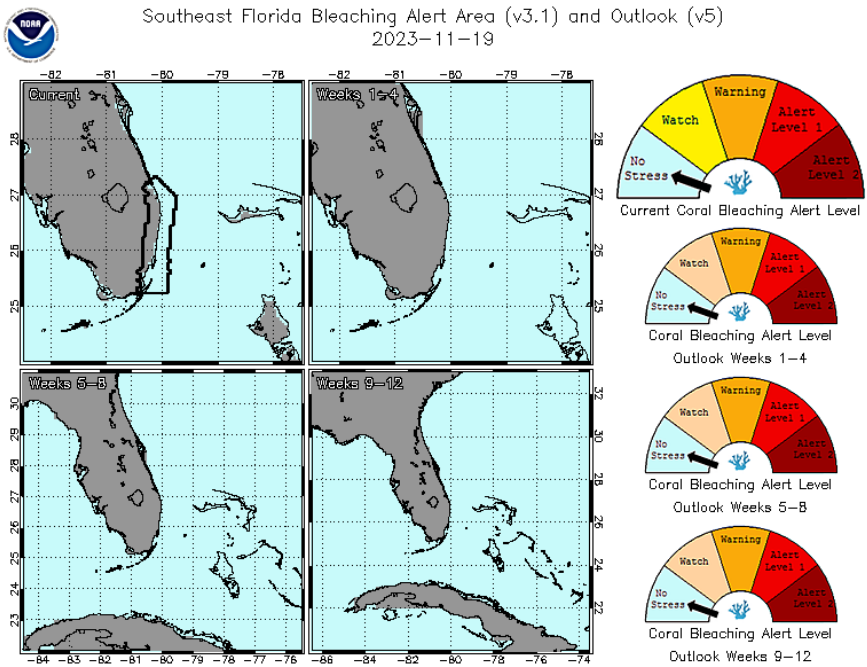
- Coral bleaching risk increases if the temperature stays elevated for an extended period of time. NOAA CRW's daily 5km Degree Heating Week (DHW) map **(Figure 3)** shows the accumulated heat stress over the previous 12 weeks, with 1 DHW (1^0 C-week) equivalent to one week at 1^0 C greater than the MMM. **Currently, this map indicates that temperature stress is diminishing across Southeast Florida after the maximum DHW reached ≥10.**

- Near real-time data from CRW's daily 5km satellite Regional Virtual Station for Southeast Florida, and CRW's new Single-pixel Virtual Stations (of which there are six for Southeast Florida) indicate that the **SST is below the MMM climatology and bleaching threshold for the region (Figure 4).**

SST has continued to decrease with the arrival of autumn. **The Southeast Florida Coral Beaching Alert Area Outlook indicates that coral bleaching heat stress has ended and will remain under "No Stress" during the winter season.**

This will be the final current conditions report for the 2023 Southeast Florida BleachWatch season. The Florida Department of Environmental Protection's Coral Reef Conservation Program will continue to monitor NOAA's HotSpot, DHW and Bleaching Alert Area maps as well as its Regional Virtual Station data throughout the year.

Bleaching Alert Area Outlooks



NOAA CRW Southeast Florida Coral Bleaching Alert Area Outlook (60% Probability) for 11/19/2023-02/11/2024.

OBSERVER NETWORK

The 2023 SEAFAN BleachWatch season has officially come to an end with a total of 163 reports submitted by BleachWatch observers throughout Florida's Coral Reef, including 136 reports submitted for observations in the Coral ECA. Among the 136 total reports for the Coral ECA: 21 indicate the presence of both coral bleaching and disease, 60 solely report signs of coral bleaching, 14 exclusively note signs of coral disease and 41 reports specify the absence of both disease and bleaching observations.

Observer reports verified that Miami-Dade and Monroe counties were more severely affected by the bleaching event. Upwelling or movement of cold, deep water to the shallow reef areas in northern Broward and Palm Beach counties was observed by the BleachWatch network and may have contributed to the observed reduction in severe bleaching along northern

counties in the Coral ECA this summer. Most BleachWatch reports identified that live coral bleaching observed at a site was generally between 1-30%, with the overall severity of bleaching across a site as paling and partial bleaching. Only one report noted signs of full bleaching across a site. SEAFAN BleachWatch observers confirmed this summer that coral bleaching was observed on all coral types including brain, branching, fleshy, flowering/cup, leaf/plate/sheet and mound/boulder/encrusting corals. There were also observations of bleaching gorgonians (soft corals), *Palythoa* spp. and fire coral.

Observed live coral showing signs of disease at a site stayed between 1-10% for the summer season. Reports noted that signs of black band disease increased at sites with associated thermal stress. Tissue loss and black band diseases were observed on brain, branching, leaf/plate/sheet and mound/boulder/encrusting corals.

The SEAFAN BleachWatch program had a record number of reports submitted for the 2023 season as well as record number of observers trained in a year. In 2023, SEAFAN BleachWatch welcomed an additional 10 new BleachWatch Instructors that have been working directly with local divers to educate them on how to monitor for bleaching and disease on reefs. **With over 160 reports and 280 new observers,** the DEP Coral Reef Conservation Program is grateful for the network's contribution to monitoring critical coral reef habitat during this summer's thermal stress event. BleachWatch reports helped aid in resource management by contributing to monitoring the health status of the reef, identifying where severe bleaching was occurring, determining recovery timelines and helping to understand the patterns of thermal stress occurrence.

The Florida Coral Reef Resilience Program will continue monitoring Florida's Coral Reef in early 2024. The DEP Coral Reef Conservation Program has participated in monitoring the status of the bleaching event and documenting the impacts alongside BleachWatch observers throughout the summer season through the FCRRP's Disturbance Response Monitoring. **Observers and local researchers have noted that signs of recovery from thermal stress are being seen along Florida's Coral Reef. This indicates that corals may be regaining their symbiotic algae slowly as they recover from this summer's bleaching event.**

For information about NOAA satellite heat stress products, please visit NOAA Coral Reef Watch or email CoralReefWatch@NOAA.gov. For information about SEAFAN BleachWatch, please contact the Reef Resilience Coordinator at 561-681-6609 or email Coral@FloridaDEP.gov.

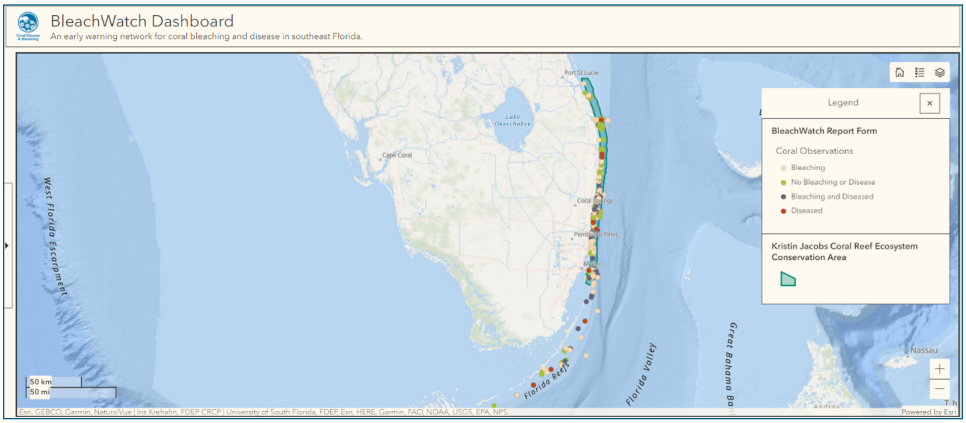


Figure 5. Map showing the distribution of submitted coral bleaching and disease reports on the BleachWatch Dashboard.

Figure 6. Andrew Ibarra with NOAA's Office of National Marine Sanctuaries documented signs of coral recovery on Florida's Coral Reef over two months (7/30/23, 8/18/23 & 9/20/23). Coral colonies are slowly regaining their symbiotic algae and returning to their normal coloration after bleaching events this summer.

The threat of mass coral bleaching for the southern portion of Florida's Coral Reef, between Miami-Dade and Monroe Counties, has dissipated and there is no longer a threat of mass coral bleaching this season for the Florida Keys. Learn more about the current conditions for this portion of the reef.

Program Partners

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