

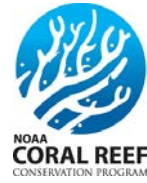
Florida Reef Resilience Program

Disturbance Response Monitoring



Quick Look Report:

Summer 2013



Introduction

The summer of 2013 was a mild bleaching year. Moderate bleaching occurred within zones of the Broward, Biscayne and Upper Keys sub-regions, mainly due to paling.

The Florida Reef Resilience Program (FRRP) is a collaborative effort among managers, scientists, conservation organizations and reef users, to develop resilience-based management strategies for coping with climate change and other stresses on Florida's coral reefs. With projected increases in coral bleaching due to climate change, the FRRP Disturbance Response Monitoring (DRM) was developed for monitoring shallow coral reefs from the Dry Tortugas to Martin County. The DRM consists of a probabilistic sampling design and a stony coral condition monitoring protocol implemented during the annual period of peak thermal stress. Each year, survey teams from federal, state, and local government agencies, universities and non-governmental organizations cooperate to complete surveys across the south Florida Reef Tract within a six to eight week period. In 2013, surveyors included: The Nature Conservancy, Mote Marine Laboratory, University of Miami, Nova Southeastern University, Miami-Dade County, Broward County, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection, and National Oceanic and Atmospheric Administration.

Methodology

The DRM consists of a probabilistic sampling design that focuses on sampling the coral population based on how corals are distributed spatially within and across different sub-regions and zones of the overall reef tract. For the 2013 DRM season, 91 sample sites were allocated across 23 discrete reef zones in 6 sub-regions. Eleven survey teams of scientific divers conducted the monitoring in 2013.

Two independent 1x10m belt transects were randomly placed within each 200x200m sampling site. Indicators were then recorded for all stony corals greater than 4cm including: 1) hard coral size and 2) hard coral condition as determined by the presence of bleaching and paling, the precursor to bleaching, presence of disease, and percent mortality.

Results

A total of 100 DRM surveys were completed from August 19th - October 18th, 2013. The prevalence of bleaching and paling in each zone was determined and broken into three categories: mild (0-20%), moderate (21-50%) and severe (>50%) (Figure 1; Table 1).

Moderate bleaching and paling, which is defined as 21-50% of all hard corals over 4cm surveyed showing signs of bleaching or paling, occurred within zones of the Broward, Biscayne and Upper Keys sub-regions. This was mainly due to high percentages of paling prevalence (Table 1). High winds and low water temperatures continued from August throughout October. Current Conditions reports for the Florida Keys and southeast Florida, between Miami-Dade and Martin County, reported “Low” threats of mass bleaching throughout the bleaching season.

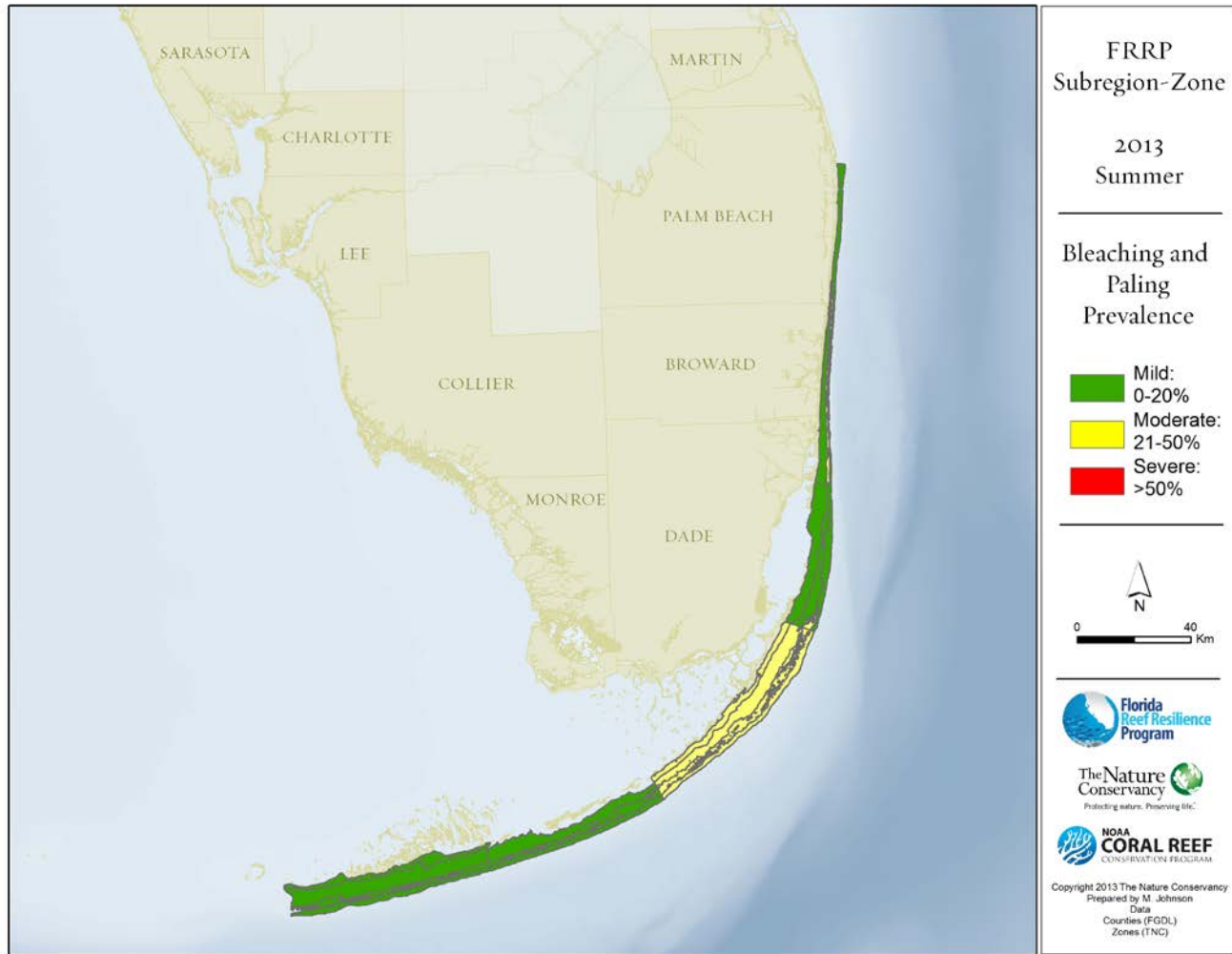


Figure 1: Percent bleaching and paling prevalence of surveyed hard coral colonies.

Table 1: Bleaching and paling prevalence of hard coral colonies surveyed by sub-region and zone. Red indicates severe (>50%), yellow indicates moderate (21-50%) and green indicates mild (0-20%) bleaching and paling prevalence.

Sub-Region	Zone	% Paling Prevalence	% Bleaching and Paling Prevalence	# of Sites
Lower Keys	Inshore	4.52	4.52	3
Lower Keys	Mid-Channel	3.13	3.31	4
Lower Keys	Offshore Patch	4.03	4.03	2
Lower Keys	Forereef	6.70	6.88	12
Middle Keys	Inshore	0.00	0.00	3
Middle Keys	Mid-Channel	2.04	3.73	2
Middle Keys	Offshore Patch	4.85	6.61	2
Middle Keys	Forereef	10.86	13.24	9
Upper Keys	Inshore	20.79	24.75	3
Upper Keys	Mid-Channel	13.28	21.75	4
Upper Keys	Offshore Patch	31.45	39.07	4
Upper Keys	Forereef	26.00	30.71	8
Upper Keys	Deepwater	4.37	4.37	2
Biscayne	Inshore	1.66	7.68	4
Biscayne	Mid-Channel	3.32	6.16	5
Biscayne	Offshore Patch	10.20	24.49	2
Biscayne	Forereef	3.03	8.74	15
Broward	Inshore	9.65	18.42	4
Broward	Inner Reef	14.46	24.10	3
Broward	Outer Reef	10.53	14.91	4
Palm Beach	Reef Ridge	5.73	8.85	3

For more information about the Florida Reef Resilience Program and its Disturbance Response Monitoring effort see the website www.frrp.org. For more information about the 2013 Disturbance Response Monitoring results contact The Nature Conservancy at (305) 872- 7071 or email Meaghan Johnson, Marine Science Coordinator, at meaghan_johnson@tnc.org.