



Marine Benthic Communities: Coral Reef Monitoring in Biscayne National Park

2012

Importance: A critical resource for fisheries, tourism and marine biodiversity

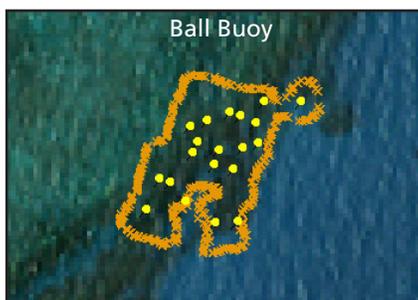
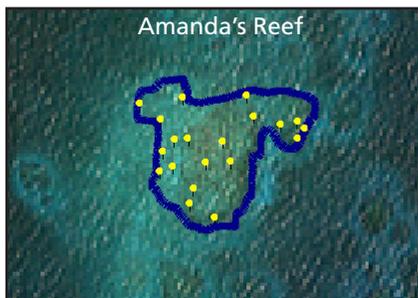
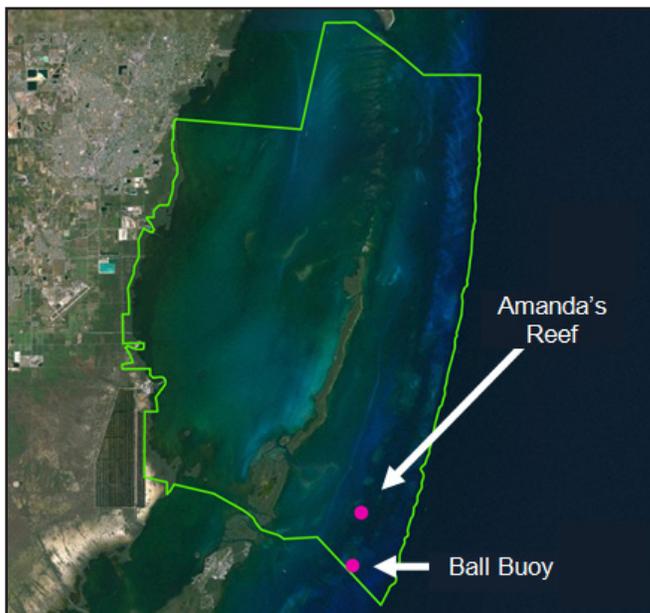
Coral reef communities within Biscayne National Park (BISC) are the northernmost reefs in the Florida Keys, consisting of stony corals, octocorals (e.g., sea fans), sponges, and algae. Reefs support incredible marine biodiversity including a multitude of fish species, as well as lobsters, sea turtles, and other creatures. Reefs play a vital role for humans by supporting fisheries, fishery nursery areas, tourism, sand creation for beaches, pharmaceutical bio-prospecting, and shoreline protection to name a few. Monitoring coral reefs was identified as a national priority in President Clinton's Executive Order 13089, establishing the Coral Reef Initiative. These coral reefs are negatively impacted by events such as extreme water temperatures that cause "bleaching", vessel scarring, and major storms, as well as long-term stressors such as coral disease, over-fishing, damaging fishing methods, nutrient enrichment, contaminants, ocean acidification, and abrasion of reef by debris or careless snorkelers and divers.



Amanda's Reef in Biscayne National Park.

Long-term Monitoring: Two sites monitored annually since 2004

The South Florida / Caribbean Network (SFCN) has annually monitored two intensive coral reef sites at Biscayne National Park (BISC) since 2004. Ball Buoy Reef and Amanda's Reef were selected due to management interest and to compare with historical work. Each site consists of 20 permanent, randomly-selected 10m transects which are monitored using underwater video. Percent cover of living coral by species, macroalgae, turf algae, crustose coralline algae, octocorals, and sponges are calculated. Data on coral disease, bleaching, water temperature, and long-spined sea urchins are also collected.



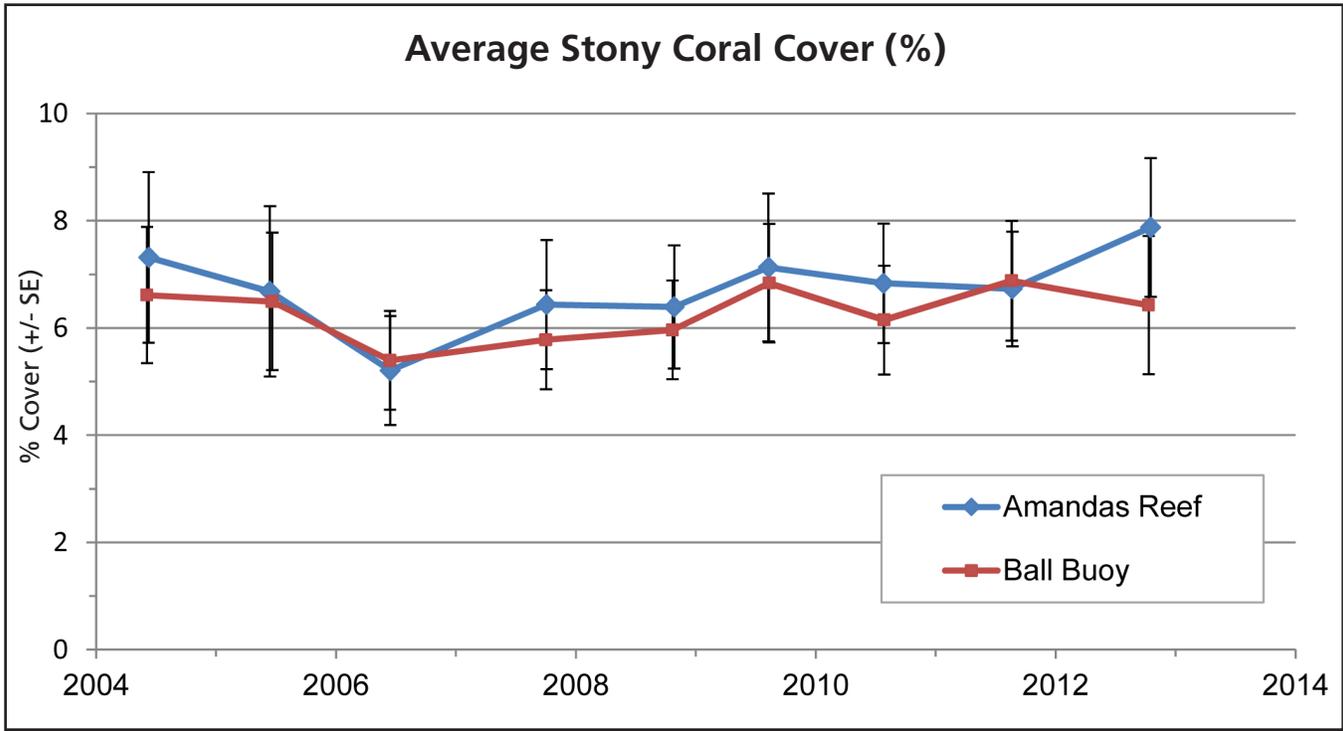
Amanda's Reef is a 20,458 m² shallow patch reef site with an average depth of < 3m. Common coral species are Mustard Hill Coral (*Porites astreoides*), Finger Coral (*Porites porites*), and Massive Starlet Coral (*Siderastrea siderea*).

Ball Buoy Reef is 14,136 m² and is a south-eastern patch reef site ranging up to 12 m deep. Common coral species are Boulder Star Coral (*Montastraea annularis complex*), federally-threatened Elkhorn Coral (*Acropora palmata*), Mustard Hill Coral (*Porites astreoides*), and Fire Coral (*Millepora alcicornis*).

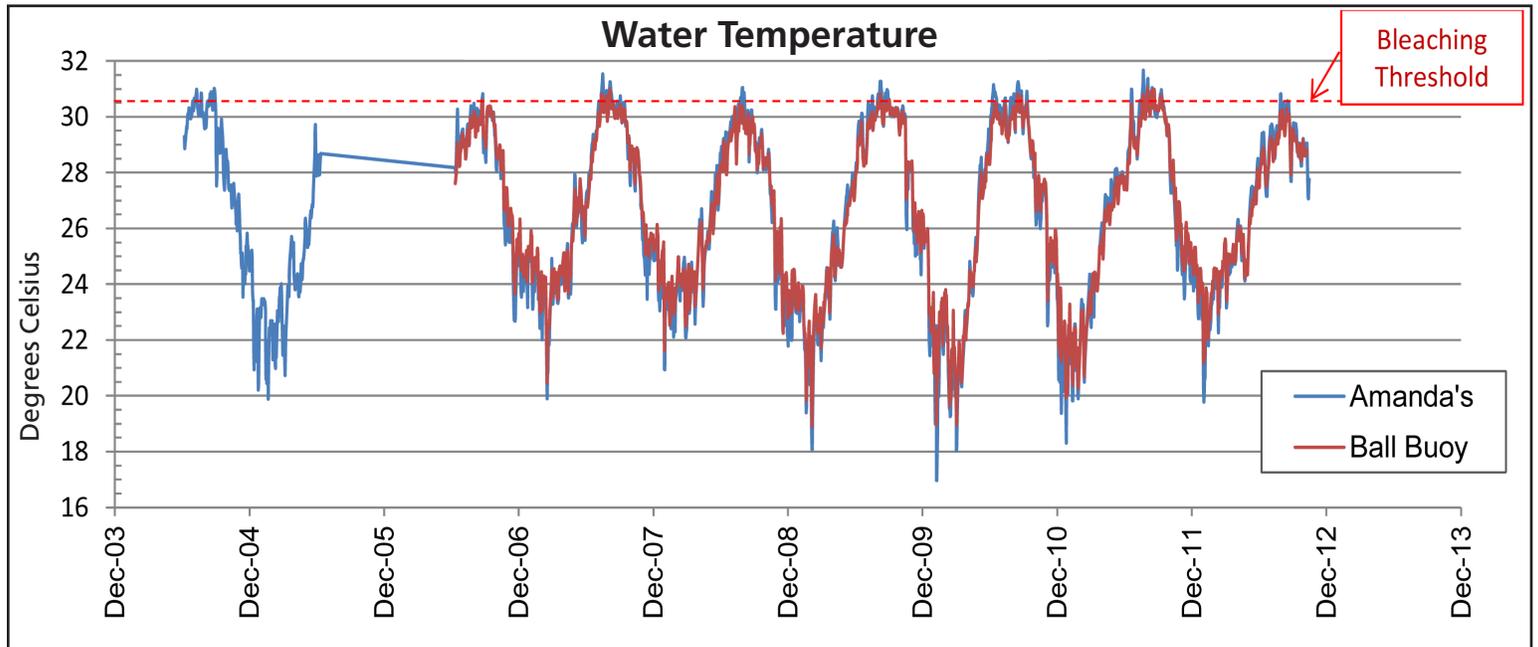


Status and Trends: *Stony coral cover low but no significant trends*

In 2012, the South Florida/Caribbean Network staff conducted annual coral reef community monitoring of index sites at Ball Buoy Reef and Amanda's Reef, both of which now include 9 years of data. Stony coral cover at these two sites do not show a significant trend from 2004-2012.



Trends in live stony coral cover at Ball Buoy and Amanda's Reef in Biscayne National Park.



Biscayne National Park water temperature summary graph showing data from the two coral monitoring sites since 2004. A bleaching stress threshold of 30.5 °C is shown.

