

## Reef Resilience Program Surveys Reefs from Martin County South

Rowena Garcia, *The Nature Conservancy*

South Florida's coral reefs are approximately 3,000 years old and serve as the foundation of our biological and ecological seascape. In 2001, reef-related activities including fishing and diving generated almost \$4.4 billion in revenue and employed about 81,000 people. However, these coral reefs are threatened by coral diseases, overfishing and fishing gear impacts, pollution, coastal development, boat groundings, diver and swimmer impacts and global climate change.

Global climate change impacts include warmer and more acidic oceans, rising sea levels and more powerful and frequent storms. In response to global climate change and other stressors, the Florida Reef Resilience Program (FRRP) was formed in 2004. The FRRP is the product of discussions between the State of Florida, NOAA, The Nature Conservancy and the Great Barrier Reef Marine Park Authority, where a parallel program is in progress. The FRRP is a multi-year effort to build awareness, consensus and collaboration around the importance of resilience concepts to the understanding, management and restoration of Florida's and the world's coral reefs.



**A diver surveys the reef for bleached corals.**

Photo: Erich Bartels, Mote Marine Lab

In the face of an ever changing and sometimes harsh environment it is believed that resilient reefs can withstand or recover from the impacts of stress and disturbance without suffering permanent damage. On the other hand, reefs that are not resilient suffer and cannot recover from the same stresses and disturbances. In the worst cases, the living coral reef may be replaced by a different and less desirable natural community. Florida divers are all too familiar with the classic example of the proliferation of algae-covered rock where vibrant, living coral once held sway.

The FRRP is designed to improve understanding of reef health in the Florida Keys and southeast Florida region and to identify factors that influence the long-term resilience of corals, reefs and the entire marine ecosystem. With this knowledge in hand, coral reef managers and users can work toward resilience-based management strategies that maximize the benefits of healthy reefs while seeking to improve the condition of those that are less healthy. Ultimately the FRRP seeks to improve ecological conditions of Florida's reefs, economic sustainability of reef-dependent commercial enterprises and continued recreational use of reef resources.



**A colony of brain coral shows signs of bleaching.** Photo: Erich Bartels, Mote Marine Lab

A focus of the program is monitoring coral bleaching along the reef tract from Martin County to the Dry Tortugas. Reef managers and scientists, coordinated by The Nature Conservancy, surveyed coral bleaching during the hottest months in 2005 and 2006. The large number of survey sites (>130) combined with the large geographic range has required the involvement and coordination of 12 teams and over 40 divers from multiple agencies, universities and non-governmental organizations. Results from these surveys are revealing patterns in coral bleaching, diseases and mortality. They demonstrate how some reef types may be more vulnerable to disturbance than others. Another aspect of the program is improvement of the information base concerning how people use and value the coral reef ecosystem. Surveys of over 4,000 divers and fishers were conducted in the Florida Keys and a "human dimensions group" is working on combining these results with socioeconomic and behavioral surveys. User survey results will be combined with the biological and physical information to provide managers and decision makers with an integrated product that will be rolled out in 2008 so that different management alternatives can be more thoroughly evaluated.

For more information visit [www.nature.org](http://www.nature.org). To find out how you can get involved, contact The Nature Conservancy's Florida Keys Program at (305) 745-8402.