



NATIONAL CORAL REEF INSTITUTE

ISSUE

Coral reefs are among the most valuable and spectacular environments on earth, and are among the most productive and diverse marine ecosystems. The United States' coral reefs are valuable assets that contribute to a healthy economy by providing food, jobs, and protection from storms. Reefs create habitat for many fish and related species with commercial and recreational value. They support tourism and recreational industries by providing diving and snorkeling destinations, as well as sheltering beaches from the effects of storm activity. Coral reef related activities provide a significant economic benefit for many regions of the United States and the rest of the world.

Scientific evidence indicates that many coral reefs are deteriorating rapidly worldwide. Symptoms of this decline include the loss of hard corals, an increased abundance of algae, and a dramatic increase in bleaching episodes and disease outbreaks. Scientists and managers still lack critical information about many of the causes of coral decline, but evidence points to stresses caused by a variety of human factors. Human impacts (see inset above) act separately and in combination with natural factors such as hurricanes, high water temperature, and disease to stress corals and degrade reef systems.



Sediment plume impact on a coastal reef

Human Activities Affecting Florida Decline of Corals

- Overfishing
- Recreational swimming and diving
- Coastal development
- Sedimentation
- Pollution
- Ship groundings

Globally, coral reefs appear to be experiencing large-scale ecological and physical changes. Both the amplitude and frequency of these events have no recent historical equivalents. Scientists and managers alike recognize that new and innovative programs are needed to resolve constraints in scientific knowledge of reef structure and function as it relates to issues of assessment, monitoring, and restoration.

APPROACH

The National Coral Reef Institute (NCRI) at the Nova Southeastern University was established by Congressional mandate in 1998. NCRI's primary objective is the protection and preservation of coral reefs through research on coral reef diversity, assessment, and restoration coupled with education and training of scientists, managers, and educators. NCRI conducts ecosystem research and assessments that meet the research goals and objectives called for in the Coral Reef Conservation Act of 2000, support both the mission of NOAA and the efforts of the Coral Reef Task Force to improve the definition of research and monitoring needs, thus enabling better management of the nation's coral reefs.

Through active research and collaborative funding, NCRI undertakes and facilitates hypothesis-based scientific research in emerging

reef issues and technologies. NCRI provides scientific synthesis and evaluation criteria of existing programs for use by the research and management community. These include the study of minimally impacted, stressed, and imminently endangered reefs. Assessing and monitoring biodiversity is a priority, especially as it affects and interacts with ecological processes, overall reef function, reef recovery, and restoration.

NCRI's offers a strong scientific focus and innovative approaches to relevant scientific issues in all aspects of coral reef biology. NCRI collaborations include work with various branches of NOAA such as the National Marine Fisheries Service and the National Oceanographic Data Center, U.S. Navy Office of Naval Research, City of Miami Beach, Broward County DPEP, National Fish and Wildlife Foundation, U.S. Geological Survey, the State of Florida, the National Park Service, the South Florida Ocean Measurement Center, Florida Atlantic University, University of South Florida, and the University of Miami.

MANAGEMENT AND POLICY IMPLICATIONS: NCRI's close partnership state and federal agencies will ensure that state of the science information is made available in a timely manner to the agency responsible for the protection of coral reefs in Florida. The collaboration in NCRI between scientists and managers results in scientifically sound management strategies and policies. Finally, NRI also provides a mechanism through which management practices can be evaluated and modified as necessary in order to maximize their effectiveness.



Assessing coral reef health

ACCOMPLISHMENTS

Since its inception in FY 1999, NCRI has played an important role in framing the needs for coral reef ecosystem research and has seen its budget increase from \$500K/yr to its current budget of \$1M. Early in its existence, NCRI published the Proceedings of the International Coral Reef Conference as a special issue of the Bulletin of Marine Science. This publication and NCRI's scientific findings provide the kind of information needed by

resource managers to mitigate or reverse coral reef degradation. NCRI's research efforts have impacted the coral reef management on a local scale. NCRI has worked closely with the Broward County Department of Environmental Protection during their extensive mapping and monitoring efforts in the area, as well as the development of an indicator for coral stress that allows managers the ability to monitor the health of the coral reef ecosystem during a beach renourishment project.

For more information on NCRI please visit their website at <http://www.nova.edu/ocean/ncri/index.html>

Note: NCRI is a CSCOR coral reef core program contributing to the mission of NOAA's Coral Reef Conservation Program.

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