



HAWAII CORAL REEF INITIATIVE RESEARCH PROGRAM

ISSUE:

Coral reefs, one of the most valuable and spectacular environments on earth, are also one of the most productive and diverse marine ecosystems. Coral reefs are valuable assets that contribute to a healthy economy by providing food, jobs, and protection from storms. They create habitat for many fish and invertebrate species with commercial value, support tourism and recreational industries, and shelter coastlines from storm disturbance. 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 coral reefs are deteriorating rapidly worldwide. Symptoms of this decline include the loss of hard corals, an increased abundance of algae, and conspicuous 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 (see inset above). Human impacts act separately and in combination with natural factors such as hurricanes, high water temperature, and disease to stress corals and degrade reef systems.



Coral damage from swimmers

Human Activities Affecting Hawaiian Decline of Corals

- Overfishing
- Recreational swimming
- Coastal development
- Sedimentation
- Introduced Species
- Pollution
- Ship groundings

The Hawaiian Archipelago, from South Point on the island of Hawaii to the western-most point on Kure Atoll, extends approximately 2,579 kilometers and hosts extensive reef ecosystems (80 % of those found under U.S. jurisdiction). The state's coral reef ecosystems have over 5,000 known species of marine plants and animals, of which about 25% are endemic. Besides their vast coverage throughout the state, these coral reef ecosystems are culturally, economically, and biologically critical to Hawaii's future. Areas of intensified land and human uses are expanding, resulting in adverse impacts to the reefs, including sedimentation, eutrophication, and pollution. The effects of overfishing and algal growth further compound these adverse impacts. As a result, there is a need to strengthen resource management capacity to ensure the sustainability of Hawaii's coral reef ecosystems.

APPROACH:

The Hawai'i Coral Reef Initiative Research Program (HCRI – RP) was established in 1998 as a partnership between the University of Hawaii (UH) and Hawaii's Division of Aquatic Resources (DAR). The program focuses on the linkages between human activities and damage to the coral reef ecosystem with the objective of providing resource managers with much-needed information to effectively prevent, and possibly

reverse, coral reef degradation. Additional collaborators include the Pacific Science Association, Bishop Museum, and the Hawaii Nature Conservancy.

The core strength of this program is that its ecosystem research and assessment activities are run as a competitive selection process. Within this framework and to achieve its objectives, priorities for the proposal competition are set through a consultative process between the two main partners and other related agencies and organizations with interest in Hawaii's coral reef resources. This process provides resource managers with timely, highest quality scientific information. The five overarching goals of the HCRI-RP are to:

- Assess the major threats to coastal reef ecosystems,
- build resource management capacity,
- develop database and information systems,
- conduct public awareness programs, and
- train scientists and managers.

Through its projects, HCRI – RP complements the mission of NOAA and priorities of the U.S. Coral Reef Task Force, and the research goals and objectives in the Coral Reef and Marine Conservation Act of 2000. Results will greatly improve the management and health of Hawaii's reefs and provide knowledge that can be extrapolated to other regions across the Pacific.

MANAGEMENT AND POLICY IMPLICATIONS:
HCRI – RP's partnership between UH and DAR 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 Hawaii. The collaboration in HCRI – RP between scientists and managers results in scientifically sound management strategies and policies, and provides a mechanism through which management practices can be evaluated and modified as necessary in order to maximize their effectiveness.

ACCOMPLISHMENTS

Through its first 9 yrs, HCRI-RP successfully achieved its goals and has seen its budget



Big Island Kona coast reef scene

increase from \$475K in FY1998 to almost \$1.5M in FY2005. During this period HCRI-RP funded over 70 projects and provided valuable information on both the economic and non-economic value of Hawaii's coral reefs, the status of key fish populations, the threat of invasive algal species, the impact of land-based pollution, the value of marine protected areas

The HCRI–RP has been instrumental in helping the DAR develop effective ecosystem assessment programs to determine the health of the state's coral reef ecosystems. The HRCI-RP has also excelled in making the results and information of its projects available to not only the resource managers but also to the general public through public service announcements, brochures, newsletters, and an innovative and creative computer game.

For more information on HCRI – RP's current activities, research opportunities, and past work please visit their website at www.hawaii.edu/ssri/hcri.

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

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