



From the Program Director



Aloha!

Many of us take our beautiful beaches, coral reefs, and the marine animals and plants that inhabit them for granted. Reefs across the world face serious threats, with many already destroyed beyond recovery.

That's where the Hawaii Coral Reef Initiative Research Program (HCRI-RP) comes in. This Program was established in 1998, with strong support of U.S. Senator Daniel K. Inouye. It sponsors research and monitoring activities that provide information to better manage Hawaii's extensive coral reef ecosystems. With this program, resource managers can use new scientific information and tools to conserve reef resources.

Through sponsored projects, HCRI-RP complements the efforts of the U.S. Coral Reef Task Force and the Coral Reef and Marine Conservation Act to develop strategies to protect healthy reefs and, where possible, to implement strategies to reverse degradation.

Since its start, our Program has significantly grown in people, projects and funding. However, we need the support of all groups—federal, state and local agencies, non-governmental organizations, businesses and the general public—to continue this important work of strengthening resource management. All of us need to take responsibility for protecting our reefs so people can enjoy these unique ecosystems for years to come.

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HAWAII CORAL REEF INITIATIVE Research Program



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All photos herein are provided as a courtesy of the Hawaii Coral Reef Initiative Research Project (HCRI-RP) and the National Oceanic and Atmospheric Administration/Department of Commerce (photo collection of Dr. James P. McVey, NOAA Sea Grant Program).

HAWAII CORAL REEF INITIATIVE Research Program

Preserving Hawaii's reef ecosystems for everyone



Did You Know?

- Corals are living animals that eat, grow and reproduce.
- Hawaii has 410,000 acres of coral reef, more than the land mass of Oahu.
- Over 80% of all coral reefs under United States' jurisdiction are in the Hawaiian archipelago.
- Over 5,000 known species of marine plants and animals live in Hawaii's reefs.
- About 25% of Hawaii's reef fish and algae are endemic (only exist here) to the islands.
- More than 500 species of marine algae have been identified in Hawaiian coasts.
- Hawaii has over 340 alien marine species, 90% of which are thought to have arrived after being carried to the islands on the hulls of visiting vessels.



Threats to Hawaii's Reefs

Alien Species

Since the 1970s, a striking surge of invasions by exotic species have occurred in coastal ecosystems around the world. Introduced species can act as voracious predators, overcome endemic species, or transmit parasites and diseases that can be passed to humans.

Stepping or Anchoring on Coral Reefs

Reef walking and anchoring directly on the reef damage the delicate coral animals.

Poor Water Quality

Although the Clean Water Act has reduced pollution from industrial and municipal discharges, pollution coming from more diffuse sources, such as nitrogen, phosphorus and sediments derived from land, remains a potential threat to coral reef ecosystems.

Overharvesting Aquarium Fish

Many of the marine aquarium fish originating in the U.S. are captured near the island of Hawaii, which is known for its quality fish and rare endemics of value.

Overfishing

Hawaii's coral reefs are subject to harvest by commercial, recreational, and subsistence fishing activities, as well as aquarium fish collectors. Nearshore fisheries populations in the main Hawaiian Islands have decreased approximately 80% in the past 100 years. This decline is caused by the use of very efficient fishing gear, wasteful fishing practices, habitat destruction, and loss of traditional management practices. Many fish are unable to replenish their populations due to disruptions in their traditional spawning locations and periods.

Selected Findings

Northwestern Hawaiian Islands

- The Northwestern Hawaiian Islands span more than 1,300 miles northwest of Honolulu—the same distance Texas is from Washington, DC. It may be the largest expanse of intact, coral reef wilderness left on the planet.
- More than 54% of the total fish biomass (weight) consists of top carnivores, such as jacks (*ulua*, *kahala*) and sharks, compared to less than 3% in the main Hawaiian Islands.
- Reef habitats are diverse with some unique types not present in the main Hawaiian Islands.

Alien Species

- In field experiments, miniscule pieces of the alien seaweed, *Hypnea musciformis*, increased up to 200% in weight in just one week. Small pieces can reproduce whole populations over time.

Stepping or Anchoring on Coral Reefs

- One step will damage a coral, and 2 to 9 steps will kill it.
- Shallow, calm waters produce the most fragile corals. These corals are in the same areas frequented by snorkelers.

Poor Water Quality

- Stream sediments can play a role in poor nearshore water quality.

Overharvesting Aquarium Fish

- Large numbers of very young fish emerging from plankton (recruitment) are rare in West Hawaii, but are critical to replenishing populations drawn down by collecting for sale to the aquarium fish market. Why recruitment is rare is not known, and given the economic and biological importance, needs further study.



The Hawaii Coral Reef Initiative Research Program sponsors research grants for projects aimed at managing and protecting Hawaii's reef ecosystems. Projects are selected annually through a competitive, nationally peer-reviewed process.