

Cultured coral could help repair damaged reefs, scientists say

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Coral might be the slowest-growing crop ever farmed by the University of Florida, but researchers say damaged reefs could be repaired faster if they perfect methods to cultivate the marine organisms.

UF experts are raising seven species of coral at the Tropical Aquaculture Laboratory in Ruskin, and next week they'll dive to check the progress of farmed corals returned to the wild last year.

The dive takes place at a reef near Key West where a freighter ran aground in 1993, said Craig Watson, director of the Ruskin lab. Almost 160 cookie-sized coral fragments were placed there last year. The reef is within the Florida Keys National Marine Sanctuary, a protected area that comprises most of the Florida Keys.

“If you grow coral in a greenhouse in a land-based system and put it in the wild, will it survive?” Watson said. “There are those who say no, because it won't be acclimated to those conditions where it grew and it can't survive elsewhere. We don't believe that, we are setting out to prove that wrong.”

Researchers and the marine sanctuary staff hope to create a network of nonprofit organizations, businesses and individuals to raise coral and contribute specimens to repair damage from events such as vessel groundings and anchorings, said Lauri MacLaughlin, a resource manager with the marine sanctuary. The sanctuary includes Western Sambo Reef and Ecological Reserve, location of the restoration effort.

“The dream is that corals rescued from human impact or coastal construction projects be used to help restore reefs elsewhere in the sanctuary,” MacLaughlin said.

Corals are tiny invertebrate animals that resemble sea anemones. Dwelling in colonies, they produce a skeleton-like structure composed mostly of calcium carbonate; only the outermost portions are alive. Though corals feed by capturing minute organisms, they co-exist with algae that provide additional food and give the coral color.

The UF project involves seven coral species commonly found in Florida, the only state in the continental United States with extensive reefs near its coasts, Watson said. Overall, the state is home to more than 100 coral species. Coral growth is estimated to range from one foot to 16 feet every 1,000 years.

Fragments placed at the Key West site had been managed in one of three ways, Watson said. One set was raised in a Ruskin greenhouse, held in tanks of artificial seawater. Another was cultured at a Mote Marine Laboratory facility at Summerland Key, using an outdoor system with seawater pumped from offshore. A third was placed on the damaged reef almost immediately after harvest. Each fragment is numbered so it can be tracked.

Colonies of larger fragments are being held in a rooftop greenhouse at The Florida Aquarium in Tampa, said Ryan Czaja, a supervisor who handles day-to-day care of the colony. The aquarium obtained two grants that fund the work; it is the organization leading the project.

Czaja was part of a team that collected all the coral from its original home, an underwater sea wall at a U.S. naval base in Key West Harbor. Planned offshore sea wall construction threatened to encase or destroy existing corals, so the state and the sanctuary granted a collecting permit.

“It was tough diving,” Czaja said. “We were out in the channel and there was a lot of water flow, visibility was about four feet...But nothing dangerous or we wouldn’t have been down there.”

Checking the fragments’ health is a rigorous task, said Kathy Kilgore, a Ruskin lab veterinarian, one of five divers making the trip.

Kilgore will assess the health of each fragment, using protocols developed by veterinarians Roy Yanong, a faculty member at the Ruskin lab, and Ilze Berzins, vice president of biological operations at the Florida Aquarium and a UF/IFAS adjunct faculty member.

The inspection protocol is an essential part of the project, Watson said, because researchers want to minimize the possibility coral fragments returned to the wild will introduce diseases to new areas.

“Most coral pathogens are identified by signs or appearance,” Watson said. “So based on that we developed the health certification with Roy and Ilze, utilizing a ruthless visual – if it doesn’t look fantastic it’s not certified.”

The fragments, attached to the reef with epoxy, are scattered over two areas, each measuring several hundred square meters. Others will photograph and map the site.

Source: University of Florida

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