



# CAN-174-Coral Disease in Florida

Join WFCRC

The World Federation for Coral Reef Conservation  
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## An update on the ongoing coral disease outbreak in Florida

by NOAA Headquarters

An NOAA diver surveys the progression of stony coral tissue loss disease in Florida **Keys National Marine Sanctuary**. Credit: NOAA

Florida's coral reefs are experiencing a multi-year outbreak of stony coral tissue loss disease. Here is a description of the problem, what NOAA and partners are doing in response to the problem, and how you can help.



### The Problem

The ongoing outbreak of stony coral tissue loss disease in the Florida Reef Tract began in 2014 and continues to spread. It is highly active off Key West, Florida and appears to be expanding to the Caribbean region. The Lower Florida Keys are in the epidemic zone with the highest concentration of active disease.

While disease outbreaks are not uncommon, this event is unique due to its large geographic range, extended duration, rapid progression, high rates of mortality, and the number of species affected. Stony coral tissue loss

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disease affects at least 22 species of reef-building corals. Once infected, coral colonies typically die within weeks to months.

The disease is thought to be caused by bacteria and can be transmitted to other corals through direct contact and water circulation. Researchers are working to identify potential pathogens and relationships with environmental factors, developing strategies to treat diseased colonies, and identifying genotypes of corals that are resistant to the disease.

Divers along the Florida Reef Tract are encouraged to photograph and report the condition of tagged corals that have been treated with antibiotics. Credit: NOAA



## How NOAA is Responding

The majority of the Florida Reef Tract lies within the 3,800 square miles of Florida Keys National Marine Sanctuary. The sanctuary is a leader in the collaborative response to stony coral tissue loss disease. The sanctuary permits disease interventions, coral rescues, and restoration, working alongside NOAA Fisheries, Florida Fish and Wildlife Commission, and other agencies in planning, implementation, and evaluation.

## Coral Rescue

NOAA is co-leading the Coral Rescue Team, which is collecting healthy corals and placing them in land-based aquaria to prevent them from becoming diseased, to preserve genetic diversity, and to serve as propagation source stock for future restoration activities. This is the first-ever rescue effort of this magnitude and is necessitated by the urgency and devastating impact of the current outbreak. Coral species are prioritized based on their susceptibility to

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the disease, the speed of disease progression across the colony, prevalence of whole colony mortality, contribution to reef-building, long-term declines in spatial distribution, reproductive strategy, conservation status, and current abundance. To ensure sufficient genetic diversity is preserved and available for future propagation activities, approximately 4,500 corals are planned for rescue. Genetic markers will be developed and the genetic identity of each rescued coral will be determined. When conditions are suitable, this project will be completed with the eventual propagation of corals for introduction to the wild.

Additionally, another NOAA coral rescue effort was underway. As the outbreak progressed, divers attempted to rescue the remaining genotypes of the pillar coral *Dendrogyra cylindrus* from the Florida Reef Tract. Live, but critically ill, coral fragments were collected (May 2016-April 2019) and relocated to the coral critical care and culture facility at NOAA's National Centers for Coastal Ocean Science (NCCOS) in South Carolina. The NCCOS team pioneered the direct application of antibiotics and other therapeutics to the coral fragments. By mixing the antibiotics into a modified dental paste and applying it to the diseased tissue, the topical medicine was released slowly, enabling lower dosing than if the antibiotics were mixed into the water. With this novel approach, the team saved a number of *Dendrogyra* fragments and the small population is growing. The coral critical care and culture facility now houses 90 stabilized pillar coral fragments. Twenty-three genotype fragments are housed in the NCCOS Charleston facility and represent the only remaining tissue that exists in the world for these genotypes.

Healthy coral colonies rescued in the Florida Keys ahead of the disease front by NOAA and partners are banked for breeding and restoration.  
Credit: NOAA



## Interventions

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Scientists and resource managers are coordinating interventions and treatments with the goal to slow or stop the spread of stony coral tissue loss disease. The most urgent needs are at the disease front in the Lower Keys. Strategies include colony-specific interventions to prevent mortality of the most important corals, efforts to reduce the pathogen load, and salvage selected colonies to prevent the loss of the diversity and genetic structure of the corals.

The coral rescue missions during summer 2019 are focused west of Key West to stay ahead of the disease front. Intervention trials, primarily using antibiotics, are concentrated in the Middle and Lower Keys. Restoration trials of susceptible species are taking place in the Lower Keys where the disease remains rampant.

## Restoration

Florida Keys National Marine Sanctuary is working with partners to devise a bold, aggressive, long-term plan that strategically uses a holistic approach involving habitat recovery and coral restoration. Restoration is a key component in the sanctuary's zoning and regulatory review process.

## Caribbean Efforts

NOAA is leading the Caribbean Cooperation Team as part of the Florida Coral Disease Response. The team provides support and information for the prevention, detection, and response of the disease outbreak throughout the Caribbean. Outside of Florida, similar disease outbreaks have been confirmed in Mexico, Jamaica, the Dominican Republic, the U.S. Virgin Islands, St. Maarten, Turks and Caicos, and Belize. The team shares best practices for diver gear decontamination, the consideration of ballast water as a possible vector, identification cards for disease detection, monitoring methodology, reporting resources, and a disease intervention action plan. The team also holds trainings on the disease and response techniques.

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## Explore further

[Search and rescue: Researchers on mission to save the coral reefs of South Florida](#)

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Provided by [NOAA Headquarters](#)

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Natural Science Reports (NSR)

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