

# STONY CORAL TISSUE LOSS DISEASE INTERVENTION

## 2019 SUMMARY



As stony coral tissue loss disease has swept through Florida's Coral Reef and expanded to the Caribbean, in-water intervention has become a high-level priority. Large and healthy stony corals help prevent coastal erosion and provide habitat for fish and other economically important species. In addition to providing these beneficial ecosystem services, the reproductive potential of these corals is critical to the future resilience of Florida's Coral Reef.

Throughout 2019, teams from Nova Southeastern University, Florida Atlantic University, Biscayne National Park and Force Blue treated over 2,000 large, structure-building corals across Florida's Coral Reef. Successful treatments used a topical amoxicillin paste developed by CoreRx/Ocean Alchemists. Applied to active disease lesions, the compound transmits the antibiotic directly into the coral over a three-day dosage period.

Post-treatment monitoring has documented 70% to 95% effectiveness across six tested species. In southeast Florida, the addition of a "firebreak" trench with amoxicillin application increased effectiveness by an additional 9%. When untreated, stony coral tissue loss disease typically results in 66% to 100% mortality, but only 1% of amoxicillin-treated corals have perished after six months of treatment and monitoring. Revisiting these previously treated corals is an essential component of priority coral maintenance since new lesions can appear elsewhere on the treated colony.



Photographs by Nova Southeastern University.



Although new lesions are common one month after initial treatment, the Florida Keys data show that the proportion of colonies requiring additional treatments continues to decline over time. In addition to coral visits one month after treatment, follow-up visits every two months are recommended.

Within Florida and throughout the Caribbean, numerous other treatment options have been investigated under laboratory and/or field conditions. Successful applications include amoxicillin water dosing and, to some extent, amoxicillin mixed with shea butter. Unsuccessful applications include water changes; Lugol's dip; smothering with epoxy or modeling clay; trenching by itself or in combination with epoxy; chlorinated epoxy by itself or in combination with trenching; natural products (including extracts of garlic, onion, neem, bonnet pepper, oregano and thyme); peroxide; copper wire; UV radiation; and high heat.

Partners continue to search for whole-colony treatments. Ongoing and future lab and field trials from Nova Southeastern University and Smithsonian Institute include antibiotic feeds and probiotic treatments.



All work is conducted under permits issued through the National Oceanic and Atmospheric Administration, the Florida Fish and Wildlife Conservation Commission, and the National Park Service as appropriate.