

First report of Stony Coral Tissue Loss Disease in the Dominican Republic

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ABSTRACT: This report documents the first known instance of the Stony Coral Tissue Loss Disease (SCTLD) in the north coast of the Dominican Republic. The disease, which currently affects a number of territories in the Caribbean, appears to be spreading and is a cause of concern to the scientific community and area managers across the region. The disease was observed on 3rd March 2019 in and around the reef of Cayo Arena, near the town of Punta Rucia, Puerto Plata. The species infected, and the pattern of infection follows what has been previously reported for the disease.

INTRODUCTION

The Stony Coral Tissue Loss Disease (SCTLD) is an emerging new threat to Caribbean coral reefs. First reported off the coast of Florida in late 2014, it spread along the coastline reaching the Lower Keys in early 2018. By spring 2018 corals with signs of SCTLD were reported in Jamaica (AGRRA, 2018). On July 2018 a team reported the disease in Puerto Morelos, Mexico, and has been closely monitoring its spread (Alvarez-Filip, 2018). In late 2018 the disease was again reported farther away in St. Maarten and the U.S. Virgin Islands, where it has quickly spread, causing mass colony mortality of up to 90% (The Daily Herald, 2018) (The Virgin Islands Consortium, 2019).

As of 2019, the disease affects 20 species of scleractinian corals, with higher occurrence in massive, reef-forming species. The disease causes loss of tissue, exposing the calcareous skeleton of the colonies, expanding either as a band or as a series of blotches that radiate outwards. The disease is lethal to the colonies, and its spread rate varies depending

on the species infected and the size of the colony (NOAA, 2018).

SCTLD was first observed in the Dominican Republic by the authors during a leisure snorkeling trip on March 3rd to Cayo Arena, a popular tourist destination on the north coast of the island, located 9 km away from the town of Punta Rucia in the province of Puerto Plata.

MATERIALS AND METHODS

The location of Cayo Arena (19.870217°, -71.305558°) consists on a small (0.2km²) sand key and a surrounding barrier reef that creates a shallow lagoon. There is a significant difference in coral growth pattern between the exposed and protected sides of the reef. Inside the lagoon there is sparse marine vegetation, with *Syringodium* and fleshy algae dominating before a back reef is formed, with *Palythoa caribaeorum*, *Porites astreoides*, *Pseudodiploria strigosa* and *Montastraea annularis* found in small colonies. Moving towards the reef crest on its windward side, the dominant species found are *Acropora palmata*, *Millepora spp.* the, *Montastraea* complex and *P. strigosa*. The frontal reef ends at approximately 12 m depth, followed by a sandy slope to deeper

waters. Healthy colonies of the *Montastraea* complex, *Acropora cervicornis* (sparsely), *Montastraea cavernosa*, *Porites porites*, and *Agaricia agaricites* are found.

While snorkeling on the reef the disease was identified on large colonies of several species of scleractinian corals and photographs of the lesions were taken on breath-hold.

RESULTS

The disease was first observed affecting a medium-sized *Meandrina meandrites* inside the lagoon and was mis-identified as White Plague. As the observation progressed along the outer reef, the signs of the disease were evident by the shape of the lesions and the species affected (Fig. 1). Most large (>1m Dia.) colonies of *Siderastrea siderea*, *P. strigosa*, and a particularly large colony of *Dendrogyra cylindrus* (Fig. 1c), showed varying degrees of infection. Smaller colonies and recruits of said species showed no signs of infection. Some *A. palmata* showed tissue-loss lesions but cannot be readily attributed to SCTLD.

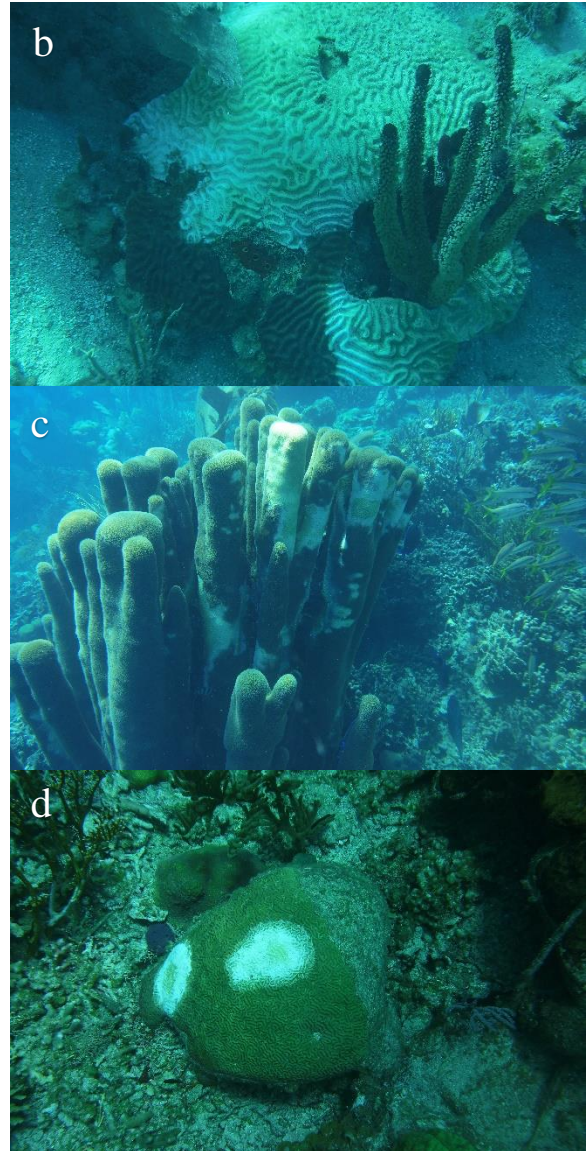


Figure 1. Photographs of SCTLD in the Cayo Arena reef. (a) *Siderastrea siderea* (b) *Colpophyllia natans* (c) *Dendrogyra cylindrus*, (d) *Pseudodiploria strigosa*

DISCUSSION

The disease appears to be following the same spread pattern that was described for Florida (NOAA, 2018), with an early onset of infection present in large colonies of *P. strigosa*, *M. meandrites* and *D. cylindrus*. *S. siderea* is considered an intermediately susceptible species but was among the first to be infected with the disease. SCTLD has not yet spread to the *Orbicella* complex or the

Agaricia species that form the dominant cover of the reef in Cayo Arena. Based on previous visits to the area, the onset of the infection is estimated to have taken place between 1-5 months prior to the elaboration of this report.

Further surveys will be conducted in the area by both organizations to follow the spread of the infection, and the effort should be replicated along the coastline of the Dominican Republic and Haiti by other organizations in their respective areas of operation.

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