

**PhD Dissertation**  
**Department of Environmental Science and Policy**  
**College of Science**  
**George Mason University**

**Candidate:** Zachary E. Combs

**Defense Date and Time:** May 11, 2023, 3:00-5:00pm

**Defense Location:** Zoom

**Title:** AN ANALYSIS OF THE EFFECTS OF STONY CORAL TISSUE LOSS DISEASE ON THE MYCOBIOME OF CARIBBEAN CORAL SPECIES

**Dissertation Director:** Dr. Esther C. Peters

**Committee:** Dr. Jennifer L. Salerno; Dr. Natalie M. Howe; Dr. Patrick M. Gillevet

**ABSTRACT**

Stony coral tissue loss disease (SCTLD) has had devastating effects on many of the reef building corals of the Caribbean, but the exact etiological agent is not known. The proposed study will examine the mycobiomes of corals in various phases of disease progression. Molecular community analysis will determine if the mycobiomes of apparently healthy colonies differ from those affected by SCTLD. Laser capture microdissection (LCM) will allow for the isolation and subsequent identification of fungi observed causing tissue damage and fluorescent in situ hybridization (FISH) will be used to determine how prevalent potentially pathogenic fungi are in coral colonies.