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### Content English

Title: Disease and recovery dynamics in a nursery-reared population of *Acropora cervicornis*

Abstract: Disease, bleaching and other stresses have led to marked declines in stony coral populations throughout the Caribbean region for decades. In the shallow waters surrounding Little Cayman Island, a disease outbreak in the wake of an extreme ocean thermal stress event in 1998 resulted in a 40% decline in coral cover. However, near complete recovery of the local population of corals was documented over the next decade. More than ten years later, in May 2019, 79.5% of the 933 *Acropora cervicornis* corals at a deep (18m) nursery site on Little Cayman were infected with a white-band like syndrome. The infected colonies were represented by 14 unique genotypes. Two months later, many of the diseased corals exhibited evidence of recovery; i.e. re-growth of tissue over previously infected areas. Because the incidence of disease and recovery occurred in a semi-controlled environment with individually identifiable coral colonies, we were able to track and model both disease progression and recovery. Weekly monitoring of the nursery population was initiated at the onset of disease and data were collected at the level of individual colonies. Colonies were classified as: healthy (no apparent disease), diseased, missing, dead (100%) or recovering. Using these data, we are in the process of parameterizing an SIR model to calculate infection and recovery rates for each coral genotype present in the nursery population. The model will improve our understanding of population-level and genotypic resilience and can potentially be useful in developing management strategies to combat disease progression in both nursery areas and wild habitats.

Keywords: Disease, Resilience, Restoration, Management, Nursery, Acroporids, Population-dynamics, SIR-model,