

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

Candidate: Jordan Sims

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Title: Complex biotic and abiotic factors shape bacterial community composition across microbial habitats in coral reef ecosystems

Dissertation Director: Dr. Jennifer Salerno

Committee: Dr. Haw Chuan Lim, Dr. Esther C. Peters, Dr. Diego Valderrama

ABSTRACT

Coral reefs host diverse and functionally important communities of microbes, but little is known about the ecological processes that shape the composition of these communities. This work leverages molecular approaches to characterize benthic and coral-associated microbes to better understand (1) the relative roles of drift, dispersal, and selection in shaping bacterial biofilm biogeography, (2) connections between environmental conditions, biofilm community composition, and benthic invertebrate settlement, and (3) the impacts of a prominent coral disease on microbial communities associated with different coral compartments. I found that complex and context-dependent interactions between biotic and abiotic factors shape microbial community dynamics.