

# EFFECTS OF CHANGING VEGETATION COMPOSITION ON COMMUNITY STRUCTURE, ECOSYSTEM FUNCTIONING, AND PREDATOR-PREY INTERACTIONS AT THE SALTMARSH-MANGROVE ECOTONE

*Julie Walker*<sup>1</sup>, *Christine Angelini*<sup>2</sup>, *Ilgar Safak*<sup>3</sup>, *Andrew H. Altieri*<sup>2</sup>, and *Todd Z. Osborne*<sup>4</sup>

<sup>1</sup>School of Natural Resources and Environment, Whitney Laboratory for Marine Bioscience, University of Florida, St. Augustine, FL, USA

<sup>2</sup>Environmental Engineering Sciences, Engineering School for Sustainable Infrastructure and the Environment, University of Florida, Gainesville, FL, USA

<sup>3</sup>Civil and Coastal Engineering Department, University of Florida; Gainesville, FL, USA

<sup>4</sup>Soil and Water Sciences Department, School of Natural Resources and Environment, Whitney Laboratory for Marine Bioscience, University of Florida, Gainesville, FL, USA

Decreasing frequency of freeze events due to climate change is enabling the poleward range expansion of mangroves. As these tropical trees disperse poleward, they are replacing herbaceous saltmarsh vegetation. These vegetation types are typically viewed as having similar ecosystem functions, such as providing high-quality habitat. However, few studies have investigated how predation regimes, community structure, and ecosystem functions are shifting at the saltmarsh-mangrove ecotone. In this study, we manipulated predator access to marsh and mangrove creekside habitats to test their role in mediating vegetation and invertebrate structure and stability in a two-year-long experiment. We also conducted a survey to evaluate how shifting vegetation is modifying structural complexity, invertebrate communities, and ecosystem functioning at the ecotone. Excluding larger (>2cm diameter) predators had no effect on vegetation or invertebrate structure or stability in either saltmarsh or mangrove habitats. The survey revealed the two habitat types consistently differ in structural metrics, including vegetation height, inter-stem distance, and density but support similar invertebrate and algal communities, soil properties, and predation rates. We conclude that although mangrove range expansion immediately modifies habitat structural properties, it is not altering larger predator consumptive effects, community stability, community composition and some ecosystem functions at the ecotone.

**PRESENTER BIO:** Julie Walker is a PhD student co-advised by Dr. Todd Osborne and Dr. Christine Angelini. She is a part of the University of Florida and Smithsonian Institution partnership as a Marine Conservation Fellow. Her current research interests are studying the ecological impact of climate induced range shifts of tropical mangrove trees into neo-tropical wetlands, with a regional focus on the mangrove-saltmarsh ecotone in St. Augustine, Fl. Julie's future research goals include expanding her area of study to include ecological significance of loss and changes to foundation species across the globe as a result of anthropogenic stress.