

EVIDENCE AND EFFECTS OF CLIMATE CHANGE IN FLORIDA'S NATURE COAST

Charles W. Martin¹, Carrie R. Adams², Scott B. Alford¹, Micheal S. Allen¹, Savanna C. Barry¹, David C. Chagaris¹, Victor Doig³, Peter C. Frederick⁴, Ashley M. McDonald¹, Caleb Purtlebaugh⁵, Laura K. Reynolds⁶

¹UF/IFAS Nature Coast Biological Station, University of Florida, Cedar Key, FL, USA

²Department of Environmental Horticulture, University of Florida, Gainesville, FL, USA

³Lower Suwannee National Wildlife Refuge

⁴Department of Wildlife Ecology and Conservation, University of Florida, Gainesville, FL, USA

⁵Florida Fish Wildlife and Conservation Commission

⁶Department of Soil and Water Science, University of Florida, Gainesville, FL, USA

Florida's Nature Coast, spanning from Hernando to Wakulla County in the northeast Gulf of Mexico, is one of the most undeveloped estuarine ecosystems in the Southeastern United States. The region contains an abundance of diverse habitats, including tidal creeks, salt marshes, oyster reefs, seagrass meadows, and mangroves, as well as an economy driven by natural resources (farming, fishing, forestry, ecotourism, and aquaculture, among other industries). Despite the presence of numerous wildlife refuges and protected lands, the area is still under threat from a number of disturbances, including global climate change. The gradual elevation gradient makes the Nature Coast extremely susceptible to climate change, as even small changes to sea level or the timing and magnitude of freshwater discharge become exacerbated. Here, we synthesize the available evidence for the existence of climate change along the Nature Coast, including changes to temperature, sea level, and large scale weather patterns that may influence freshwater discharge from the Suwannee River, one of the largest and most pristine rivers in the Southeast. In addition, we provide examples of tropical and subtropically-associated fauna (groupers, snappers, snook, parrotfish) and flora (black, red, and white mangroves) that exhibit expanding distributions into the northern Gulf of Mexico. The objective of collating this information is to develop a more comprehensive understanding of the risk of climate change to this estuary and highlight critical knowledge gaps that should be prioritized in future efforts.

PRESENTER BIO: Dr. Martin is an estuarine ecologist at the UF/IFAS Nature Coast Biological Station in Cedar Key, Florida. He has over 15 years' experience in research of Gulf of Mexico ecosystems with over 25 publications, and more than 10 different projects dedicated to conserving Gulf ecosystems.