

## **SEAGRASSES: BOTH INDICATORS AND DRIVERS OF COASTAL WATER QUALITY**

**Laura K. Reynolds<sup>1</sup>, Morgan Edwards<sup>1</sup>, Jamie Hammond<sup>2</sup>, Savanna Barry<sup>3</sup>**

<sup>1</sup>University of Florida/IFAS, Soil & Water Sciences Department, Gainesville, FL, USA

<sup>2</sup>University of Florida/IFAS, Agronomy, Gainesville, FL, USA

<sup>3</sup>University of Florida/IFAS, Nature Coast Biological Station, Cedar Key, FL, USA

Florida's aquatic preserves are established by law and managed by FL Department of Environmental Protection to maintain resources for the benefit of future Floridians. The Nature Coast Aquatic Preserve (NCAP) is the newest Florida aquatic preserve and the hallmark resource in this preserve is its extensive seagrass meadows. Seagrasses and water quality are closely linked. Nutrients are required for plant growth, and plant biomass both sequesters nutrients and drives nutrient cycling. Conversely, high nutrient loads from rivers can decrease water clarity and shade out sunlight that grasses need for photosynthesis. Since water itself also attenuates light, seagrasses in deeper water may be more susceptible to issues associated with increases in nutrients. At high nutrient loads, algae can proliferate more quickly than seagrasses and community may shift from seagrass dominated to algal dominated where algae block light from seagrasses. Finally, seagrass growing on the Gulf Coast of the Florida peninsula show variation in morphology, shoot density, growth rates, and elemental composition in relation to a gradient in water column total phosphorous concentrations. Areas with higher total phosphorous produced taller shoots with wide leaves, and shoots were less dense. Therefore, effective water quality and seagrass monitoring programs should be linked. Here we present a cohesive water quality and seagrass monitoring program aimed at documenting trajectories and identifying early signals of change for these protected resources.

PRESENTER BIO: Laura Reynolds is an assistant professor in the soil water and ecosystem sciences department at UF.