

## TIDALLY-FORCED INDEX-VELOCITY RELATIONSHIPS IN THE WACCASASSA RIVER

*Eric Whiteside<sup>1</sup>, Robert L. Taylor<sup>1</sup>, Sangdon So<sup>2</sup>, David Christian<sup>3</sup>*

<sup>1</sup>The University of Florida and Applied Technology & Management, Gainesville, FL, USA

<sup>2</sup>Applied Technology & Management, Gainesville, FL, USA

<sup>3</sup>Office of Agriculture and Environmental Projects, Suwannee River Water Management District, Live Oak, FL, USA

Coastal ecosystems provide ecological services, including carbon sequestration, wave attenuation, erosion prevention, and habitat. High-quality data and an accurate understanding of the system inform policy decisions. The Suwannee River Water Management District (SRWMD) and Applied Technology & Management (ATM) measured critical hydrographic parameters in Waccasassa Bay, Waccasassa River, and Cow Creek to support decision making.

SRWMD and ATM measured salinity, temperature, water-surface elevation, and flow velocity at three stations in the Waccasassa River watershed and at one station in Waccasassa Bay, every 15 minutes from April 2020 through March 2021. Salinity and temperature were measured with a sonde. Water-surface elevation and flow velocity were measured with an Acoustic Doppler velocity meter. Transient flow rate was also measured eight times over full tidal cycles, with an Acoustic Doppler current profiler. Four stations were strategically placed to constantly record data and monitor tide. ATM checked and maintained stations to ensure that data were correctly recorded, and that the velocity meters remained unobstructed and operational. ATM established index relationships between velocity and flow rate at two sites to subsequently estimate flow rate from measured velocity over the year-long measurement period. SRWMD and ATM developed unique, novel, compound index-velocity relationships to satisfy specific indexing challenges in this tidally-forced system. Data and analyses will form the basis for a coastal model and inform water policy.

**PRESENTER BIO:** Eric Whiteside is an undergraduate student at the University of Florida studying wildlife ecology and working as an intern for Applied Technology & Management to understand Florida's precious waterway systems. Growing up in the Florida Keys made Eric realize the importance of preserving life and biodiversity within ecosystems.