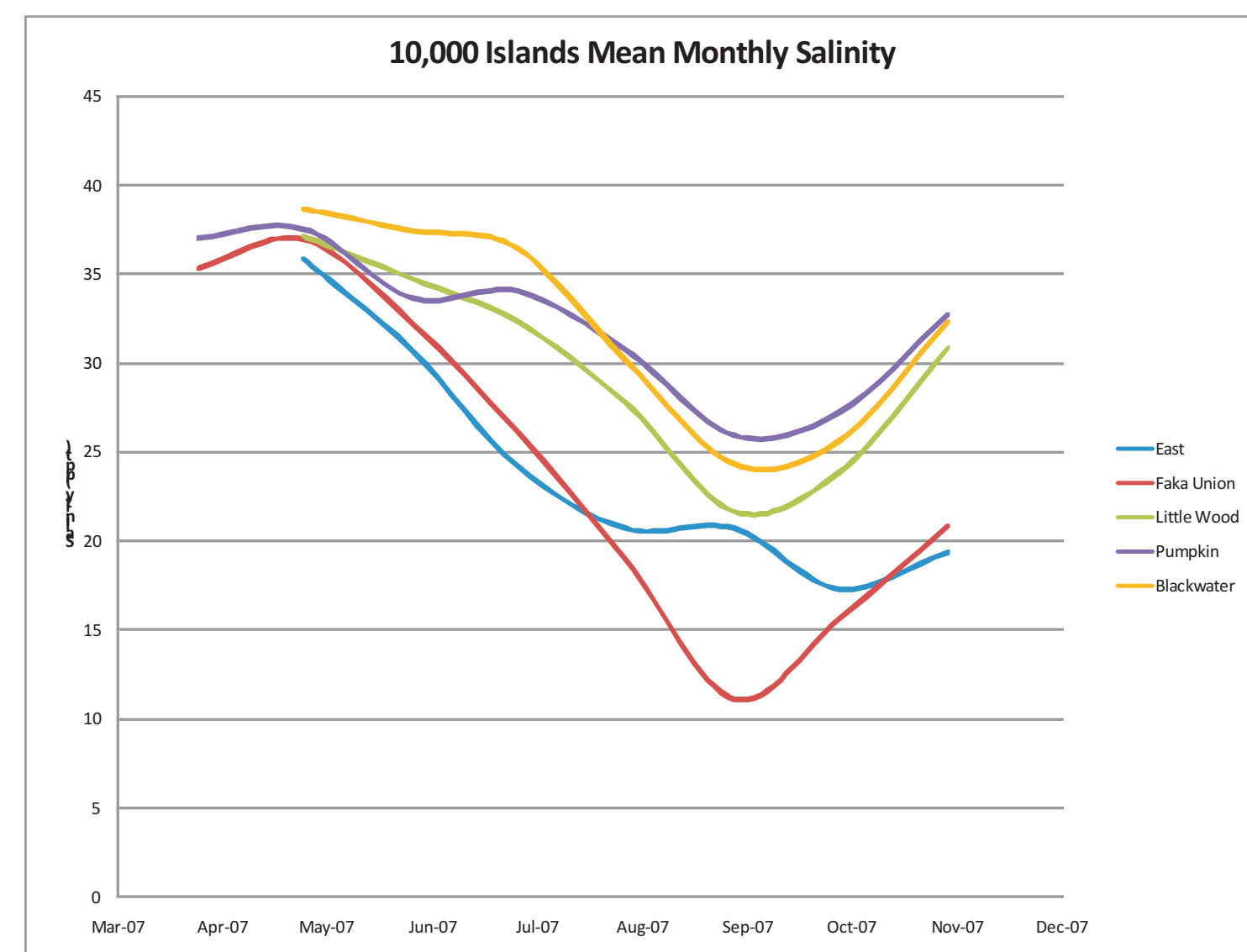
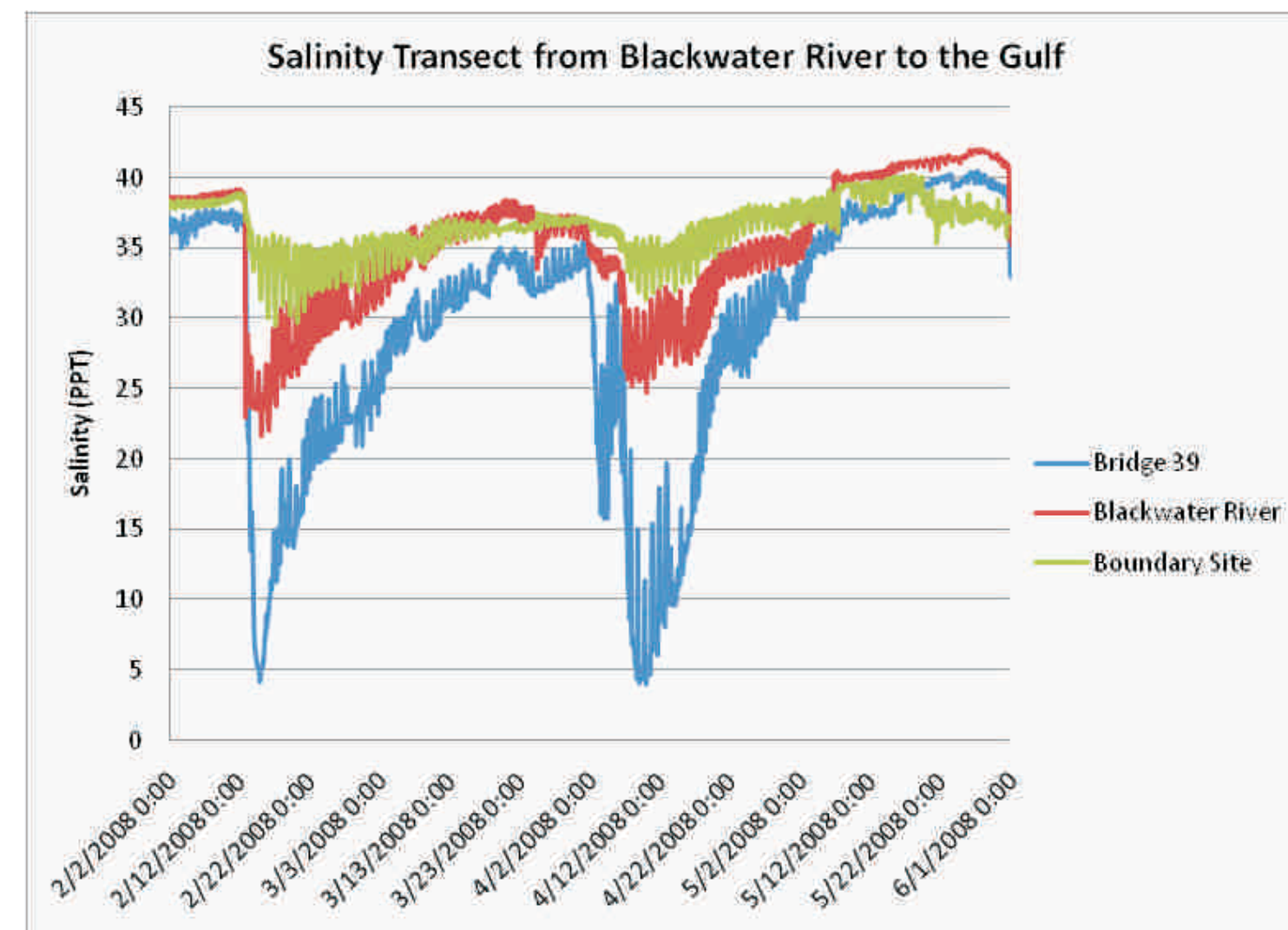


Baseline Hydrologic Information of the Western Tamiami Trail and the Ten Thousand Islands to Monitor Downstream Effects of the Picayune Strand Restoration Project

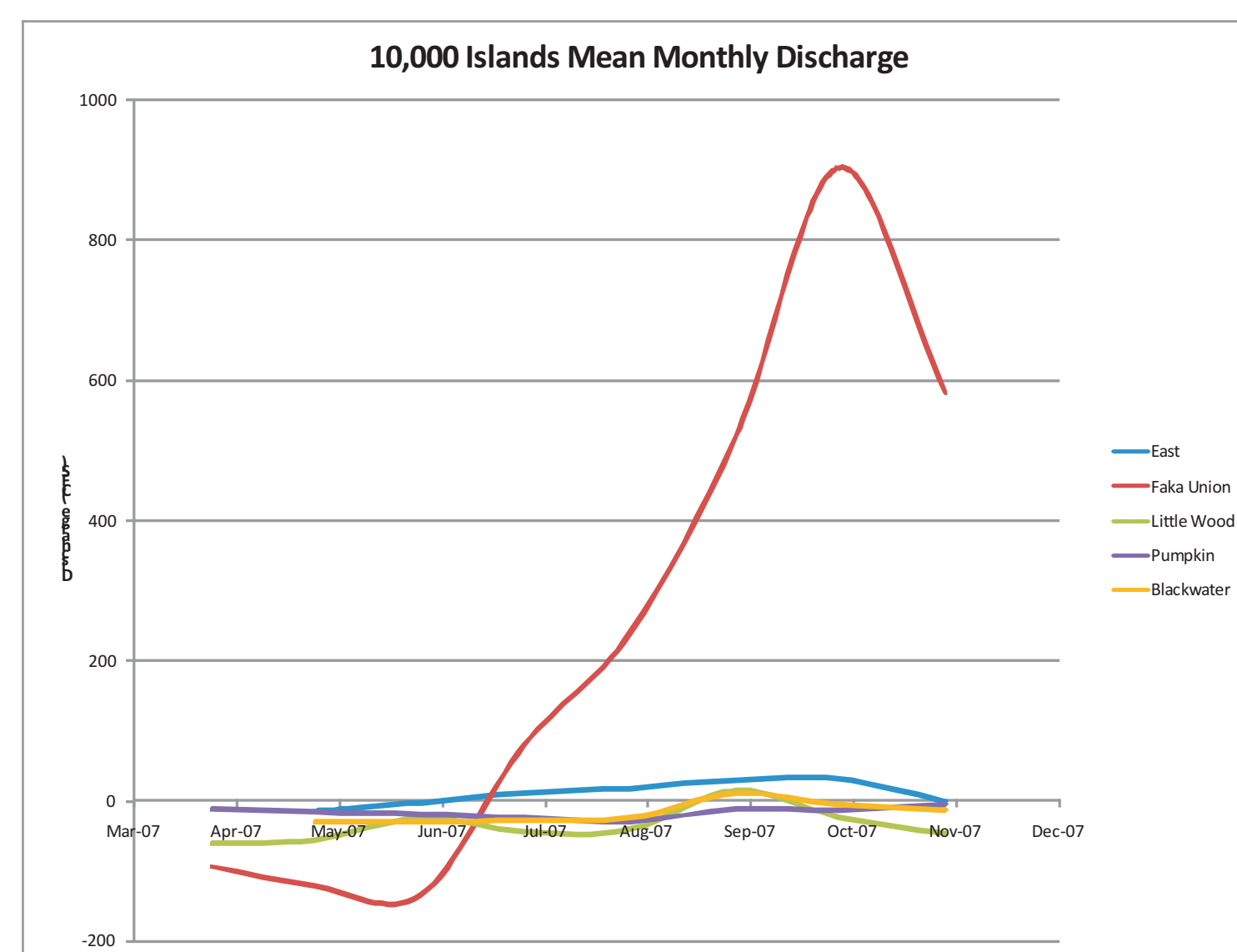
Sample Data



Monthly mean salinity data from coastal river stations showing the transition from dry season to wet season. Faka Union Canal experiences the freshest salinities, while Pumpkin River remains quite salty well into the wet season.



A transect of salinity data from Bridge 39 (located at the headwaters of Blackwater River), the Blackwater River station (located mid-river), and the open-water station at the edge of the Gulf of Mexico. A longitudinal salinity gradient is evident in the system. Rain events and periods of hypersalinity are also visible.

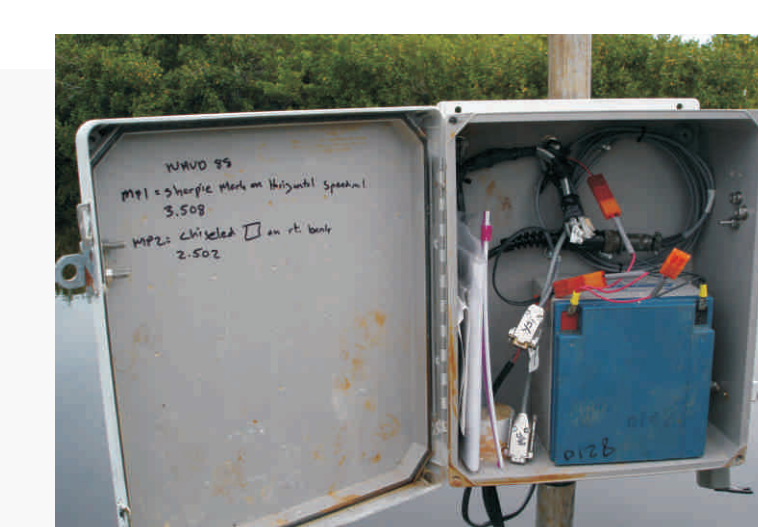
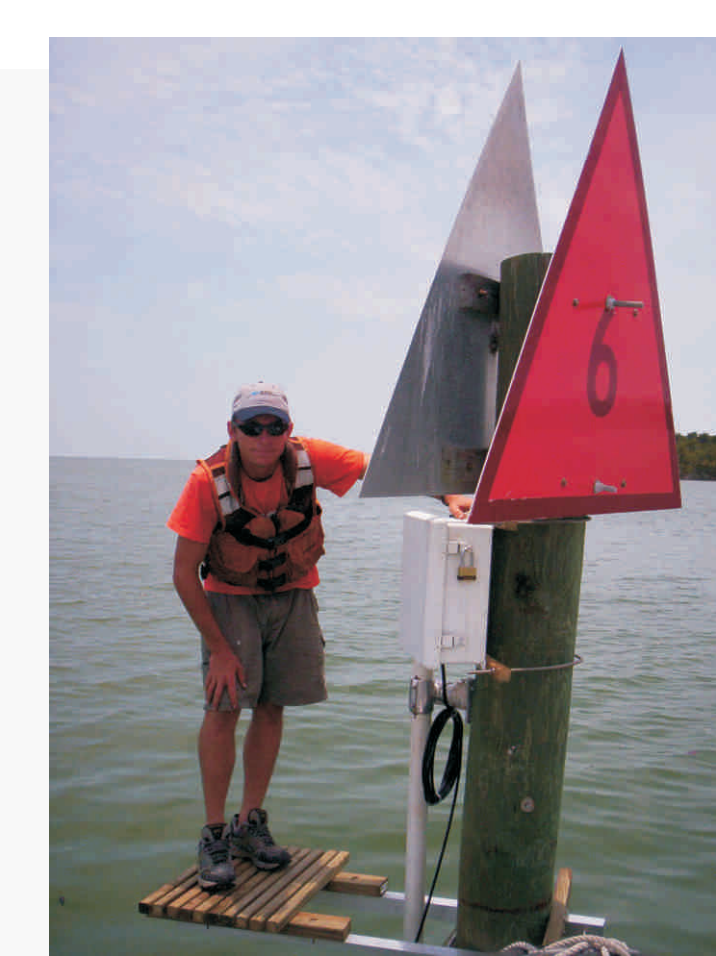
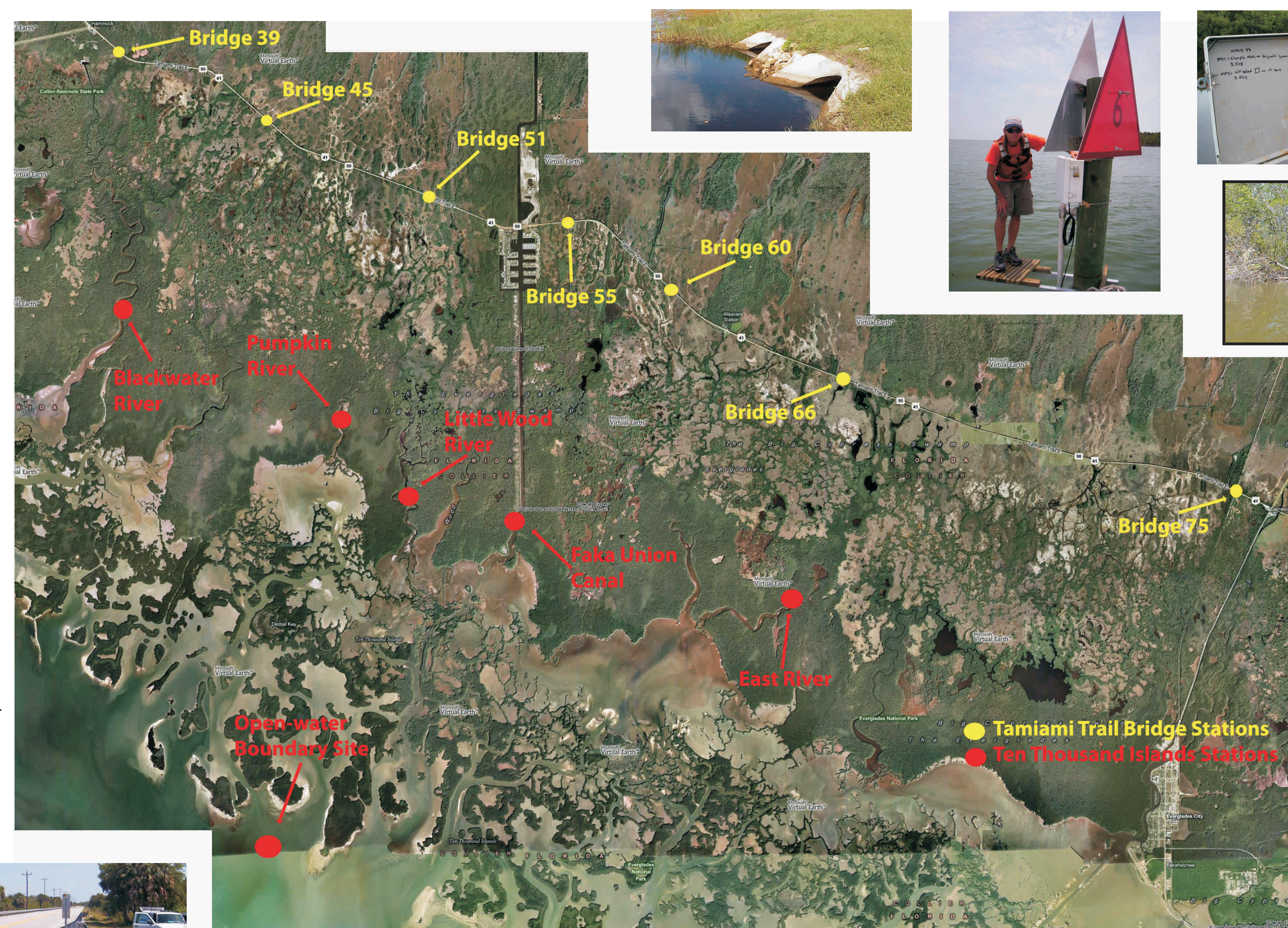
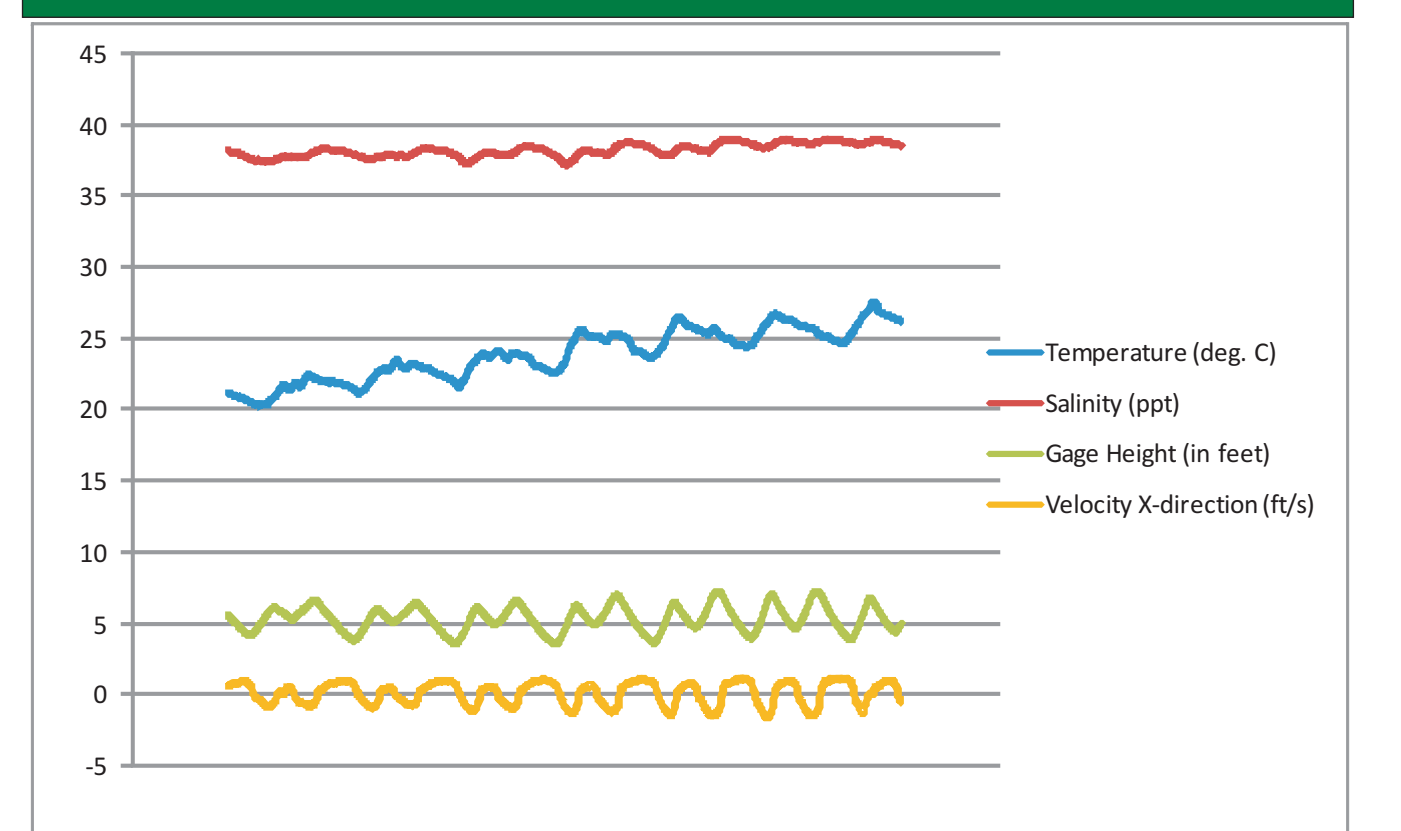


Mean monthly discharge data from coastal river stations during the transition from dry season to wet season. The vast majority of freshwater discharges into the Ten Thousand Islands comes through the Faka Union canal.

Please note that calibration of ratings used to compute discharges are still in progress

In 2006, the U.S. Geological Survey (USGS) initiated studies to describe hydrologic conditions along the western reach of Tamiami Trail (US-41) between County Road 92 and State Road 29, and at tidal rivers and estuaries of the Ten Thousand Islands area. Through this effort, the USGS has established a network of monitoring stations at selected bridges along Tamiami Trail and along coastal rivers that discharge into the bays downstream. These stations provide water-level, flow, salinity, and temperature data that can be used to develop and calibrate hydrodynamic and water-quality models of the area. The studies are being conducted as part of the USGS Greater Everglades Priority Ecosystems Science (GEPES) initiative, National Park Service (NPS) Critical Ecosystem Studies Initiative (CESI), and in cooperation with the South Florida Water Management District (SFWM).

East River Sample Data

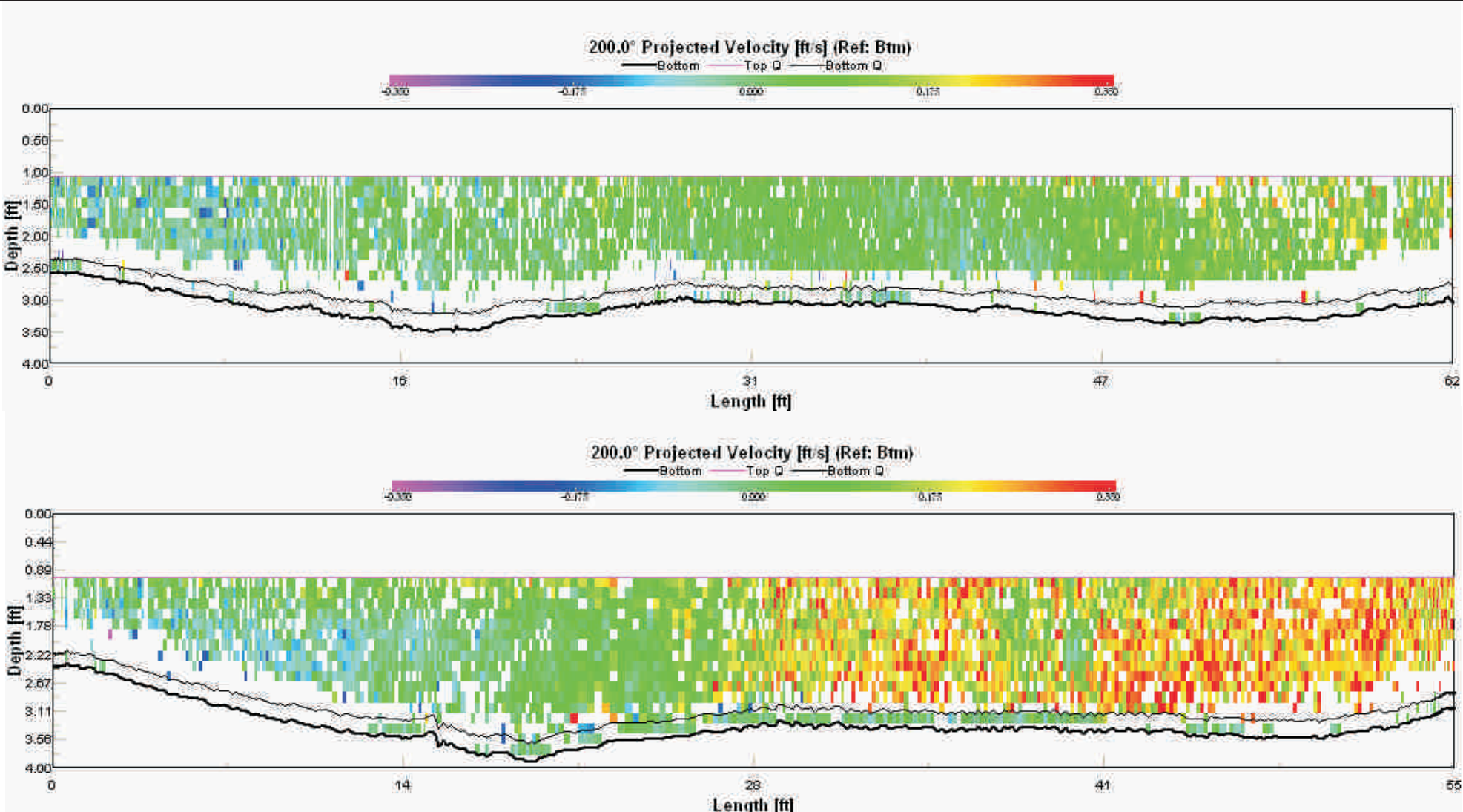


Clockwise from left: Culverts along Tamiami Trail; Servicing Boundary station; Inside view of Tamiami Trail station; Outside view of Tamiami Trail station; Bridge 75 station; East River; Pumpkin River station

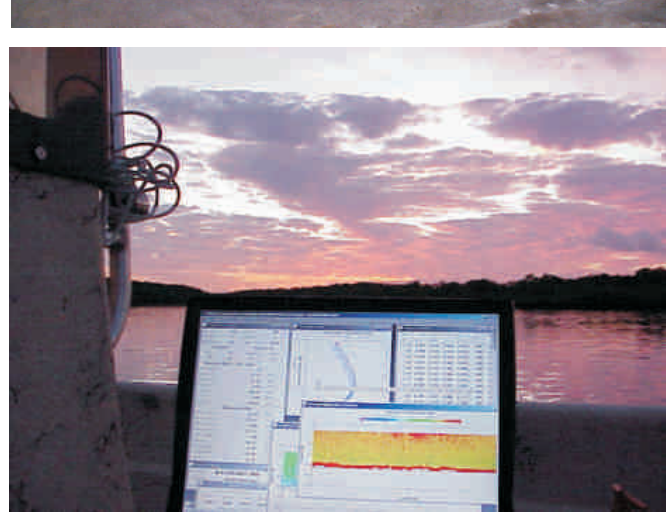
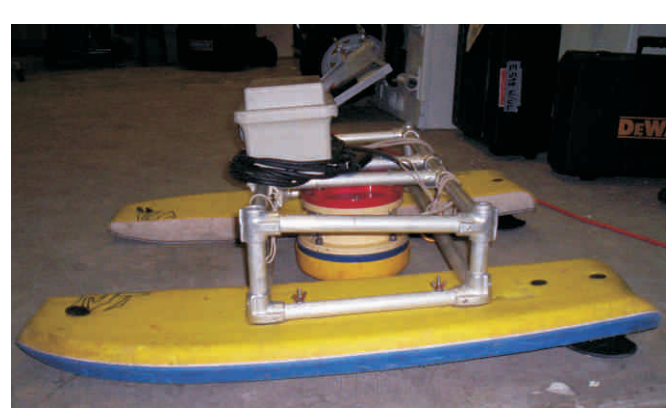
Assuming that (1) the completion of the Picayune Strand Restoration Project will extend the hydroperiods of areas north of US-41, and that (2) the addition of culverts under the road and plugs in Tamiami Canal have changed the spatial distribution of freshwater to marshes and estuaries to the south, the data collected from these studies will provide insight about ecosystem responses to these restoration projects by providing

- *Baseline hydrologic information describing the magnitude of pre-restoration freshwater flow and distribution along US-41 to marshes and estuaries to the south.
- * Long-term flow monitoring method for bridges and culverts under US-41 between County Road 92 and State Road 29.
- *Baseline hydrologic information describing flow and salinity characteristics of tidal rivers and estuaries of the Ten Thousand Islands.

Acoustic Doppler Current Profiler (ADCP) Measurements



Samples of WinRiver discharge data from Bridge 51 showing dry season (top) and wet season (bottom) flow conditions.



Clockwise from top: Performing an ADCP measurement at a station on Tamiami Trail; ADCP mounted to "boogie cat" used to measure bridges and river sites in the Ten Thousand Islands; Performing ADCP measurements thru a 13 hr tide cycle; SonTek SW on a mount for measuring discharge at culverts

All data generated by these studies will be available through the USGS South Florida Information Access (SOFIA) web page at <http://sofia.er.usgs.gov/>. Real-time water-data for Florida is available from the USGS National Water Information System at <http://waterdata.usgs.gov/fl/nwis/rt>.

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Salinity Mapping

Salinity surveys are completed monthly along the Tamiami Trail and quarterly in the 10,000 Islands using YSI probes. For the 10,000 Islands surveys, a YSI is attached to a GPS unit (see image) to monitor location while boats complete two separate tracks to collect data. The data are then plugged into a GIS mapping program and interpolated to encompass the entire region. Maps show data from wet and dry seasons.

