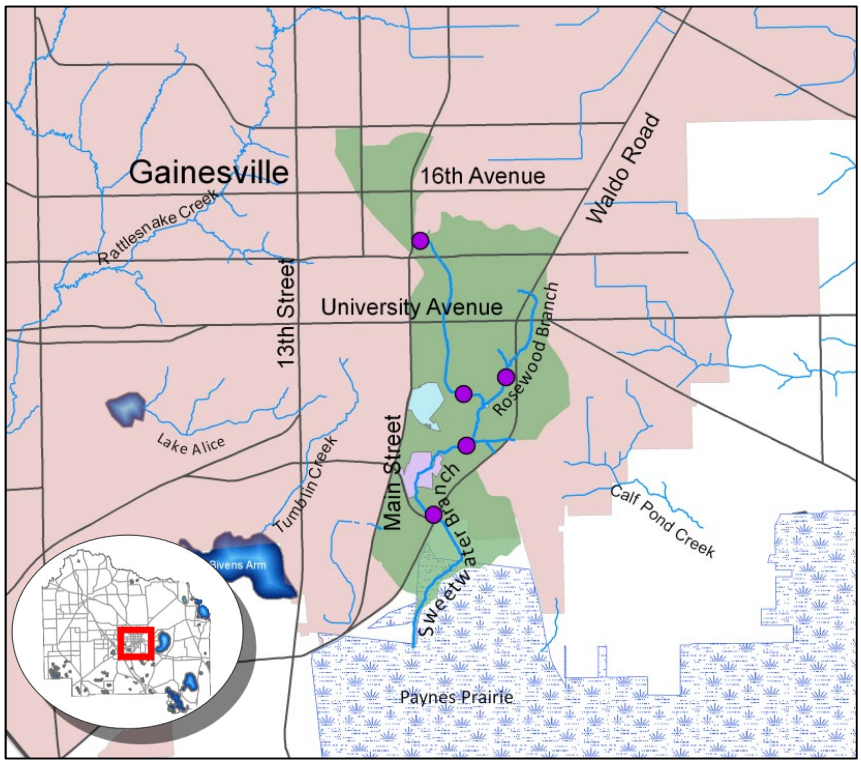
Sweetwater Branch

Fact Sheet

The Watershed

- Sweetwater Branch watershed is ~ 3.3 square miles.
- Sweetwater Branch flows into the Sweetwater Wetlands of Paynes Prairie.
- The GRU wastewater reclamation facility (WFR) discharges treated effluent into the creek.
- The Sweetwater Branch watershed is 60% low density residential, 20% commercial, and 14% forests and wetlands.



Map of Sweetwater Branch watershed (green) with sampling sites (purple circles).

Potential Pollution

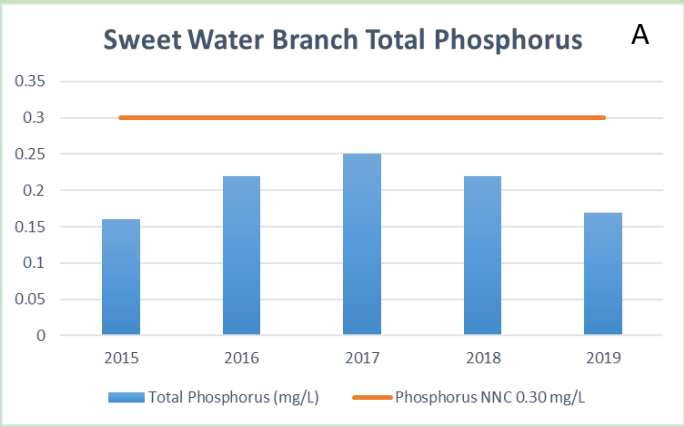
- Urban stormwater has high velocity flows which causes streambed and bank erosion, which transports sediments that harm streamside vegetation and habitat for in-stream biota, such as macroinvertebrates.
- Failing septic systems, failing wastewater infrastructure, wildlife and pets, and urban campers all which introduce fecal material which is a source of nitrogen, phosphorus, and fecal coliform bacteria from stormwater flows.
- Naturally occurring phosphorous from the Hawthorn Group formations may contribute to elevated phosphorus levels due to cutting and scour especially during stormwater events and downstream of the Main Street Water Reclamation Facility.

Sweetwater Branch.

In-Stream Biology

Biological surveys of Sweetwater Branch were conducted at Southeast 4th Ave in 2001, 2009, and twice in 2012. Surveys indicated that overall, the stream population of benthic macroinvertebrates was not very healthy but the February 2012 survey indicated a healthy population. Summer stresses of warm water temperatures and frequent intense rains coupled with a decreased abundance of periphyton may have been the cause for the large difference in SCI index observed in 2012.

Water Quality



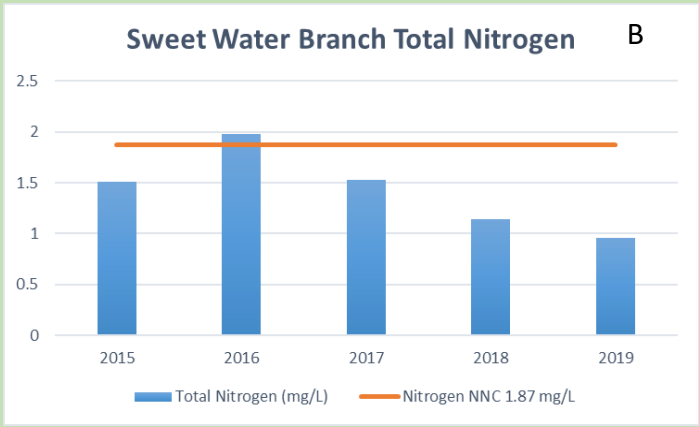


Figure 1. Annual geometric mean of A) total phosphorus (TP) and B) total nitrogen (TN).

Nutrients: The current FDEP water quality rule on nutrient standards went into effect February 2016. As a result, Sweetwater Branch is often above the Numeric Nutrient Criteria (NNC) threshold for total phosphorus (TP), but not for total nitrogen (TN). Potential phosphorus sources are the erosion of phosphorus rich soils that compose the Hawthorn clays which underlay the stream bed, as well as residential inputs of fertilizers. In 2014, two sampling locations were omitted, one of which (Southeast 8th Ave) had consistently high concentrations of TP, potentially explaining the decrease in Annual Geometric Mean seen in 2014.

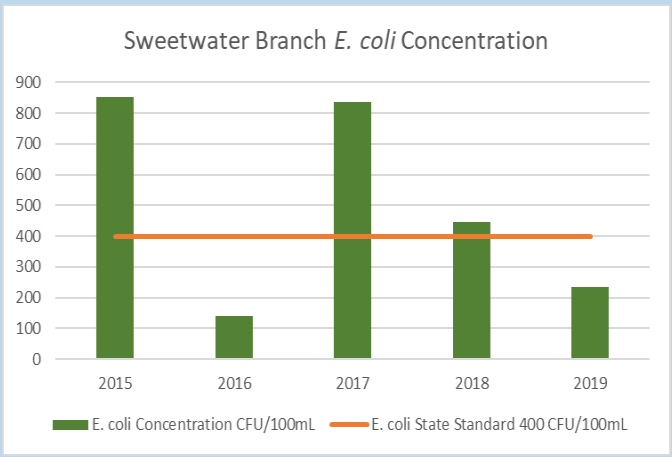


Figure 2. Annual geometric mean fecal coliform colony forming units (CFU)/ 100 mL.

Bacteria: Sweetwater Branch frequently has elevated abundance of fecal coliform, an indicator of the possible presence of pathogens. The state standard for a single sample is 800 colony forming units (CFU)/ 100 mL. Sweetwater Branch was listed as impaired for fecal coliform. Possible sources of this bacteria include urban campers, domestic and wild animal waste, leakage from sanitary sewer lines, faulty private sewer connections and overflows, persistence and regrowth of bacteria in creek sediments, and failing septic systems.

Current Human Impacts

- Urban campers, failing septic systems, failing wastewater infrastructure, wildlife and pets all introduce fecal material.
- Sweetwater Branch has high velocities during storm flow events, which transports sediments that smother habitat.
- The streambed of Sweetwater Branch is littered with materials from erosion at the former city landfill adjacent to the creek.

Sweetwater Branch off Hwy. 331.