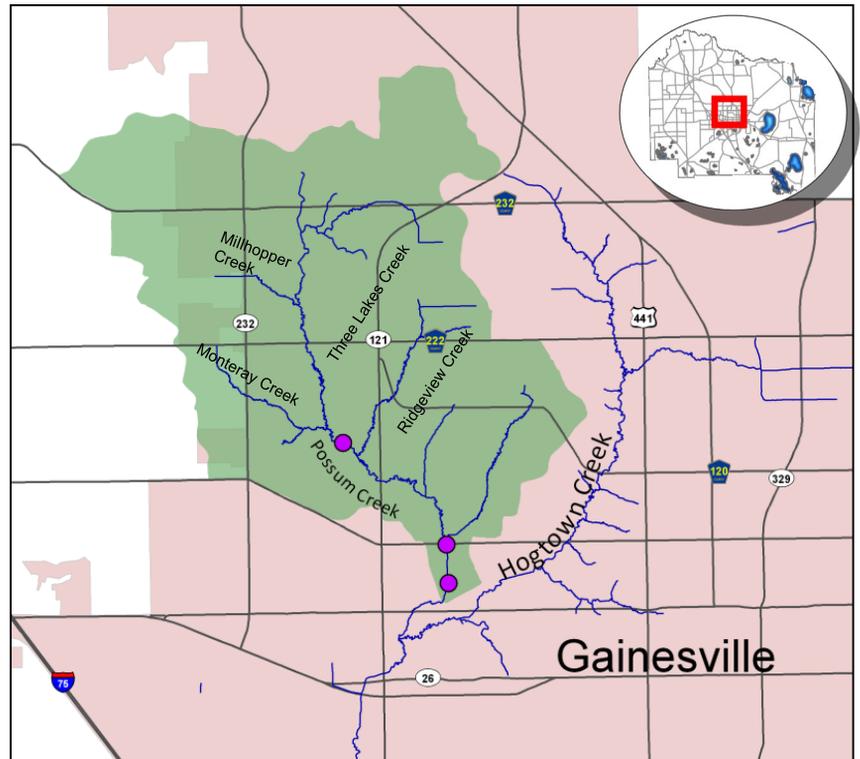




Possum Creek Fact Sheet

The Watershed

- Possum Creek watershed is ~ 8 square miles.
- Possum Creek joins Hogtown Creek and recharges the Floridan aquifer at Haile Sink.
- Possum Creek is the largest tributary to Hogtown Creek.
- The Possum Creek watershed is 75% residential with small pockets of natural, agricultural, and commercial land use.



Map of Possum Creek 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.
- Naturally occurring phosphorus from the Hawthorne Group formations may contribute to elevated phosphorus levels due to cutting and scour from stormwater flows.
- Failing septic systems, failing wastewater infrastructure, wildlife, and pets all introduce fecal material which is a source of nitrogen, phosphorus, and fecal coliform bacteria.



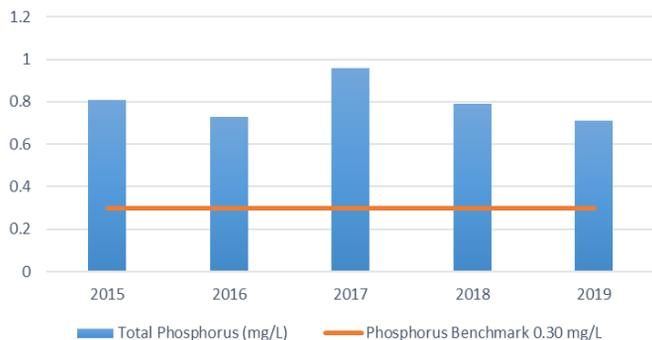
Possum Creek during sampling event.

In-Stream Biology

Biological surveys of Possum Creek were conducted at two locations on the creek and indicated that the stream had a healthy population of benthic macroinvertebrates with ample habitat. The 2014 survey scored Possum Creek as healthy for Stream Condition Index (SCI). It was noted that in areas with open canopy, there was dense periphyton and aquatic plant growth.

Water Quality

Possum Creek Total Phosphorus A



Possum Creek Total Nitrogen B

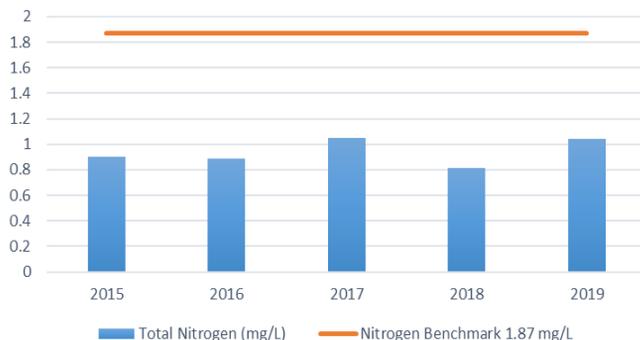


Figure 1. Annual Geometric Mean of A) total phosphorus (TP) and B) total nitrogen (TN).

Nutrients: The current FDEP water quality rule on nutrient standards went into effect February 2016. As a result, Possum Creek is above the Numeric Nutrient Criteria (NNC; denoted by orange line on graph) 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 and residential inputs of fertilizer. It does not appear that the elevated TP concentrations are influencing the stream biota but may be causing dense periphyton that was observed in the Stream Condition Index assessment.

Possum Creek *E. coli* Concentration

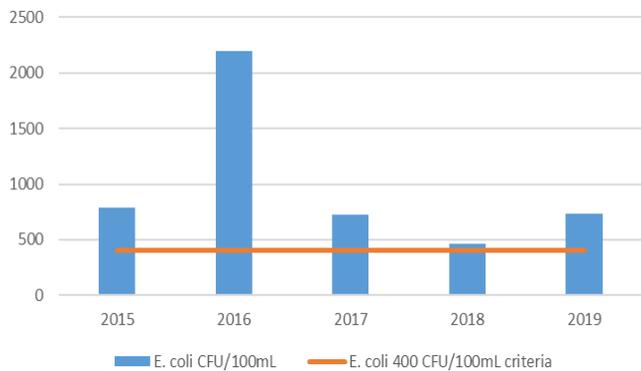


Figure 2. Annual Geometric Mean fecal coliform colony forming units (CFU)/ 100 mL.

Bacteria: Measuring *Escherichia coli* is the more accurate method for determining fecal coliform contamination in streams. The state standard for a single sample is 400 colony forming units (CFU)/100 mL. Possum Creek has frequently exceeded this standard and has been classified as impaired by FDEP. Possible sources of this bacteria include 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

- Stormwater runoff contaminates the creek in residential areas with fertilizers from lawn and garden use.
- Roadway runoff contaminates creeks with traces of petroleum products, oil and grease from automobiles, and sediment.
- Sediments from in-stream erosion increase total suspended solids concentrations of the creek and cause habitat smothering.



Biological survey of Possum Creek.