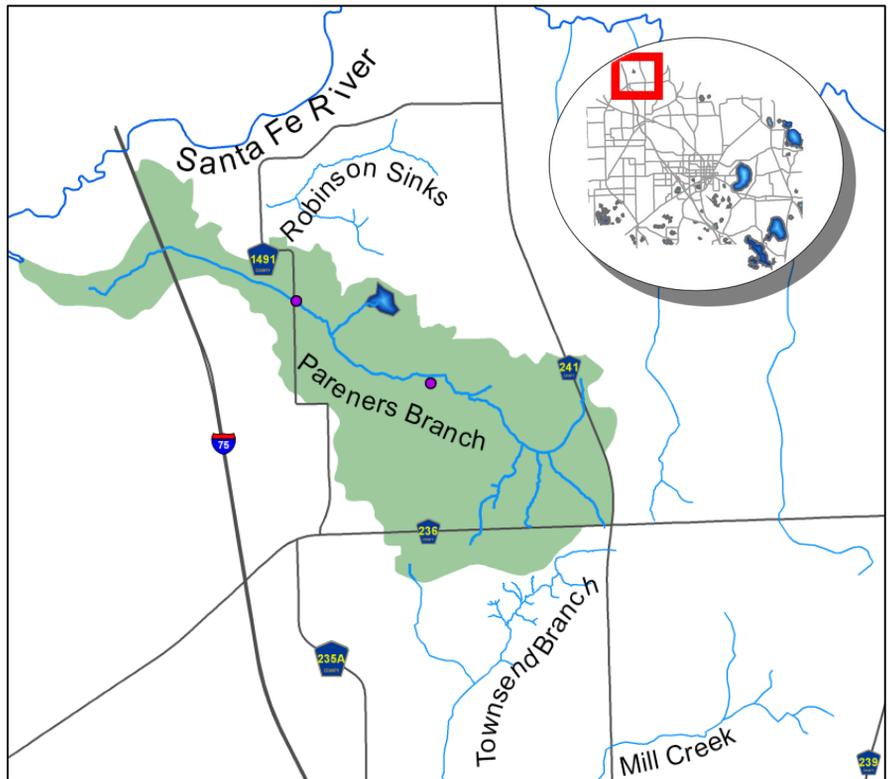




Pareners Branch Fact Sheet

The Watershed

- The Pareners Branch watershed is ~ 5.7 square miles.
- Pareners Branch goes underground and reemerges in O'Leno State Park before it joins the Santa Fe River.
- Land use in the area is dominated by natural forest, agriculture, and silviculture.



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

Potential Pollution

- Naturally occurring phosphorus from the Hawthorn Group formations may contribute to elevated phosphorus levels due to cutting and scour.
- Failing septic systems, wildlife, and pets are sources of nitrogen, phosphorus, and fecal coliform bacteria.
- Agricultural operations may contribute fertilizers and/or animal waste to the surrounding area.



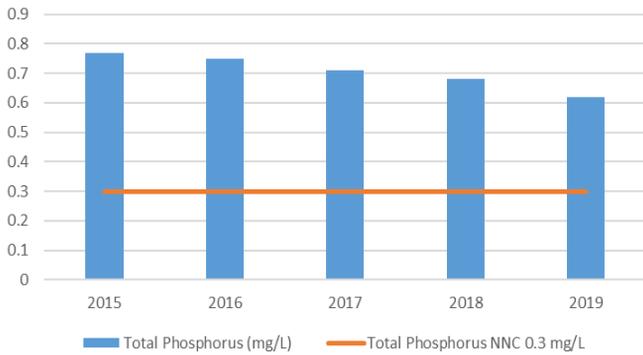
Sampling site on Pareners Branch.

In-Stream Biology

Biological surveys of Pareners Branch indicated that the greatest difficulty for macroinvertebrate populations in the creek are low flow conditions, especially during drought. As a result of these low flows, biological surveys classified this creek as "impaired" in 2009 despite the 2003 "healthy" classification. Riparian vegetation of water oak, swamp chestnut oak, white ash, and sweetgum make a dense canopy, which can benefit macroinvertebrates. Pareners Branch was not included in the 2014 Bioassessment Survey.

Water Quality

Pareners Branch Total Phosphorus



Pareners Branch Total Nitrogen

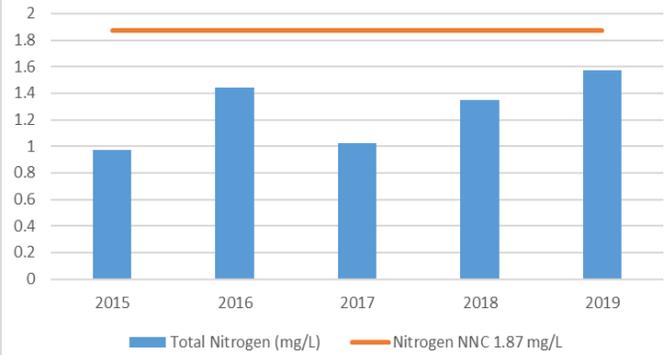


Figure 3. Annual geometric mean of A) total phosphorus (TP) and B) total nitrogen (TN).

Nutrients: The current FDEP water quality rule on nutrient standards went into effect February 2016. As a result, Pareners Branch is above the Numeric Nutrient Criteria (NNC) threshold for total phosphorus (TP) and 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 agricultural inputs of fertilizer and manure.

Pareners Branch *E.coli* Concentration

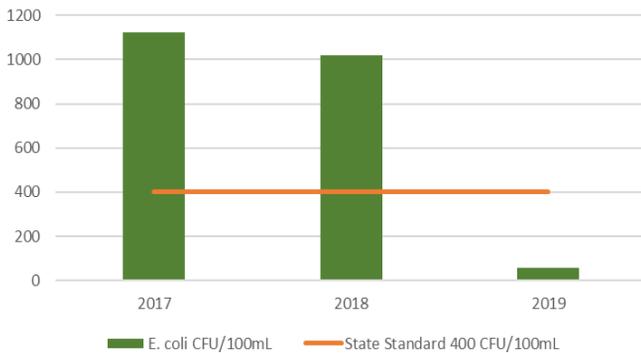


Figure 2. Annual geometric mean *E. coli* colony forming units (CFU)/100mL.

Bacteria: Pareners Branch has high abundance of *E. coli* coliform, an indicator of fecal contamination. State standards for a single sample are 400 colony forming units (CFU)/100mL. Since Pareners Branch frequently exceeds this standard, it is classified as impaired. Possible sources of this bacteria include domestic and wild animal waste, persistence and regrowth of bacteria in creek sediments, and failing septic systems.

Current Human Impacts

- Fertilizer from agricultural operations.
- Agricultural animal waste.
- Possible leaky and failing septic tanks.
- Positive impacts on water quality result from preservation within the watershed at O’Leno State Park and River Rise Preserve State Park.



Sampling location on Pareners Branch.