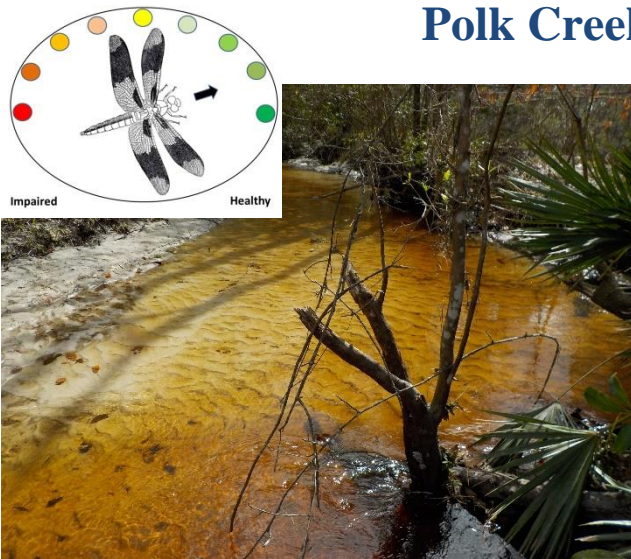


Polk Creek EcoSummary



Polk Creek is a minimally disturbed, slightly tannic stream located in western Leon County. The stream flows west, eventually reaching Lake Talquin.

Urban and residential, transportation and utilities land uses make up approximately 12% of the 2,328-acre watershed upstream of the sample station (as shown in **Figure 1**). These types of land uses are often attributed to increases in stormwater runoff and higher nutrient loads.

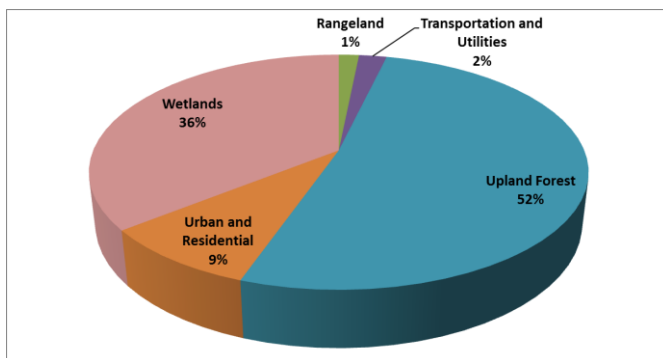


Figure 1. Polk Creek watershed land use.

Background

Healthy, well-balanced stream communities may be maintained with some level of human activity, but excessive human disturbance may result in waterbody degradation.

Human stressors may include increased inputs of nutrients, sediments, and/or other contaminants from watershed runoff. Stressors can also include adverse hydrologic alterations, undesirable removal of habitat or riparian buffer vegetation, and introduction of exotic plants and animals. State water quality standards are designed to protect designated uses of the waters of the state (e.g., recreation, aquatic life, fish consumption), and exceedances of these standards are associated with interference of the designated use.

Methods

Surface water samples are collected quarterly (as field conditions allow). This information is used to determine the health of Polk Creek and meets the requirements of the Florida Department of Environmental Protection (FDEP).

Results

Nutrients

The State of Florida uses Numeric Nutrient Criteria (NNC) to evaluate nutrients in waterbodies. NNC thresholds are set based on waterbody-specific characteristics and are used to determine if a waterbody meets water quality standards. The results of the four quarterly samples from a single year are used to calculate the annual geometric mean. According to FDEP requirements, the NNC threshold cannot be exceeded more than once in a three-year period.

Water quality results and thresholds are found in **Table 1**. There have been no exceedances in the in NNC over the sampling period.

Table 1. NNC thresholds and sample results for Polk Creek, Station 38.

38	TN Threshold (1.03 mg/L)	TP Threshold (0.18 mg/L)
Year		
2007	0.44	0.02
2008	0.42	0.03
2009	0.22	0.04
2010	0.48	0.04
2011*	-	-
2012	0.46	0.04
2013	0.78	0.04
2014	0.54	0.04
2015	0.48	0.06
2016	0.56	0.05
2017	0.73	0.05
2018	0.63	0.05
2019	0.43	0.08
2020	0.54	0.06
2021	0.44	0.05
2022	0.44	0.05
2023	0.53	0.05

*Due to low water levels, the NNC data requirements were not met and could not be calculated for 2011.

Table 1. NNC thresholds and sample results for Polk Creek Station, PK1.

PK1	TN Threshold (1.03 mg/L)	TP Threshold (0.18 mg/L)
Year		
2022	0.47	0.03
2023	0.55	0.04

Escherichia coli (*E. coli*)

E. coli levels exceeded the Class III water quality standard several times over the sampling period. Since the watershed is relatively undeveloped, it was thought that elevated bacteria levels could be the result of wildlife in the area. FDEP, through their own sampling, have determined that anthropogenic sources have been identified using genetic marker and tracer data. To better track potential sources of *E. coli*, Leon County added an additional water quality station to the watershed in 2021 (**Figure 2**). The latest *E. coli*

exceedances were noted during the 1st and 3rd quarters of 2023 at station 38 (**Figure 3**).

Other Parameters

Other water quality parameters appear to be normal for the area and no other impairments were noted.

Conclusions

E. coli exceedances continue to be a problem at both stations. Nutrient thresholds were met for the Big Bend Bioregion. Other water quality parameters appear to be normal.

Thank you for your interest in maintaining the quality of Leon County’s water resources. Please feel free to contact us if you have any questions.

Contact and Resources for More Information

www.LeonCountyWater.org

[Click here to access the results for all water quality stations sampled in 2023.](#)

[Click here for a map of the watershed – Sample Sites 38 and PK1.](#)

Johnny Richardson, Water Resource Scientist
(850) 606-1500
Richardsonjo@leoncountyfl.gov

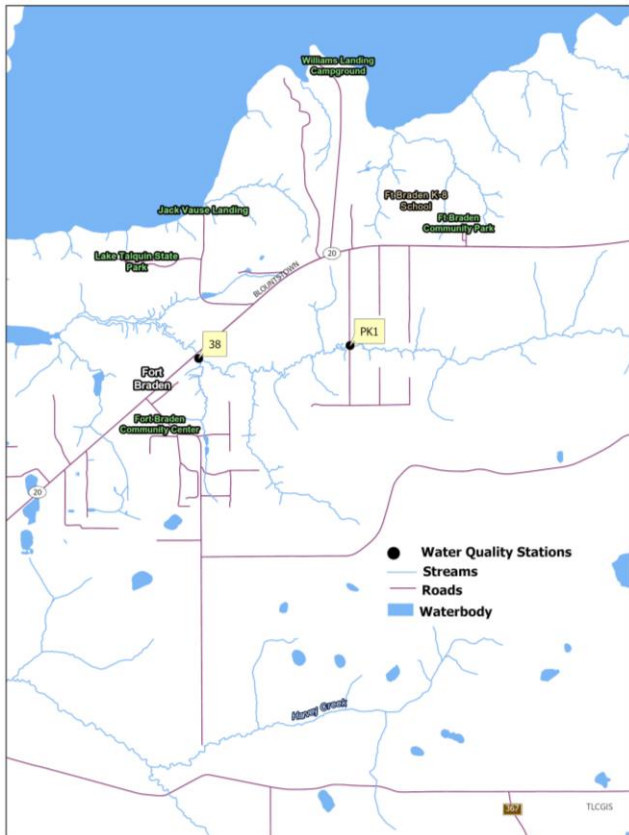


Figure 2. Locations of the Water Quality Station 38 and the newly established PK1 on Polk Creek.

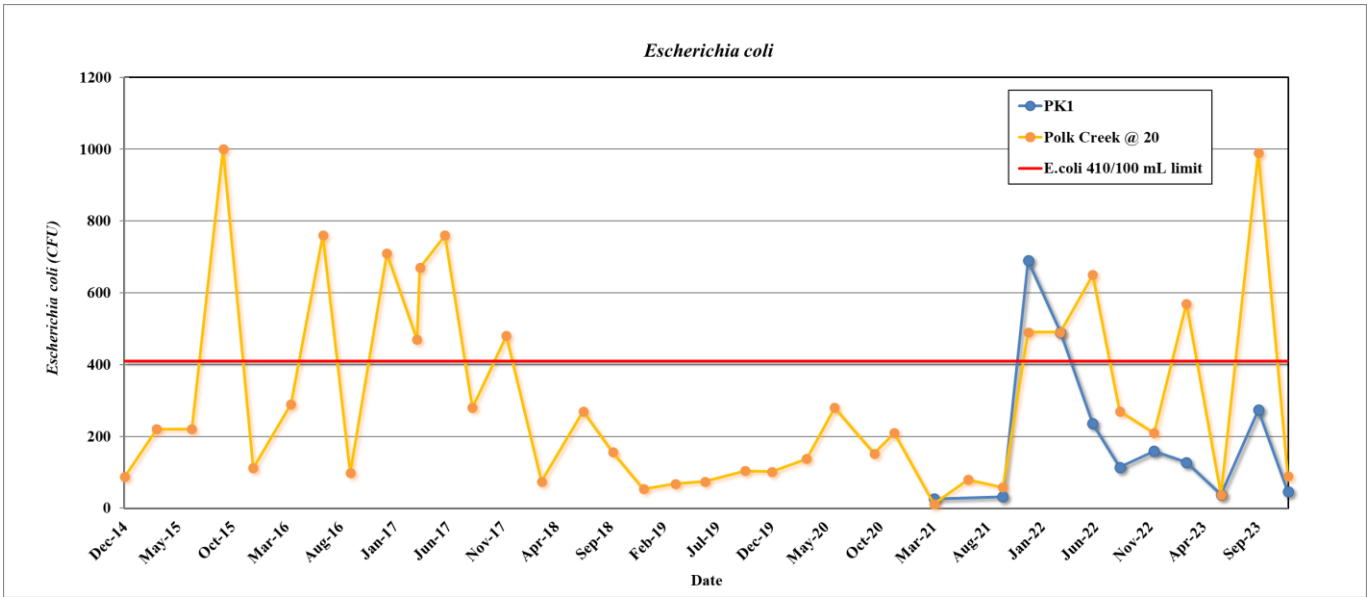


Figure 3. *E. coli* levels for Polk Creek.