

Panther Creek EcoSummary



Panther Creek is a tannic, nitrogen-limited stream that flows southeast and eventually drains into Lake Miccosukee.

Approximately 24% of land use in the 3,374-acre Panther Creek watershed is agricultural, rangeland, transportation, utilities or residential/urban (as shown in **Figure 1**). These types of land uses are often attributed to increases in stormwater runoff and higher nutrient loads.

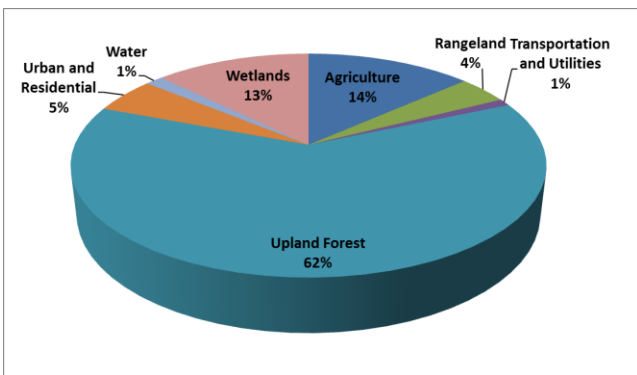


Figure 1. Panther Creek watershed land use.

Background

Healthy, well-balanced lake communities may stay that way 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 Leon County waterbodies 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.

Due to low water conditions, four temporally independent samples per year have only been collected in years 2009, 2013, 2021 and 2023. When criteria were met, results showed that Panther Creek met FDEP's NNC criteria. For illustrative purposes, individual data points were plotted to determine any possible trends (**Figures**

2 and 3). With few exceptions, individual values did not exceed the instream criteria for Total Phosphorus or Total Nitrogen.

Escherichia coli (E. coli)

The *E. coli* water quality limit of > 410 in 10% of samples collected over a thirty-day period was exceeded with the latest (and highest) exceedance occurring during the January 2022 sampling event (**Figure 4**). Since the watershed is relatively undeveloped, elevated *E. coli* levels are probably the result of wildlife in the area.

Other Parameters

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

Conclusions

Based on ongoing sampling, Panther Creek met the nutrient thresholds for the East Panhandle Region. The *E. coli* water quality limits were exceeded several times. Since the watershed is relatively undeveloped, elevated *E. coli* levels are probably the result of wildlife in the area. Other water quality parameters appear to be normal for the area and no impairments were noted.

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 Site 12.](#)

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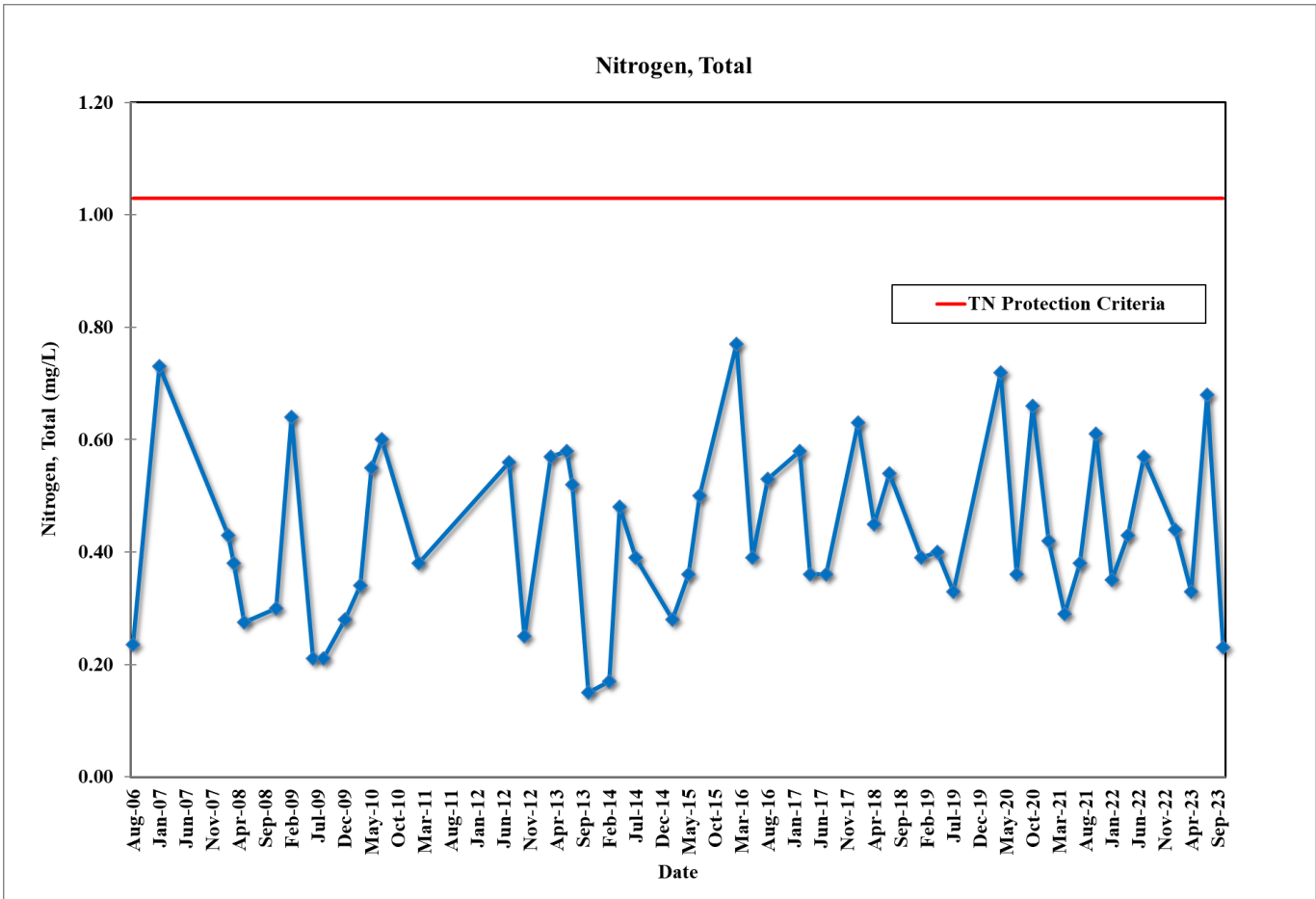


Figure 2. Total Nitrogen results for Panther Creek.

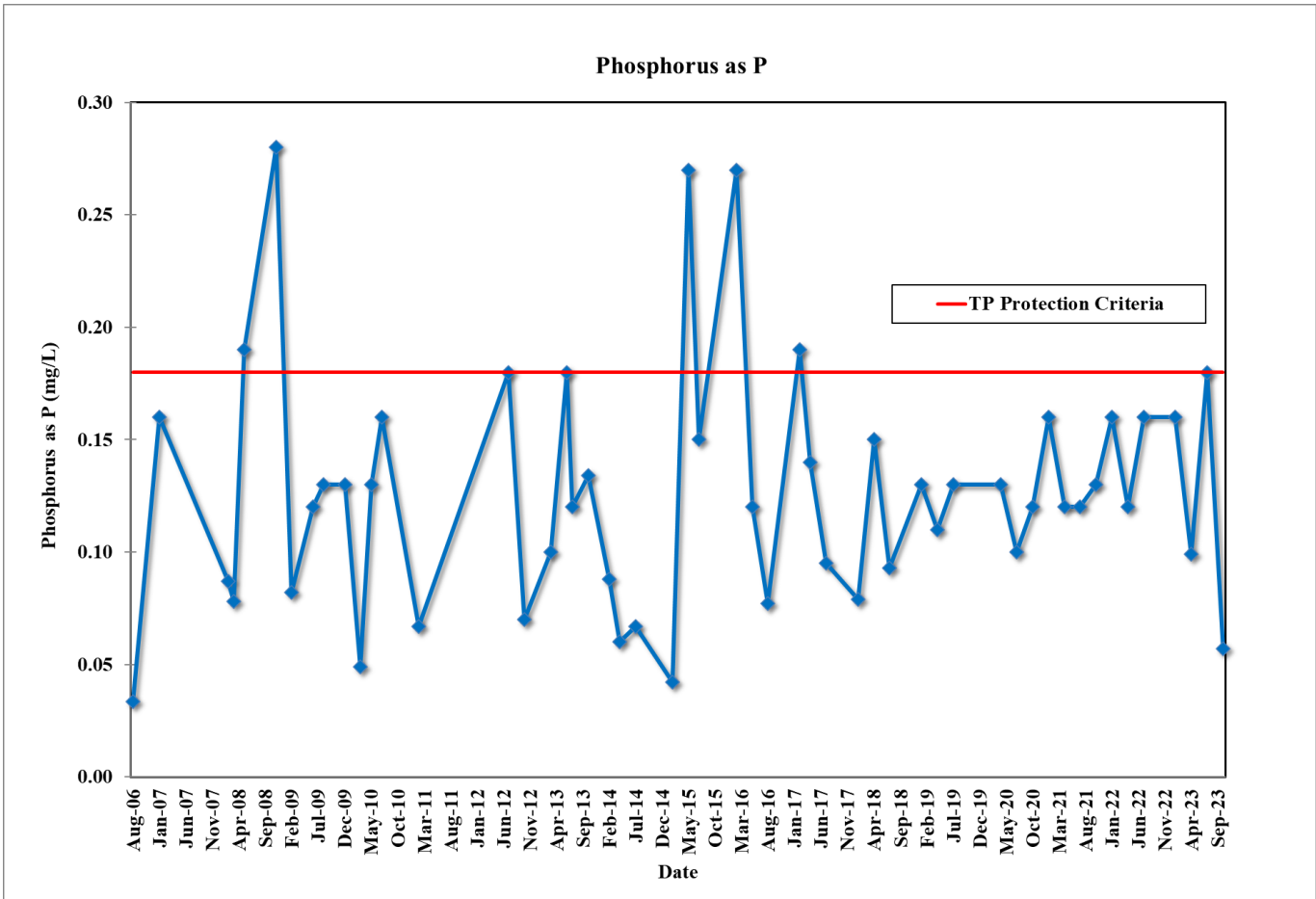


Figure 3. Total Phosphorus results for Panther Creek.

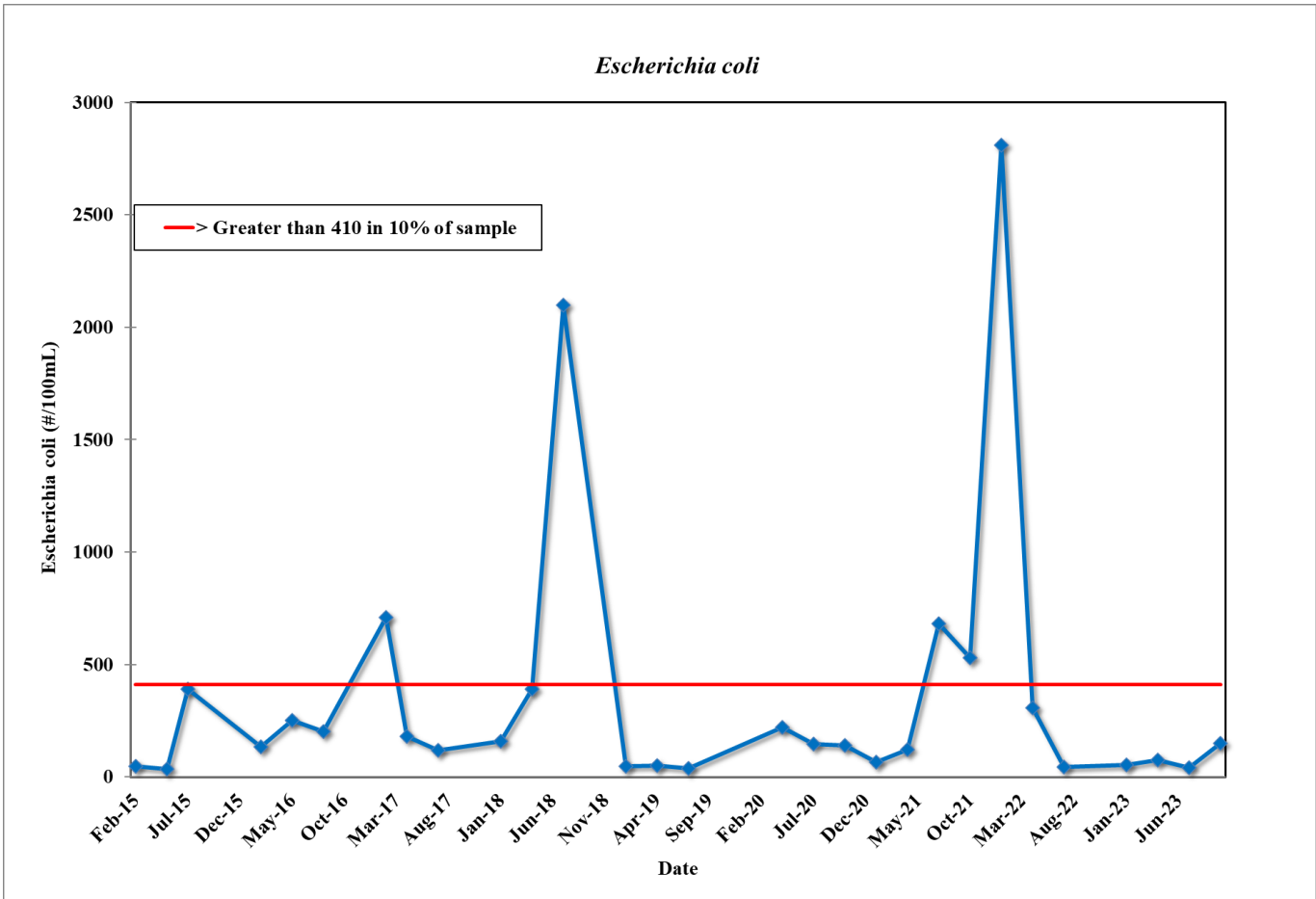


Figure 4. *E. coli* results for Panther Creek.