

Summer Creek EcoSummary



Summer Creek is a slightly tannic stream located in northwestern Leon County and discharges to Lake Carr.

Approximately 69% of land use in the 103-acre watershed is urban, residential, transportation and utilities (as shown in **Figure 1**). These types of land uses are often attributed to increases in stormwater runoff and higher nutrient loads.

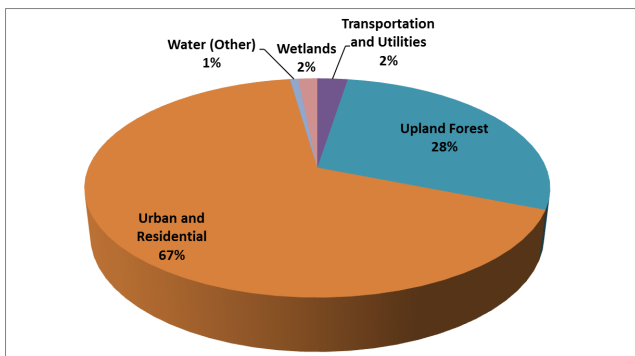


Figure 1. Summer Creek watershed land use.

Background

Healthy, well-balanced lake 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, 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 were collected quarterly. 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

According to FDEP requirements, Numeric Nutrient Criteria (NNC) (expressed as an annual geometric mean) cannot be exceeded more than once in a three-year period. Due to low water conditions at Station 22, FDEP data requirements for the NNC could not be met in 2007 and 2010 through 2017 (**Table 1**). The 2008 and 2009 results showed that the NNC thresholds were not exceeded. Because of persistent low water/dry conditions, staff eliminated this sampling station in the 3rd quarter of 2017 and established Station SB2 further downstream. Based on two samples (in 2017), the geometric mean of Total Nitrogen (0.29 mg/L) and Phosphorus (0.05 mg/L) at Station SB2 were below the NNC values. The 2018-2022 FDEP data requirements for the NNC were met and results demonstrated that NNC thresholds were not exceeded for Station SB2.

Dissolved Oxygen (DO)

As **Figure 2** shows, Summer Creek did not always meet the Class III criteria for DO. Staff

believes the low DO in Summer Creek is due to upstream wetlands and the naturally low gradient, low flow condition of the creek.

Table 1. NNC thresholds and sample results for Summer Creek.

Summer Creek	TN Threshold 1.03 mg/L	TP Threshold 0.18 mg/L
2007*	-	-
2008	0.37	0.02
2009	0.20	0.03
2010-2017*	-	-
2018	0.36	0.07
2019	0.38	0.07
2020	0.26	0.08
2021	0.22	0.07
2022	0.28	0.06

* Due to low water conditions, staff could not collect the appropriate number of samples and thus could not determine the NNC for the noted years.

Low DO is typical of these conditions. The recently established Station SB2 is more characteristic of a typical north Florida perennial stream and met Class III criteria in 2017 and 2018, though it did not meet the criteria in the latter half of 2019 and 2020.

Escherichia coli (E. coli)

The *E. coli* water quality limit of > 410 in 10% of samples collected over a thirty-day period was exceeded at Station SB2 during the September 2017 sampling event (1,000 cfu). Elevated

bacteria levels could be the result of beaver activity or other wildlife in the area.

Conclusions

When sampling requirements were met, Summer Creek met the nutrient thresholds for the East Panhandle Region. Dissolved oxygen criteria were seldom met during the sampling period. The stream is a low gradient, low flow system that drains a wetland, so these results are not unexpected.

Other water quality parameters appear to be normal for the area and no other 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 2022.](#)

[Click here for a map of the watershed – Sample Sites 22 and SB2.](#)

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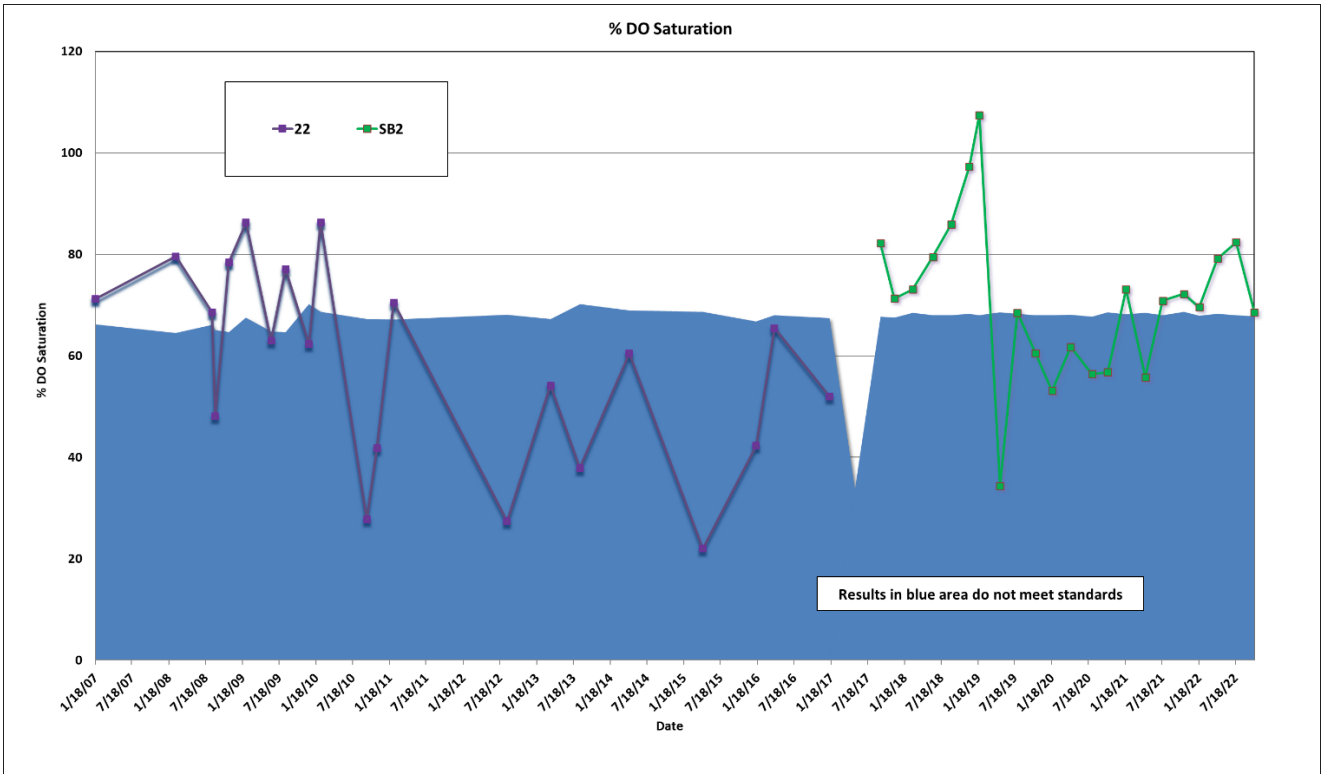


Figure 2. Dissolved Oxygen Percent Saturation results for Summer Creek.