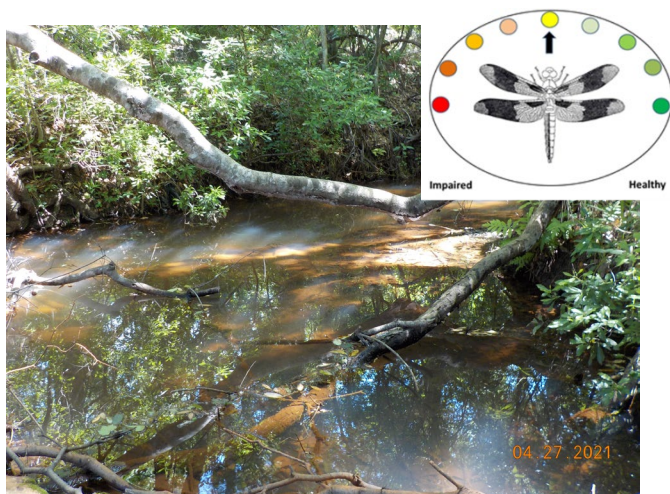


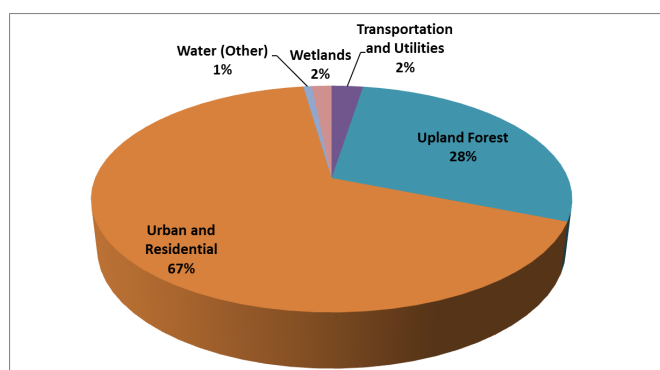
## Waterbody: Summer Creek



## Basin: Lake Jackson

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

As shown in the figure below, approximately 69% of land use in the 103-acre watershed is urban, residential, transportation and utilities. Increases in stormwater runoff and waterbody nutrient loads can often be attributed to these types of land uses.



### 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, adverse hydrologic alterations, undesirable removal of habitat

or riparian buffer vegetation, and introduction of exotic plants and animals. 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 to determine the health of Summer Creek and met 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 3<sup>rd</sup> 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 2018-2021 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 1 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.** FDEP's total nitrogen and phosphorus criteria for streams applied to Summer Creek. Station SB2 was established during the third quarter of 2017. 2018 is the first calendar year that four samples were collected at SB2.

Summer Creek	Total Nitrogen Threshold 1.03 mg/L	Total Phosphorus 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

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 stream that drains a wetland, so these results are not unexpected. The lone *E. coli* water quality limit exceedance was during the Sep-

tember 2017 sampling event. Elevated bacteria levels could be the result of beaver activity or other wildlife in the area.

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.

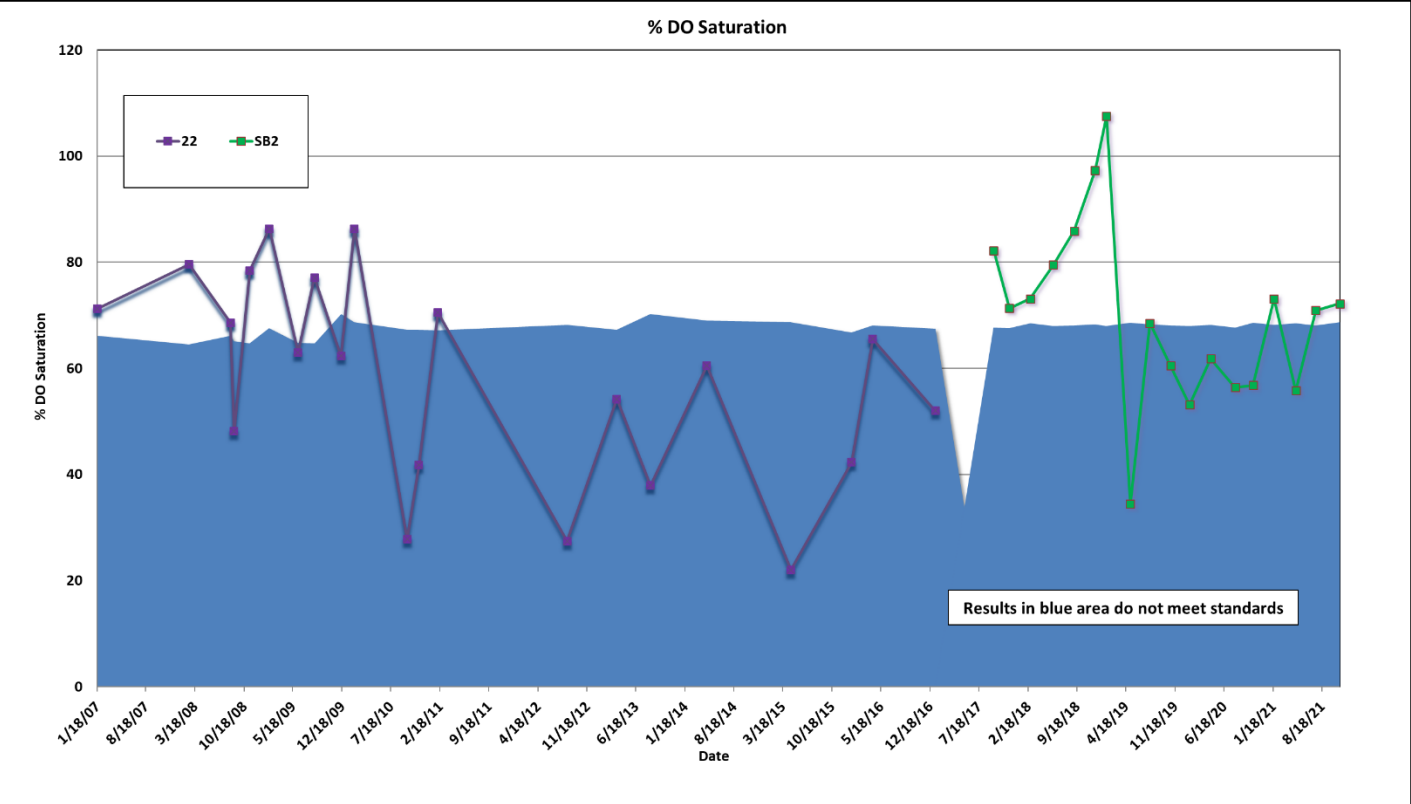
#### Contact and resources for more information

[www.LeonCountyWater.org](http://www.LeonCountyWater.org)

[Click here to access the results for all water quality stations sampled in 2021.](#)

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

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**Figure 1.** Dissolved Oxygen Percent Saturation results for Summer Creek.