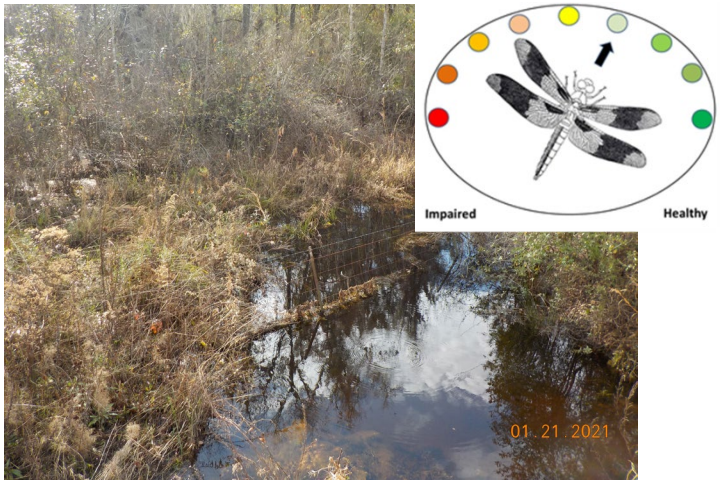
Waterbody: Plantation Stream



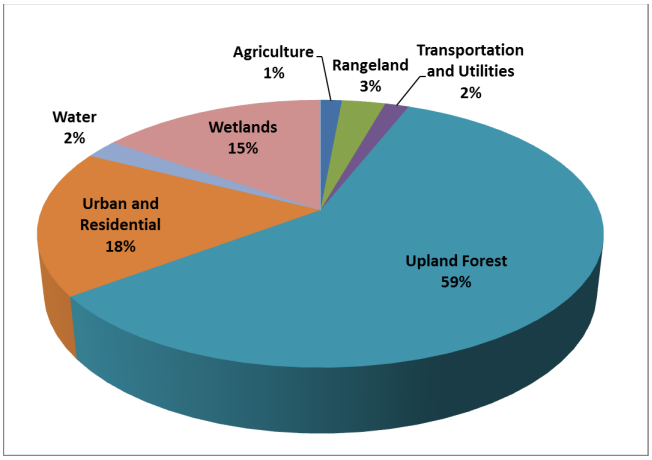
Basin: Lake Iamonia

Plantation Stream discharges from the Centerville watershed, essentially bounded by Proctor Road and Pisgah Church Road at Centerville Road, continuing west under Thomasville Road, before discharging into Lake Iamonia. The Centerville Conservation Community and Baker Place Subdivisions are located within the watershed. Most of the waterbodies are former farm ponds that were used for dairy and other agricultural practices.

While the following pie chart shows the majority of the 3,996-acre watershed is relatively undeveloped, agriculture, rangeland, transportation, utilities, and urban and residential uses make up approximately 24% of the watershed. 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 sampling was conducted to determine the health of Plantation Stream and met the requirements of the Florida Department of Environmental Protection (FDEP).

Results

Nutrients

The nutrient thresholds and results are found in Table 1. 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 and beaver activity, four temporally independent samples per year have not been collected from this station since 2011. During years which met the minimum number of sampling events required to apply NNC, the state criteria were not exceeded for either parameter. For illustrative purposes, individual data points were plotted to determine any possible trends (Figures 1 and 2). With few exceptions, individual values did not exceed the instream criteria for total phosphorus or total nitrogen.

Table 1. FDEP's total nitrogen and phosphorus criteria for streams applied to Plantation Stream. The absence of data means there was not enough data collected to fulfill data requirements.

Plantation Creek	Total Nitrogen Threshold 1.03 mg/L	Total Phosphorus Threshold 0.18 mg/L
2006- 2007	-	-
2008	0.73	0.09
2009	0.21	0.07
2010	0.61	0.07
2011-2021	-	-

Dissolved Oxygen (DO)

As Figure 3 shows, Plantation Stream has seldom met the Class III criteria for DO. This is the result of normally low dissolved oxygen in low gradient, low flow systems like this stream. Another contributing source of naturally low oxygenated water to this stream is input from a nearby wetland.

Escherichia coli (E. coli)

The *E. coli* water quality limit > 410 in 10% of samples collected over a thirty-day period was exceeded for the 3rd (830/100 mL) quarter of 2016. The elevated *E. coli* levels could possibly be the result of wildlife or faulty septic tanks in the area. The *E. coli* level has not exceeded water quality standards since 2016.

Other Parameters

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

Conclusions

Due to low water conditions and beaver activity, four temporally independent samples per year have not been collected from this station since 2011. Based on the samples collected, Plantation Stream appeared to meet the nutrient thresholds for the Big Bend Bioregion. While DO results did not always meet Class III water quality standards, low gradient low flow streams normally have low DO values which, in this case, were further exacerbated by input from the adjacent wetland. The *E. coli* water quality limit has not been exceeded since 2016. 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 2021.

Click here for a map of the watershed – Sample Site 20.

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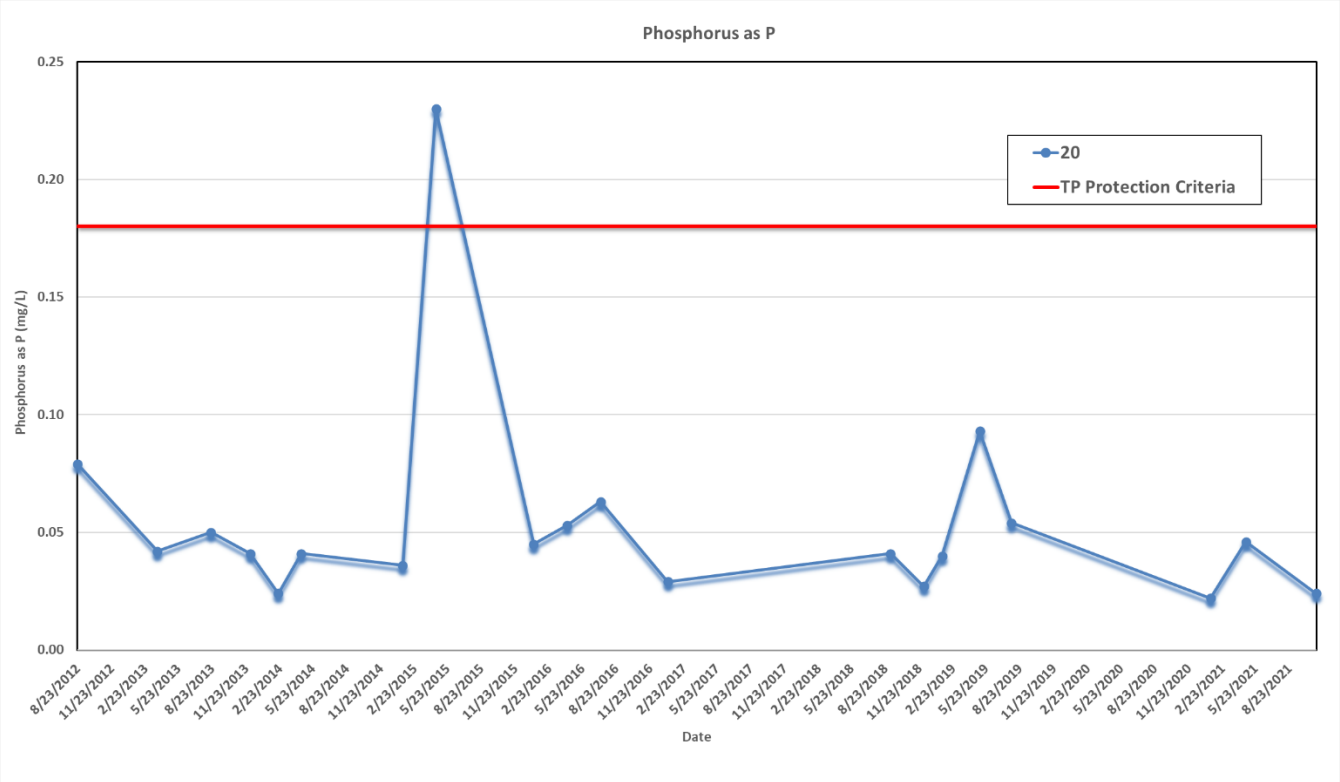

Figure 1. Total phosphorus results for Plantation Stream.

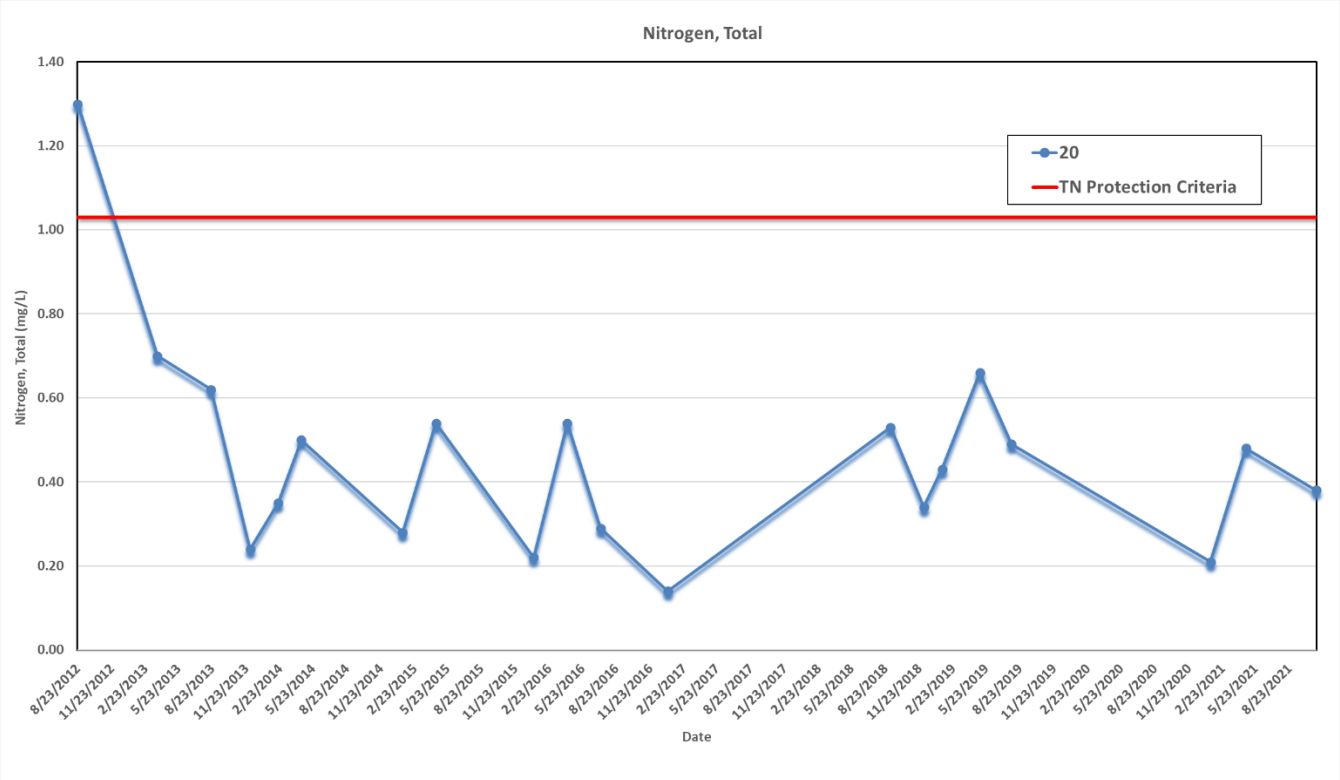

Figure 2. Total nitrogen results for Plantation Stream.

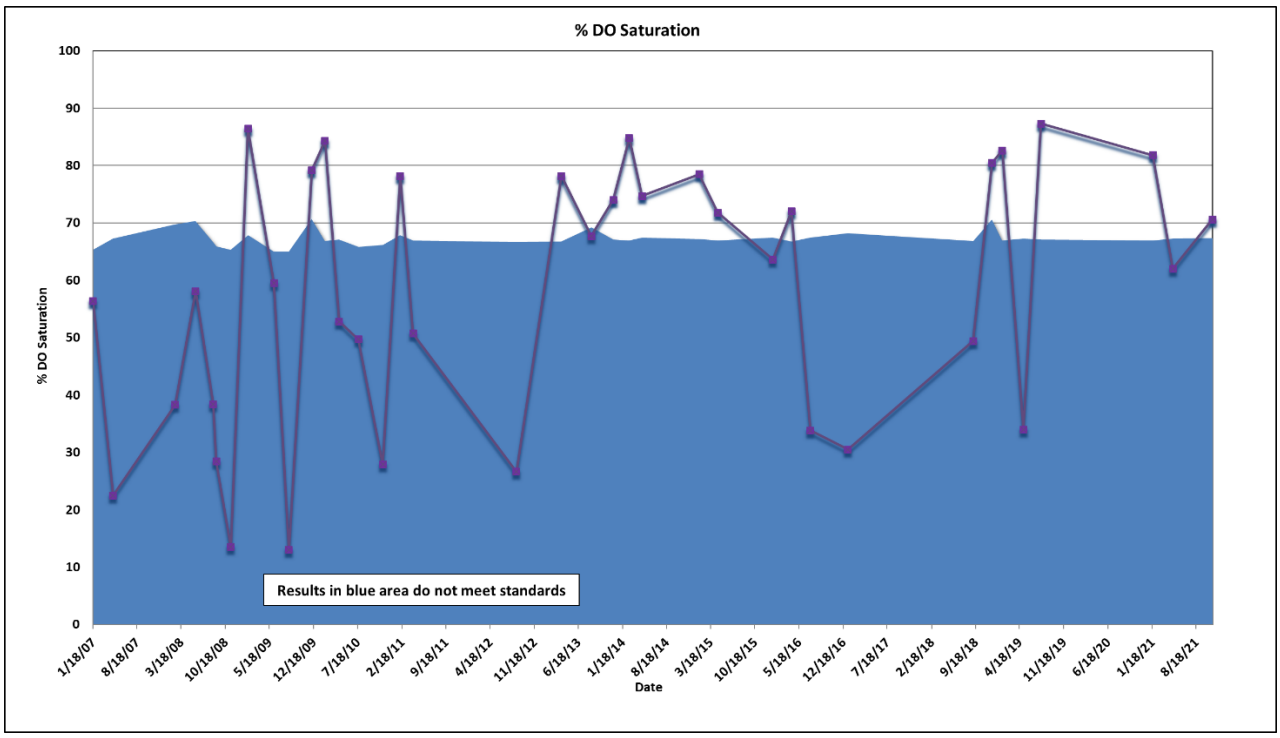

Figure 3. Dissolved Oxygen Percent Saturation results for Plantation Stream.