

Waterbody: Soapstone Creek



Basin: Ochlockonee River

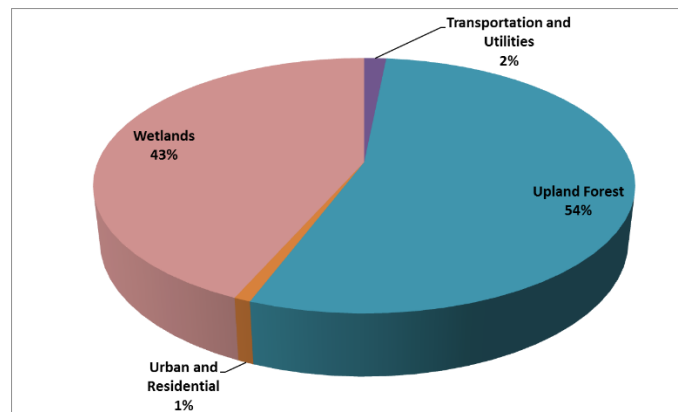
Soapstone Creek is a minimally disturbed, phosphorus-limited stream located in southwestern Leon County. The stream flows west, eventually reaching the Ochlockonee River downstream of Lake Talquin.

Soapstone Creek is aptly named due to its tendency to have foam form on the water's surface giving it a "soap sudsy" appearance. While foam is sometimes associated with pollution, it naturally forms under certain conditions. In this case, foam is naturally formed when water surface tension is reduced as natural oils and organic compounds (i.e., tannins) are released into the water from the surrounding wooded and boggy areas and float to the surface. Turbulence introduces air into the water forming foam.

The culvert associated with the bridge spanning the creek at County Road 375 frequently prevents the creek from flowing during low water conditions, preventing staff from sampling. Due to low water conditions, staff was only able to collect water quality samples intermittently throughout the sampling period.

While the following pie chart shows the majority of the 4,025-acre watershed is relatively undeveloped, urban and residential, utilities and transportation land uses make up approximately 3% of the water-

shed. 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 Soapstone 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. The nutrient thresholds and re-

sults are found in Table 1. Due to low water conditions, four temporally independent samples per year could not be collected from this station for several years (2011-2014 and 2016-2020). The State criteria were not exceeded for either parameter in the samples obtained. 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 nitrogen and never exceeded the criteria for total phosphorus.

Table 1. FDEP's total nitrogen and phosphorus criteria for streams applied to Soapstone Creek.

Soapstone Creek	Total Nitrogen Threshold 1.03 mg/L	Total Phosphorus Threshold 0.18 mg/L
2008	0.64	0.01
2009	0.50	0.00
2010	0.51	0.01
2011- 2014	-	-
2015	0.60	0.01
2016-2021	-	-

Dissolved Oxygen

As Figure 1 shows, Soapstone Creek occasionally did not meet the Class III criteria for dissolved oxygen (DO). Staff believes that this is a natural condition for this location, since the creek is a low gradient black-water stream that drains wetlands.

Metals

Soapstone Creek's lead levels exceeded Class III water quality criteria during the 3rd quarter of 2021. Relict anthropogenic sources such as leaded gasoline are most likely the cause of the elevated levels of lead in these systems.

[Click here for more information on metal levels in Leon County waterbodies.](#)

Escherichia coli (E. coli)

The *E. coli* water quality limit of > 10% threshold value of 410 in 10% or more of samples in a 30-day period was exceeded during the March 2018 sampling event (630/100 mL). Since the watershed is relatively undeveloped, elevated bacteria 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, Soapstone Creek met the nutrient thresholds for the East Panhandle Region. As a result of low flow, the Class III criterion for dissolved oxygen was not always met during the sampling period. *E. coli* levels exceeded Class III water quality standard daily limits during the 1st quarter 2018 sampling event. Lead levels exceeded Class III water quality criteria during the 3rd quarter in 2021. Relict anthropogenic sources such as leaded gasoline are most likely the cause of the elevated levels of lead.

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 Soapstone.](#)

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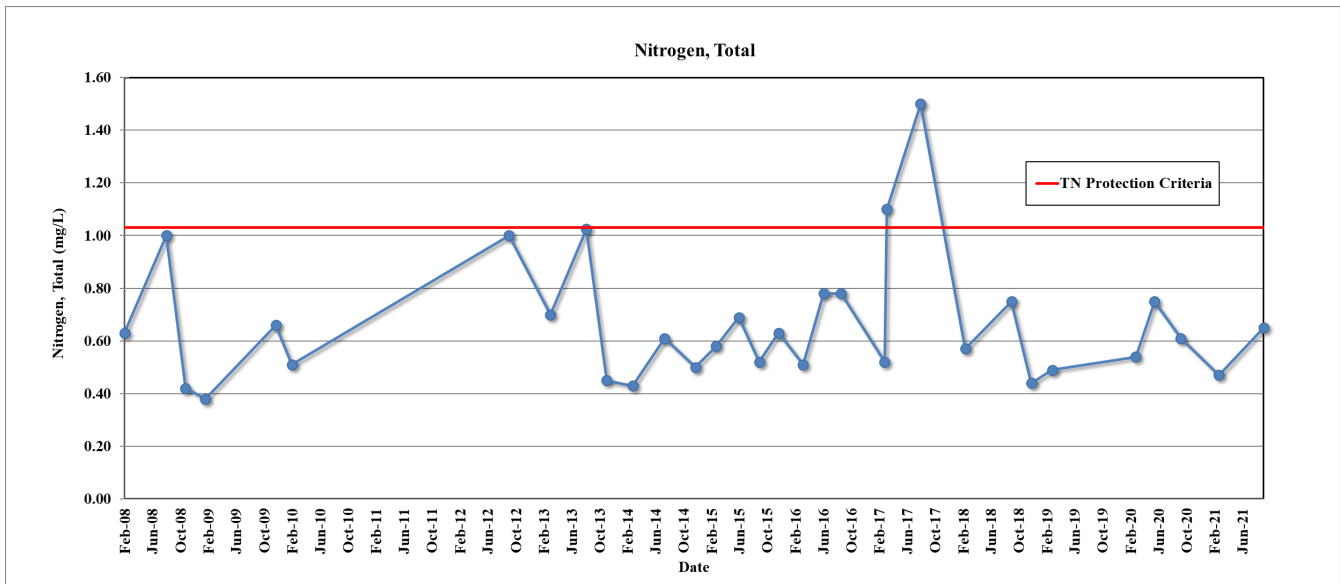


Figure 1. Total nitrogen results for Soapstone Creek.

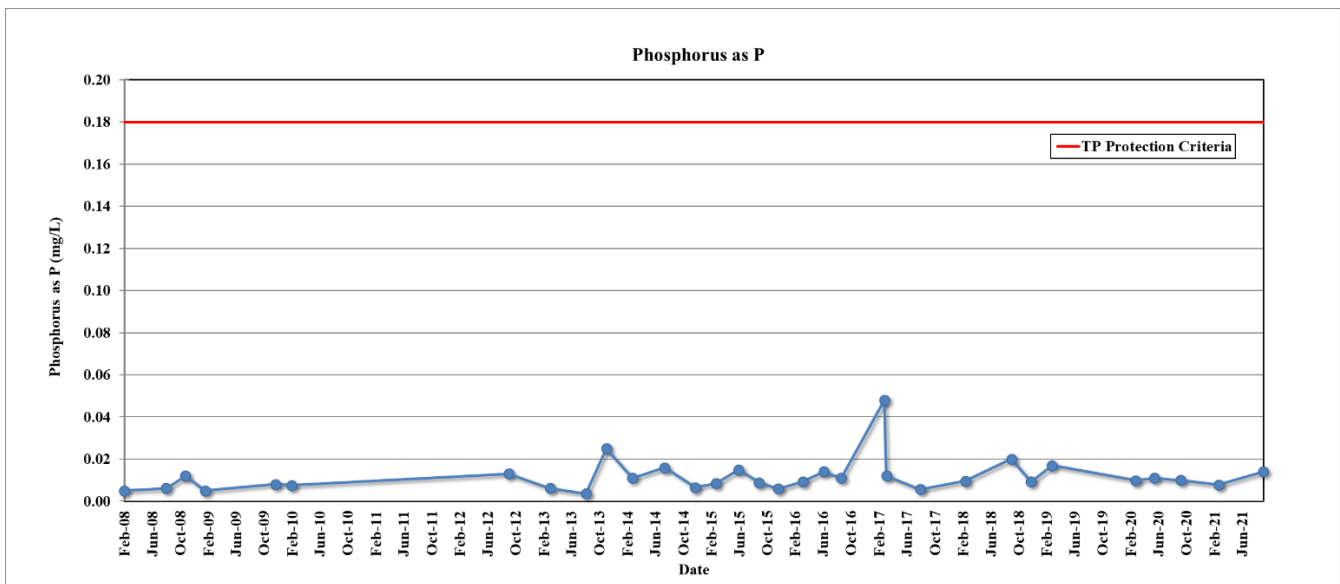


Figure 2. Total phosphorus results for Soapstone Creek.

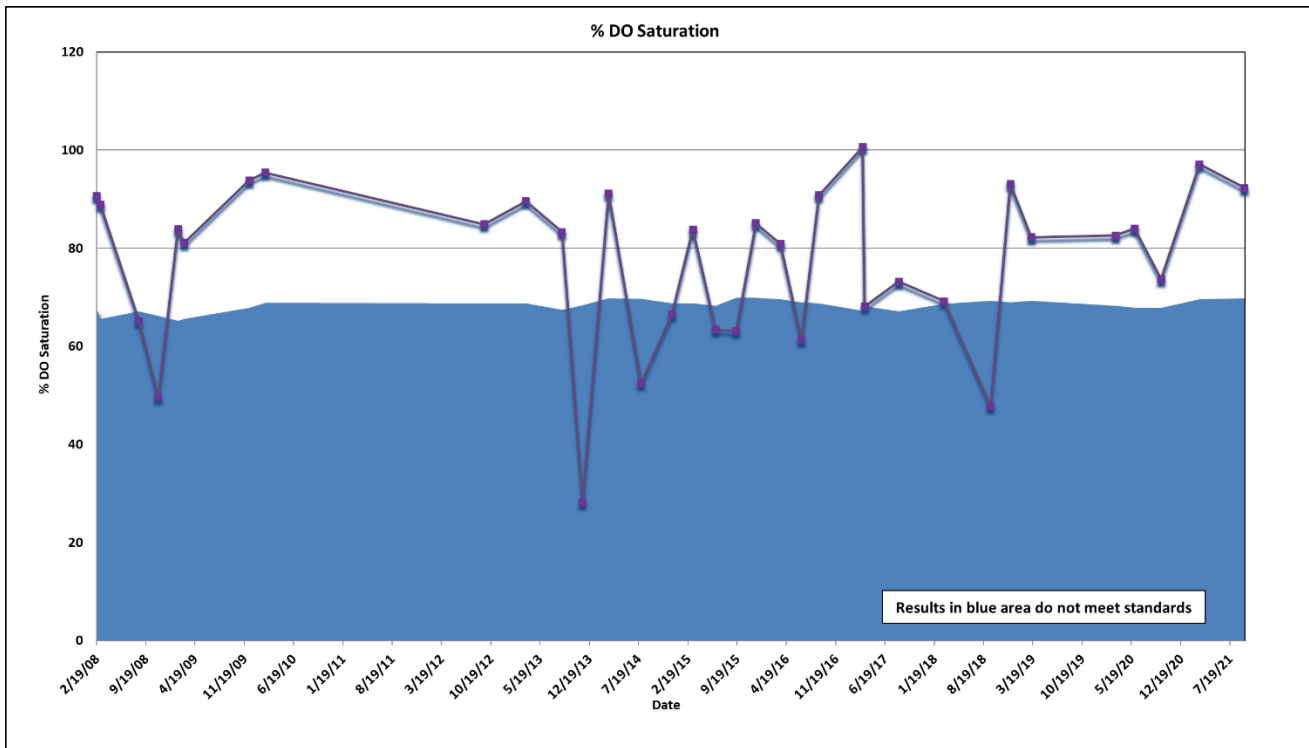


Figure 3. Dissolved Oxygen Percent Saturation results for Soapstone Creek.