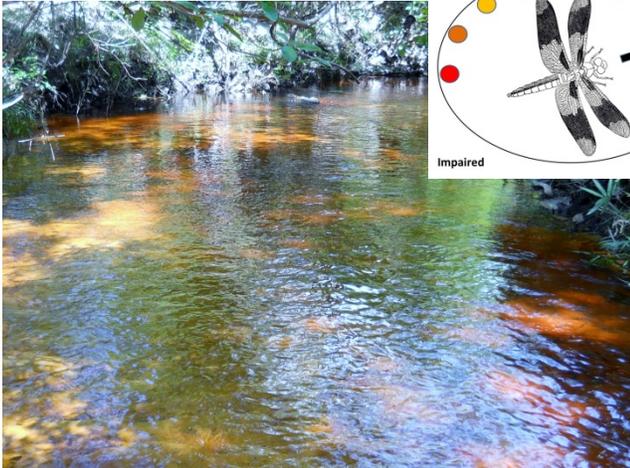


## Waterbody: Polk Creek



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 Polk Creek and met the collection and analysis requirements of Florida Department of Environmental Protection (FDEP).

### Results

#### Nutrients

According to FDEP requirements, Numeric Nutrient Criteria for phosphorus and nitrogen (expressed as an annual geometric mean) cannot be exceeded more than once in a three year period. The nutrient thresholds and results are found in Table 1. The State criteria were not exceeded for either parameter.

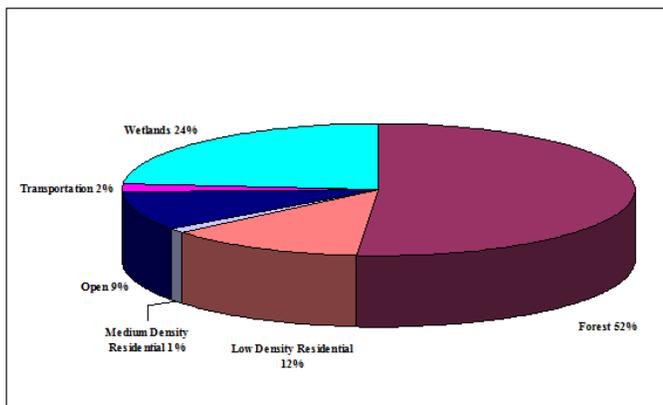
**Table 1.** FDEP's total nitrogen and phosphorus criteria for streams applied to Polk Creek. Due to low water levels, the numeric nutrient criteria data requirements could not be calculated for 2011.

Polk Creek	Total Nitrogen Threshold 1.03 mg/L	Total Phosphorus Threshold 0.18 mg/L
2007	0.44	0.02
2008	0.42	0.03
2009	0.22	0.04
2010	0.48	0.04
2011	-	-

## Basin: Ochlockonee River

Polk Creek is a minimally disturbed, slightly tannic stream located in western Leon County. The stream flows west, eventually reaching Lake Talquin.

As the following pie chart shows, residential and transportation uses make up approximately 15% of the 5,595 acre watershed. Increases in stormwater runoff and waterbody nutrient loads can often be attributed to this type of land use.



### 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

Polk Creek	Total Nitrogen Threshold 1.03 mg/L	Total Phosphorus Threshold 0.18 mg/L
2012	0.46	0.04
2013	0.78	0.04
2014	0.54	0.04
2015	0.48	0.06

During the 2<sup>nd</sup> quarter of 2015 sampling event, phosphorus (0.13 mg/L) and nitrogen (0.74 mg/L) levels were elevated when compared to average results (0.07 and 0.50 mg/L, respectively). Rainfall in the area preceding 2<sup>nd</sup> quarter sampling probably contributed to runoff containing elevated levels of nutrients.

#### *Fecal Coliforms and Escherichia coli (E. coli)*

Polk Creek has a history of fecal coliform levels exceeding the Class III water quality standard (400/100 mL in at least 10% of the samples). Recently, *E. coli* standards supplanted fecal coliform standards in Florida. The recently adopted *E. coli* water quality limit of > 126 in 10% of samples collected over a 30 day period was exceeded for the first three quarters of 2015 (Figure 1). Since the watershed is relatively undeveloped, elevated *E. coli* levels are probably the result of wildlife in the area.

#### *Metals*

Polk Creek lead levels exceeded Class III water quality criteria during the 2<sup>nd</sup> quarter of 2015. Rainfall in the area preceding 2<sup>nd</sup> quarter sampling and the natural soil characteristics of these watersheds probably caused relict lead to migrate through the soil leaching into the surface waters. These surface waters are more susceptible to even low levels of lead due to lead's bioavailability at the stream's normally low pH levels. [Click here for more information on metal levels in Leon County waterbodies.](#)

#### *Other Parameters*

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

#### **Conclusions**

Based on ongoing sampling, Polk Creek met the nutrient thresholds for the Big Bend Bioregion. Lead levels exceeded Class III water quality criteria during the 2<sup>nd</sup> quarter of 2015. The recently adopted *E. coli* water quality limit was exceeded for the first three quarters of 2015. Since the watershed is relatively undeveloped, lead levels are probably the result of recent rainfall prior to the sampling event, and elevated coliform levels are probably the result of wildlife in the area. Other water quality parameters appear to be normal.

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.LeonCountyFL.gov/WaterResources](http://www.LeonCountyFL.gov/WaterResources)

[Click here to access the results for all water quality stations sampled in 2015.](#)

[Click here for map of watershed – Sample site 38.](#)

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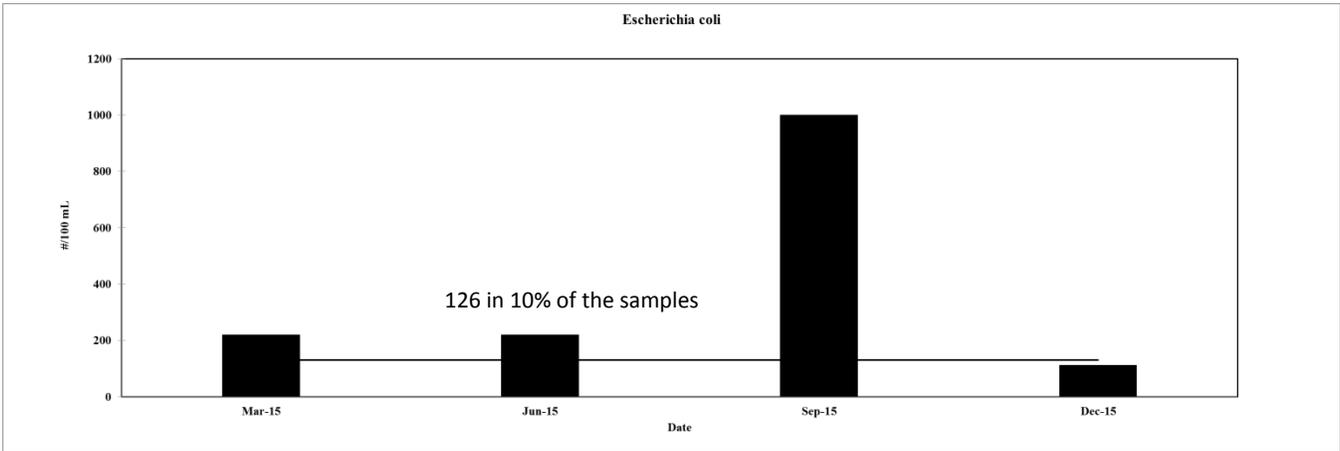


Figure 1. *E. coli* levels (2015) for Polk Creek.