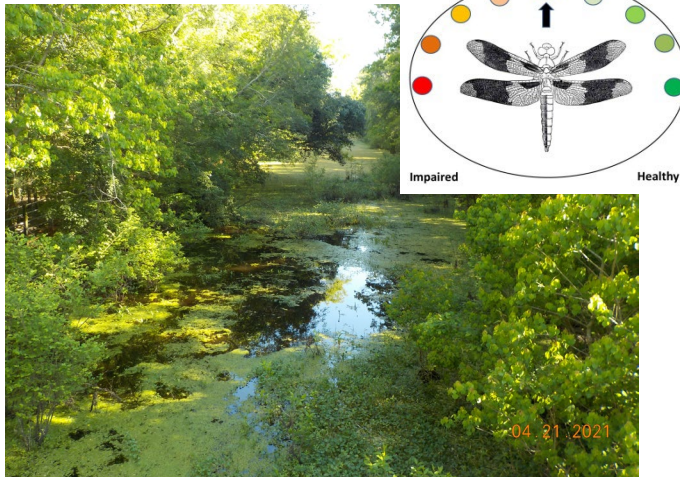


Waterbody: Alford Arm Creek



Basin: Lake Lafayette

The Alford Arm tributary is a moderately altered, nitrogen-limited stream located in the northern part of Leon County. The tributary flows from Lake McBride in the Bradfordville area and receives runoff from the heavily developed Killearn Estates and Killearn Acres neighborhoods. Many of the waterbodies within these neighborhoods are former agricultural ponds, most notably the Velda Dairy impoundments that are now seen as residential amenities.

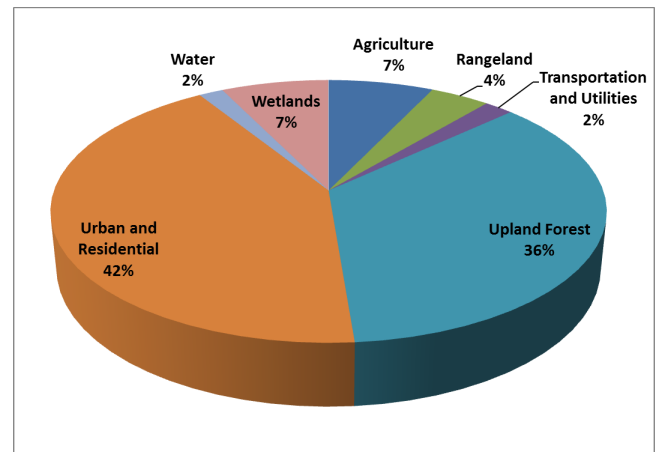
As shown in the following pie chart, approximately 55% of land use in the 26,913-acre watershed is agriculture, rangeland, transportation, utilities, urban and residential. Increases in stormwater runoff and waterbody nutrient loads can often be attributed to these types of land uses.

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.



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 sampling was conducted to determine the health of Alford Arm Creek and met the collection and analysis requirements of the Florida Department of Environmental Protection (FDEP).

Results

According to FDEP requirements, Numeric Nutrient Criteria (NNC) (expressed as annual geometric mean) cannot be exceeded more than once in a three-year period. Due to low water and back flow conditions, four temporally independent samples per year have never been collected from this station, with no samples being collected in 2020 or 2021. 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 or total phosphorus.

Dissolved Oxygen

As Figure 3 shows, Alford Arm Creek did not always meet the Class III criteria for % dissolved oxygen

(DO) saturation. This is not surprising since low gradient, low flow streams often have low DO levels.

Vegetation

Several species of invasive exotic plants are in the water and line the bank of the tributary including tallow tree (*Sapium sebiferum*) and privet (*Ligustrum* sp.). In many cases, exotic plants will crowd out and replace native plants. This may stress native wildlife, which have evolved to depend on native plants for food and shelter. The native wildlife may move away or perish if the native vegetation is replaced by exotic plants.

[Click here for more information on common exotic and invasive plants in Leon County wetlands and waterbodies.](#)

Other Parameters

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

Conclusions

Past sampling showed that Alford Arm nutrient levels appear, in most cases, to meet the nutrient thresholds for the East Panhandle Region. Over the sampling period, the Class III criterion for % DO saturation was not always met. This is not a surprising result in this low gradient, low flow stream. Several species of invasive exotic plants are in and around the tributary.

Thank you for your interest in maintaining the water quality of Leon County's aquatic 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 1](#)

Johnny Richardson, Water Resource Scientist
(850) 606-1500
Richardsonjo@leoncountyfl.gov

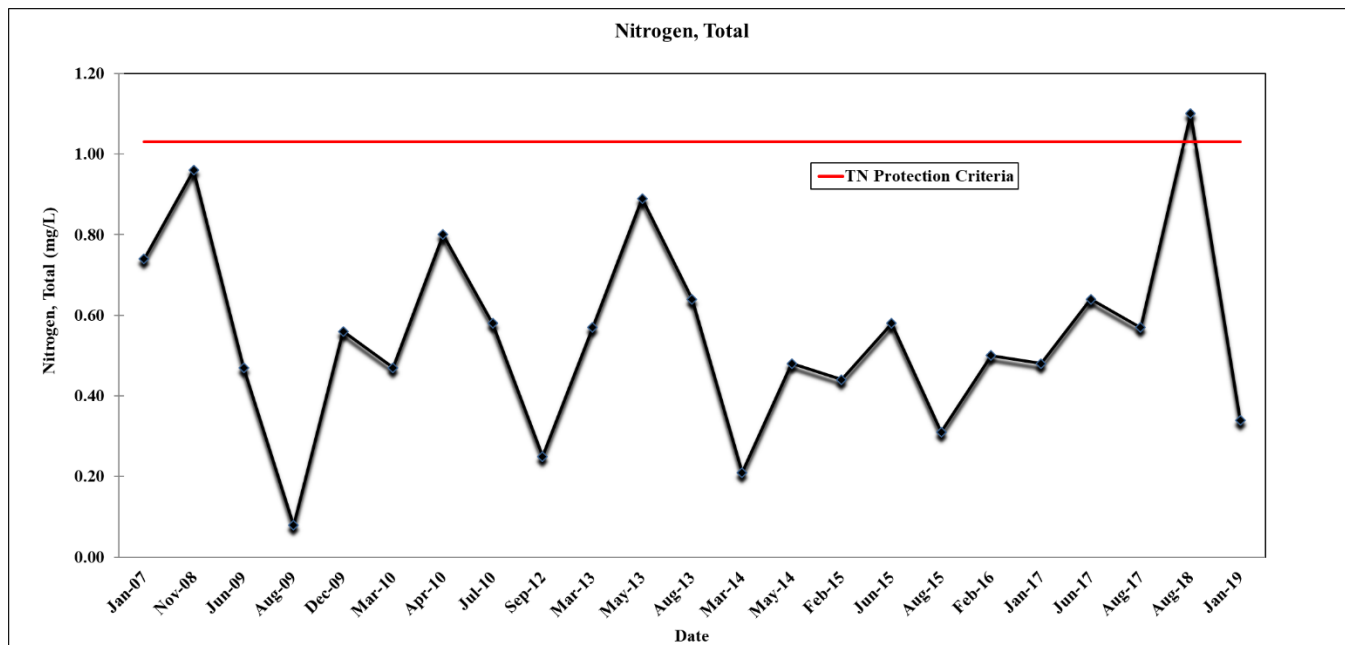


Figure 1. Total nitrogen results for Alford Arm Creek.

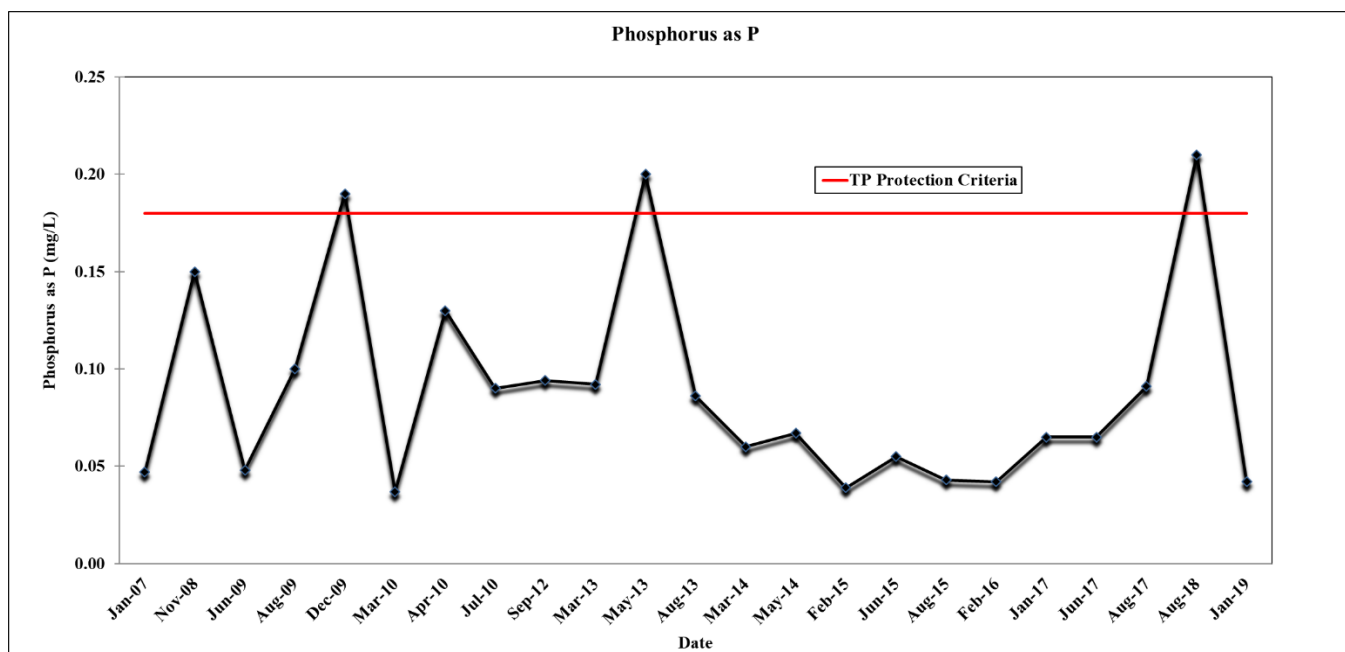


Figure 2. Total phosphorus results for Alford Arm Creek.

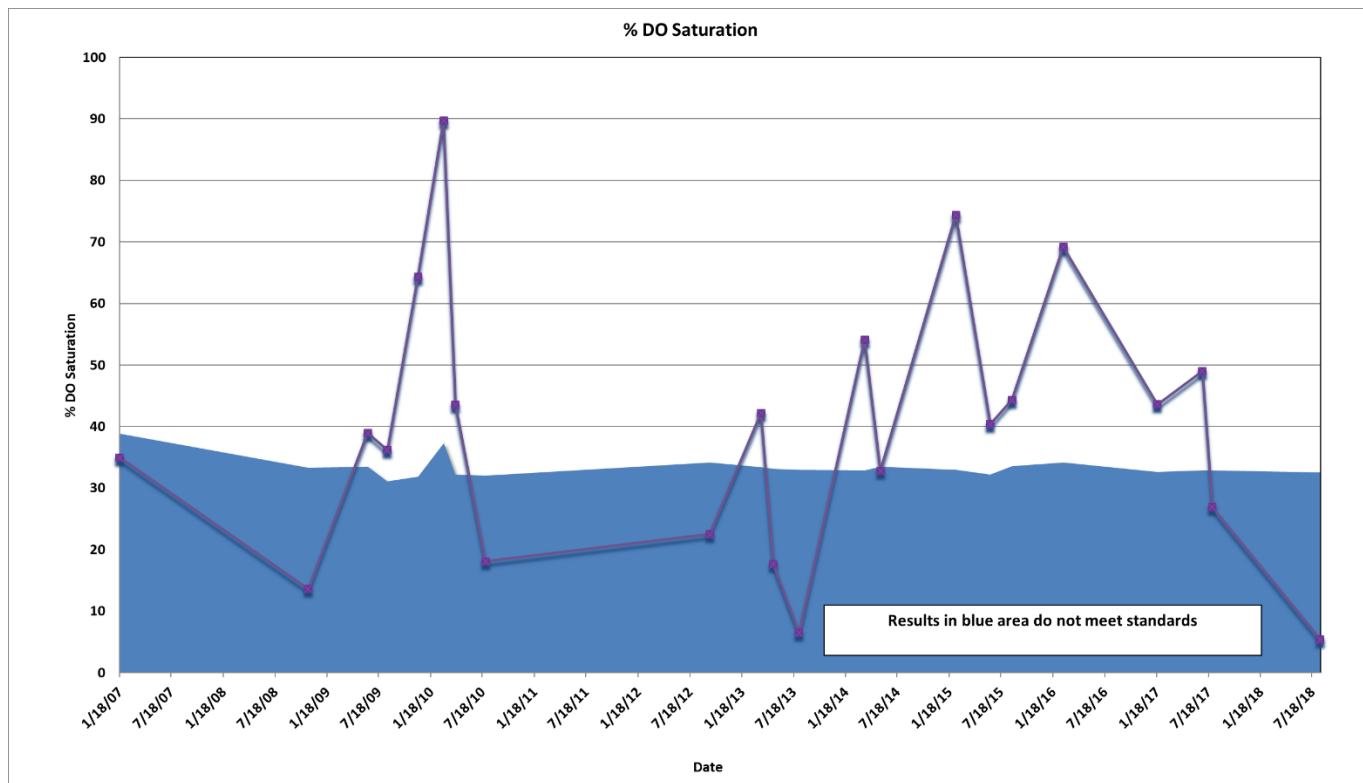


Figure 3. Dissolved Oxygen Percent Saturation results for Alford Arm Creek.