Waterbody: Jackson Heights Creek

Basin: Lake Jackson

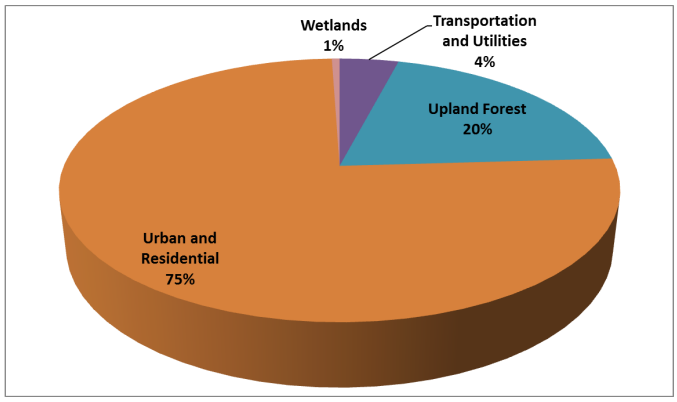
Jackson Heights Creek is a heavily altered stream located off Hwy 27 in northern Leon County. The stream receives runoff from the Parkhill and Greenwood Hills subdivisions, and then continues north through Lake Jackson Heights and Harbinwood subdivisions before finally entering Lake Jackson. This watershed, with residential development dating from the 1950's, displays impacts from channelized flow and aging septic tanks. Sampling was intermittent from February 2007 through October 2008, due to low flow conditions and stormwater facility construction in the channel. The stormwater facility was constructed to mitigate development impacts and to benefit both the creek and Lake Jackson.

A sinkhole opened upstream of Jackson Heights Creek in a County stormwater facility in December 2018, causing low water conditions downstream of the feature. Because of the conditions, Leon County staff only collected one water quality sample in 2019 (January 24th). The sinkhole was filled, and the repairs completed in March 2020.

As shown in the following pie chart, transportation, utilities, urban and residential land uses make up approximately 79% of the 459-acre 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. 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.

In late 2006, the U.S. Environmental Protection Agency (USEPA) set a TMDL target for total phosphorus of 0.15 mg/L, a 35% reduction of the previous existing concentration of 0.23 mg/L.

Methods

Surface water samples were collected to determine the health of Jackson Heights Creek and met the requirements of the Florida Department of Environmental Protection (FDEP). Due to low water conditions, several stations were dry or "puddled" during the sampling period. When viewing tables and figures, the absence of data means there was not

enough data collected due to low water level conditions to fulfill data requirements.

Results

Nutrients

The nutrient thresholds and results are found in Table 1. According to FDEP requirements, Numeric Nutrient Criteria (expressed as an annual geometric mean) cannot be exceeded more than once in a three-year period. Thresholds were never exceeded during the period of record.

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

Jackson Heights Creek	Total Nitrogen Threshold 1.03 mg/L	Total Phosphorus Threshold 0.18 mg/L
2009	0.38	0.09
2010	0.56	0.12
2011- 2012	-	-
2013	0.30	0.08
2014	0.32	0.09
2015	-	-
2016	0.43	0.10
2017	0.39	0.09
2018	0.43	0.16
2019-2020	-	-
2021	0.69	0.14

As mentioned previously, the USEPA set a TMDL target for total phosphorus of 0.15 mg/L, a 35% reduction of the previous existing concentration of 0.23 mg/L. During the 2006-2021 sampling period, total phosphorus concentrations ranged from 0.036 mg/L to 0.32 mg/L (Figure 1), with an arithmetic mean of 0.13 mg/L. While overall phosphorus levels are still below the TMDL, recent results suggest that levels appear to be increasing, and are a cause of concern. Staff concerns prompted the inspection of the upstream Jackson Heights Creek stormwater management facilities, and the decision was made to perform major maintenance on the facilities. It is staff's belief that phosphorus levels will drop with the completion of the facilities' maintenance.

Fecal Coliforms and Escherichia coli (E. coli)

Jackson Heights Creek has a history of fecal coliform levels exceeding Class III water quality standard (400/100 mL in at least 10% of the samples). *E. coli* standards have now supplanted fecal coliform standards in Florida as an indicator of bacterial contamination. As Figure 2 shows, *E. coli* levels exceeded the Class III water quality standard daily limit of > 410 in 10% threshold value of samples collected over a 30-day period. Aging septic tanks, or animal/pet waste could be contributing to the elevated *E. coli* levels in the creek.

Other Parameters

Several species of exotic plants line the bank of Jackson Heights Creek, primarily wild taro (*Colocasia* 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.

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

Conclusions

Based on ongoing sampling, Jackson Heights Creek met the nutrient thresholds for the East Panhandle Region. While it appears that average phosphorus levels are lower due to upstream stormwater facilities, levels appear to be slowly increasing. Maintenance will be performed on the facilities, leading to lower phosphorus levels. *E. coli* levels exceeded the Class III water quality standard daily limit several times over the sampling period. Aging septic tanks, or animal/pet waste could be contributing to the elevated coliform levels. Several species of exotic plants line the bank of Jackson Heights Creek which

may affect native wildlife dependent on native plants for food and shelter. 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

Click here to access the results for all water quality stations sampled in 2021.

Click here for a map of the watershed – Sample Site 31.

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

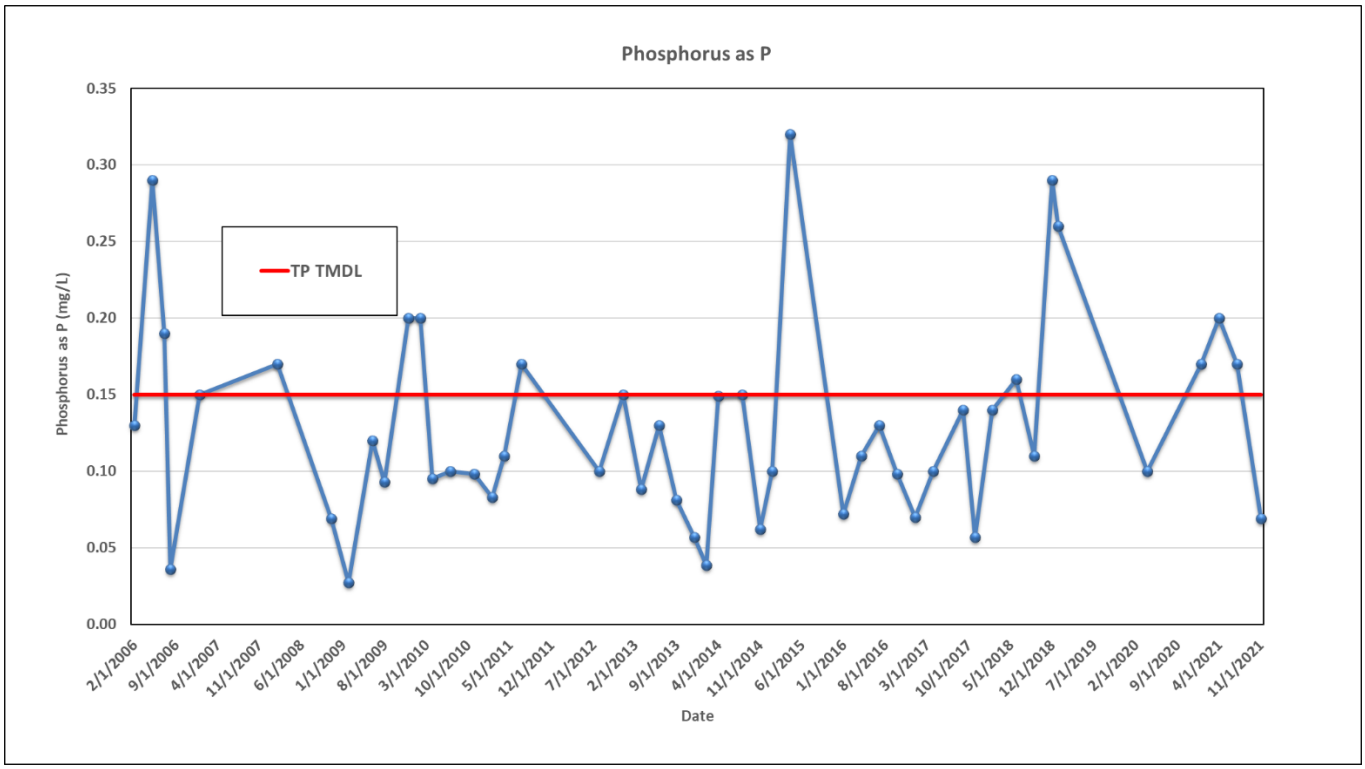


Figure 1. Total phosphorus results for Jackson Heights Creek.

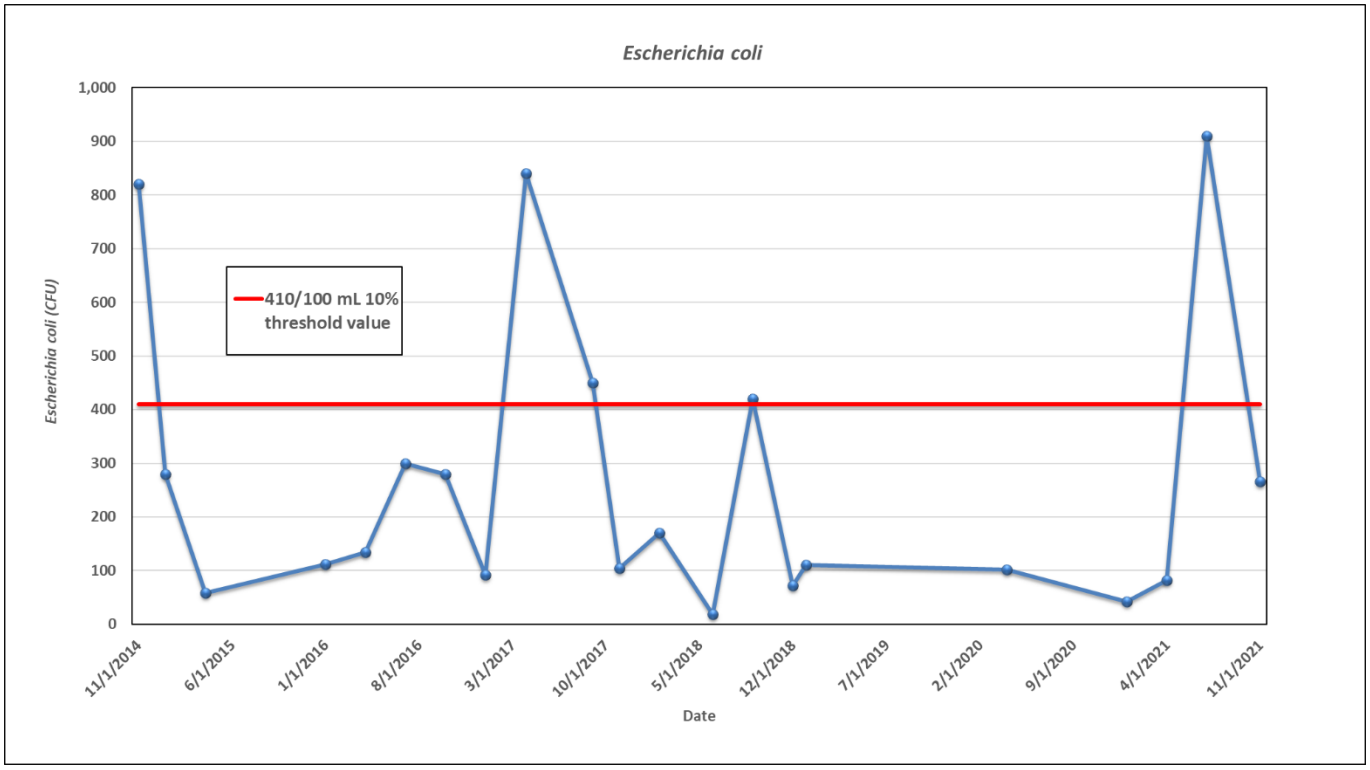


Figure 2. *E. coli* results for Jackson Heights Creek.