

Harvey Creek EcoSummary



Harvey Creek is a tannic, slightly acidic, phosphorus-limited stream that flows into Lake Talquin and is located in western Leon County.

The majority of the 5,679-acre watershed is relatively undeveloped (as shown in **Figure 1**). Agriculture, urban and residential land uses make up approximately 4% of the watershed upstream of the sampling station. These types of land uses are often attributed to increases in stormwater runoff and higher nutrient loads.

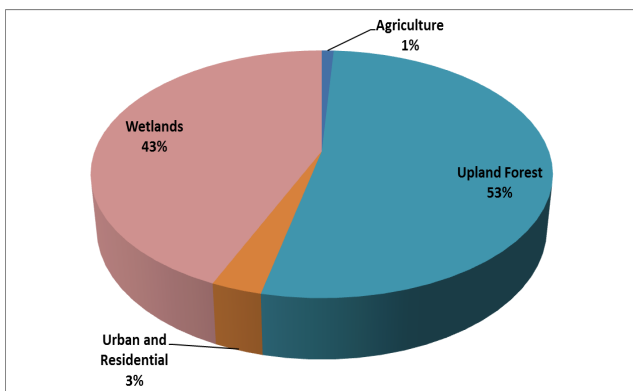


Figure 1. Harvey Creek watershed land use.

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. Stressors can also include 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 samples are collected quarterly (as field conditions allow). Leon County also conducted a biological survey to evaluate the health of aquatic invertebrate communities in Harvey Creek. This information is used to determine the health of the Creek and meets the requirements of the Florida Department of Environmental Protection (FDEP).

Results

The State of Florida uses Numeric Nutrient Criteria (NNC) to evaluate nutrients in waterbodies. NNC thresholds are set based on waterbody-specific characteristics and are used to determine if a waterbody meets water quality standards. The results of the four quarterly samples from a single year are used to calculate the annual geometric mean. According to FDEP requirements, the NNC threshold cannot be exceeded more than once in a three-year period.

Nutrients

The nutrient thresholds and results are found in **Table 1**. The NNC criteria were not exceeded for either parameter.

Table 1. Total Nitrogen results and thresholds for Harvey Creek.

Harvey Creek	Instream Protection Criteria			
	TN (1.03 mg/L)			
Year	39	HAR1	HAR2	HAR3
2006	0.11	-	-	-
2007	0.17	-	-	-
2008	0.15	-	-	-
2009	0.15	-	-	-
2010	0.33	-	-	-
2011	0.43	-	-	-
2012	0.39	-	-	-
2013	0.21	-	-	-
2014	0.35	-	-	-
2015	0.22	-	-	-
2016	0.29	-	-	-
2017	0.33	-	-	-
2018	0.40	-	-	-
2019	0.20	-	-	-
2020	0.29	-	-	-
2021	0.24	0.34	0.20	0.20
2022	0.27	0.36	0.24	0.23

Table 2. Total Phosphorus results and thresholds for Harvey Creek.

Harvey Creek	Instream Protection Criteria			
	TP (0.18 mg/L)			
Year	39	HAR1	HAR2	HAR3
2006	0.00	-	-	-
2007	0.00	-	-	-
2008	0.00	-	-	-
2009	0.00	-	-	-
2010	0.00	-	-	-
2011	0.01	-	-	-
2012	0.00	-	-	-
2013	0.00	-	-	-
2014	0.00	-	-	-
2015	0.01	-	-	-
2016	0.01	-	-	-
2017	0.01	-	-	-
2018	0.01	-	-	-
2019	0.01	-	-	-
2020	0.01	-	-	-
2021	0.01	0.00	0.00	0.00
2022	0.01	0.01	0.00	0.00

Escherichia coli

E. coli levels exceeded the Class III water quality standard daily limit of > 410, 10% threshold value of samples collected over a 30-day period in December 2016 (770/100 mL). The standard has not been exceeded since that time. Since the watershed is relatively undeveloped, the exceedance could be attributed to wildlife in the area, though FDEP, through their own sampling, have determined that anthropogenic sources were identified using genetic marker and tracer data. To better track potential sources of *E. coli*, Leon County added additional water quality stations to the watershed in 2021 (**Figure 2**). The standard has not been exceeded at the newly established stations (**Figure 3**).

Habitat Assessment (HA) and Stream Condition Index (SCI) for Station 39

The results of the HA score for Harvey Creek characterize the stream habitat in the low end of the Optimal category (**Table 3**). Habitat availability, although sub-optimal, presented high quality roots and snags, with fewer leaf packs present. Channel characteristics were natural with the expected pools, bends, and stable stream banks.

In keeping with the habitat assessment, the SCI score was in the Healthy category (**Table 4**). Looking at the individual aliquots, one vial scored in the Healthy range and the other scored the Exceptional range.

The macroinvertebrate community present at the monitoring site was moderately rich (47 taxa) and displayed numerous sensitive taxa (12). Sensitive taxa accounted for 25% of the taxa richness. However, these metrics were reduced compared to the 2019 SCI. Only three very tolerant taxa were noted (same as 2019). No

single group or taxon exerted a strong numerical dominance of the community. The stonefly taxa *Leuctra* sp. and the tanypodinae chironomid taxa *Conchapelopia* sp. were the most abundant taxa in both vials. Long-lived taxa were also well represented in the SCI sample (six), accounting for 13% of the total taxa. Included in the sensitive taxa are one species of ephemeroptera (mayflies), and three species of plecoptera (stoneflies). Two species of sensitive ephemeroptera and two species of sensitive trichoptera present in the 2019 SCI sample were not recovered in the 2022 SCI. The Ephemeroptera/Plecoptera/Trichoptera (EPT) taxa are widely regarded as the groups of aquatic insects that contain large numbers of pollution sensitive taxa. In total, eight EPT taxa were recovered in the SCI; two ephemeropteran taxa, three plecopteran taxa and three trichopteran taxa.

[Click here for more information about the Stream Condition Index and Habitat Assessments.](#)

Conclusions

Based on ongoing sampling, Harvey Creek met the nutrient thresholds for the Big Bend Bioregion. Additional water quality sampling showed no further water quality exceedances in *E. coli*. The results of the Habitat Assessment characterize the stream habitat in the Optimal category. In keeping with the habitat assessment, the Stream Condition Index score was Healthy. Other water quality parameters appear to be normal, 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.

Table 3. Harvey Creek Habitat Assessment Score.

Harvey Creek	Score	Category
Substrate Diversity	14	Suboptimal
Substrate Availability	10	Suboptimal
Water Velocity	17	Optimal
Habitat Smothering	19	Optimal
Artificial Channelization	20	Optimal
Bank Stability	8, 8	Suboptimal, Suboptimal
Riparian Zone Width	10, 10	Optimal, Optimal
Riparian Vegetation Quality	10, 10	Optimal, Optimal
Final Habitat Assessment Score	136	
Interpretation	Optimal	

Table 4. Harvey Creek Stream Condition Index Score.

Harvey Creek	Rep 1	Rep 2
Stream Condition Index Metrics Scores		
Total Taxa	4.64	6.43
Ephemeroptera Taxa	1.25	2.50
Trichoptera Taxa	2.22	2.22
% Filter Feeder	2.50	3.75
Long-lived Score	8	10
Clinger Taxa	7	10
% Dominance	8.22	7.36
% Tanytarsini Taxa	6.77	8.42
Sensitive Taxa	5.33	6.00
% Tolerant Taxa	8.38	6.60
SCI Vial Score	60.37	70.32
Stream Condition Index Score	65.34	
Score Interpretation	Healthy	

Contact and Resources for More Information

www.LeonCountyWater.org

[Click here to access the results for all water quality stations sampled in 2022.](#)

[Click here for a map of the watershed – Sample Sites 39, HAR1, HAR2, and HAR3.](#)

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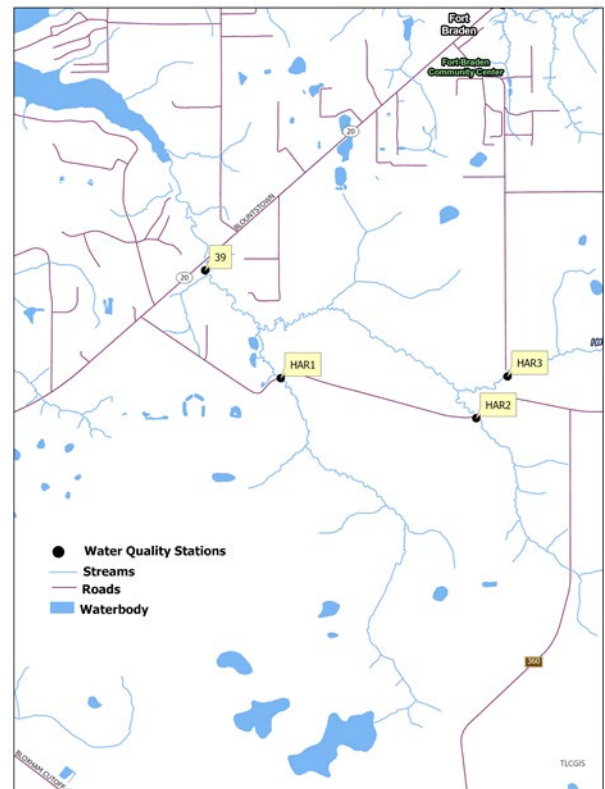


Figure 2. Locations of Water Quality Station 39 and the newly established HAR1, HAR2, and HAR3 on Harvey Creek.

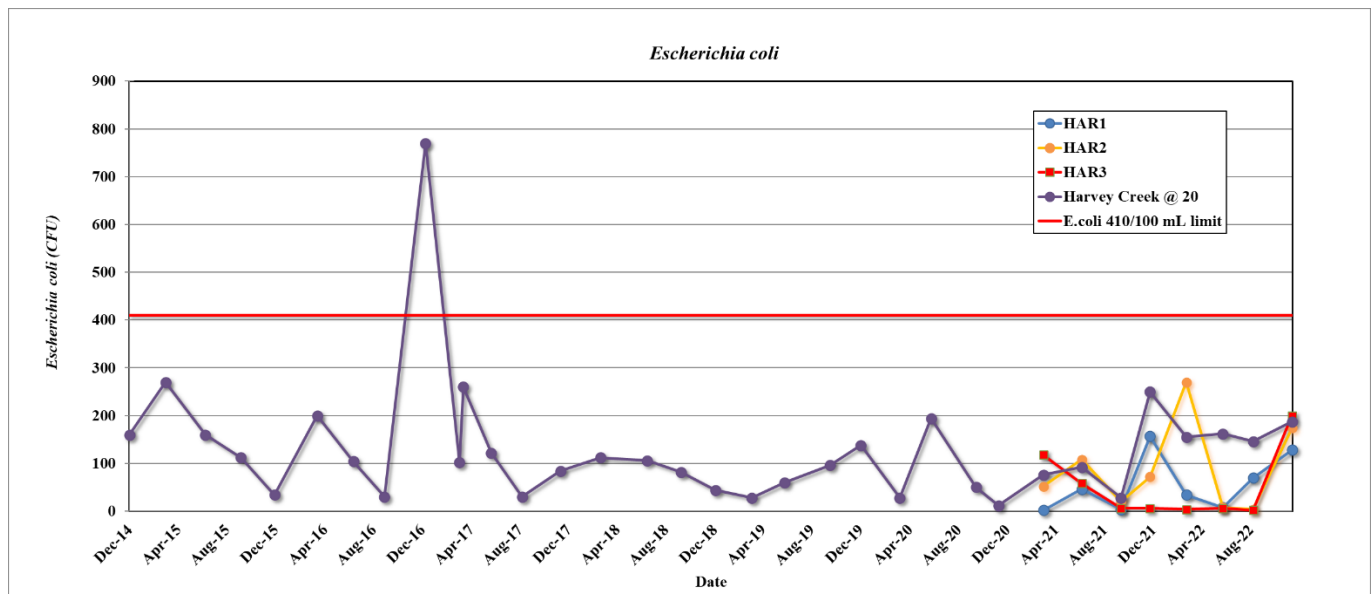


Figure 3. *E. coli* results for Harvey Creek.