Trout Creek

STREAM HABITAT ASSESSMENT, STREAM CONDITIONS INDEX, LINEAR VEGETATION SURVEY, RAPID PERIPHYTON SURVEY AND WATER QUALITY

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Methods

STUDY AREA ANALYISIS

The watershed containing the stream being assessed was analyzed using ESRI ArcGIS Pro. Using this software with 2022 Hillsborough County aerial, 2017 Land Use/ Land Cover (LULC) and Waterbody ID (WBID) layers courtesy of the Florida Department of Environmental Protection (FDEP). The Landscape Development Intensity Index (LDI) was calculated for the WBID containing the stream. From FDEP (https://floridadep.gov/dear/bioassessment/content/bioassessment-ldi-hdg-bcg) "The Landscape Development Intensity index (LDI) is an estimate of how much humans have altered an area of interest around a waterbody. Various land use types (low density residential, row crops, industrial and natural) are assigned coefficients of land use intensity based on estimates of the amount of human energy that is put into those land use types."

The LDI is calculated by multiplying each land use coefficient by the percentage of the area of interest occupied by that land use, and then summing the results. The FDEP uses the LDI as a tool to estimate potential land use impacts on streams, lakes, and wetlands. LDI values less than two (≤ 2) can be considered minimally disturbed." In the Florida framework, the maximum LDI index score is approximately 42.

HABITAT AND VEGETATION ASSESSMENT

For small streams that are not easily navigated by Jonboat for bathymetric mapping and vegetation analysis, Hillsborough County requested the implementation of the FDEP methods for Stream and River Habitat Assessment (FT 3100) (http://www.dep.state.fl.us/water/sas/sop/sops.htm) using forms FD 9000-3, FD 9000-4 and FD 9000-5, Rapid Periphyton Survey (FS 7230) using form FD 9000-25 and Linear Stream Vegetation Survey (FS 7320) using form FD 9000-32. These methods were utilized on one sampling location on each stream, typically near access points along roadways.

Stream and River Habitat Assessment per FT3100 receives a score calculated in Form FD 9000-5. This score results from the ranking of the primary habitat components (substrate diversity, substrate availability, water velocity and habitat smothering) and secondary habitat components (Artificial channelization, bank stability, riparian buffer zone width and riparian zone vegetation quality). The maximum score possible in this method is a 160.

Two metrics are utilized in the Linear Vegetation Survey (LVS). The Mean Coefficient of Conservatism (CoC) applies a score of 0-10 to each species based on its ecological tolerances and fidelity to pre-settlement conditions. Species with higher scores show a high fidelity to native, undisturbed habitats and are typically sensitive to alterations. Available CoC scores can be obtained from Table LVI 1000-1 from the Florida Department of Environmental Protection at: http://www.dep.state.fl.us/water/sas/sop/sops.htm. The Percent Florida Exotic Pest Plant Council (% FLEPPC) metric calculates the percent invasive exotics as the number of occurrences of FLEPPC Category I or II in the 100 m reach divided by the total number of taxa occurrences in the 100 m reach. The FLEPPC list can be found in FDEP LVI 1000-1.

STREAM CONDITION INDEX ASSESSMENT

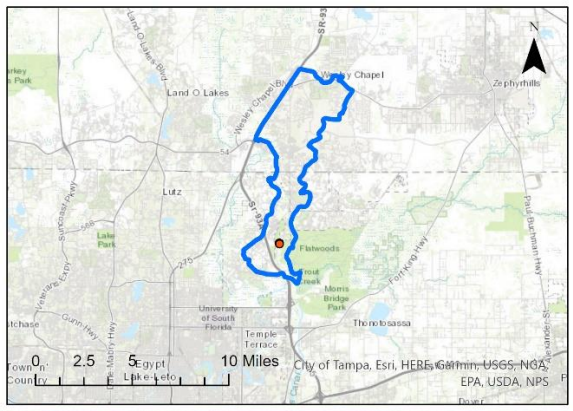
The Stream Condition Index (SCI) was sampled and calculated per DEP SOP SCI 1000. The SCI consists of collecting macroinvertebrates via 20 D-frame dipnet sweeps (0.5 m in length) in the most productive habitats in a 100 m reach of stream. The organisms are sub-sampled, and identified to the lowest practical taxonomic level. The SCI is composed of ten metrics, eight of which decrease in response to human disturbance, with two metrics (% very tolerant and % dominant) increasing in response to human disturbance. According to DEP SOP SCI 1000, the SCI scores greater than 35 are considered healthy. Proposed biological health assessment criteria state that a WBID is considered to meet designated uses if the average of the two most recent SCI scores is 40 or higher and neither of the most recent of those scores is less than 35.

WATER QUALITY ASSESSMENT

Physical water quality samples were taken using a Eureka Manta Sub-2 multiprobe pre and post calibrated daily. Measurements taken with this device include: depth, conductivity, pH, Dissolved Oxygen (mg/l and % Saturation) and salinity. Chemical water parameters were collected and preserved on ice by USF Water Institute staff and analyzed at the Hillsborough County Public Utilities Laboratory. Analysis include; Chlorophyll (a, b, c, t and corrected), Alkalinity, Color, E. Coli, Enterococci, Ammonia, Nitrates/Nitrites, Total Phosphorous, Kjeldahl Nitrogen and Total Nitrogen. Results will be discussed in the Florida Department of Environmental Protection's Numeric Nutrient Criteria framework and combined with the monthly sampling from the Hillsborough County Environmental Protection Commission Monthly sampling data.

Study Area

Trout Creek is located in located in north-central Hillsborough County in the Hillsborough River Watershed. Its headwaters are located north of Bruce B. Downs Blvd and Hunters Green Dr. in Tampa. The outfall of Trout Creek is in the Hillsborough River. The assessment of Trout Creek was conducted on March 23rd, 2023, and, at the time, the water levels were on the lower end for the dry season but not indicative of drought conditions. The Trout Creek WBID covers 12.32 miles and is dominated by forest/natural (99.6%) land cover. The resulting calculated landscape development intensity index (LDI) score was 1.03.



Trout Creek
WBID 1455

Mouth - Hillsborough River
Area - 7,885 Acres (12.32 Sq Miles)
Landscape Development Intensity - 1.03
Stream Habitat Assessment - 104
Rapid Peiphyton Survey - % ranked 4-6 - 7%
Linear Vegetation Survey < 2 square meters of rooted vegetation
Stream Condition Index - 66

Figure 1 2023 Trout Creek Study Area Map

Figure 2 Overview photograph of the Trout Creek Sample Site showing the natural sinuosity of the stream as well as the low water conditions and prevalent silt smothering.

Habitat and Vegetation Assessment

The region of Trout Creek where the assessment was conducted is located just south of Bruce B. Downs near I-75 in Flatwoods Conservation Park. The region was just off the bike path and was heavily shaded with an average canopy cover measurement of 84.8%. Trout Creek averaged 0.175 meters in depth and approximately 2.85 meters wide with a flow of 0.06 m/s.

The primary habitat components of the FDEP Habitat Assessment focus on in-water habitat. The primary habitat components score in the suboptimal category for Habitat Smothering (adequate number of stable pools but much greater than 25% of the habitats were affected by sand/silt smothering). Substrate Diversity (presence of two major productive habitats (snags, leaf packs/mats)) and Water Velocity (0.06 m/s) were scored as marginal. Substrate Availability was scored as poor for having major productive habitats in only 3.3% of the stream. Minor habitats included roots, and sand and silt deposits. The total score for the primary habitat components was a 29 out of 80.

The secondary habitat components of the FDEP Habitat Assessment focus on the surrounding features of the stream. All the secondary habitat components were scored in the optimal category. Artificial Channelization was scored high with the expected sinuosity of the stream present and no evidence of dredging or artificial straightening and no spoil banks. Bank Stability was scored high and was consistent on both the left and right bank with few raw or eroded areas and gradual slopes. Riparian Buffer Zone Width was scored perfectly on both the left and right bank due to the width of vegetation being greater than 18 meters. Riparian Zone Vegetation Quality was scored high for both banks for greater than 80% of the present vegetation being native and consistent with a plant community with minimal disturbance. The secondary habitat components received a score of 75 out of 80. The resulting FDEP Habitat Assessment score was a 104.

Table 1 Scoring Summary for the Stream Habitat Assessment

Metric	Score
Primary Habitat Components	
Substrate Diversity	7
Substrate Availability	3
Water Velocity	7
Habitat Smothering	12
Primary Score	**29**
Secondary Habitat Components	
Artificial Channelization	19
Bank Stability - Right Bank	9
Bank Stability - Left Bank	9
Riparian Buffer Zone Width - Right Bank	10
Riparian Buffer Zone Width - Left Bank	10
Riparian Zone Vegetation Quality - Right Bank	9
Riparian Zone Vegetation Quality - Left Bank	9
Secondary Score	**75**
Habitat Assessment Score	**104**

Periphyton was encountered during 12 of the 99 samples taken during the Rapid Periphyton Survey. Seven of these samples were ranked 4-6 (>6 mm in length). The tree canopy in the assessment area averaged 84.8% reducing available light for periphyton to flourish.

The FDEP Linear Vegetation Survey encountered less than two square meters of rooted herbaceous vegetation in Trout Creek at the time of the assessment. As a result, neither metric for mean coefficient of conservatism or Percent FLEPPC were calculated.

Table 2 Linear Vegetation Survey Results – Trout Creek

Taxa Name	C of C Score	Sample Site										Total Occurrences
		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
Less than two square meters of vegetation												

Figure 3 Snag and leaf packs/mats were the most abundant major productive habitats in Trout Creek.

Stream Condition Index

The analysis of the SCI sample involves splitting the sample into 2 aliquots for analysis. The SCI metrics are then calculated on each separately. The final SCI score is an average of the two scores. The SCI score for Trout Creek was 66 out of a possible 100 points, corresponding with a "Category 2 Healthy" designation, maintaining high percent filter feeders, though drifting away from higher diversity seen in a Category 1. Both 2023 subsamples contained average total taxa numbers with 27 taxa in subsample A and 30 in subsample B. High scores (above 7.0) were achieved for the Total Trichoptera (Sample B), Total Clingers (both samples), % Dominance (Sample B), and % Very Tolerant Individuals (both samples). A low score (less than 3.0) was achieved for % Filter Feeders in Sample A. The full results of the SCI sampling are shown in Table 4 (Sample A) and Table 5 (Sample B) for Trout Creek.

Table 3 SCI metric summaries for Trout Creek Sample A (top) and Sample B (bottom)

SCI Metric	Raw Totals	SCI scores	Adjusted SCI scores
Total Taxa	27.00	5.00	5.00
Total Ephemeroptera	2.00	4.00	4.00
Total Trichoptera	4.00	5.71	5.71
% Filter Feeders	12.34	2.71	2.71
Total Clingers	6.00	8.57	8.57
Total Long-lived Taxa	1.00	3.33	3.33
% Dominance	32.91	6.22	6.22
% Tanytarsini	5.70	5.59	5.59
Total Sensitive Taxa	4.00	5.71	5.71
% Very Tolerant Individuals	4.43	7.52	7.52

SCI Sum	54.37
Final SCI score	60.41

SCI Metric	Raw Totals	SCI scores	Adjusted SCI scores
Total Taxa	30.00	6.25	6.25
Total Ephemeroptera	2.00	4.00	4.00
Total Trichoptera	5.00	7.14	7.14
% Filter Feeders	21.52	4.84	4.84
Total Clingers	7.00	10.00	10.00
Total Long-lived Taxa	1.00	3.33	3.33
% Dominance	23.84	8.03	8.03
% Tanytarsini	3.31	4.30	4.30
Total Sensitive Taxa	4.00	5.71	5.71
% Very Tolerant Individuals	0.66	10.48	10.00

SCI Sum	63.61
Final SCI score	70.68

Table 4 SCI full results for Sample A

Stream Condition Index Results for Trout Creek SCIA

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Abundance	Collapsed Abundance	Taxa Presence	Ephemeroptera Taxa	Trichoptera Taxa	50% Filterer	100% Filterer	Clinger Taxa	Long-lived Taxa	Dominant Taxa	Tanytarsini	Sensitive Taxa	Very Tolerant Individuals	Specimen Notes
Annelida		Clitellata	Oligochaeta	Lumbriculida	Lumbriculidae	*Eclipidrilus palustris*	1	1	1	0	0	0	0	0	0		0	0	0	
Annelida		Clitellata	Hirudinida	Rhynchobdellida	Glossiphoniidae	*Helobdella papillata*	1	1	1	0	0	0	0	0	0		0	0	1	
Mollusca		Gastropoda	Caenogastropoda	Littorinimorpha	Amnicolidae	*Amnicola dalli*	18	18	1	0	0	0	0	0	0		0	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Ancylidae	*Laevapex fuscus*	3	3	1	0	0	0	0	0	0		0	0	3	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Ancylidae	*Ferrissia fragilis*	1	1	1	0	0	0	0	0	0		0	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	*Menetus dilatatus*	2	2	1	0	0	0	0	0	0		0	0	2	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	*Planorbella scalaris*	1	1	1	0	0	0	0	0	0		0	0	1	
Mollusca		Bivalvia	Autobranchia	Venerida	Cyrenidae	*Corbicula* spp.	4	4	1	0	0	0	4	0	1		0	0	0	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Asellidae	*Caecidotea* spp.	2	2	1	0	0	0	0	0	0		0	1	0	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyalellidae	*Hyalella* spp.	3	3	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	Heptageniidae spp.	3	2	1	1	0	0	0	1	0		0	1	0	No Gill 7; 2 not Stenacron by remaining gills
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	*Stenacron interpunctatum*	1	2	1	1	0	0	0	1	0		0	1	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata		Anisoptera spp.	1	1	1	0	0	0	0	0	0		0	0	0	Early instar; Not Cordulegaster
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera		Trichoptera spp.	1		0	0	0	0	0	0	0		0	0	0	Pupa; Damaged; like Cheumatopsyche by mouthparts
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	10	11	1	0	1	0	11	1	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	*Oxyethira* spp.	1	1	1	0	1	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	*Hydroptila* spp.	11	11	1	0	1	0	0	1	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	*Neotrichia* spp.	2	2	1	0	1	0	0	1	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	2	2	1	0	0	0	0	1	0		0	0	0	Larva=1; Adult=1
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Microcylloepus* spp.	20	20	1	0	0	0	0	0	0		0	0	0	Larvae=18; Adult=2
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	1		0	0	0	0	0	0	0		0	0	0	Pupa=1
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cladotanytarsus* spp.	3	3	1	0	0	1.5	0	0	0		3	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus buckleyi*	2	2	1	0	0	1	0	0	0		2	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* sp. T	1	1	1	0	0	0.5	0	0	0		1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum scalaenum* group	2	2	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum flavum*	51	52	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Pentaneura inconspicua*	5	5	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Stenochironomus* spp.	2	2	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Stempellinella fimbriata*	3	3	1	0	0	1.5	0	0	0		3	1	0	

Table 5 SCI full results for Sample B

Stream Condition Index Results for Trout Creek SCIB

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Abundance	Collapsed Abundance	Taxa Presence	Ephemeroptera Taxa	Trichoptera Taxa	50% Filterer	100% Filterer	Clinger Taxa	Long-lived Taxa	Dominant Taxa	Tanytarsini	Sensitive Taxa	Very Tolerant Individuals	Specimen Notes
Annelida		Clitellata	Oligochaeta	Lumbriculida	Lumbriculidae	*Eclipidrilus palustris*	1	1	1	0	0	0	0	0	0		0	0	0	
Mollusca		Gastropoda	Caenogastropoda	Littorinimorpha	Amnicolidae	*Amnicola dalli*	17	17	1	0	0	0	0	0	0		0	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Ancylidae	*Ferrissia fragilis*	2	2	1	0	0	0	0	0	0		0	0	0	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	*Menetus dilatatus*	1	1	1	0	0	0	0	0	0		0	0	1	
Mollusca		Bivalvia	Autobranchia	Venerida	Cyrenidae	*Corbicula* spp.	6	6	1	0	0	0	6	0	1		0	0	0	
Mollusca		Bivalvia	Autobranchia	Sphaeriida	Sphaeriidae	Sphaeriidae spp.	2	2	1	0	0	0	2	0	0		0	0	0	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Isopoda	Asellidae	*Caecidotea* spp.	1	1	1	0	0	0	0	0	0		0	1	0	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda		Amphipoda spp.	1		0	0	0	0	0	0	0		0	0	0	Head only; Like Hyalella by Ant
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Hyalellidae	*Hyalella* spp.	1	2	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	Heptageniidae spp.	6	6	1	1	0	0	0	1	0		0	1	0	No Gill 7; Not like Macaffertium gills
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	*Maccaffertium exiguum*	2	2	1	1	0	0	0	1	0		0	1	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Calopterygidae	*Calopteryx* spp.	1	1	1	0	0	0	0	0	0		0	0	0	Damaged
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Leptoceridae	*Nectopsyche candida/exquisita*	1	1	1	0	1	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	3		0	0	0	0	0	0	0		0	0	0	Early instar; like Cheumatopsyche
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	18	21	1	0	1	0	21	1	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	Hydroptilidae spp.	1		0	0	0	0	0	0	0		0	0	0	Pupa=1
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	*Hydroptila* spp.	16	17	1	0	1	0	0	1	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	*Neotrichia* spp.	1	1	1	0	1	0	0	1	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Philopotamidae	*Chimarra* spp.	1	1	1	0	1	0	1	1	0		0	1	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Dubiraphia* spp.	2	2	1	0	0	0	0	0	0		0	0	0	Larvae=2
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	3	3	1	0	0	0	0	1	0		0	0	0	Larvae=3
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Microcylloepus* spp.	12	12	1	0	0	0	0	0	0		0	0	0	Larvae=11; Adult=1
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanypodinae spp.	1		0	0	0	0	0	0	0		0	0	0	damaged, not Ablabesmyia
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanytarsini spp.	1		0	0	0	0	0	0	0		0	0	0	damaged
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cladotanytarsus* spp.	1	1	1	0	0	0.5	0	0	0		1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* spp.	2	3	1	0	0	1.5	0	0	0		3	0	0	2 not buckleyi or Sp. T
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* sp. T	1	1	1	0	0	0.5	0	0	0		1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum scalaenum* group	2	2	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum flavum*	36	36	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Ablabesmyia mallochi*	1	1	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Pentaneura inconspicua*	2	3	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Stenochironomus* spp.	2	2	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Labrundinia* spp.	1	1	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Cricotopus or Orthocladius*	1	1	1	0	0	0	0	0	0		0	0	0	
Arthropoda	Chelicerata	Arachnida	Acari	Trombidiformes	Hygrobatidae	*Atractides* spp.	1	1	1	0	0	0	0	0	0		0	0	0	

Water Quality Assessment

Long-term water quality data is available for Trout Creek. The data that is available was collected by the Hillsborough County Environmental Protection Commission on a monthly cycle. The available dataset at station 317 (Trout Creek at Bruce B Downs Blvd) begins in 1989 and continues through present. The 2023 USF Water Institute Assessment values fall within the range of the previous data collections. Table 6 provides a summary of the Physical/Chemical conditions recorded at the site.

Table 6 Trout Creek Physical Water Quality (Field)

WATER QUALITY	Depth (m)	Temp (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (µmhos/cm)	Salinity (PPT)	SECCHI (m)
Top:								1.8
Mid:	0.39	17.29	7.2	4.42	45.9	283.1	0.13	
Bottom:								
Meter ID:	40							

VOB

Total Depth

0.45

The chemical water quality analysis for Trout Creek is shown in Table 7 with geometric mean values for the previous 3 years for available parameters. The previous 3-year geometric mean values for Total Phosphorous values were below the nutrient region threshold developed by FDEP of 0.49 mg/L with a geometric mean value of 0.127 mg/L (2020), 0.11 mg/L (2021) and 0.049 mg/L (2022). Total Phosphorous values for the available 2023 samples were 0.113 mg/L. Total Nitrogen values were below the nutrient region threshold developed by FDEP of 1.65 mg/L for the previous three year period with a mean value of 0.55 mg/L (2020), 0.558 mg/L (2021) and 0.498 mg/L (2022). The Total Nitrogen value from the available 2023 data was below the threshold with a concentration of 0.583 mg/L. Chlorophyll-a corrected values fall below the site specific evaluation range of 3.2 µg/l to 20 µg/l for the most recent 3-years of samples (1.97 µg/l in 2020, 1.76 µg/l in 2021, 1.95 µg/l in 2022). The available 2023 data has a geometric mean value of 3.03 µg/l. For sites with Chlorophyll-a values in this range, the assessment is indicating conditions reflecting a balance in flora.

An elevated biomass of the bacterial parameters was observed in the 3-year dataset with E. Coli having a geometric mean of 183.8 colonies/100 ml, 343.4/100 ml for Enterococci.

Table 7 Trout Creek Water Quality (Laboratory)

Parameter	2020	2021	2022	2023	Period of Record	Units
E. Coli	106.9	190.8	160.4	276.9	187.4	#/100 ml
Enterococci	175.7	350.8	426.6	252.9	360.1	#/100 ml
Chlorophyll-a	2.04	1.61	2.10	3.88	2.78	µg/L
Chlorophyll-b	0.33	0.27	0.23	0.34	0.90	µg/L
Chlorophyll-c	0.66	0.6	0.6	0.75	0.89	µg/L
Chlorophyll-t	2.36	1.92	2.21	4.16	4.12	µg/L
Chlorophyll-a Corrected	1.97	1.76	1.95	3.50	3.03	µg/L
Ammonia	0.011	0.035	0.035	0.055	0.031	mg/L
Kjeldahl Nitrogen	0.538	0.534	0.552	0.551	0.779	mg/L
Total Nitrogen	0.550	0.558	0.498	0.583	0.820	mg/L
Nitrates/Nitrites	0.018	0.027	0.047	0.063	0.033	mg/L
Total Phosphorous	0.127	0.110	0.049	0.113	0.132	mg/L

Conclusion

Trout Creek at Flatwoods Bike Trail is located in a predominantly natural land use. At the time of the habitat assessment, the water levels were low for the dry season. The 100 meter region where the assessment was conducted was characterized by a natural sinuous channel with attached forested floodplains. Snag, leaf and fine root were the most common productive habitats present. The Habit Assessment resulted in a suboptimal score of 104. Disruption to the vegetation community was not observed in the results of the Linear Vegetation Survey with less than 2 square meters of rooted herbaceous vegetation in the stream. Trout Creek met the metrics for the rapid periphyton survey with 7% of samples being ranked between 4 and 6 due in part to the moderate canopy coverage in the region. The recent water quality record for Trout Creek showed concentrations of Chlorophyll-a corrected, Total Phosphorous and Total Nitrogen below the FDEP thresholds. The results of the SCI sampling indicate that the stream is "healthy" based on the macroinvertebrate community. Table 8 summarizes the results of the nutrient sampling, floristic sampling, habitat assessment and SCI.

Table 8 Summary of Water Quality, Floristic Surveys and Habitat Assessments

Measure		Trout Creek	2020	2021	2022	Threshold
Total Phosphorous (mg/l)			0.127	0.11	0.049	< 0.49
Total Nitrogen (mg/l)			0.55	0.558	0.498	< 1.65
RPS (% Rank 4-6)		7%				< 25%
LVS	**Avg C of C**	< 2 m				≥ 2.5
	FLEPPC %	< 2 m				< 25%
Chlorophyll-a Corrected (µg/l)			1.97	1.76	1.95	< 20 µg/l
Habitat Assessment		104				> 34
SCI		66				> 34