



# Cypress Creek

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

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# Methods

## STUDY AREA ANALYSIS

The watershed containing the stream being assessed was analyzed using ESRI ArcGIS 10.2. Using this software with 2016 Hillsborough County aerial, 2011 Land Use/ Land Cover (LULC) and Watershed boundary (WBID) layers courtesy of the Florida Department of Environmental Protection. The Landscape Development Intensity Index (LDI) was calculated for the WBID containing the stream. From FDEP “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 Florida Department of Environmental Protection (DEP) uses the LDI as a tool to estimate potential land use impacts on streams, lakes, and wetlands. LDI values less than two ( $\leq 2$ ) 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 Florida Department of Environmental Protection 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 two sampling locations 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. 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 LT 7000 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 at: <http://www.fleppc.org/list/ulist.html>

## STREAM CONDITION INDEX ASSESSMENT

The Stream Condition Index (SCI) was sampled per DEP SOP FS7420 and calculated per DEP SOP LT7200. 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 LT 7000, the SCI score ranges and categories are: (68-100) Exceptional; (35-67) Healthy; and (0-34) Impaired. Proposed biological health assessment criteria state that a site is considered to meet designated uses if the average of the two most recent SCI scores is 40 or higher and neither 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 Environmental Protection Commission of Hillsborough County 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.

## Study Area

Cypress Creek is located in southern Hillsborough County. Its headwaters are located in North Lake in Sun City Center and the outfall of Cypress Creek is in the Little Manatee River. The assessment of Cypress Creek was conducted on March 6, 2019. Access and assistance to the site was granted through Little Manatee River State Park. At the time of the assessment, the water levels were near seasonal low. The Cypress Creek WBID covers 11.27 square miles and is dominated residential (37.8%), natural (24.0%), golf courses (12.8%) and agricultural (3.8%). The resulting calculated landscape development intensity index score was 5.72.

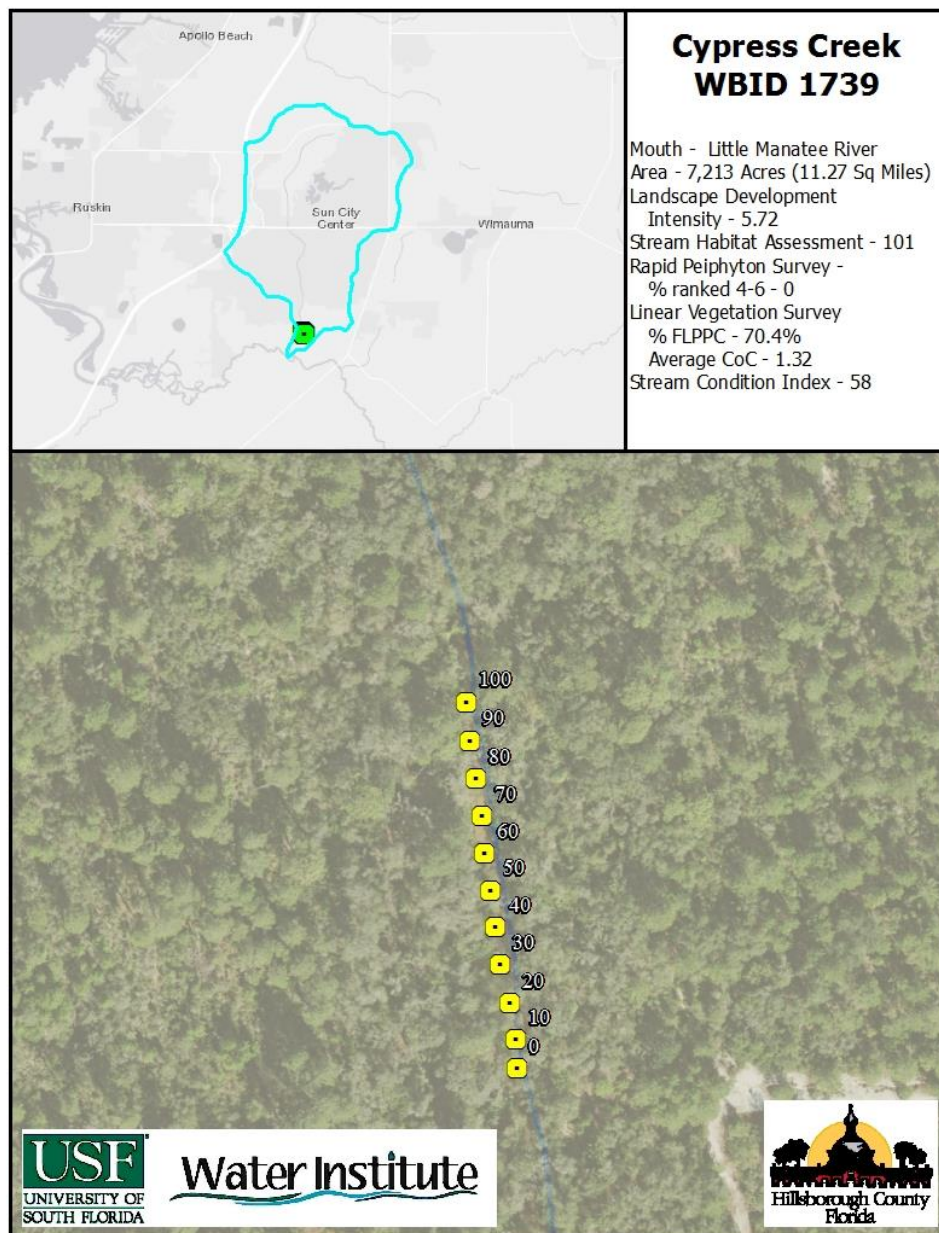


Figure 1 2019 Cypress Creek Study Area Map



*Figure 2 Overview photograph of Cypress Creek at the Little Manatee River State Park Sample Site*

## Habitat and Vegetation Assessment

The region of Cypress Creek where the assessment was conducted is in a dominant natural area inside the scrub habitat in Little Manatee State Park. The region was moderately shaded with a mean canopy cover measurement of 56.4%. Cypress Creek averaged 0.30 meters in depth, approximately 5.5 meters wide with a flow of 0.28 m/s.

The primary habitat components of the FDEP Habitat Assessment focus on in-water habitat. The primary habitat components score in the optimal category for Water Velocity. Habitat Smothering scored in the suboptimal category due to unstable pools and sand smothering. Substrate Diversity scored in the marginal category due to limited productive habitats comprising 2.7% of the stream area. Substrate Availability scored in the Poor category due to major productive habitats (Snags and Roots). Minor habitats included aquatic macrophytes, leaf packs and sand. The total score for the primary habitat components was a 39 out of 80.

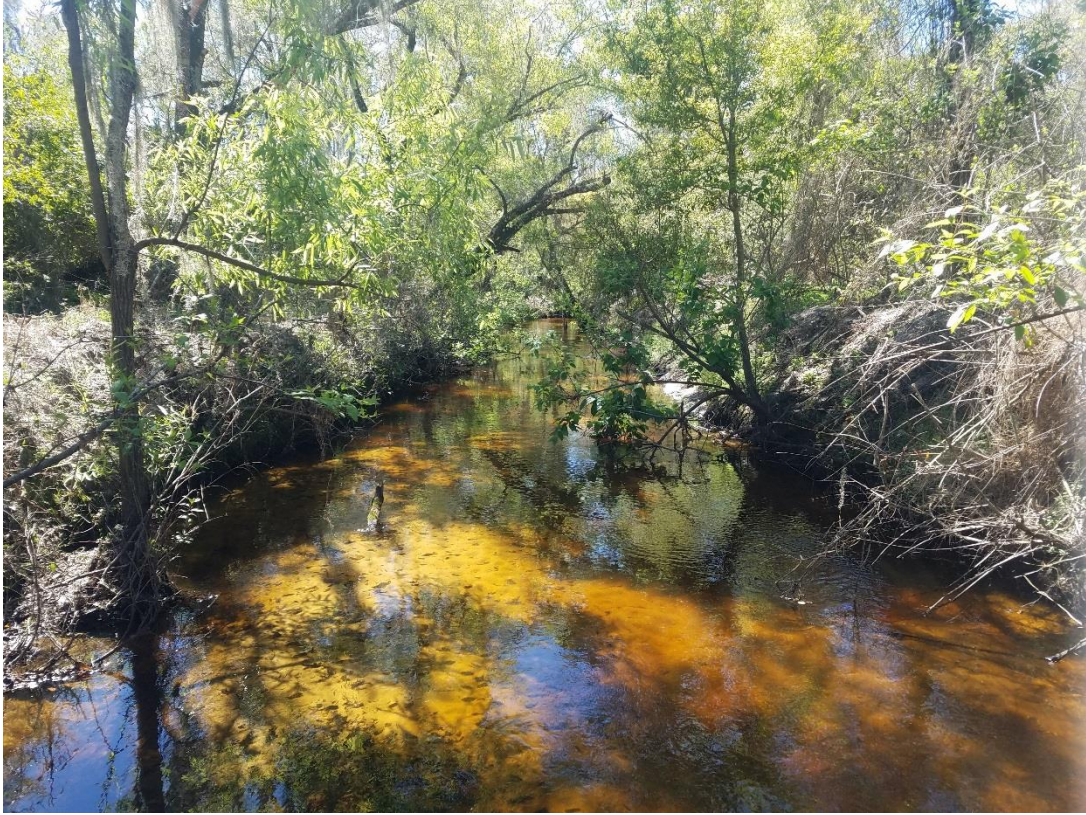
The secondary habitat components of the FDEP Habitat Assessment focus on the surrounding features of the stream. Cypress Creek flows through a large area of preserve property inside of Little Manatee State Park. In this region, Cypress Creek lacks the typical sinuosity observed in streams in this region of Florida. The secondary habitat components scored in the optimal category for Riparian Buffer Width and Riparian Zone Vegetation Quality due to the large expanse of preserve land. Artificial Channelization and Bank Stability scored in the Suboptimal category due to a lack of sinuosity, presence of spoil banks and eroding sections of banks. The riparian buffer zone surrounding the stream was greater than 18 meters on both banks and consisted of predominately native species. The vegetation in the stream itself was dominated by non-native invasive species (*hydrilla*, *hygrophila*) likely from an upstream source. The secondary habitat components received a score of 62 out of 80. The resulting FDEP Habitat Assessment score was a 101.

Periphyton was not encountered during the 99 samples taken during the Rapid Periphyton Survey on the transect lines, but was present on substrates. The tree canopy in the assessment area averaged 56.4% limiting available sunlight.

The FDEP Linear Vegetation Survey encountered eleven herbaceous species in Cypress Creek. The most commonly occurring *Hydrilla* and *Hygrophila* are non-native invasive species of submerged vegetation. Neither species were abundant accounting for only 1.85 square meters combined. Both species are typically transmitted from upstream sources. The remaining nine species are a mixture of native and non-native species.

Table 1 Linear Vegetation Survey Results – Cypress 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	
<i>Hygrophila polysperma</i>	0		1	1	1	1	1	1	1	1		8
<i>Hydrilla verticillata</i>	0	1	1	1			1	1	1	1		7
<i>Rorippa teres</i>	4.2			1			1			1		3
<i>Sphagneticola trilobata</i>	0		1			1						2
<i>Acrostichum danaeifolium</i>	5.79				1							1
<i>Alternanthera philoxeroides</i>	0			1								1
<i>Colocasia esculenta</i>	0				1							1
<i>Hydrocotyle umbellata</i>	1.92						1					1
<i>Ludwigia repens</i>	3.2				1							1
<i>Micranthemum umbrosum</i>	5.66				1							1
<i>Saururus cernuus</i>	6.5				1							1



*Figure 3 Typical habitat along the 100-meter assessment region*

## 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 Cypress Creek was 58 out of a possible 100 points, corresponding with a “Healthy” designation, with the expected community of a healthy stream.

High scores were achieved for the % Filter Feeders, % Dominance and % Tanytarsini and % Very Tolerant Individual metrics in both subsamples. Subsample A also scored high in the Total Clingers metric. Both subsamples also contained two sensitive taxa. Neither subsample contained a Long Lived Taxa. This indicates either an extreme pollution event within the past year or the hydroperiod of Cypress Creek is intermittent. Table 2 summarizes the scoring metrics for Subsample A (top) and Subsample B (bottom). The full results of the SCI sampling are shown in Table 3 (Sample A) and Table 4 (Sample B) for Cypress Creek

*Table 2 SCI metric summaries for Cypress Creek*

SCI Metric		Raw Totals	SCI scores	Adjusted SCI scores
Total Taxa		20.00	2.08	2.08
Total Ephemeroptera		2.00	4.00	4.00
Total Trichoptera		3.00	4.29	4.29
% Filter Feeders		36.36	8.29	8.29
Total Clingers		6.00	8.57	8.57
Total Long-lived Taxa		0.00	0.00	0.00
% Dominance		28.57	7.09	7.09
% Tanytarsini		16.88	8.48	8.48
Total Sensitive Taxa		2.00	2.86	2.86
% Very Tolerant Individuals		1.30	9.67	9.67
SCI Sum	55.33			
Final SCI score	61.48			

SCI Metric		Raw Totals	SCI scores	Adjusted SCI scores
Total Taxa		19.00	1.67	1.67
Total Ephemeroptera		1.00	2.00	2.00
Total Trichoptera		2.00	2.86	2.86
% Filter Feeders		37.25	8.50	8.50
Total Clingers		4.00	5.71	5.71
Total Long-lived Taxa		0.00	0.00	0.00
% Dominance		21.48	8.50	8.50
% Tanytarsini		20.81	9.07	9.07
Total Sensitive Taxa		2.00	2.86	2.86
% Very Tolerant Individuals		4.03	7.71	7.71
SCI Sum	48.88			
Final SCI score	54.31			

Table 3 SCI full results for Sample A

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Abundance	Collapsed Abundance	Taxa Presence	Ephemeroptera	Trichoptera	50% Filterer	100% Filterer	Clinger Taxa	Long-lived Taxa	Dominant Taxa	Tanytarsini	Sensitive Taxa	Very Tolerant	Specimen Notes
Mollusca		Gastropoda	Heterobranchia	Hydrophila	Ancylidae	Ancylidae spp.	3	3	1	0	0	0	0	0	0	0	0	0	0	no shells
Mollusca		Gastropoda	Caenogastropoda		Thianidae	Melanoides tuberculata	1	1	1	0	0	0	0	0	0	0	0	0	1	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus spp.	2		0	0	0	0	0	0	0	0	0	0	0	Damaged and/or immature
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	Gammarus tigrinus	2	4	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Dogielinotidae	Hyalella azteca sp. complex	3	3	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Caenidae	Caenis diminuta	1	1	1	1	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	2		0	0	0	0	0	0	0	0	0	0	0	Damaged
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetis intercalaris	1	3	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	Coenagrionidae spp.	2	2	1	0	0	0	0	0	0	0	0	0	0	Damaged, not Argia
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	Argia sedula	1	1	1	0	0	0	0	0	0	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	5	1	0	0	0	0	0	0	0	0	0	0	0	Damaged and/or immature
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Cheumatopsyche spp.	8	22	1	0	1	0	22	1	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsyche spp.	1	2	1	0	1	0	0	2	1	0	0	1	0	Immature
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	Neotrichia spp.	1	1	1	0	1	0	0	0	1	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	Microcylopus spp.	44	44	1	0	0	0	0	0	0	0	0	0	0	31 larvae, 13 adults
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Diptera spp.	Diptera spp.	1		0	0	0	0	0	0	0	0	0	0	0	pupa, no posterior end
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	3		0	0	0	0	0	0	0	0	0	0	0	pupae
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Polypedium scalaenum	1	1	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Polypedium flavum	26	29	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Rheotanytarsus exiguus	23	24	1	0	0	0	24	1	0	0	24	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Rheotanytarsus pellicidus	2	2	1	0	0	0	0	2	1	0	0	2	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Pentaneura inconspicua	3	3	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Sianochironomus spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Thienemanniella spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	Simulium spp.	6	6	1	0	0	0	0	6	1	0	0	1	0	larvae

Table 4 SCI full results for Sample B

Phylum	Subphylum	Class	Subclass	Order	Family	Taxa	Abundance	Collapsed Abundance	Taxa Presence	Ephemeroptera	Trichoptera	50% Filterer	100% Filterer	Clinger Taxa	Long-lived Taxa	Dominant Taxa	Tanytarsini	Sensitive Taxa	Very Tolerant	Specimen Notes
Annelida		Citellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	1		0	0	0	0	0	0	0	0	0	0	0	Damaged and/or
Annelida		Citellata	Oligochaeta	Tubificida	Naididae	<i>Limnodrilus hoffmeisteri</i>	1	2	1	0	0	0	0	0	0	0	0	0	2	
Annelida		Citellata	Oligochaeta	Tubificida	Naididae	<i>Slavina appendiculata</i>	2	2	1	0	0	0	0	0	0	0	0	0	0	
Mollusca		Gastropoda	Heterobranchia	Hydrophila	Ancylidae	Ancylidae spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	no shell
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	<i>Gammarus</i> spp.	2		0	0	0	0	0	0	0	0	0	0	0	Damaged and/or
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Gammaridae	<i>Gammarus taurinus</i>	3	5	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Crustacea	Malacostraca	Eumalacostraca	Amphipoda	Danieliiniidae	<i>Hyalella azteca</i> sp. complex	5	5	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	<i>Baetis</i> spp.	4		0	0	0	0	0	0	0	0	0	0	0	Damaged
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	<i>Baetis intercalaris</i>	3	7	1	1	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	<i>Coenagrionidae</i> spp.	1		0	0	0	0	0	0	0	0	0	0	0	Immature
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	<i>Argia</i> spp.	1		0	0	0	0	0	0	0	0	0	0	0	Damaged
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	<i>Argia sedula</i>	1	3	1	0	0	0	0	0	0	0	0	0	3	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	<i>Hydropsychidae</i> spp.	2		0	0	0	0	0	0	0	0	0	0	0	Immature
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	<i>Cheumatopsyche</i> spp.	5	17	3	0	1	0	0	17	1	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	<i>Hydropsyche rassi</i>	2	7	3	0	1	0	0	1	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Collembola	Elmidae	<i>Microsclopaeus</i> spp.	32	32	1	0	0	0	0	0	0	0	0	0	0	25 larvae, 7 adults
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Chironomidae</i> spp.	3		0	0	0	0	0	0	0	0	0	0	0	larvae
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Tanytarsus buckleyi</i>	1	1	1	0	0	0.5	0	0	0	0	1	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Polypedilum scalenum</i>	1	1	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Polypedilum flavum</i>	27	28	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Polypedilum illinoense</i>	1	1	1	0	0	0	0	0	0	0	0	0	1	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Rhytandarus eximius</i>	26	30	1	0	0	0	30	1	0	0	30	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Stenochironomus</i> spp.	2	2	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Thienemanniella xera</i>	1	1	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	<i>Nannochironomus</i> spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	<i>Simulium</i> spp.	8	8	1	0	0	0	0	8	1	0	0	0	0	larvae

## Water Quality Assessment

Limited long-term water quality data is available for Cypress Creek. The data that is available was collected by the Hillsborough County Environmental Protection Commission, Florida LAKEWATCH and the Florida Department of Environmental Protection. Values for the physical water parameters begin in 1976 and continue through present. Values for the laboratory water parameters begin in 1976 through present including the sample taken along with this assessment. The 2019 USF Water Institute Assessment fall within the range of the previous data collections. Table 5 provides a summary of the Physical/Chemical conditions recorded at the site.

*Table 5 Cypress Creek Physical Water Quality (Field)*

Cypress Creek								
Date	Depth (m)	Temp (°C)	pH	DO (mg/L)	DO (% Sat)	Cond (UMHO/cm)	Salinity (PPT)	Secchi Depth (m)
3/6/19	0.1	20.56	6.63	0.82	9	318.7	0.15	0.5 VOB
Mean POR		22.03	6.61	5.60	50.67	398.0	0.19	0.29

The chemical water quality analysis for Cypress Creek is shown in Table 6 along with mean values for the period of record for available parameters. Period of record mean and the sample for this assessment for Total Phosphorous values were below the nutrient region threshold developed by FDEP of 0.49 mg/L with a mean value of 0.081 mg/L (1976-2019). The three year geometric mean of Total Phosphorous was 0.112 mg/L. Total Phosphorous values for the sample from this assessment were 0.237 mg/L. Total Nitrogen values were below the nutrient region threshold developed by FDEP of 1.65 mg/L with a mean value of 1.184 mg/L (1976-2019). The three year geometric mean of Total Nitrogen was 1.013 mg/L. The Total Nitrogen value from the assessment was well below the threshold with a concentration of 1.134 mg/L. Chlorophyll-a corrected values fall within the site specific evaluation range of 3.2 µg/l to 20 µg/l for the period of record (15.86 µg/l 1976-2019). The most recent 3-year geomean is 4.85 µg/l. For sites with Chlorophyll-a values in this range, the assessment is inconclusive of conditions reflecting an imbalance in flora. Elevated biomass of the bacterial parameters was observed in the recent data collection from 2018-2019 for Enterococci 1,884/100 ml and Escherichia coli 757/100 ml.

*Table 6 Cypress Creek Water Quality (Laboratory)*

<b>Parameter</b>	<b>Cypress Creek 3/6/2019</b>	<b>POR Mean</b>	<b>Units</b>
Alkalinity	48.0	54.26	mg/LCaCO <sub>3</sub>
Nitrates/Nitrites	0.011	0.154	mg/L
E. Coli	160	291	#/100 ml
Enterococci	1360	647	#/100 ml
Chlorophyll a	4.1	5.90	ug/L
Chlorophyll b	0.5	1.31	ug/L
Chlorophyll c	0.4	1.32	ug/L
Chlorophyll t	4.1	5.30	ug/L
Chlorophylla Corr	4.1	4.03	ug/L
Chlorophyll-pheo	5.4	5.27	ug/L
Ammonia	0.210	0.077	mg/L
Kjeldahl Nitrogen	1.134	0.819	mg/L
Total Nitrogen	1.134	1.184	mg/L
Total Phosphorus	0.237	0.081	mg/L
Color(345)F.45	88.8	55.34	Pt/Co

## Conclusion

Cypress Creek at Little Manatee River State Park is located in a large preserve area. The stream itself appears to have been artificially straightened at some point in the past in the region assessed. At the time of the habitat assessment, the water levels were low, corresponding to the end of the dry season, however sufficient habitat for macroinvertebrates was observed. Due to these factors, the Habit Assessment resulted in a suboptimal score of 101. Disruption to the vegetation community was observed in the results of the Linear Vegetation Survey with Cypress Creek not meeting either metric for Average Coefficient of Conservatism or the Percent FLEPPC. Cypress Creek did meet standards for the rapid periphyton survey with 0% of samples being ranked between 4 and 6. The historical water quality record for Cypress Creek showed acceptable concentrations of Total Phosphorous and Total Nitrogen. The results of the SCI sampling indicate that the stream is “healthy” based on the macroinvertebrate community. Table 7 summarizes the results of the nutrient sampling, floristic sampling, habitat assessment and SCI.

*Table 7 Summary of Water Quality, Floristic Surveys and Habitat Assessments*

Measure		Cypress Creek	Mean POR	Threshold
Total Phosphorous (mg/l)		0.237	0.081	< 0.49
Total Nitrogen (mg/l)		1.134	1.184	< 1.65
RPS (% Rank 4-6)		0.00%		< 25%
LVS	Avg C of C	1.32		≥ 2.5
	FLEPPC %	70.40%		< 25%
Chlorophyll (µg/l)		4.1	15.86	< 20 µg/l
Habitat Assessment		101		> 34
SCI		58		> 34