Itchepackesassa 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 2023 Hillsborough County aerial, 2020 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

Itchepackesassa Creek is located in north-east Hillsborough County in the Hillsborough Bay Watershed and in west-central Polk County. Its headwaters are located west of Charlie Taylor Road in Hillsborough County. The outfall of Itchepackesassa Creek is in Blackwater Creek. The assessment of Itchepackesassa Creek was conducted on April 1st, 2024 and, at that time, the water levels normal. The Itchepackesassa Creek WBID covers 2.41 sq. miles and is dominated by forest/natural (53%) and field/pasture (25.5%) land uses. The resulting calculated landscape development intensity index score was a 2.91.

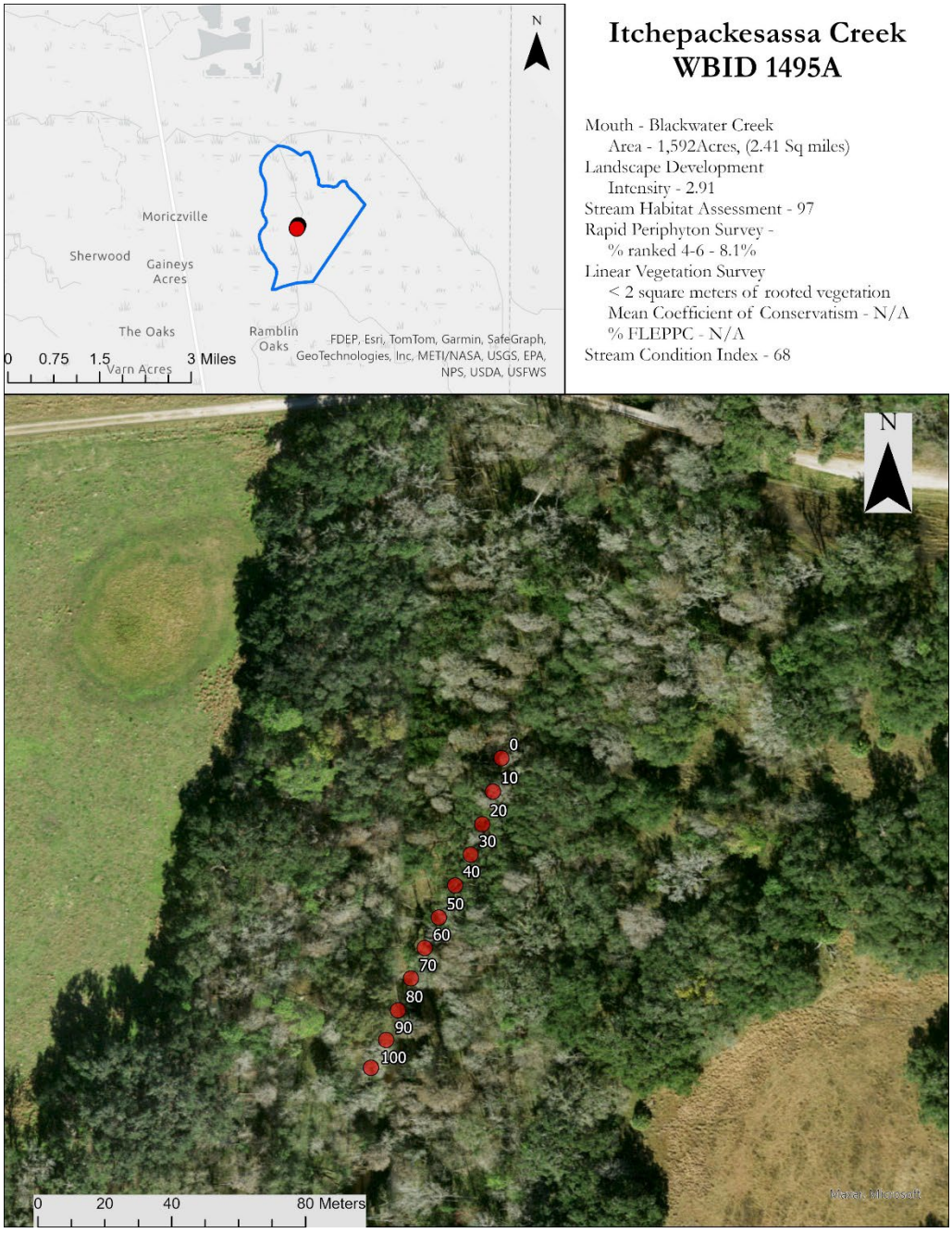

Figure 1 2024 Itchepackesassa Creek Study Area Map

Figure 2 A photograph of the end of the 100 m sample region in Itchepackesassa Creek.

Habitat and Vegetation Assessment

The region of Itchepackesassa Creek where the assessment was conducted is in Audubon Ranch near Paul-Buchman Highway. The region was moderately shaded with a mean canopy cover measurement of 70.7%. Itchepackesassa Creek averaged 0.45 meters in depth and approximately 9.55 meters wide with a flow of 0.22 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 Water Velocity (0.22 m/s), Habitat Smothering (adequate number of stable pools with many productive habitats affected by sand and silt smothering), and Substrate Diversity for having three major productive habitats (rock, snag, and leaf packs) present in the stream. Substrate Availability was scored as marginal for having major productive habitats in 8.9% of the stream. Minor habitats included roots/undercut banks and sand and silt deposits. The total score for the primary habitat components was a 44 out of 80.

The secondary habitat components of the FDEP Habitat Assessment focus on the surrounding features of the stream. The secondary habitat components scored in the marginal category for Artificial Channelization (straightened with a small degree of sinuosity developed within the channelized area). The secondary habitat components scored in the suboptimal category for Bank Stability (the percent bank full requirement was not met for either bank) and Riparian Zone Vegetation Quality (>50% to 80% of the riparian zone was undisturbed with some disruption observed). Riparian Buffer Zone Width for the left and right banks were scored as optimal (>18 meters). The secondary habitat components received a score of 53 out of 80. The resulting FDEP Habitat Assessment score was a 97.

Table 1 Scoring Summary for the Stream Habitat Assessment

Metric	Score
Primary Habitat Components	
Substrate Diversity	11
Substrate Availability	8
Water Velocity	14
Habitat Smothering	11
Primary Score	**44**
Secondary Habitat Components	
Artificial Channelization	9
Bank Stability - Right Bank	7
Bank Stability - Left Bank	7
Riparian Buffer Zone Width - Right Bank	9
Riparian Buffer Zone Width - Left Bank	9
Riparian Zone Vegetation Quality - Right Bank	6
Riparian Zone Vegetation Quality - Left Bank	6
Secondary Score	**53**
Habitat Assessment Score	**97**

Periphyton was encountered during 22 of the 99 samples taken during the Rapid Periphyton Survey. Of these samples, 8% were ranked 4-6 for being between >6 mm and >10 cm in length. The tree canopy in the assessment area averaged 70.7% reducing available light for periphyton to flourish.

The FDEP Linear Vegetation Survey encountered less than two square meters of rooted herbaceous vegetation in Itchepackesassa Creek at the time of the assessment. As a result, neither metric for mean coefficient of conservatism nor Percent FLEPPC were calculated.

Table 2 Linear Vegetation Survey Results – Itchepackesassa 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 A photograph of snag (major productive habitat) with some sedimentation in Itchepackesassa Creek.

Figure 4 Photograph of the Itchepackesassa Creek Sample Site showing the extent of the Riparian Buffer Zone Width (>18m).

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 Itchepackesassa Creek was 68 out of a possible 100 points, corresponding with a "Category 1 Exceptional" designation, with the expected community of a healthy stream. Both 2024 subsamples contained moderate total taxa with 31 taxa in both aliquots. High scores (above 7.0) were achieved for the Total Ephemeroptera, Total Clingers, % Dominance metrics in both samples. In addition, Total Sensitive Taxa in Sample A and Total Trichoptera in Sample B scored high. Low scores (less than 3.0) were achieved for the Total Long Lived taxa in Sample A and % Tanytarsini in Sample B. The full results of the SCI sampling are shown in Table 3 (Sample A) and Table 4 (Sample B) for Itchepackesassa Creek.

Table 2 SCI metric summaries for Itchepackesassa Creek Sample A (top) and Sample B (bottom)

SCI Metric	Raw Totals	SCI scores	Adjusted SCI scores
Total Taxa	31.00	6.67	6.67
Total Ephemeroptera	4.00	8.00	8.00
Total Trichoptera	4.00	5.71	5.71
% Filter Feeders	21.61	4.86	4.86
Total Clingers	7.00	10.00	10.00
Total Long-lived Taxa	0.00	0.00	0.00
% Dominance	18.71	9.06	9.06
% Tanytarsini	2.58	3.75	3.75
Total Sensitive Taxa	5.00	7.14	7.14
% Very Tolerant Individuals	10.32	5.68	5.68

SCI Sum	60.88
Final SCI score	67.64

SCI Metric	Raw Totals	SCI scores	Adjusted SCI scores
Total Taxa	31.00	6.67	6.67
Total Ephemeroptera	4.00	8.00	8.00
Total Trichoptera	5.00	7.14	7.14
% Filter Feeders	16.44	3.66	3.66
Total Clingers	8.00	11.43	10.00
Total Long-lived Taxa	1.00	3.33	3.33
% Dominance	16.11	9.58	9.58
% Tanytarsini	1.34	2.50	2.50
Total Sensitive Taxa	4.00	5.71	5.71
% Very Tolerant Individuals	19.46	4.20	4.20

SCI Sum	60.80
Final SCI score	67.56

Table 3 SCI full results for Sample A

Stream Condition Index Results for Itchepackesassa 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
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Dero trifida*	2	2	1	0	0	0	0	0	0		0	0	2
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Allonais inaequalis*	1	1	1	0	0	0	0	0	0		0	0	0
Annelida		Clitellata	Oligochaeta	Crassiclitellata	Sparganophilidae	*Sparganophilus* spp.	1	1	1	0	0	0	0	0	0		0	0	0
Annelida		Clitellata	Hirudinea	Hirudinida	Glossiphoniidae	*Helobdella elongata*	1	1	1	0	0	0	0	0	0		0	0	1
Annelida		Clitellata	Hirudinea	Hirudinida	Glossiphoniidae	*Helobdella stagnalis* sp. complex	1	1	1	0	0	0	0	0	0		0	0	1
Mollusca		Gastropoda	Caenogastropoda	Littorinimorpha	Hydrobiidae	*Pyrgophorus platyrachis*	8	8	1	0	0	0	0	0	0		0	0	8
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	*Hebetancylus excentricus*	1	1	1	0	0	0	0	0	0		0	0	1
Mollusca		Bivalvia	Autobranchia	Sphaeriida	Sphaeriidae	Sphaeriidae spp.	1	1	1	0	0	0	1	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	14		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	*Labiobaetis propinquus*	9	9	1	1	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	*Baetis intercalaris*	1	15	1	1	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	Heptageniidae spp.	2		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	*Maccaffertium exiguum*	2	4	1	1	0	0	0	1	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Leptohyphidae	*Tricorythodes albilineatus*	6	6	1	1	0	0	0	0	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera		Trichoptera spp.	1	1	1	0	1	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	16		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	19	29	1	0	1	0	29	1	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche rossi*	11	17	1	0	1	0	0	1	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	Hydroptilidae spp.	1		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	*Hydroptila* spp.	4	5	1	0	1	0	0	1	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Dubiraphia* spp.	3	3	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	16	16	1	0	0	0	0	1	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Microcylloepus* spp.	6	6	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Pentaneura inconspicua*	2	2	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironominae spp.	1		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus* spp.	1		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus buckleyi*	2	3	1	0	0	1.5	0	0	0		3	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum* spp.	1		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum scalaenum* group	6	7	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum flavum*	5	5	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum illinoense* group	2	3	1	0	0	0	0	0	0		0	0	3
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	1	1	1	0	0	0	1	1	0		1	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Corynoneura* spp.	1	1	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tvetenia tshernovskii*	1	1	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	*Simulium* spp.	1	1	1	0	0	0	1	1	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Empididae	*Hemerodromia* spp.	1	1	1	0	0	0	0	0	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ceratopogonidae	Ceratopogoninae spp.	2	2	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

Table 4 SCI full results for Sample B

Stream Condition Index Results for Itchepackesassa 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
Nemertea		Hoplonemertea		Monostilifera	Prostomatidae	*Prostoma* spp.	1	1	1	0	0	0	0	0	0		0	0	1
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Dero trifida*	2	2	1	0	0	0	0	0	0		0	0	2
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Allonais inaequalis*	1	1	1	0	0	0	0	0	0		0	0	0
Annelida		Clitellata	Oligochaeta	Tubificida	Naididae	*Slavina evelinae*	1	1	1	0	0	0	0	0	0		0	0	0
Annelida		Clitellata	Hirudinea	Hirudinida	Glossiphoniidae	*Helobdella papillata*	1	1	1	0	0	0	0	0	0		0	0	1
Mollusca		Gastropoda				Gastropoda spp.	1		0	0	0	0	0	0	0		0	0	0
Mollusca		Gastropoda	Caenogastropoda	Littorinimorpha	Hydrobiidae	*Pyrgophorus platyrachis*	23	24	1	0	0	0	0	0	0		0	0	24
Mollusca		Gastropoda	Caenogastropoda		Thiaridae	*Melanoides tuberculata*	1	1	1	0	0	0	0	0	0		0	0	1
Mollusca		Bivalvia	Autobranchia	Venerida	Cyrenidae	*Corbicula* spp.	3	3	1	0	0	0	3	0	1		0	0	0
Mollusca		Bivalvia	Autobranchia	Sphaeriida	Sphaeriidae	Sphaeriidae spp.	1	1	1	0	0	0	1	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Baetidae spp.	9		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	*Labiobaetis propinquus*	3	3	1	1	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	*Baetis intercalaris*	2	11	1	1	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	Heptageniidae spp.	1		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Heptageniidae	*Maccaffertium exiguum*	2	3	1	1	0	0	0	1	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Leptohyphidae	*Tricorythodes albilineatus*	8	8	1	1	0	0	0	0	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Gomphidae	Gomphidae spp.	1	1	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Leptoceridae	Leptoceridae spp.	1	1	1	0	1	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	2		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Cheumatopsyche* spp.	17	18	1	0	1	0	18	1	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	*Hydropsyche rossi*	15	16	1	0	1	0	0	1	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	*Hydroptila* spp.	4	4	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	Coleoptera	Elmidae	*Dubiraphia* spp.	5	5	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Stenelmis* spp.	17	17	1	0	0	0	0	1	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	*Microcylloepus* spp.	6	6	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	1		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Pentaneura inconspicua*	3	3	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironominae spp.	2		0	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Tanytarsus buckleyi*	1	1	1	0	0	0.5	0	0	0		1	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum scalaenum* group	3	4	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Polypedilum flavum*	5	7	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Rheotanytarsus* spp.	1	1	1	0	0	0	1	1	0		1	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	*Thienemanniella* spp.	1	1	1	0	0	0	0	0	0		0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	*Simulium* spp.	1	1	1	0	0	0	1	1	0		0	1	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ceratopogonidae	Ceratopogoninae spp.	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 Itchepackesassa Creek. The data that is available was collected by the Hillsborough County Environmental Protection Commission, USGS and the Florida Department of Environmental Protection. The available dataset begins with sporadic sampling in 1970 and becomes consistent in 2000 and continues through present. The 2024 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 Itchepackesassa 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:								1.1
Mid:	0.15	20.23	7.12	9.76	101.2	617.4	0.3	x VOB
Bottom:								Total Depth 0.25
Meter ID:	80							

The chemical water quality analysis for Itchepackesassa 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 0.311 mg/L (2022), 0.394 mg/L (2023) but above this threshold in 2024 with a value of 0.527 mg/L. Total Phosphorous value for the period of record had a geometric mean value of 0.474 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 0.833 mg/L (2022), 0.830 mg/L (2023) and 1.321 mg/L (2024). The Total Nitrogen value for the period of record had a geometric mean value of 1.240 mg/L. Chlorophyll-a corrected values fall below the site specific evaluation range of 3.2 µg/l to 20 µg/l for the 2022 data with a concentration of 1.81 µg/l. The 2023 and 2024 data falls within the site specific evaluation range with concentrations of 7.29 µg/l in 2023 and 7.71 µg/l in 2024. The period of record data has a geometric mean value of 4.917 µg/l. For sites with Chlorophyll-a values in this range, the assessment is inconclusive of conditions reflecting a balance or imbalance in flora.
An elevated biomass of the bacterial parameters was observed in the 3-year dataset with E. Coli having a geometric mean of 129.8 colonies/100 ml, 525.5/100 ml for Enterococci.

Table 7 Itchepackesassa Creek Water Quality (Laboratory)

Parameter	2022	2023	2024	Period of Record	Units
E. Coli	82.87	186.93	119.61	254.86	#/100 ml
Enterococci	NA	NA	525.58	512.07	#/100 ml
Chlorophyll-a	1.66	8.76	9.59	8.77	µg/L
Chlorophyll-b	NA	NA	3.02	1.70	µg/L
Chlorophyll-c	NA	NA	2.59	1.42	µg/L
Chlorophyll-a Corrected	1.81	7.29	7.71	4.92	µg/L
Ammonia	0.032	0.039	0.112	0.065	mg/L
Kjeldahl Nitrogen	0.677	0.771	1.084	0.997	mg/L
Total Nitrogen	0.833	0.830	1.321	1.240	mg/L
Nitrates/Nitrites	0.154	0.057	0.202	0.216	mg/L
Total Phosphorous	0.311	0.394	0.527	0.474	mg/L

Conclusion

Itchepackesassa Creek at Cone Ranch is located in a predominantly natural easement with active livestock. At the time of the habitat assessment, the water levels were normal for the dry season. The 100 meter region where the assessment was conducted was characterized by a previously channelized channel with spoil banks reducing attachment to the floodplain. Snag, leaf pack and fine root were the most common productive habitats present. The Habit Assessment resulted in a suboptimal score of 97. 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 present. Itchepackesassa Creek met the metrics for the rapid periphyton survey with 8% 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 Itchepackesassa Creek showed concentrations of Total Phosphorous exceeding the FDEP thresholds once in the previous three year period. Total Nitrogen for the three year period was below the FDEP threshold. Chlorophyll-a corrected was in the site specific range and showed a trend towards increasing concentrations. The results of the SCI sampling indicate that the stream is "exceptional" 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		Itchepackesassa Creek	2022	2023	2024	Threshold
Total Phosphorous (mg/l)			0.311	0.394	0.527	< 0.49
Total Nitrogen (mg/l)			0.833	0.830	1.321	< 1.65
RPS (% Rank 4-6)		8%				< 25%
LVS	**Avg C of C**	NA				≥ 2.5
	FLEPPC %	NA				< 25%
Chlorophyll-a Corrected (µg/l)			1.81	7.29	7.71	< 20 µg/l
Habitat Assessment		97				> 34
SCI		68				> 34