



Alderman Creek

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

David Eilers, Jordan Haselwood | USF Water Institute | April 4th, 2024

Methods

STUDY AREA ANALYSIS

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

Alderman Creek is located in south-central Hillsborough County in the Middle Tampa Bay Watershed. Its headwaters are located west of Taylor Gill Rd in Hillsborough County. The outfall of Alderman Creek is in Little Manatee River. The assessment of Alderman Creek was conducted on April 4th, 2024, and, at that time, the water levels were low but normal for the dry season. The Alderman Creek WBID covers 8.58 miles and is dominated by extractive and reclaimed (72.70%), field/pasture (21.50%), forest/natural (18.30%), and silvicultural (4.3%) land uses. The resulting calculated landscape development intensity index score was a 6.48.

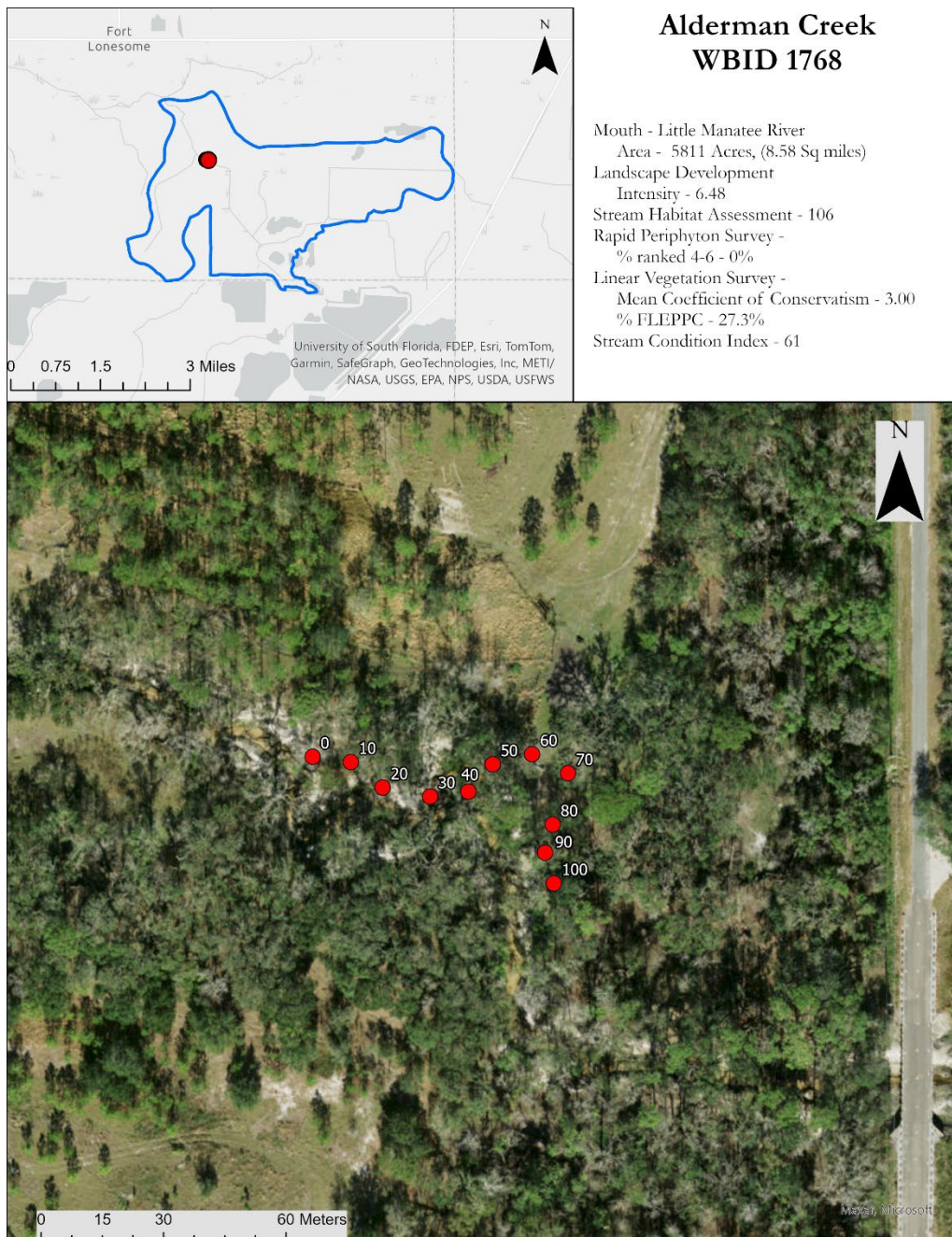


Figure 1 2024 Alderman Creek Study Area Map



Figure 2 Photograph of the Alderman Creek Sample Site showing typical heavily sandy sedimentation and frequent fallen trees.

Habitat and Vegetation Assessment

The region of Alderman Creek where the assessment was conducted is on Mosaic property just west of Taylor Gill Road. The region was moderate-heavily shaded with a mean canopy cover measurement of 73.5%. Alderman Creek averaged 0.25 meters in depth and approximately 3.75 meters wide with a flow of 0.26 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 (0.26 m/s) and suboptimal for Habitat Smothering (adequate number of stable pools with many productive habitats affected by sand smothering). Substrate Diversity was scored in the suboptimal category for having three major productive habitats (snag, leaves, and roots) present in the stream. Substrate Availability was scored as poor for having major productive habitats in only 3.5% of the stream. Minor habitats included sand deposits. The total score for the primary habitat components was 42 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 optimal category for Artificial Channelization (good sinuosity with no spoil banks or evidence of straightening) and Riparian Buffer Zone Width for both the left bank and right bank (>18 meters). Bank Stability (slope was consistently too steep for both banks and armoring was largely absent in the rank bank) and Riparian Zone Vegetation Quality (visible disruption in plant community to both banks with the right being worse than the left) are scored in the suboptimal category. The secondary habitat components received a score of 64 out of 80. The resulting FDEP Habitat Assessment score was 106.

Table 1 Scoring Summary for the Stream Habitat Assessment

Metric		Score
Primary Habitat Components		
	Substrate Diversity	11
	Substrate Availability	4
	Water Velocity	16
	Habitat Smothering	11
	Primary Score	42
Secondary Habitat Components		
	Artificial Channelization	18
	Bank Stability - Right Bank	6
	Bank Stability - Left Bank	5
	Riparian Buffer Zone Width - Right Bank	10
	Riparian Buffer Zone Width - Left Bank	9
	Riparian Zone Vegetation Quality - Right Bank	9
	Riparian Zone Vegetation Quality - Left Bank	7
	Secondary Score	64
Habitat Assessment Score		106

Periphyton was encountered during 0 of the 99 samples taken during the Rapid Periphyton Survey. The tree canopy in the assessment area averaged 73.5% reducing available light for periphyton to flourish.

The FDEP Linear Vegetation Survey encountered more than two square meters of rooted herbaceous vegetation in Alderman Creek at the time of the assessment. 12 total species were encountered within the total region, with two dominant species being noted (*Ludwigia palustris* in the 40–50-meter section and *Alternanthera philoxeroides* in the 70-80-meter section). The results of the linear vegetation index was inconclusive with the sample site passing the mean coefficient of conservatism metric (3.0) and failing the percent Florida Exotic Pest Plant Council with 27.3%.

Table 2 Linear Vegetation Survey Results – Alderman Creek

[illegible]



Figure 3-4, Photographs of snag (major productive habitat) in Alderman 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 Alderman Creek was 61 out of a possible 100 points, corresponding with a “Category 2 Healthy” designation, with noticeable loss of taxonomic diversity from the expected community of a healthy stream. Both 2024 subsamples contained moderate total taxa with 29 in subsample A and 24 in subsample B. High scores (above 7.0) were achieved for the Total Trichoptera, % Filter Feeders, and % Very Tolerant Individuals in sample A and % Filter Feeders, Total Clingers, Total Long-Lived Taxa, % Dominance and % Very Tolerant Individuals. Low scores (less than 3.0) were achieved for the Total Ephemeroptera and Total Sensitive Taxa in both samples. The full results of the SCI sampling are shown in Table 3 (Sample A) and Table 4 (Sample B) for Alderman Creek.

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

SCI Metric	Raw Totals	SCI scores	Adjusted SCI scores
Total Taxa	29.00	5.83	5.83
Total Ephemeroptera	1.00	2.00	2.00
Total Trichoptera	5.00	7.14	7.14
% Filter Feeders	31.65	7.20	7.20
Total Clingers	4.00	5.71	5.71
Total Long-lived Taxa	2.00	6.67	6.67
% Dominance	29.75	6.85	6.85
% Tanytarsini	1.90	3.13	3.13
Total Sensitive Taxa	0.00	0.00	0.00
% Very Tolerant Individuals	5.06	7.24	7.24

SCI Metric	Raw Totals	SCI scores	Adjusted SCI scores
Total Taxa	24.00	3.75	3.75
Total Ephemeroptera	0.00	0.00	0.00
Total Trichoptera	3.00	4.29	4.29
% Filter Feeders	36.36	8.29	8.29
Total Clingers	5.00	7.14	7.14
Total Long-lived Taxa	3.00	10.00	10.00
% Dominance	25.97	7.61	7.61
% Tanytarsini	4.55	5.04	5.04
Total Sensitive Taxa	2.00	2.86	2.86
% Very Tolerant Individuals	2.60	8.55	8.55

Table 3 SCI full results for Sample A

Stream Condition Index Results for Alderman Creek SCA																				
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
Platyhelminthes						Platyhelminthes spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	
Annelida		Citellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	1		0	0	0	0	0	0	0	0	0	0	0	Immature
Annelida		Citellata	Oligochaeta	Tubificida	Naididae	Limnodrilus hoffmeisteri	1	2	1	0	0	0	0	0	0	0	0	0	2	
Annelida		Citellata	Oligochaeta	Lumbriculida		Lumbriculus cf. variegatus	1	1	1	0	0	0	0	0	0	0	0	0	1	
Annelida		Citellata	Oligochaeta	Enchytraeida	Enchytraeidae	Enchytraeidae spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	
Mollusca		Gastropoda				Gastropoda spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	Damaged, no shell, not P. acuta or F. fragilis
Mollusca		Gastropoda	Caenogastropoda	Littorinimorpha	Hydrobiidae	Pyrgophorus platyrachis	2	2	1	0	0	0	0	0	0	0	0	0	2	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Physidae	Physa acuta	2	2	1	0	0	0	0	0	0	0	0	0	2	
Mollusca		Gastropoda	Heterobranchia	Hygrophila	Planorbidae	Ferrissia fragilis	1	1	1	0	0	0	0	0	0	0	0	0	0	
Mollusca		Bivalvia	Autobranchia	Venerida	Cyrenidae	Corbicula spp.	18	18	1	0	0	0	0	18	0	1	0	0	0	
Arthropoda	Crustacea	Malacostraca		Eumalacostraca	Amphipoda	Hyalella spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Crustacea	Malacostraca		Decapoda	Atyidae	Neocaridina denticulata	1	1	1	0	0	0	0	0	0	1	0	0	0	Damaged, missing posterior end
Arthropoda	Hexapoda	Insecta	Pterygota	Ephemeroptera	Baetidae	Labidobaetis propinquus	2	2	1	1	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Odonata	Coenagrionidae	Argia exilis	1	1	0	0	0	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera		Oecetis persimilis	1	1	0	0	1	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Leptoceridae	Nectopsyche pavidus	1	1	1	0	1	0	0	0	0	0	0	0	0	
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Leptoceridae	Nectopsyche candida/exquisita	1	1	1	0	0	0	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	0	Immature
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Cheumatopsyche spp.	28	30	1	0	1	0	0	30	1	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	Neotrichia spp.	1	1	0	0	1	0	0	0	1	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	Dubirapha spp.	2	2	1	0	0	0	0	0	0	0	0	0	0	0 2 larvae
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	Stenelmis spp.	1	1	0	0	0	0	0	0	0	0	0	0	0	0 2 larvae
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	Microcyllopus spp.	29	29	1	0	0	0	0	0	0	0	0	0	0	0 19 larvae, 10 adults
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	2		0	0	0	0	0	0	0	0	0	0	0	0 2 pupae
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Pentaneura inconspicua	1	1	1	0	0	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	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanytarsus spp.	1	1	1	0	0	0	0.5	0	0	0	0	1	0	0 Damaged, not T. buckleyi
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanytarsus buckleyi	1	1	1	0	0	0	0.5	0	0	0	0	1	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Polydora flavum	43	47	1	0	0	0	0	0	0	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Rhectostomatus exilis group	1		0	0	0	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	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Rheosmittia spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ceratopogonidae	Atrichopogon spp.	3	3	1	0	0	0	0	0	0	0	0	0	0	0 2 larvae, 1 pupa

Table 4 SCI full results for Sample B

Stream Condition Index Results for Alderman 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
Annellida		Citellata	Oligochaeta	Tubificida	Naididae	Tubificinae spp.	2	2	1	0	0	0	0	0	0	0	0	0	0	Immature
Annellida		Citellata	Oligochaeta	Enchytraeida	Enchytraeidae	Enchytraeidae spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	
Mollusca		Gastropoda	Heterobranchia	Hydrophila	Physidae	Physa acuta	2	2	1	0	0	0	0	0	0	0	0	0	2	
Mollusca		Bivalvia	Autoboranchia	Venerida	Cyrenidae	Corbicula spp.	31	31	1	0	0	0	31	0	1	0	0	0	0	
Arthropoda	Crustacea	Malacostraca	Decapoda	Aysidae	Aysidae	Neosquilla denticulata	4	4	1	0	0	0	0	0	1	0	0	0	0	Reference collection
Arthropoda		Pterygota	Odontata	Aeshnidae		Boyeria vinosa	1	1	1	0	0	0	0	0	1	0	0	0	0	Early instar
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Leptoceridae	Tricoenodes spp.	1	1	1	0	0	1	0	0	0	0	0	1	0	Immature
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Hydropsychidae spp.	1	1	0	0	0	0	0	0	0	0	0	0	0	Immature
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydropsychidae	Cheumatopsyche spp.	18	19	1	0	1	0	19	1	0	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Trichoptera	Hydroptilidae	Hydroptilidae spp.	2	2	1	0	1	0	0	1	0	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	Colymbopis spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	1 larva
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	Stenelmis spp.	2	2	1	0	0	0	0	0	0	0	0	0	0	1 larva, 1 adult
Arthropoda	Hexapoda	Insecta	Pterygota	Coleoptera	Elmidae	Microcylophus spp.	30	30	1	0	0	0	0	0	0	0	0	0	0	24 larvae, 6 adults
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Chironomidae spp.	3	3	0	0	0	0	0	0	0	0	0	0	0	3 pupae
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Abalatesmyia mallochii	1	1	1	0	0	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	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Cladotanytarsus spp.	1	1	0	0	0	0	0	0	0	0	0	0	0	Damaged
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Cladotanytarsus cf. davei	3	3	1	0	1.5	0	0	3	0	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanytarsus spp.	1	1	1	0	0	0.5	0	0	0	0	0	0	0	Not T. buckleyi
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Tanytarsus buckleyi	2	2	1	0	0	1	0	0	0	0	2	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Polypedium flavum	37	40	1	0	0	0	0	0	0	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Polypedium illinoense group	2	2	1	0	0	0	0	0	0	0	0	0	2	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Rheotanytarsus exiguus group	1	1	1	0	0	0	0	1	0	0	1	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Chironomidae	Stenochironomus spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Simuliidae	Simuliidae spp.	2	2	1	0	0	0	2	1	0	0	0	0	0	0
Arthropoda	Hexapoda	Insecta	Pterygota	Diptera	Ceratopogonidae	Ceratopogon spp.	2	2	1	0	0	0	0	0	0	0	0	0	0	0
Arthropoda	Chelicerata	Arachnida	Acari	Trigonidiformes	Glyptropogonichnidae	Glyptropogonichnidae spp.	1	1	1	0	0	0	0	0	0	0	0	0	0	0

Water Quality Assessment

Long-term water quality data is available for Alderman Creek. The data that is available was collected by the Hillsborough County Environmental Protection Commission on a quarterly cycle. The available dataset at station 564 (Alderman Creek at Taylor Gill Rd) begins in 2017 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 Alderman 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:								1.2
Mid:	0.15	18.61	7.1	8.94	89.7	242.8	0.11	X VOB
Bottom:								Total Depth
								0.25
Meter ID:	USF Water institute Manta Sub-2							

The chemical water quality analysis for Alderman Creek is shown in Table 7 with geometric mean values for the previous 4 years for available parameters. The annual geometric mean values for the past 3 years for Total Phosphorous values were below the nutrient region threshold developed by FDEP of 0.49 mg/L for two years with a geometric mean value of 0.44 mg/L (2022) and 0.48 mg/L (2023), and above the threshold with a geometric mean value of 0.5 mg/L (2024). Total Nitrogen values were above the nutrient region threshold developed by FDEP of 1.65 mg/L for each of the previous three years with a mean value of 1.83 mg/L (2022), 3.33 mg/L (2023) and 2.39 mg/L (2024).

Chlorophyll-a corrected values fall below the site specific evaluation range of 3.2 µg/l to 20 µg/l for each of the most recent 3-years of samples (2.56 µg/l in 2022, 1.72 µg/l in 2023, 1.96 µg/l in 2024). 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 period of record dataset with E. Coli having a geometric mean of 1,411.6 colonies/100 ml and 2,868.8 /100 ml for Enterococci.

Table 7 Alderman Creek Water Quality (Laboratory)

Parameter	2021	2022	2023	2024	Period of Record	Units
E. Coli	645.88	396	1645.22	1157.76	1,411.7	#/100 ml
Enterococci	1852.8	872.3	2947.2	867	2,868.8	#/100 ml
Chlorophyll-a	1.57	2.72	2.09	2.48	2.71	µg/L
Chlorophyll-b	0.29	0.23	0.2	0.2	0.97	µg/L
Chlorophyll-c	0.62	0.6	0.6	0.6	0.64	µg/L
Chlorophyll-t	0.83	1.18	0.96	1.09	1.06	µg/L
Chlorophyll-a Corrected	1.55	2.56	1.72	1.97	2.40	µg/L
Ammonia	0.05	0.09	0.07	0.08	0.06	mg/L
Kjeldahl Nitrogen	0.87	0.64	0.68	0.94	0.77	mg/L
Total Nitrogen	1.35	1.83	3.33	2.4	2.31	mg/L
Nitrates/Nitrites	0.33	0.84	2.6	1.28	1.32	mg/L
Total Phosphorous	0.52	0.44	0.48	0.5	0.46	mg/L

Conclusion

Alderman Creek at Taylor Gill Road is located in a predominantly extractive and reclaimed land use area. 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 natural sinuous channel with attached forested floodplains. Snag, leaf packs and fine root were the most common productive habitats present. The Habitat Assessment resulted in a suboptimal score of 106. Disruption to the vegetation community was observed in the results of the Linear Vegetation Survey with the Mean CofC score being met, but Percent FLEPPC metric not being met. Alderman Creek met the metrics for the rapid periphyton survey with 0% of samples being ranked between 4 and 6 due in part to the moderate-heavy canopy coverage in the region. The recent water quality record for Alderman Creek showed concentrations of Chlorophyll-a corrected and Total Phosphorous passing numeric nutrient criteria and Total Nitrogen failing 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		Alderman Creek	2022	2023	2024	Threshold
Total Phosphorous (mg/l)		0%	0.44	0.48	0.5	< 0.49
Total Nitrogen (mg/l)			1.83	3.33	2.39	< 1.65
RPS (% Rank 4-6)						< 25%
LVS	Avg C of C	3	27.3%			≥ 2.5
	FLEPPC %					< 25%
Chlorophyll-a Corrected (µg/l)						2.56
Habitat Assessment		106				> 34
SCI		61				> 34