



Alderman 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 2020 Hillsborough County aerial, 2014 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 (≤ 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

Alderman Creek is located in south-eastern Hillsborough County. Its headwaters are located west of Taylor Gill Road and the outfall of Alderman Creek is in the Little Manatee River. The assessment of Alderman Creek was conducted on March 2, 2020. At the time of the assessment, the water levels were normal following a period of elevated conditions. The Alderman Creek WBID covers 8.59 square miles and is dominated by extractive (44.4%) and Reclaimed (30.0%) land uses. The resulting calculated landscape development intensity index score was 6.63.

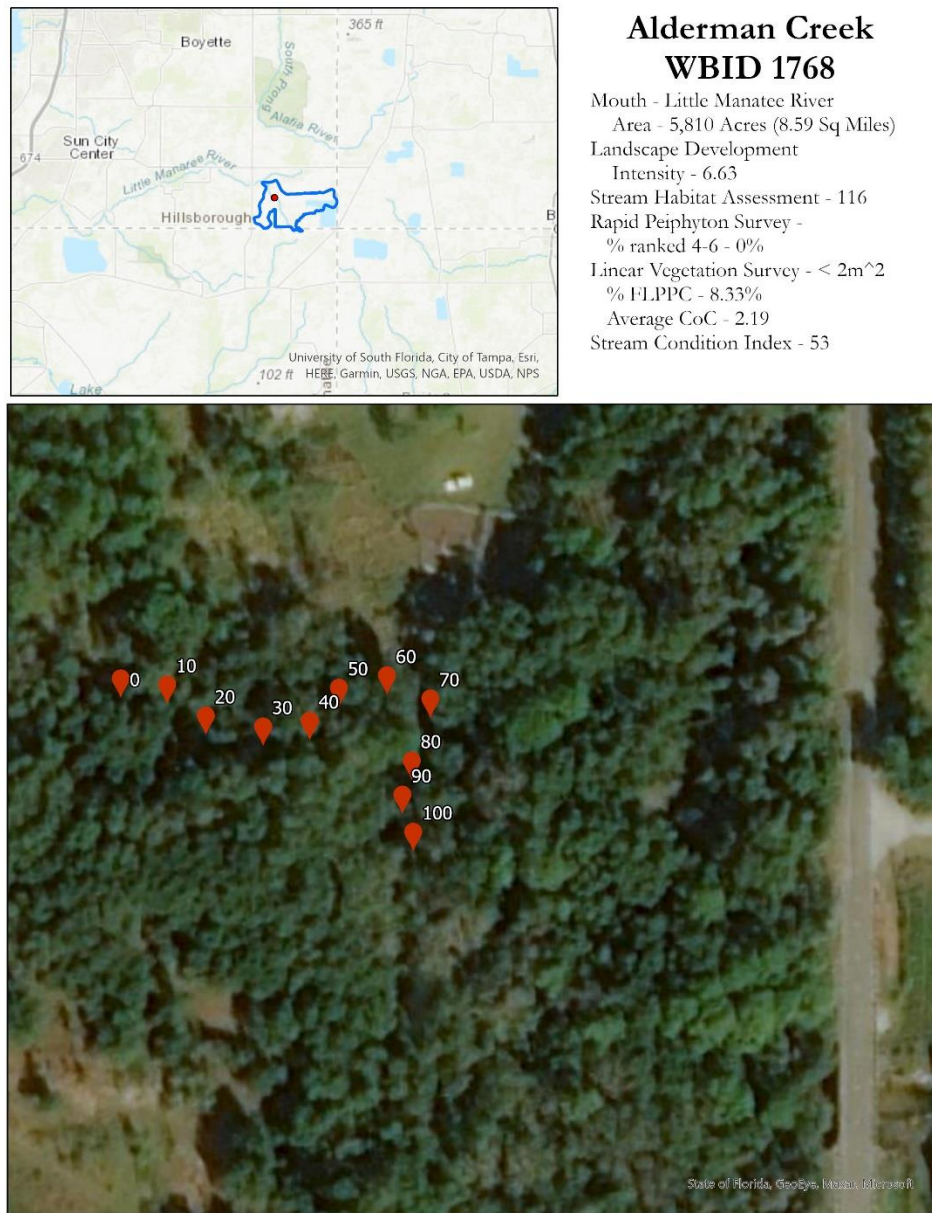


Figure 1 2020 Alderman Creek Study Area Map



Figure 2 Overview photograph of the Alderman Creek Sample Site

Habitat and Vegetation Assessment

The region of Alderman Creek where the assessment was conducted is in a natural corridor with an active cattle lease area. The region was moderately shaded with a mean canopy cover measurement of 79.8%. Alderman Creek averaged 0.6 meters in depth, approximately 6.65 meters wide with a flow of 0.6 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. Suboptimal scores were achieved for Habitat Smothering (adequate number of stable pools, many of the productive habitats were affected by sand smothering). Substrate Availability (10.1% of stream are productive habitats) and Substrate Diversity (Two major productive habitats (Snags, Roots)) were scored as marginal. Minor habitats included rock, leaf, sand and silt deposits. The total score for the primary habitat components was a 50 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, Bank Stability and Riparian Buffer Zone Width. Riparian Zone Vegetation Quality scored in the Suboptimal category due to several non-native species and species indicative of disturbance. The vegetation in the stream itself was sparse. The secondary habitat components received a score of 66 out of 80. The resulting FDEP Habitat Assessment score was a 116.

Periphyton was not encountered during the 92 samples taken during the Rapid Periphyton Survey. The tree canopy in the assessment area averaged 79.8% limiting available sunlight for aquatic macrophytes and algae.

Less than 2 m² of aquatic vegetation was observed during the FDEP Linear Vegetation Survey. Three species were encountered in Alderman Creek; *Ludwigia repens*, *Alternanthera philoxeroides* and *Hydrocotyle*. None of these species were abundant in the assessment region.

Table 1 Linear Vegetation Survey Results – Alderman Creek

[illegible]



Figure 3 Exposed roots and snag habitat along a deep pool 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 53 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 Total Ephemeroptera, Total Clingers, % Dominance and % Very Tolerant Individuals metrics in both subsamples. Both Samples had low Total Taxa and Total Long-Lived taxa.

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

| SCI Metric | Raw Totals | SCI scores | Adjusted SCI scores |
|-----------------------------|------------|------------|---------------------|
| Total Taxa | 19.00 | 1.67 | 1.67 |
| Total Ephemeroptera | 4.00 | 8.00 | 8.00 |
| Total Trichoptera | 2.00 | 2.86 | 2.86 |
| % Filter Feeders | 26.60 | 6.02 | 6.02 |
| Total Clingers | 6.00 | 8.57 | 8.57 |
| Total Long-lived Taxa | 1.00 | 3.33 | 3.33 |
| % Dominance | 26.28 | 7.54 | 7.54 |
| % Tanytarsini | 1.28 | 2.43 | 2.43 |
| Total Sensitive Taxa | 3.00 | 4.29 | 4.29 |
| % Very Tolerant Individuals | 4.49 | 7.49 | 7.49 |

| | |
|-----------------|-------|
| SCI Sum | 52.20 |
| Final SCI score | 58.00 |

| SCI Metric | Raw Totals | SCI scores | Adjusted SCI scores |
|-----------------------------|------------|------------|---------------------|
| Total Taxa | 20.00 | 2.08 | 2.08 |
| Total Ephemeroptera | 4.00 | 8.00 | 8.00 |
| Total Trichoptera | 4.00 | 5.71 | 5.71 |
| % Filter Feeders | 4.46 | 0.87 | 0.87 |
| Total Clingers | 5.00 | 7.14 | 7.14 |
| Total Long-lived Taxa | 0.00 | 0.00 | 0.00 |
| % Dominance | 26.75 | 7.45 | 7.45 |
| % Tanytarsini | 0.00 | 0.00 | 0.00 |
| Total Sensitive Taxa | 2.00 | 2.86 | 2.86 |
| % Very Tolerant Individuals | 2.55 | 8.58 | 8.58 |

| | |
|-----------------|-------|
| SCI Sum | 42.71 |
| Final SCI score | 47.45 |

Stream Condition Index Results for Alderman Creek SCIA

| Phylum | Subphylum | Class | Subclass | Order | Family | Taxa | Abundance | Collapsed Abundance | Taxa Presence | Ephemeroptera | Trichoptera Taxa | 50% Filterer | 100% Filterer | Clinger Taxa | Long-lived Taxa | Dominant Taxa | Tanytarsini | Sensitive Taxa | Very Tolerant | Specimen Notes |
|------------|-----------|--------------|-----------------|-----------------|-----------------|--|-----------|---------------------|---------------|---------------|------------------|--------------|---------------|--------------|-----------------|---------------|-------------|----------------|---------------|--|
| Mollusca | | Gastropoda | Caenogastropoda | Littorinimorpha | Hydrobiidae | <i>Pyrgophorus platyrachis</i> | 7 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Mollusca | | Bivalvia | Heterodonta | Veneroida | Corbiculidae | <i>Corbicula</i> spp. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | |
| Arthropoda | Crustacea | Malacostraca | Eumalacostraca | Amphipoda | Dugesiinotidae | <i>Hyalella azteca</i> sp. complex | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Ephemeroptera | Baetidae | <i>Baetis</i> spp. | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Damaged, not <i>L. propinquus</i> or <i>A. pygmaea</i> |
| Arthropoda | Hexapoda | Insecta | Pterygota | Ephemeroptera | Baetidae | <i>Labobaetis propinquus</i> | 3 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Ephemeroptera | Baetidae | <i>Aicrepenna pygmaea</i> | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Ephemeroptera | Heptageniidae | <i>Maccaffertium exiguum</i> | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Trichoptera | Hydropsychidae | <i>Hydropsychidae</i> spp. | 5 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Immature |
| Arthropoda | Hexapoda | Insecta | Pterygota | Trichoptera | Hydropsychidae | <i>Cheumatopsyche</i> spp. | 6 | 11 | 1 | 0 | 1 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Trichoptera | Hydroptilidae | <i>Hydroptila</i> spp. | 12 | 12 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Coleoptera | Elmidae | <i>Dubiraphia</i> spp. | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 larva, 2 adults |
| Arthropoda | Hexapoda | Insecta | Pterygota | Coleoptera | Elmidae | <i>Stenelmis</i> spp. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 adult |
| Arthropoda | Hexapoda | Insecta | Pterygota | Coleoptera | Elmidae | <i>Microcylopus</i> spp. | 36 | 36 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 larvae, 3 adults |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Chironomidae | <i>Chironomidae</i> spp. | 1 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 pupa |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Chironomidae | <i>Polypetillum flavum</i> | 40 | 41 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Chironomidae | <i>Rheotanytarsus exiguus</i> group | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Chironomidae | <i>Pentaneura inconspicua</i> | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Chironomidae | <i>Paratanytarsus longistylus</i> | 1 | 1 | 1 | 0 | 0 | 0.5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Chironomidae | <i>Cricotopus</i> or <i>Orthocladius</i> | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Ceratopogonidae | <i>Bezzia/Palpomysia</i> spp. | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 larvae |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Simuliidae | <i>Simulium</i> spp. | 28 | 28 | 1 | 0 | 0 | 0 | 28 | 1 | 0 | 0 | 0 | 1 | 0 | 28 larvae |

Table 3 SCI full results for Sample A

Stream Condition Index Results for Alderman Creek SCIB

| Phylum | Subphylum | Class | Subclass | Order | Family | Taxa | Abundance | Collapsed Abundanc | Taxa Presence | Ephemeropter a | Trichoptera Taxa | 50% Filterer | 100% Filterer | Clinger Taxa | Long-lived Taxa | Dominant Taxa | Tanytarsini | Sensitive Taxa | Very Tolerant Individuals | Specimen Notes | |
|------------|-------------|--------------|-----------------|-----------------|-------------------|-------------------------------|-----------|--------------------|---------------|----------------|------------------|--------------|---------------|--------------|-----------------|---------------|-------------|----------------|---------------------------|----------------------------|---------------------|
| Annelda | | Cilifelata | Oligochaeta | Tubificida | Naididae | Tubificinae spp. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | Damaged and/or immature | |
| Annelda | | Cilifelata | Oligochaeta | Tubificida | Naididae | Nais variabilis | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | | |
| Mollusca | | Gastropoda | Caenogastropoda | Littorinimorpha | Hydrobiidae | Pyrgophorus platyrachis | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| Arthropoda | Crustacea | Malacostraca | Eumalacostraca | Amphipoda | Dogielinotidae | Hyalella azteca sp. complex | 4 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Ephemeroptera | Caenidae | Caenidae spp. | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | Damaged | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Ephemeroptera | Baetidae | Baetidae spp. | 3 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | Damaged, not L. propinquus | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Ephemeroptera | Baetidae | Labobaetis propinquus | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Ephemeroptera | Heptageniidae | Heptageniidae spp. | 3 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | | 0 | 1 | 0 | Damaged |
| 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 | Polycentropodidae | Ceratomyia spp. | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Trichoptera | Leptoceridae | Nectopsyche candida/exquisita | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Trichoptera | Hydropsychidae | Hydropsychidae spp. | 1 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | Immature |
| Arthropoda | Hexapoda | Insecta | Pterygota | Trichoptera | Hydropsychidae | Cheumatopsyche spp. | 5 | 6 | 1 | 0 | 1 | 0 | 6 | 1 | 0 | | 0 | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Trichoptera | Hydroptilidae | Hydroptila spp. | 16 | 16 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Coleoptera | Elmidae | Microcylloepus spp. | 25 | 25 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 22 larvae, 3 adults |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Chironomidae | Polypedium flavum | 42 | 42 | 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 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Chironomidae | Cricotopus or Orthocladius | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Ceratopogonidae | Bezzia/Palpomia spp. | 5 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 5 larvae |
| Arthropoda | Hexapoda | Insecta | Pterygota | Diptera | Simuliidae | Simulium spp. | 36 | 36 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | | 0 | 1 | 0 | 35 larvae, 1 pupa |
| Arthropoda | Chelicerata | Arachnida | Acari | Trombidiformes | Hygrobatidae | Atractodes spp. | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | |

Table 4 SCI full results for Sample B

Water Quality Assessment

Long-term water quality data is available for Alderman Creek. The data that is available was collected by the United States Geological Survey 1981-1982, Florida Department of Environmental Protection 1994-2020, Hillsborough County Environmental Protection Commission 2005-2020 and Hillsborough County Public Works 2020. Values for the physical water parameters begin in 2005 and continue through 2019. Values for the laboratory water parameters begin in 1981 through 2020. The 2020 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 Alderman Creek Physical Water Quality (Field)

| Alderman Creek | | | | | | | | |
|----------------|-----------|-----------|------|-----------|------------|----------------|----------------|------------------|
| Date | Depth (m) | Temp (°C) | pH | DO (mg/L) | DO (% Sat) | Cond (UMHO/cm) | Salinity (PPT) | Secchi Depth (m) |
| 2/20/20 | 0.1 | 23.41 | 7.97 | 7.29 | 84.9 | 468 | 0.22 | 1.67 |
| Mean POR | | 22.81 | 7.21 | 6.35 | 81.5 | 401.4 | 0.20 | |

The chemical water quality analysis for Alderman Creek is shown in Table 6 along with mean values for the period of record for available parameters. Period of record mean and the 2017 geometric mean values for Total Phosphorous values were above the nutrient region threshold developed by FDEP of 0.49 mg/L with a mean value of 0.696 mg/L (2005-2020) and 0.511 mg/L (2017).

The three year geometric mean value for Total Phosphorous was below the threshold with a concentration of 0.304 mg/L. Total Phosphorous values for the sample from this assessment were 0.16 mg/L. Total Nitrogen values were below the nutrient region threshold developed by FDEP of 1.65 mg/L with a mean value of 1.389 mg/L for the period of record (2005-2020). The three year geometric mean value for Total Nitrogen was 1.118 mg/L. The Total Nitrogen value from the assessment was below the threshold with a concentration of 1.14 mg/L. The 2017 geomean value was above the threshold with a value of 2.499 mg/L. Chlorophyll-a corrected values fall below the site specific evaluation range of 3.2 µg/l to 20 µg/l for the period of record (1.48 µg/l 2005-2020), and in the site specific evaluation range for the 2018 samples (4.54 µg/l).

Elevated biomass of the bacterial parameters was observed in the long term dataset with E. Coli having a geomean of 449.6 colonies/100 ml, 2,056.3/100 ml for Enterococci.

Table 6 Alderman Creek Water Quality (Laboratory)

| Parameter | Alderman Creek | POR Mean | Units |
|-------------------|-----------------------|-----------------|-----------------------|
| Alkalinity | 128 | | mg/LCaCO ₃ |
| Nitrates/Nitrites | 0.422 | 0.260 | mg/L |
| E. Coli | 238 | 450 | #/100 ml |
| Enterococci | 103 | 2,056 | #/100 ml |
| Chlorophyll a | 2.7 | 2.14 | ug/L |
| Chlorophyll b | 1 | 0.60 | ug/L |
| Chlorophyll c | 1.4 | 0.51 | ug/L |
| Chlorophyll t | 4.10 | | ug/L |
| Chlorophylla Corr | 1.5 | 1.48 | ug/L |
| Chlorophyll-pheo | 1.9 | | ug/L |
| Ammonia | 0.045 | 0.037 | mg/L |
| Kjeldahl Nitrogen | 0.720 | 0.819 | mg/L |
| Total Nitrogen | 1.140 | 1.389 | mg/L |
| Total Phosphorus | 0.160 | 0.696 | mg/L |
| Color(345)F.45 | 30 | 60.5 | Pt/Co |

Conclusion

Alderman Creek at Taylor Gill Rd is located in a predominantly extractive and reclaimed area. At the time of the habitat assessment, the water levels were normal, following a period of increased water levels. Due to these factors, the Habit Assessment resulted in a marginal score of 116. Disruption to the vegetation community was not observed in the results of the Linear Vegetation Survey with Alderman Creek not meeting the required minimum of 2m² of aquatic vegetation. Alderman 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 Alderman Creek showed acceptable concentrations of Total Phosphorous and Total Nitrogen in the previous 3 year period with 1 year having a geometric mean value above the threshold for each parameter. 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 | | Alderman Creek | Mean POR | Threshold |
|--------------------------|------------|----------------|----------|-----------|
| Total Phosphorous (mg/l) | | 0.304 | 0.696 | < 0.49 |
| Total Nitrogen (mg/l) | | 1.118 | 1.389 | < 1.65 |
| RPS (% Rank 4-6) | | 0% | | < 25% |
| LVS | Avg C of C | N/A | | ≥ 2.5 |
| | FLEPPC % | N/A | | < 25% |
| Chlorophyll (µg/l) | | 2.40 | 1.48 | < 20 µg/l |
| Habitat Assessment | | 116 | | > 34 |
| SCI | | 53 | | > 34 |