HA/RPS/LVS

Site Name Three Forks Marsh (SJR upstream of Lake Hellen Blazes) Sample Date 09/11/2019

WBID 2893R WIN ID G3CE0018 RQ - 2019-09-02-66

	Initial/Date	QC Initial/Date
Water chemistry data to LIMS	LMD 9/20/19	MKL 9/23/19
Create SBIO station visit 80306	LMD 9/20/19	n/a
Phys/Chem entry	LMD 9/20/19	MKL 9/23/19
Habitat Assesment entry 16292	LMD 9/20/19	MKL 9/23/19
Vascular entry (add LIMS ID to entry) 11489	LMD 9/20/19	MKL 9/23/19
RPS entry 9447	LMD 9/20/19	MKL 9/23/19
Authorize SBIO data	MKL 9/23/19	n/a
Scan all sheets to 21FLCEN folder		n/a
LIMS/WIN migration		n/a
File in cabinet		n/a

Comments/notes:

Packet also includes WQ for G3CE0017

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2019

Data Qualified? Yes / (No)

WIN Station Name: SJR upstream of Lake Hellen Blazes **Date:** 09/11/2019 (mm/dd/yyyy)

WIN/ Field ID: G3CE0018 **WBID:** 2893R **Latitude:** 27.99937529 (Decimal Degrees)

County: Brevard **ORG ID:** 21FLCEN **Longitude:** -80.79207266 (Decimal Degrees)

Receiving Body of Water: Sawgrass Lake **RQ-2019-** 09-02-66

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Mike Linger	✓		✓		
Mike Drennan		✓		✓	✓

Sampling Equipment
- [x] Sample Container [ ] Van Dorn [ ] Pole
- [ ] Carboy [x] Syringe
- [ ] Dipper [ ] Other
- Depth Measured with: Secchi Disk Line / Meter
- Equipment ID: Leadfoot, Knothead, Crusty/Bucket, /Trap

Collection Method
- [ ] Wading [ ] Canoe/Kayak
- [ ] From Shore [ ] Electric Motor
- [ ] Other [ ] Gasoline Motor

Water Level: Dry/ Pooled/ Low / Normal / (High) / Flooded **Meter ID#** Craw Daddy **Matrix:** (Fresh) / Marine / DI

Photos: (Yes) / No **Flow:** No Flow / Intestital / (Flowing) / NA **Tide:** Rising/ Falling/ Slack/ (NA) **Tide Times:** High Low

Time Zone	Time	Total Depth (m)	Sample Depth (m)	Secchi Disk (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (PPTh)	Sp COND (µmhos/cm)	Temp. (C°)
EST	1045	1.4	0.3	0.5	0.13	1.7	6.47	0.12	261.9	29.6
~~CEN~~										

Biological Samples Collected: None (HA) SCI (RPS) Algae ID (LVS) LVI Other:

SBIO ID Numbers: SBIO-ID: 80306 HA-ID: 16292 RPS-ID: 9447 Macrophyte-ID: 11489 LIMS#: 2118650

Parameter Suite	Parameter Methods	Preservation	Lot#	Expiration	pH Check
Preserved Nutrients	[x] W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	[x] Ice [x] H_2SO_4	SA7163030	10/30/19	[x] <2
Metals	[ ] W-ICPMS [ ] W-ICP	[ ] Ice [ ] HNO_3			[ ] <2
Filtered Nutrients	[x] W-PO4-F [x] Field Filtered 0.45 µm Filter	[x] Ice	13615055		
Chlorophyll	[x] CHLSUITE-W	[x] Ice			
Physical/Aggregate (Fresh)	[x] Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS	[x] Ice			
Physical/Aggregate (Marine)	[ ] Alkalinity / W-F / W-TSS / TURBIDITY	[ ] Ice			
Macroinvertebrates	[ ] MI-FW-QLDC	[ ] Formalin			
Periphyton	[ ] ALGAE-ID	[ ] Ice			
Microbiology	[x] E Coli [ ] F Coli [ ] Enterococci	[x] Ice			
Molecular	[ ] PCR-FILTER [ ] PCR-BacR [ ] PCR-GULL2 [ ] PCR-HF183 [ ] PCR-DG3 [ ] PCR-GFD	[ ] Ice			
Tracers	[ ] W-E8321-DI [ ] W-E8321-MS	[ ] Ice			
Pesticides	[ ] W-PSNP-TQ [ ] W-CT-CL-R [ ] W-E8321-DI [ ] W-PCL-SQ-R [ ] WE8321-MS [ ] W-CARB-AA	[ ] Ice [ ] Other			
Phytoplankton	[ ] DTY-QN-C [ ] PKD-QN-C	[ ] Ice			

Notes:

SG: 16.1

~ 1000 m S of site

Signature: [signature] **Date:** 9/11/19

WIN ID / Field ID →

SJR upstream of Lake Hellen Blazes

G3CE0018

LIMS EVENT ID: CENT-DIST-2019- 09-12-03

Enter Field Parameters, Verify Station ID In LIMS DMT: LMD 9/20/19 (Initials/Date) **QC Station ID, Field Parameters In LIMS DMT:** MKL 9/23/19 (Initials/Date)

Scan/Save Field Sheets _____ (Initials/Date) **Migrate Data to WIN:** _____ (Initials/Date) **Verify Data In WIN:** _____ (Initials/Date)

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

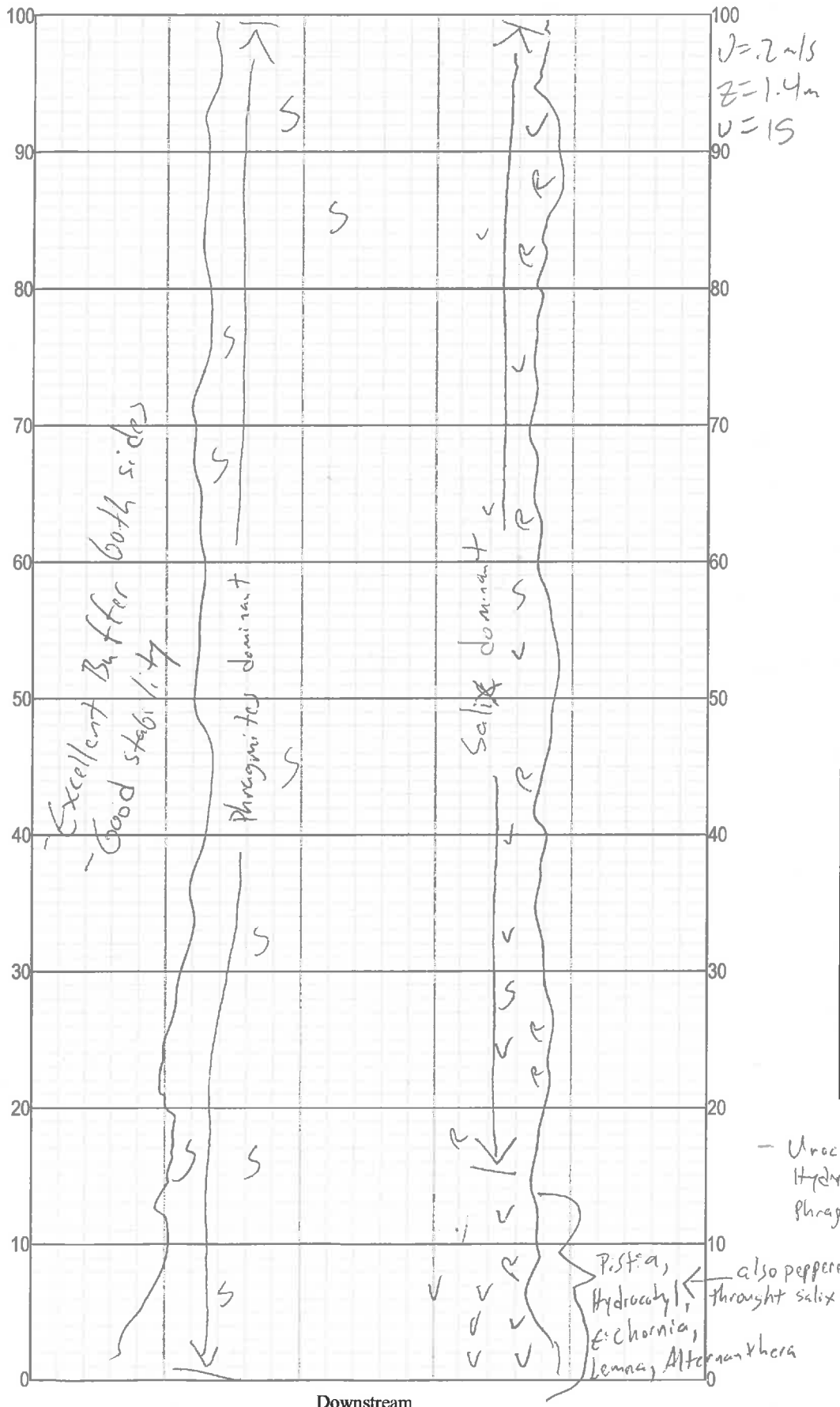
SAMPLING AGENCY:		STORET STATION NUMBER:	DATE (MM/DD/YY):	RECEIVING BODY OF WATER:
FDEP	CE·ROC	G3CE0018	09/11/19	
REMARKS:	COUNTY: Brevard	LOCATION: Three Forks Marsh SJR upstream of Lake Hellen Blazes		FIELD ID/NAME: G3CE0018

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 7	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 11	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 (7) 6	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability 5	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat (5) 4 3 2 1
Water Velocity 14	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 (14) 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 1
Habitat Smothering 6 Primary Score 32	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 (6)	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 1
Secondary Habitat Components **Artificial Channelization** 20	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. (20) 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. 10 9 8 7 6	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. 5 4 3 2 1
Bank Stability Right Bank 10 Left Bank 10	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankful to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. (10) 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 10	Width of vegetation greater than 18 m (10) 9	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank 5 Left Bank 5 Secondary Score 70	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 6	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. (5) 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

102 **TOTAL SCORE**

Date:	Analyst:	Signature:
9/11/19	Mike Linger / Mike Drennan	

DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: Three forks Marsh

Date: 9/11/19

Sampler: Mike Linger, Mike Drennan

100 m: Latitude 27.9986
Longitude -80.7915

0 m: Latitude 27.9993
Longitude -80.7920

Substrates: Code key, draw proportionate habitat abundance.		%
S	Snags	0.8
R	Roots/undercut banks	0.1
	Leaf Packs (or mats)	~~4.0~~
A	Aquatic Macrophytes	4.0
O	Pools	total # observed = 0
		# range expected = 0-1

Average width 15 m
Average depth 1.4 m

Velocity measured at 0 meter mark.

WQ & chemistry taken at 0 meter mark

Habitat Smothering:
Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
Note areas (on map) where natural vegetatio is altered or eliminated.

Plants observed / other notes:

- Urochloa mutica, Salix, Pistia, Hydrocotyl, Alternanthera, Lemna, Phragmites, Paspalum repens
- Irrigated land just south of sampling point
- Some Algae smothering
- CPOM sediment
- stabil banks/good

$\bar{Z}$ = 1.4m buffer
$\bar{V}$ = 0.2 m/s - plenty of invasives
$\bar{W}$ = 15m

~~Water level just above Bankf below~~ LMD
~~into the floodplane (wetland)~~
BF = WL + 0.1m

S = 12
R = 1.2
V = 60
} 73.2/1500 = +/- 5%

2-160.800, F.A.C

ngth of grid represents 100 m of stream (not linear meters).

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID 80306 ORG ID 21 FL CEN LATITUDE 27.49937529
COUNTY Brevard STORET # G3CE0018 LONGITUDE -80.79207266
DATE 9/11/19 TIME 1045 SAMPLING AGENCY FDEP CE.ROC
SITE NAME SJR upstream of Lake Hellen Blazes (Twice Forks Marsh)
FIELD ID/NAME _____ RECEIVING BODY OF WATER Lake Hellen Blazes

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)
100							

Landscape Development Intensity Index (LDI):

Local Watershed Erosion (select one): ☑ None ☐ Slight ☐ Moderate ☐ Heavy

Local Watershed NPS Pollution: ☑ No evidence ☐ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side
Left Bank: >18 Right Bank: >18

Hydrologic Modification Score (per FT 3101):

High Water Mark: 0.1 (m) + 1.4 (above present water level) = 1.5 (present depth) (above bed)

Artificially Impounded ☐ Yes ☑ No

Typical Width (m) Depth (m)/Velocity (m/sec) Transect
15 m wide

m/s	0.2 m/s	m/s
m deep	1.4 m deep	m deep

Artificially Channelized: ☑ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ Recent, severe

Canopy Cover % ☑ Open ☐ Heavily Shaded ☐ Lightly Shaded (11-45%) ☐ Moderate Shaded (46-80%)

SEDIMENT / SUBSTRATE

Sediment Oils ☑ Absent ☐ Slight ☐ Moderate ☐ Profuse

Sediment Odors ☑ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify):

Smothering of Substrates

	None	Slight	Moderate	Severe
Sand Smothering:	☑	☐	☐	☐
Silt Smothering:	☑	☐	☐	☐
Algae Smothering:	☐	☐	☑	☐

SUBSTRATE TYPE
Assessment Tool: ☐ SCI ☑ RPS ☑ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	0.8		
Undercut Banks / Roots	0.1		
Leaf Packs or Mat			
Aquatic Vegetation	4.0		
Rock or Shell Rubble..			
Sand.....			
Mud / Muck / Silt			
Other			
Other			

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☐	☐	☑
Fish:	☐	☐	☑	☐
Aquatic Plants:	☐	☐	☑	☑
Iron/Sulfur Bacteria:	☑	☐	☐	☐

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:	0.3	29.6	6.47	0.13	1.7	261.9	0.12	0.5
Mid:								☐ VOB
Bottom								TOTAL DEPTH
								1.4

Meter ID: Crow Daddy

Water Odors Normal ☑ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐

Water Surface Oils Normal ☑ Sheen ☐ Globs ☐ Slick ☐ Other ☐

Water Sample Taken? ☑ Yes ☐ No
Sample Preserved? ☑ Yes ☐ No
Lot Number: _____ Exp: _____

Color Tannic ☑ Green (Algae) ☐ Clear ☐ Other (Specify) ☐

Algae Sample Taken? ☐ Yes ☑ No
Sample Preserved? ☐ Yes ☐ No
Lot Number: _____ Exp: _____

Clarity Clear ☑ Slightly Turbid ☐ Turbid ☐ Opaque ☐

System Type: Stream ☑ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐

AMBIENT FIELD CONDITIONS / NOTES:
90's partly cloudy

☑ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM Mike Linger / Mike Brennan

SIGNATURE: [signature]

DATE: 9/11/19

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site:	County:	Date:	Investigators:
SJR upstream of Lake Hellen Blazes	Brevard	9/11/19	Mike Unger

STORET Station Number: G3CE 0018

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	3	N	
	2	N	Y	
	3	N	Y	
	4	N	Y	
	5	N	Y	0
	6	N	Y	
	7	N	Y	
	8	N	Y	
	9	4	N	
10	1	N	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	4	N	
20	1	3	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	3	N	
30	1	3	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	4	N	
40	1	5	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	3	N	
50	1	4	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	3	N	
60	1	5	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	4	N	
70	1	3	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	N	N	
80	1	N	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	4	N	
90	1	3	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	0
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	N	N	
100	1	5	N	
	2	N	Y	
	3	|	Y	
	4	|	Y	
	5	|	Y	6
	6	|	Y	
	7	|	Y	
	8	N	Y	
	9	4	N	

Secchi depth	0.5
Estimated?	

# points ranked 4-6	11
total points assessed	99
% points ranked 4-6	11

Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	
Water sample	✓

RQ-2019-09-02-66

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.

Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.

Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.

Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: SJR upstream of Lake Hilton Blazes | Date: 9/11/19 | County: Brevard | Storet Number: 63CE0018

Analyst: Mike Linger / Mike Drennen | Signature:

Comments:

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m^2 of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Alternanthera philoxeroides	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Bacopa caroliniana											
Bacopa monneri											
Bidens mitis											
Boehmeria cylindrica											
Centella asiatica											
Ceratophyllum demersum											
Chara											
Cicuta maculata											
Cladium jamaicense											
Colocasia esculenta											
Commelina diffusa											
Commelina virginica											
Crinum americanum											
Diodia virginiana											
Eichhornia crassipes										✓	
Eleocharis (wispy viviparous)											
Hydrilla verticillata										✓	
Hydrocotle	✓									✓	
Hygrophila polysperma											
Hymenocallis											
Lachnanthes caroliniana											
Landoltia punctata											
Lemna				✓			✓			✓	
Limnophila sessiflora											
Ludwigia leptocarpa											
Ludwigia palustris											
Ludwigia peruviana											
Ludwigia repens											
Luziola fluitans											
If no Dominant or Co-Dominant were selected, indicate with "X"											
Indicate % cover macrophytes per section											
0-5% Macrophyte Coverage											
>5 and ≤10% Macrophyte Coverage	✓										
>10 and ≤25% Macrophyte Coverage		✓	✓	✓	✓	✓	✓	✓	✓	✓	
>25 and ≤50% Macrophyte Coverage											
> 50% Macrophyte Coverage											

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Micranthemum glomeratum											
Micranthemum umbrosum											
Myriophyllum aquaticum											
Najas guadelupensis											
Nuphar luteum										✓	
Orontium aquaticum											
Panicum hemitomon											
Panicum repens											
Panicum rigidulum											
Pistia stratioides	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Polygonum glabra											
Polygonum hydropiperoides											
Polygonum punctatum											
Pontedaria cordata											
Potamogeton illinoensis											
Ruellia simplex											
Sacciolepis striata											
Sagittaria kurziana											
Sagittaria lancifolia											
Sagittaria latifolia											
Salvinia minima											
Samolus parviflora											
Saururus cernuus											
Sparganium americanum											
Typha											
Vallisneria americana											
Zizania aquatica											
Phragmites	D	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Salix caroliniana	✓	D	D	D	D	D	D	D	D	✓	
Paspalum Repens	✓	✓			✓	✓			✓	✓	
EE Urochloa mutica		✓	✓		✓	✓		✓	✓	✓	