

HA/RPS/LVS

Site Name Tiger CreekSample Date 8/12/19WBID 31830WIN ID G4LE0070RQ 2019-07-06-68

	Initial/Date	QC Initial/Date
Water chemistry data to LIMS	KWM SEP 12 2019	NA 9/12/19
Create SBIO station visit	KWM SEP 12 2019	n/a
Phys/Chem entry	NA 9/12/19	NA 9/12/19
Habitat Assessment entry	KWM SEP 12 2019	NA 9/12/19
Vascular entry (add LIMS ID to entry)	KWM SEP 12 2019	NA 9/12/19
RPS entry	KWM SEP 12 2019	NA 9/12/19
Authorize SBIO data	NA 9/12/19	n/a
Scan all sheets to 21FLCEN folder		n/a
LIMS/WIN migration	LMD 9/23/19	n/a
File in cabinet		n/a

Comments/notes:

815

14749



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2019

Data Qualified?
Yes / No

WIN Station Name: Tiger Creek 1.45km downstream of Lake Kissimmee Date: 08/12/2019

WIN/ Field ID: G4CE0070 WBID: 3183D Latitude: 27.92723 (mm/dd/yyyy)

County: Polk ORG ID: 21FLCEN Longitude: -81.34832 (Decimal Degrees)

Receiving Body of Water: _____ RQ-2019- 2019-07-08-68 (Decimal Degrees)

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Terry Riordan						X		X	X
Natalie Ayala					X		X		

Sampling Equipment				
☒ Sample Container	☐ Van Dorn	☐ Pole		
☐ Carboy	☐ Syringe			
☐ Dipper	☐ Other			
Depth Measured with <u>Secchi Disk Line / Meter</u>				
Equipment ID <u>Leadfoot, Knothead, Crusty/Bucket, Mucky/Trap</u>				

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 / Intestinal / 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 (PPT)	Sp COND (umhos/cm)	Temp. (C°)
(EST)	<u>B10</u>	<u>1.3</u>	<u>0.3</u>	<u>0.3</u>	<u>4.20</u>	<u>56.1</u>	<u>6.71</u>	<u>0.06</u>	<u>133.1</u>	<u>31.3</u>
GEN										

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

SBIO ID Numbers: SBIO-ID: 60230 HA-ID: _____ RPS-ID: 9438 Macrophyte-ID: 11475 LIMS#: 2111058

Parameter Suite	Parameter Methods	Preservation	Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H2SO4	<u>SA 7163080</u>	<u>10/19</u>	☒ <2
Metals	☐ W-ICPMS ☐ W-ICP	☐ Ice ☐ HNO3			☐ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice	<u>16930280</u>		
Chlorophyll	☒ CHLSUITE-W	☒ Ice			
Physical/Aggregate (Fresh)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-CI-IC / W-COLOR / W-SO4-IC / W-TDS	☒ Ice			
Physical/Aggregate (Marine)	☐ Alkalinity / W-F / W-TSS / TURBIDITY	☐ Ice			
Macroinvertebrates	☐ MI-FW-QLDC	☐ Formalin			
Periphyton	☐ ALGAE-ID	☐ Ice			
Microbiology	☐ E Coli ☐ F Coli ☐ Enterococci	☐ 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:

WIN ID / Field ID →

Tiger Creek 1.45km
downstream of Lake
Kissimmee



G4CE0070

Signature: Natalie Ayala Date: 8/12/19

LIMS EVENT ID: CENT-DIST-2019-08-13-01

Enter Field Parameters, Verify Station ID In LIMS DMT: KWM SEP 12 2019

QC Station ID, Field Parameters In LIMS DMT: NA 9/12/19

Scan/Save Field Sheets _____
(Initials/Date)

Migrate Data to WIN: LMD 9/23/19
(Initials/Date)

Verify Data In WIN: _____
(Initials/Date)

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

SAMPLE ID _____ ORG ID _____ LATITUDE 27.92723
 COUNTY Polk STORET # _____ LONGITUDE -81.34832
 DATE 8/12/2019 TIME _____ SAMPLING AGENCY FDEP
 SITE NAME Tiger Creek 145K DS of Lake Kissimmee
 FIELD ID/NAME G4CE0070 RECEIVING BODY OF WATER _____

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural <u>100</u> Silviculture _____ Field/Pasture _____ Agricultural _____ Residential _____ Commercial _____ Industry _____ Other (Specify) _____							Landscape Development Intensity Index (LDI) _____	
Local Watershed Erosion (select one): ☒ None ☐ Slight ☐ Moderate ☐ Heavy Local Watershed NPS Pollution: ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy							Typical Width (m) Depth (m)/Velocity (m/sec) Transect <u>40</u> m wide _____ m/s <u>0.17</u> m/s _____ m/s _____ m deep <u>1.3</u> m deep _____ m deep	
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>18m</u> Right Bank: <u>>18m</u>				Hydrologic Modification Score (per FT 3101) _____				
High Water Mark: <u>0</u> + <u>1.3</u> = <u>1.3</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No				
Artificially ☒ No ☐ Mostly recovered, more sinuous Channelized: ☐ Some recovery ☐ Recent, severe				Canopy Cover % ☒ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☐ Moderate Shaded (46-80%)				

SEDIMENT / SUBSTRATE

Sediment Oils ☐ Absent ☐ Slight ☐ Moderate ☐ Profuse			Sediment Odors ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify): _____			Smothering of Substrates Sand Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐ Silt Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐ Algae Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐		
SUBSTRATE TYPE Assessment Tool: ☐ SCI ☒ RPS ☒ LVS ☐ LCI ☐ BioRecon Invert PERI % # Times # Times Coverage Sampled Sampled Woody Debris (Snags) _____ Undercut Banks / Roots _____ Leaf Packs or Mat _____ Aquatic Vegetation <u>13.75</u> _____ Rock or Shell Rubble.. _____ Sand..... _____ Mud / Muck / Silt _____ Other _____ Other _____			WATER QUALITY Depth (M) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat (%) Cond. (UMHO/CM) Salinity (PPT) SECCHI (M) Top: <u>0.3</u> <u>31.3</u> <u>6.71</u> <u>4.20</u> <u>56.1</u> <u>133.1</u> <u>0.06</u> <u>0.3</u> Mid: _____ Bottom: _____ Meter ID: <u>Crow Daddy</u> Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: <u>SA 7162030</u> Exp: <u>10/19</u> Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____					
			Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) _____					
			Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐					
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☒ ☐ ☐ ☐ Fish: ☒ ☐ ☐ ☐ Aquatic Plants: ☐ ☐ ☐ ☒ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐			System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) _____ AMBIENT FIELD CONDITIONS / NOTES: ☒ The antecedent hydrologic conditions have been met to my best knowledge.					

SAMPLING TEAM Terry Riordan / Natalie Ayala **SIGNATURE:** Natalie **DATE:** 8/12/2019

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

SAMPLING AGENCY: <u>FOEP</u>		STORET STATION NUMBER: <u>G2CE0070</u>	DATE (MM/DD/YY): <u>8/12/19</u>	RECEIVING BODY OF WATER: <u>Kissimmee River</u>
REMARKS:	COUNTY: <u>Polk</u>	LOCATION: <u>Tiger Creek</u>	FIELD ID/NAME: <u>G2CE007</u>	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock]	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity <u>3</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 <u>3</u> 2 1
Substrate Availability <u>9</u>	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 <u>9</u> 8 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>13</u>	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 <u>13</u> 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 <u>18</u> ----- Primary Score <u>43</u>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 <u>18</u> 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	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks.	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered.	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area.	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks.
Artificial Channelization <u>20</u>	<u>20</u> 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the root zone with few raw, eroded areas.	Only meets 2 of the 3 requirements for optimal bank stability.	Only meets 1 of the 3 requirements for optimal bank stability.	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas.
Right Bank <u>10</u> Left Bank <u>10</u>	10 9	8 7 6	5 4	3 2 1
Riparian Buffer Zone Width	Width of vegetation greater than 18 m	Width of vegetation >12 to 18m	Width of vegetation 6 to 12 m, human activities close to system	Less than 6 m of buffer zone due to intensive human activities
Right Bank <u>10</u> Left Bank <u>10</u>	<u>10</u> 9	8 7 6	5 4	3 2 1
Riparian Zone Vegetation Quality	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.	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed.	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious.	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions).
Right Bank <u>8</u> Left Bank <u>8</u> ----- Secondary Score <u>76</u>	10 9	<u>8</u> 7 6	5 4	3 2 1

119 TOTAL SCORE

Date: <u>8/12/2019</u>	Analyst: <u>Natalie Ayala/Terry Riordan</u>	Signature: <u>[Signature]</u>
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DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Tiger Creek County: PdK Date: 8/12/2019 Investigators: Natalie Ayala / Terry Riordan

Transect (m) Point 1=right 9=left Algal Thickness Rank (N-6, X) Estimated Canopy Cover

0	1	N			60	1	N		
	2					2			
	3					3			
	4					4			
	5			0		5			0
	6					6			
	7					7			
	8					8			
	9	N				9	N		

10	1	N			70	1	N		
	2					2			
	3					3			
	4					4			
	5			0		5			0
	6					6			
	7					7			
	8					8			
	9	N				9	N		

20	1	N			80	1	N		
	2					2			
	3					3			
	4					4			
	5			0		5			0
	6					6			
	7					7			
	8					8			
	9	N				9	N		

30	1	N			90	1	N		
	2					2			
	3					3			
	4					4			
	5			0		5			0
	6					6			
	7					7			
	8					8			
	9	N				9	N		

40	1	N			100	1	N		
	2					2			
	3					3			
	4					4			
	5			0		5			0
	6					6			
	7					7			
	8					8			
	9	N				9	N		

50	1	N			50	1	N		
	2					2			
	3					3			
	4					4			
	5			0		5			
	6					6			
	7					7			
	8					8			
	9	N				9	N		

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%.

STORET Station Number: G4CE0070

Secchi depth 0.3
Estimated?

points ranked 4-6 0
total points assessed 99
% points ranked 4-6 0

Check accompanying data collected at same site/date.

Algal mat sample
Linear Veg Survey ✓
Habitat Assessment ✓
SCI/Biorecon
Water sample ✓

RQ-2019-07-08-68

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

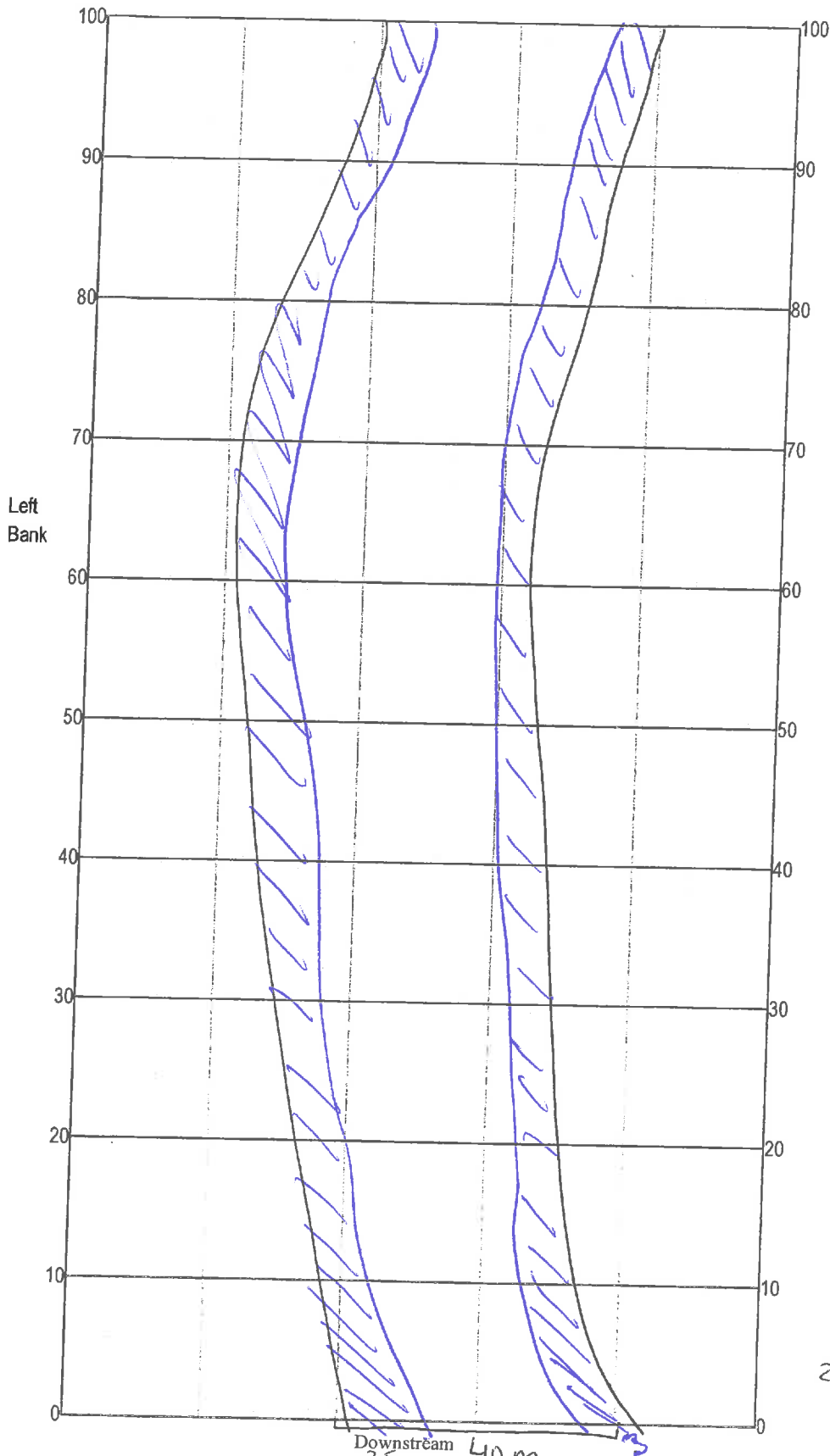
DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Tiger Creek Date: 8/12/19 County: Polk Storet Number: G4E0070
 Analyst: Natalie Ayala / Terry Riordan Signature: [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 m² 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										Specimen collected (check)	HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100			0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
<i>Alternanthera philoxeroides</i>		/	/			/	/	/	/	/		<i>Micranthemum glomeratum</i>											
<i>Bacopa caroliniana</i>												<i>Micranthemum umbrosum</i>											
<i>Bacopa monnieri</i>												<i>Myriophyllum aquaticum</i>											
<i>Bidens mitis</i>												<i>Najas guadelupensis</i>											
<i>Boehmeria cylindrica</i>												<i>Nuphar luteum</i>											
<i>Centella asiatica</i>												<i>Orontium aquaticum</i>											
<i>Ceratophyllum demersum</i>												<i>Panicum hemitomon</i>											
<i>Chara</i>												<i>Panicum repens</i>											
<i>Cicuta maculata</i>												<i>Panicum rigidulum</i>											
<i>Cladium jamaicense</i>								/				<i>Pistia stratioides</i>	/	/	/	/	/	/	/	/	/		
<i>Colocasia esculenta</i>												<i>Polygonum glabradens</i> <u>Florus</u>					/	/	/	/	/		
<i>Commelina diffusa</i>												<i>Polygonum hydropiperoides</i>											
<i>Commelina virginica</i>												<i>Polygonum punctatum</i>			/	/					/		
<i>Crinum americanum</i>												<i>Pontedaria cordata</i>	/	/	/	/							
<i>Diodia virginiana</i>												<i>Potamogeton illinoensis</i>											
<i>Eichhornia crassipes</i>	/	/	/	/	/	/	/	/	/	/		<i>Ruellia simplex</i>											
<i>Eleocharis (wispy viviparous)</i>												<i>Sacciolepis striata</i>											
<i>Hydrilla verticillata</i>												<i>Sagittaria kurziana</i>											
<i>Hydrocotyle</i>	/	/										<i>Sagittaria lancifolia</i>											
<i>Hygrophila polysperma</i>												<i>Sagittaria latifolia</i>	/	/									
<i>Hymenocallis</i>												<i>Salvinia minima</i>	/										
<i>Lachnanthes caroliniana</i>												<i>Samolus parviflora</i>											
<i>Landoltia punctata</i>												<i>Saururus cernuus</i>											
<i>Lemna</i>												<i>Sparganium americanum</i>											
<i>Limnophila sessiflora</i>												<i>Typha</i>	/	/			/	/	/	/	/		
<i>Ludwigia leptocarpa</i>												<i>Vallisneria americana</i>											
<i>Ludwigia palustris</i>												<i>Zizania aquatica</i>											
<i>Ludwigia peruviana</i>	/	/	/	/	/	/	/	/	/	/		<u>Sesuvium</u>	/	/	/	/	/	/	/	/	/		
<i>Ludwigia repens</i>												<u>Salix</u>	/	/	/	/	/	/	/	/	/		
<i>Luziola fluitans</i>												<u>Rhynchospora nitens</u>				/					/		
<u>Hymenachne</u>	D	D	D	D	D	D	D	D	D	D		<u>Cephalanthus occidentalis</u>	/	/	/	/	/	/	/	/	/		
<u>Hibiscus grandiflorus</u>	D	D	D	D	D	D	D	D	D	D		<u>C. belthorpensis (scirpus)</u>	/	/	/	/	/	/	/	/	/		
<u>Cyperus odoratus</u>	/	/	/	/	/	/	/	/	/	/													
<u>Echinodorus crassifolius</u>	/	/	/	/	/	/	/	/	/	/													
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																							

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



Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

Location: Tiger Creek
27.927270 NA
Date: 8.1.347778 NA
Sampler: Natalie Ayala / Terry Riordan

100 m: Latitude	<u>27.927270</u>
Longitude	<u>-81.347778</u>
0 m: Latitude	_____
Longitude	_____
Substrates: Code key, draw proportionate habitat abundance. %	
☐ Snags	_____ %
☐ Roots/undercut banks	_____ %
☐ Leaf Packs (or mats)	_____ %
☒ Aquatic Macrophytes	<u>13.75%</u>
☐ Pools	_____ %
total # observed = _____	
# range expected = _____	
Average width	_____ m
Average depth	_____ m
Velocity measured at _____ meter mark.	
WQ & chemistry taken at _____ 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 vegetation is altered or eliminated.	

Plants observed / other notes:

$$\begin{aligned}
 3 \times 100 &= 300 & 40 \times 100 &= 4000 \\
 2.5 \times 100 &= 250 \\
 550 \div 4000 &= 0.1375
 \end{aligned}$$