

SCI

Site Name Mormon Branch Sample Date 2/11/19
WBID ^{MLK} 295 2905 WIN ID G2CE0052 RQ ^{LMD} -2019-02-11-36 37

	Initial/Date	QC Initial/Date
Water chemistry data to LIMS	LMD 2/12/19	MKL 2/18/19
Create SBIO station visit 79203	LMD 2/12/19	n/a
Phys/Chem entry	LMD 2/12/19	MKL 2/18/19
Habitat Assessment entry	LMD 2/12/19	MKL 2/18/19
Vascular entry (add LIMS ID to entry)	LMD 2/12/19	MKL 2/18/19
RPS entry	LMD 2/15/19	MKL 2/18/19
Authorize SBIO data	MKL 2/18/19	n/a
Scan all sheets to 21FLCEN folder	LMD 2/15/19	n/a
LIMS/WIN migration		n/a
File in cabinet		n/a

Comments/ notes:



Reference SCI-A Benchmark SCI

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2019

Data Qualified?

Yes / No

WIN Station Name: Mormon Branch Upstream of SR 19Date: 02/11/2019

(mm/dd/yyyy)

WIN/ Field ID: G2CE0052WBID: 3030 2905 Latitude: 29.1916

(Decimal Degrees)

County: MarionORG ID: 21FLCEN Longitude: -81.6557

(Decimal Degrees)

Receiving Body of Water: Juniper CreekRQ-2019- 02-11-3637

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment				
Natalie Ayala										☒ Sample Container	☐ Van Dorn	☐ Pole		
Mike Linger										☐ Carboy	☒ Syringe			
Mike Drennan										☒ Dipper	☐ Other			
										Depth Measured with <u>Secchi Disk</u> / Meter				
										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 / <u>Normal</u> / High / Flooded					Meter ID# <u>Shrimp Trap</u> <u>Secchi Bucket</u>					Matrix: <u>Fresh</u> / Marine / DI				
Photos: <u>Yes</u> / No					Flow: No Flow / Intestinal / <u>Flowing</u> / NA					Tide: Rising/ Falling/ Slack/ <u>NA</u>				
					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	1321	0.4	0.2	0.4 (S)	7.20	80.2	7.20	0.09	198.7	20.7				
CEN														
Biological Samples Collected: <u>None</u> <u>HA</u> <u>SCI</u> <u>RPS</u> Algae ID <u>LVS</u> LVI Other:														
SBIO ID Numbers: SBIO-ID: <u>79203</u> HA-ID: RPS-ID: <u>9226</u> Macrophyte-ID: <u>1202</u> LIMS#: <u>2061674</u>														
Parameter Suite	Parameter Methods					Preservation	Lot#	Expiration	pH Check					
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-SATP					☒ Ice ☒ H ₂ SO ₄	<u>SA8197090</u>	<u>7/16/19</u>	☒ <2					
Metals	☒ W-JCPMS ☒ W-ICP					☒ Ice ☒ HNO ₃	<u>NA8197080</u>	<u>7/16/19</u>	☒ <2					
Filtered Nutrients	☒ W-P04-F ☒ Field Filtered 0.45 µm Filter					☒ Ice	<u>13615055</u>							
Chlorophyll	☒ CHL-SUITE-W					☒ Ice								
Physical/Aggregate (Fresh)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-CL-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 ☐ W-E8321-MS ☐ W-CARB-AA					☒ Ice ☐ Other								
Phytoplankton	☐ DTY-QN-C ☐ PKD-QN-C					☐ Ice								

Notes:

0.2 m/s

WIN ID / Field ID →

Mormon Branch Upstream
of SR 19

G2CE0052

Signature: Mike LingerDate: 2/11/19LIMS EVENT ID: CENT-DIST-2019-02-12-01Enter Field Parameters, Verify Station ID In LIMS DMT: LND 2/12/19QC Station ID, Field Parameters In LIMS DMT: MKL 2/18/19Scan/Save Field Sheets LND 2/15/19 Migrate Data to WIN: (Initials/Date)

Verify Data In WIN: (Initials/Date)

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

SAMPLE ID _____ ORG ID 21 FL CEN LATITUDE 29.1916
 COUNTY Marietta STORET # G2CE0052 LONGITUDE -81.6557
 DATE 2/11/19 TIME 1200 SAMPLING AGENCY FDEP CE-ROC
 SITE NAME Mormon Branch
 FIELD ID/NAME G2CE0052 RECEIVING BODY OF WATER Juniper Creek

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural <u>95</u> Silviculture _____ Field/Pasture _____ Agricultural _____ Residential _____ Commercial _____ Industry _____ Other (Specify) <u>Road</u>							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 _____ m wide _____ m/s <u>0.2</u> m/s _____ m/s
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>18</u> Right Bank: <u>10</u>				Hydrologic Modification Score (per FT 3101) <u>3</u>		_____ m/s _____ m/s _____ m/s	
High Water Mark: <u>0.2</u> + <u>0.21</u> = <u>0.41</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No		_____ m deep <u>0.21</u> m deep _____ m deep	
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 type: Sand

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 ☐
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SUBSTRATE TYPE Assessment Tool: ☒ SCI ☒ RPS ☒ LVS ☐ LCI ☐ BioRecon				WATER QUALITY							
				Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Woody Debris (Snags)				<u>0.2</u>	<u>20.7</u>	<u>7.20</u>	<u>7.20</u>	<u>80.2</u>	<u>198.7</u>	<u>0.09</u>	<u>0.4</u>
Undercut Banks / Roots											☒ VOB
Leaf Packs or Mat											
Aquatic Vegetation											
Rock or Shell Rubble											
Sand											
Mud / Muck / Silt											
Other											
Other											

ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☐ ☒ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☐ ☐ ☒ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐				Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: <u>SA8197090</u> Exp: <u>7/16/19</u> Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☒ No Lot Number: _____ Exp: _____				Water Surface Oils Normal ☒ Sheen ☐ Globbs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐ Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐			
System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☐				AMBIENT FIELD CONDITIONS / NOTES: <u>70's clear</u> ☒ The antecedent hydrologic conditions have been met to my best knowledge.							

SAMPLING TEAM Mike Linger / Mike Drennan / Natalie Ayala **SIGNATURE:** [Signature] **DATE:** 2/11/19

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

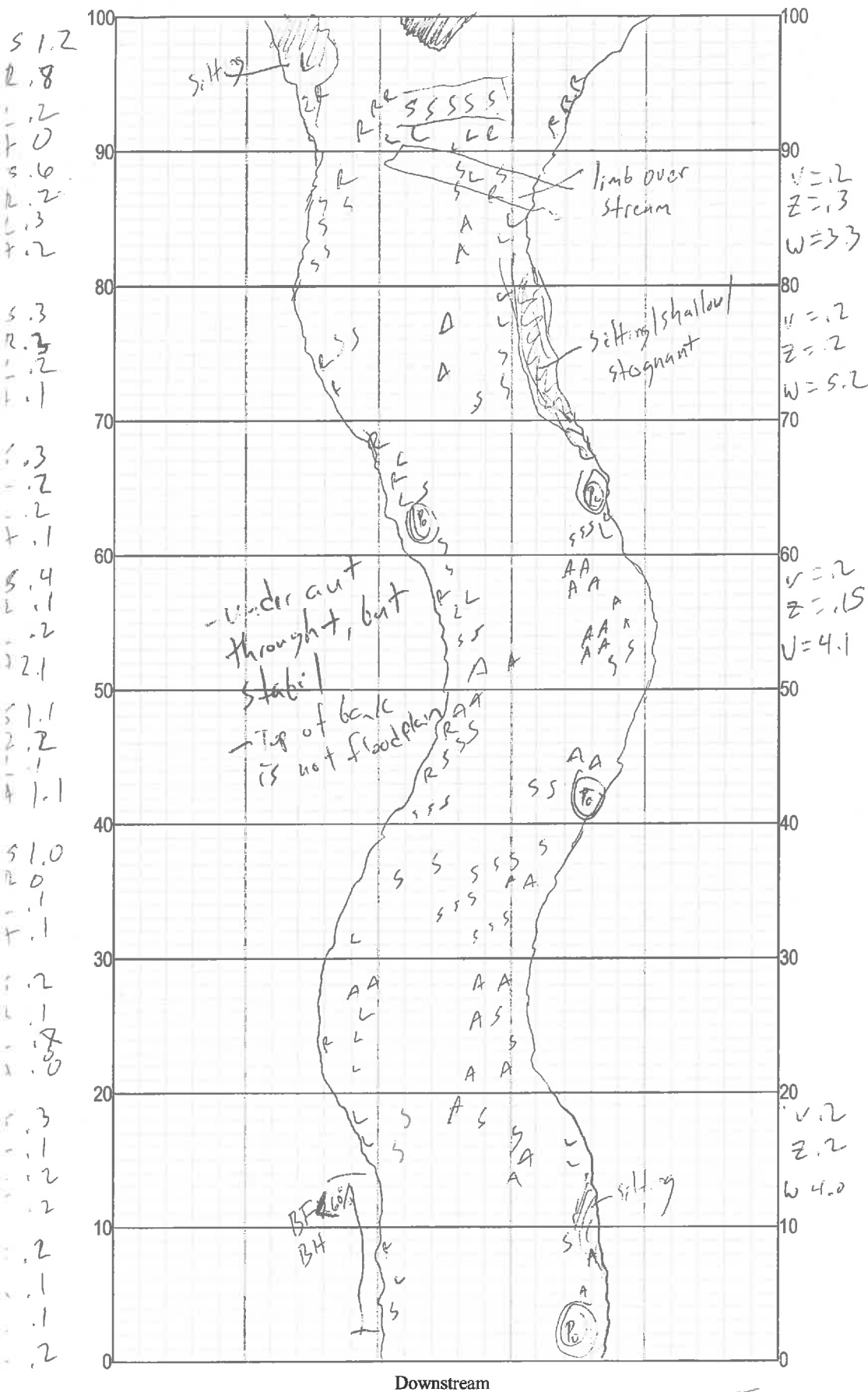
SAMPLING AGENCY: <u>FDEP-CEROC</u>		STORET STATION NUMBER: <u>62CE0052</u>	DATE (MM/DD/YY): <u>02/11/19</u>	RECEIVING BODY OF WATER: <u>Juniper Creek</u>
REMARKS:	COUNTY: <u>Marion</u>	LOCATION: <u>Mormon Branch</u>	FIELD ID/NAME: <u>62CE0052</u>	

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>12</u>	20 19 18 17 16	15 14 13 <u>12</u> 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>4</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 9 8 7 6	Less than 5% major productive habitat 5 <u>4</u> 3 2 1
Water Velocity <u>14</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 <u>14</u> 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 <u>16</u> ----- Primary Score <u>46</u>	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 <u>16</u>	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>9</u>	<u>10</u> <u>9</u>	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>9</u> Left Bank <u>10</u>	<u>10</u> <u>9</u>	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>9</u> Left Bank <u>10</u> ----- Secondary Score <u>77</u>	<u>10</u> <u>9</u>	8 7 6	5 4	3 2 1

123

TOTAL SCORE

Date: <u>2/11/2019</u>	Analyst: <u>N. Ayala, M. Linger, M. Drinnan</u>	Signature: <u>[Signature]</u>
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Location: Mormon Branch
 Date: 2/11/19
 Sampler: N. Ayala, M. Lingo, D. Green

100 m: Latitude 29.1920
 Longitude -81.6549
 0 m: Latitude 29.1915
 Longitude -81.6557

Substrates: Code key, draw proportionate habitat abundance. %

S	Snags	1.4
R	Roots/undercut banks	.5
L	Leaf Packs (or mats)	.5
A	Aquatic Macrophytes	1.1
P	Pools	total # observed = <u>4</u> # range expected = <u>3-5</u>

Average width 4.2 m
 Average depth 1.21 m

Velocity measured at 15, 55, 75, 85 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 vegetation is altered or eliminated.

Plants observed / other notes:

- Sabal, Magnolia, Quercus, Myrica, Saururus, Florida Anise, Verticillium
- Water clear, becoming tannic
- Scrub forest / Mixed HW

BF = WL + .2
 BH = BF + .3

S = 5.6
 R = 2.1
 L = 2.0
 A = 4.8

$$14.5 / 420 = 3.5\%$$

V = 2
 Z = 2.2
 W = 4.2

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

Waterbody: Mormon Branch Date: 2/11/15 County: Marion Storet Number: 62CE0052
Analyst: Mike Linger Signature: Mike Linger

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 glabra</i>											
<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>																							
<i>Ludwigia repens</i>										✓		<i>Nasturtium floridanum</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓		
<i>Luziola fluitans</i>																							
If no Dominant or Co-Dominant were selected, indicate with "X"	X	X	X	X	X	X	X	X	X	X													
Indicate % cover macrophytes per section																							
0-5% Macrophyte Coverage	X	X	X	X	X	X	X	X	X	X													
>5 and ≤10% Macrophyte Coverage																							
>10 and ≤25% Macrophyte Coverage																							
>25 and ≤50% Macrophyte Coverage																							
> 50% Macrophyte Coverage																							

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Mormon Branch County: Marion Date: 2/11/15 Investigators: Mike inger
 STORET Station Number: 62CE0052

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N	N	98	60	1	N	N	84
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N				5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
10	1	N		76	70	1	N		72
	2	N				2	N		
	3	N				3	N		
	4	N				4	3		
	5	N				5	4		
	6	N				6	N		
	7	N				7	N		
	8	N				8	3		
	9	N				9	N		
20	1	N		80	80	1	N		92
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N				5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
30	1	N		68	90	1	N		80
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N				5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
40	1	N		48	100	1	N		56
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N				5	4		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		
50	1	N		80		1	N		
	2	N				2	N		
	3	N				3	N		
	4	N				4	N		
	5	N				5	N		
	6	N				6	N		
	7	N				7	N		
	8	N				8	N		
	9	N				9	N		

Secchi depth 0.4 (s)
 Estimated?

points ranked 4-6 5
 total points assessed 49
 % points ranked 4-6 5

Check accompanying data collected at same site/date.
 Algal mat sample
 Linear Veg Survey ✓
 Habitat Assessment ✓
 SC/Biorecon ✓
 Water sample ✓
 RQ-2019-02-11-36

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%.