



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

PAGE 1 OF

June 2016

Data Qualified?
Yes / No

STORET Station Name: Orange Creek @ CR 21 Date: 11/29/16
STORET Station ID: 20020560 WBID: 2747 Latitude: 29.50944
County: Marion RQ: 2016-11-28-42 ORG ID: 21FLCEN Longitude: -81.94623
Receiving Body of Water: St. Johns River Field ID: G1CE0028

Sampling Team Members		WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Duplicate Collection	Blank Collection	Sampling Equipment		
Mike Lenger		/		/					☒ Sample Container	☐ Van Dorn	☐ Pole
Mike Drennon				/	/	/	/	/	☒ Carboy	☒ Syringe	
									☐ Dipper	☐ Other	
Water Level: Dry / Low / <u>Normal</u> / High / Flooded									Equipment ID		
Meter ID# <u>BOOP/NON</u>									Matrix: <u>Fresh</u> Marine / DI		
Photos: Yes / <u>No</u>									Tide Falling: Yes / No / <u>NA</u>		
Collection Method											
☒ Wading ☐ From Shore ☐ Other (note below)											
Via Boat ☐ Canoe/Kayak ☐ Electric Motor ☐ Gasoline Motor											

Field Sample

Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (µmhos/cm)	Temp. (C°)
EST	12:40	0.1	0.2	7.2	77	6.7	0.06	0.2 (5)	134	18.9
CEN										

Biological Samples Collected:		None	<u>HA</u>	SCI	<u>LVS</u>	<u>RPS</u>	LVI	Other
Parameter Suite	Parameter Methods				Preservation	Acid Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP				☒ Ice ☒ H2SO4	6242080	8/29/17	☒ <2
Metals	☒ W-ICPMS ☒ W-ICP				☒ Ice ☒ HNO3	6253070	9/9/17	☒ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter				☐ Ice	Place Preservative Sticker(s) Here (If Available)		
Chlorophyll	☒ CHLSUITE-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			
Microbiology	☐ E Coli ☐ F Coli ☐ Entero ☐ QPCR				☐ Ice			
Periphyton	☐ ALGAE-ID				☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLYPH				☐ Ice ☐ Other			

QA/QC Sample Information

Duplicate

Time Zone: <u>EST</u> CEN		Sample Depth (m): <u>0.1</u>		Field ID: <u>G1CE0028-DUP</u>	
Time: <u>12:40</u>		Total Depth (m): <u>0.2</u>			
Parameter Suite	Parameter Methods	Preservation	Acid Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H ₂ SO ₄	<u>6242080</u>	<u>8/29/17</u>	☒ <2
Metals	☒ W-ICPMS ☒ W-ICP	☒ Ice ☒ HNO ₃	<u>6253070</u>	<u>9/9/17</u>	☒ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice	Place Preservative Sticker(s) Here (If Available)		
Chlorophyll	☒ CHLSUITE-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			
Microbiology	☐ E Coli ☐ F Coli ☐ Entero ☐ QPCR	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLYPH	☐ Ice ☐ Other			

Blank

Time Zone: <u>EST</u> CEN		Time: <u>13:09</u>		Field ID: <u>Field Blank</u>		Location: <u>Truck @ G1CE0028</u>	
☒ Field Blank ☐ Equipment Blank ☐ Field Cleaned Equipment Blank		Equipment ID: <u>DI Carboy #4</u>					
Parameter Suite	Parameter Methods	Preservation	Acid Lot#	Expiration	pH Check		
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H ₂ SO ₄	<u>6242080</u>	<u>8/29/17</u>	☒ <2		
Metals	☒ W-ICPMS ☒ W-ICP	☒ Ice ☒ HNO ₃	<u>6253070</u>	<u>9/9/17</u>	☒ <2		
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice	Place Preservative Sticker(s) Here (If Available)				
Chlorophyll	☒ CHLSUITE-W	☒ Ice					
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Physical/Aggregate (Marine)	☐ Alkalinity / W-F / W-TSS / TURBIDITY	☐ Ice					
Microbiology	☐ E Coli ☐ F Coli ☐ Entero ☐ QPCR	☐ Ice					
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLYPH	☐ Ice ☐ Other					

Notes:

Orange Creek @ CR 21

G1CE0028

Field ID ↑

STORET ↓

Date: 11/29/2016
RQ-2016-11-28-42

20020560

Signature: [Signature]

Date: 11/29/16

Field Parameters Entered into LIMS: KMW 12/2/16
(Initials/Date)

Field Parameters QC in LIMS: _____
(Initials/Date)

Date Migrated to STORET: _____
(Initials/Date)

Field Sheets Scanned/Saved: _____
(Initials/Date)

FDEP FORM FD 9000-3: PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SAMPLE ID 77132 ORG ID 21FLCEN LATITUDE 29.50944
 COUNTY Marion STORET # 20020560 LONGITUDE -81.94623
 DATE 11/29/16 TIME 1240 SAMPLING AGENCY FDEP-CEROC
 SITE NAME Orange Creek @ CR 21
 FIELD ID/NAME G1CE0028 RECEIVING BODY OF WATER St. Johns River

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) ☐								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 5.9 m wide .14 m/s .43 m deep		
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: >18 Right Bank: >18				Hydrologic Modification Score (per FT 3101) 		m/s m/s m/s m deep m deep m deep		
High Water Mark: 0.6 + .43 = 1.03 (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 Type: Sandy

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			WATER QUALITY																																										
<table border="1"> <thead> <tr> <th></th> <th>Depth (M)</th> <th>Temp. (°C)</th> <th>pH (SU)</th> <th>D.O. (MG/L)</th> <th>D.O. Sat (%)</th> <th>Cond. (UMHO/CM)</th> <th>Salinity (PPT)</th> <th>SECCHI (M)</th> </tr> </thead> <tbody> <tr> <td>Top:</td> <td>1</td> <td>18.9</td> <td>6.7</td> <td>7.2</td> <td>77</td> <td>134</td> <td>.06</td> <td>.2</td> </tr> <tr> <td>Mid:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>☒ VOB</td> </tr> <tr> <td>Bottom:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>TOTAL DEPTH</td> </tr> </tbody> </table>				Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)	Top:	1	18.9	6.7	7.2	77	134	.06	.2	Mid:								☒ VOB	Bottom:								TOTAL DEPTH	Meter ID: <u>BOOP / NON</u>						
	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)																																					
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	% Coverage	INVERT # Times Sampled	PERI # Times Sampled																																										
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ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☒ ☐ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☒ ☐ ☐ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐			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: ☒ The antecedent hydrologic conditions have been met to my best knowledge.																																										

SAMPLING TEAM

Mike Linger, Mike Drennan

SIGNATURE:

[Signature]

DATE:

11/29/16

Revision Date: September 19, 2012

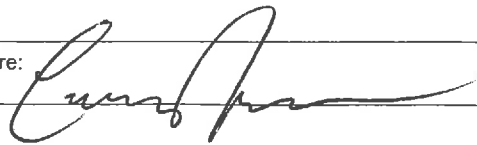
DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: FDEP - CERO		STORET STATION NUMBER: 20020560	DATE (MM/DD/YY): 11/29/16	RECEIVING BODY OF WATER: St. Johns River
REMARKS:	COUNTY: Marion	LOCATION: Orange Creek @ CR21	FIELD ID/NAME: G1CE0028	

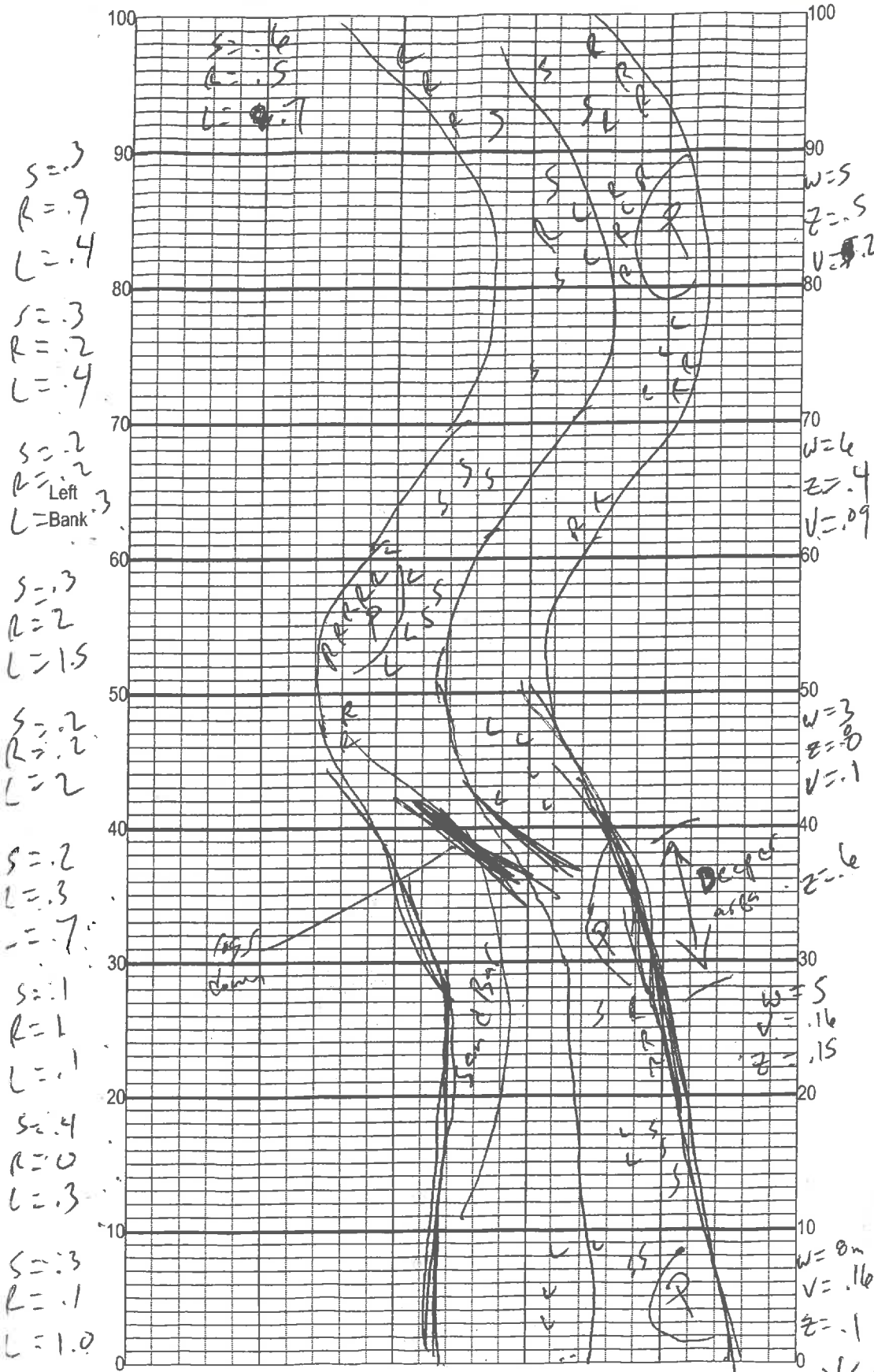
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock)	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh 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 14	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability 4	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 12	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 19 ----- Primary Score 49	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	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 20	20 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 9 Left Bank 9 18	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 10 Left Bank 10 20	10 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 9 Left Bank 9 18 ----- Secondary Score 76	10 9	8 7 6	5 4	3 2 1

125

TOTAL SCORE

Date: 11/29/16	Analyst: Mike Drennen	Signature: 
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DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: Orange Creek @ CR 21
 Date: 11/29/16
 Sampler: Mike Linger / Mike Dinn

100 m: Latitude 29.508828
 Longitude -81.947162
 0 m: Latitude 29.509357
 Longitude -81.946405

Substrates: Code key, draw proportionate habitat abundance.	%
☒ S Snags	<u>2.3</u>
☒ R Roots/undercut banks	<u>4.9</u>
☒ L Leaf Packs (or mats)	<u>6.8</u>
☐ A Aquatic Macrophytes	<u> </u>
☐	<u> </u>
☐	<u> </u>
☒ P Pools	total # observed = <u>4</u> # range expected = <u>2-4</u>

Average width 5.4 m
 Average depth .43 m

Velocity measured at * 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:

- Canopy dominated by
 Taxodium
 - No aquatic Macrophytes

* Average of meter marks:
 5, 25, 45, 65, 85

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

62-160.800, F.A.C
 $\bar{W} = 5.4 \text{ m}$
 $\bar{Z} = .43 \text{ m}$ (Z=depth)
 $\bar{V} = .14 \text{ m/s}$
 $S = 2.3$
 $R = 4.9$
 $L = 6.8$

$14/540 = 2.6\%$

Revision Date: March 1, 2014

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Orange Creek @ CR 21 County: Marion Date: 11/29/16 Investigators: Mike Linsor / Mike Drennon

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

STORET Station Number: 2016-11-28-42

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

Secchi depth .2 (s)
Estimated?

points ranked 4-6 2
total points assessed 99
% points ranked 4-6 2%

10 1 2 3 4 5 6 7 8 9

Check accompanying data collected at same site/date.
Algal mat sample
Linear Veg Survey
Habitat Assessment ☒
SCI/Biorecon
Water sample ☒
RQ- 2016-11-28-42

20 1 2 3 4 5 6 7 8 9

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

30 1 2 3 4 5 6 7 8 9

40 1 2 3 4 5 6 7 8 9

50 1 2 3 4 5 6 7 8 9

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%.

Waterbody: Orange Creek Act 21

Date: 11/29/16

County: Marion

Storet Number: 20020560

Analyst: Mike Linger

Signature: Dir Kd

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.

		Meter Mark										Meter Mark													
HERBACEOUS SPECIES		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)	HERBACEOUS SPECIES		0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
<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>Cephalanthus occidentalis</i>													<i>Panicum hemitomon</i>												
<i>Ceratophyllum demersum</i>													<i>Panicum repens</i>												
<i>Chara</i>													<i>Panicum rigidulum</i>												
<i>Cicuta maculata</i>													<i>Pistia stratioides</i>												
<i>Cladium jamaicense</i>													<i>Polygonum glabra</i>												
<i>Colocasia esculenta</i>													<i>Polygonum hydropiperoides</i>												
<i>Crinum americanum</i>													<i>Polygonum punctatum</i>												
<i>Diodia virginiana</i>													<i>Pontedaria cordata</i>												
<i>Eichhornia crassipes</i>													<i>Potamogeton illinoensis</i>												
<i>Eleocharis (wispy viviparous)</i>													<i>Ruellia simplex</i>												
<i>Hydrilla verticillata</i>													<i>Sacciolepis striata</i>												
<i>Hydrocotyle</i>													<i>Sagittaria kurziana</i>												
<i>Hygrophila polysperma</i>													<i>Sagittaria lancifolia</i>												
<i>Hymenocallis</i>													<i>Sagittaria latifolia</i>												
<i>Itea virginica</i>													<i>Salix caroliniana</i>												
<i>Lachnanthes caroliniana</i>													<i>Salvinia minima</i>												
<i>Landoltia punctata</i>													<i>Samolus parviflora</i>												
<i>Lemna</i>													<i>Saururus cernuus</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>Luziola fluitans</i>																									