FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

February 2016

PAGE ____ OF ____

Data Qualified? Yes / No

STORET Station Name: Orange Creek @ CR 21 Date: 08/03/2016 (mm/dd/yyyy)

STORET Station ID: ~~21~~ 20020560 Latitude: 29.50944 (Decimal Degrees)

WBID: 2747 RQ - 2016-08-01-36 ORG ID: 21FLCEN Longitude: 81.94623 (Decimal Degrees)

Receiving Body of Water: _____ Field ID: G1CE0028 County: Marion

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Duplicate Collection	Blank Collection
Mike Linger	/		/	/			/
Mike Drennan		/			/	/	

Sampling Equipment

- [x] Sample Container
- [ ] Carboy
- [ ] Dipper
- [ ] Van Dorn
- [ ] Syringe
- [ ] Other _____
- [ ] Pole

Equipment ID _____

Collection Method

- [x] Wading
- [ ] From Shore
- [ ] Other (note below)

Via Boat
- [ ] Canoe/Kayak
- [ ] Electric Motor
- [ ] Gasoline Motor

Water Level: Dry / Low / (Normal) / High / Flooded

Meter ID# 11C / AB

Photos: Yes / (No)

Matrix: (Fresh) / Marine / DI

Tide Falling: Yes / No / (NA)

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)	10:55	0.1	0.2	6.8	83	7.1	0.06	0.2(S)	139	24.9
CEN										

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

Parameter Suite	Parameter Methods	Preservation	Acid 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	6168040	6/16/17	[ ] <2
Metals	[x] W-ICPMS [x] W-ICP	[x] Ice [x] HNO_3	5259030	9/16/16	[ ] <2
Filtered Nutrients	[x] W-PO4-F [x] Field Filtered 0.45 µm Filter	[x] Ice			
Chlorophyll	[x] CHLSUITE-W	[x] Ice			
BOD	[ ] BOD-UNIN	[ ] Ice			
Physical/Aggregate (Kit A/C)	[x] Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS	[x] Ice			
Physical/Aggregate (Kit B/D)	[ ] Alkalinity / W-F / W-TSS / TURBIDITY	[ ] Ice			
Macroinvertebrates	[ ] MI-FW-QLDC	[ ] Formalin			
Microbiology	[ ] E Coli [ ] F Coli [ ] Entero [ ] QPCR				
Periphyton	[ ] ALGAE-ID				
Pesticides	[ ] W-PSNP-TQ [ ] W-AHERB-AA [ ] W-PYR-AA-R [ ] W-PC-AA-SF [ ] W-UHERB-AA [ ] W-GLYPH				

Place Preservative Sticker(s) Here (If Available)

Orange Creek @ CR 21 G1CE0028

Field ID ↑

STORET ↓

20020560

Date: 08/03/2016

RQ-2016-08-01-36

QA/QC Sample Information

Duplicate

Time Zone: (EST) CEN Sample Depth (m): 0.1 Field ID: G1CE0028_DUP

Time: 11:05 Total Depth (m): 0.2

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_2SO_4	6168040	6/16/17	☑ < 2
Metals	☑ W-ICPMS ☑ W-ICP	☑ Ice ☐ HNO_3	5259030	9/16/16	☑ < 2
Filtered Nutrients	☑ W-PO4-F ☑ Field Filtered 0.45 µm Filter	☑ Ice	Place Preservative Sticker(s) Here (If Available)		
Chlorophyll	☑ CHLSUITE-W	☑ Ice			
BOD	☐ BOD-UNIN	☐ Ice			
Physical/Aggregate (Kit A/C)	☑ Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS	☑ Ice			
Physical/Aggregate (Kit B/D)	☐ Alkalinity / W-F / W-TSS / TURBIDITY				
Microbiology	☐ E Coli ☐ F Coli ☐ Entero ☐				
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLY				

Orange Creek @ CR 21_DUP

Date: 08/03/2016

RQ-2016-08-01-36

G1CE0028_DUP

Field ID

STORET

20020560_DUP

Blank

Time Zone: (EST) CEN Time: 1202 Field ID: Field Blank Location: G1CE0028_

☑ Field Blank ☐ Equipment Blank ☐ Field Cleaned Equipment Blank Equipment ID

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_2SO_4	6168040	6/16/17	☑ < 2
Metals	☑ W-ICPMS ☑ W-ICP	☑ Ice ☑ HNO_3	5259030	9/16/16	☑ < 2
Filtered Nutrients	☑ W-PO4-F ☑ Field Filtered 0.45 µm Filter	☑ Ice	Place Preservative Sticker(s) Here (If Available)		
Chlorophyll	☑ CHLSUITE-W	☑ Ice			
BOD	☐ BOD-UNIN	☐ Ice			
Physical/Aggregate (Kit A/C)	☑ Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS	☑ Ice			
Physical/Aggregate (Kit B/D)	☐ Alkalinity / W-F / W-TSS / TURBIDITY				
Microbiology	☐ E Coli ☐ F Coli ☐ Entero ☐				
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLY				

Field Blank

Date: 08/03/2016

RQ-2016-08-01-36

Field Blank

Field ID

STORET

Field Blank

Notes: Flow 0.17 m/s

Place Label Here (If Available)

Signature: **Date:**

Field Parameters Entered into LMS: LMD 8/5/16 (Initials/Date) **Field Parameters QC in LMS:** KMW 8/5/16 (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 76628 ORG ID 21FLCEN LATITUDE 29.50944
COUNTY Marion STORET # 20020560 LONGITUDE -81.94623
DATE 8/3/16 TIME 11:00 SAMPLING AGENCY FDEP CE-ROC
SITE NAME Orange Creek @ CR 21
FIELD ID/NAME 62CE0028 RECEIVING BODY OF WATER

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)
90			10				

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 : 718 Right Bank : 718

Hydrologic Modification Score (per FT 3101):

High Water Mark: ~~0.5~~ 1.0 (m) + 0.2 (above present water level) = ~~0.7~~ 1.2 (present depth) (above bed)

Artificially Impounded ☐ Yes ☑ No

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

m wide

m/s m/s m/s

12 sec

m deep 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)			
Undercut Banks / Roots			
Leaf Packs or Mat			
Aquatic Vegetation			
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 :	0.1	24.9	7.1	6.8	83	139	0.06	0.2
Mid:								☑ VOB
Bottom								TOTAL DEPTH

Meter ID: IIC / AB — TOTAL DEPTH: 0.2

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 ☐

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:

90's clear, Humid
No LVS, <2m² veg

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

SAMPLING TEAM Mike Linger, Mike Drennan

SIGNATURE : [signature]

DATE : 8/3/16

Revision Date: September 19, 2012

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		20020560	8/3/16	
REMARKS:	COUNTY: Marion	LOCATION: Orange Creek @ CR21		FIELD ID/NAME: G7CE0028

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 14	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 7	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 13	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 16 Primary Score 50	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 8 Left Bank 8 16	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 20	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 9 Left Bank 9 18 Secondary Score 74	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

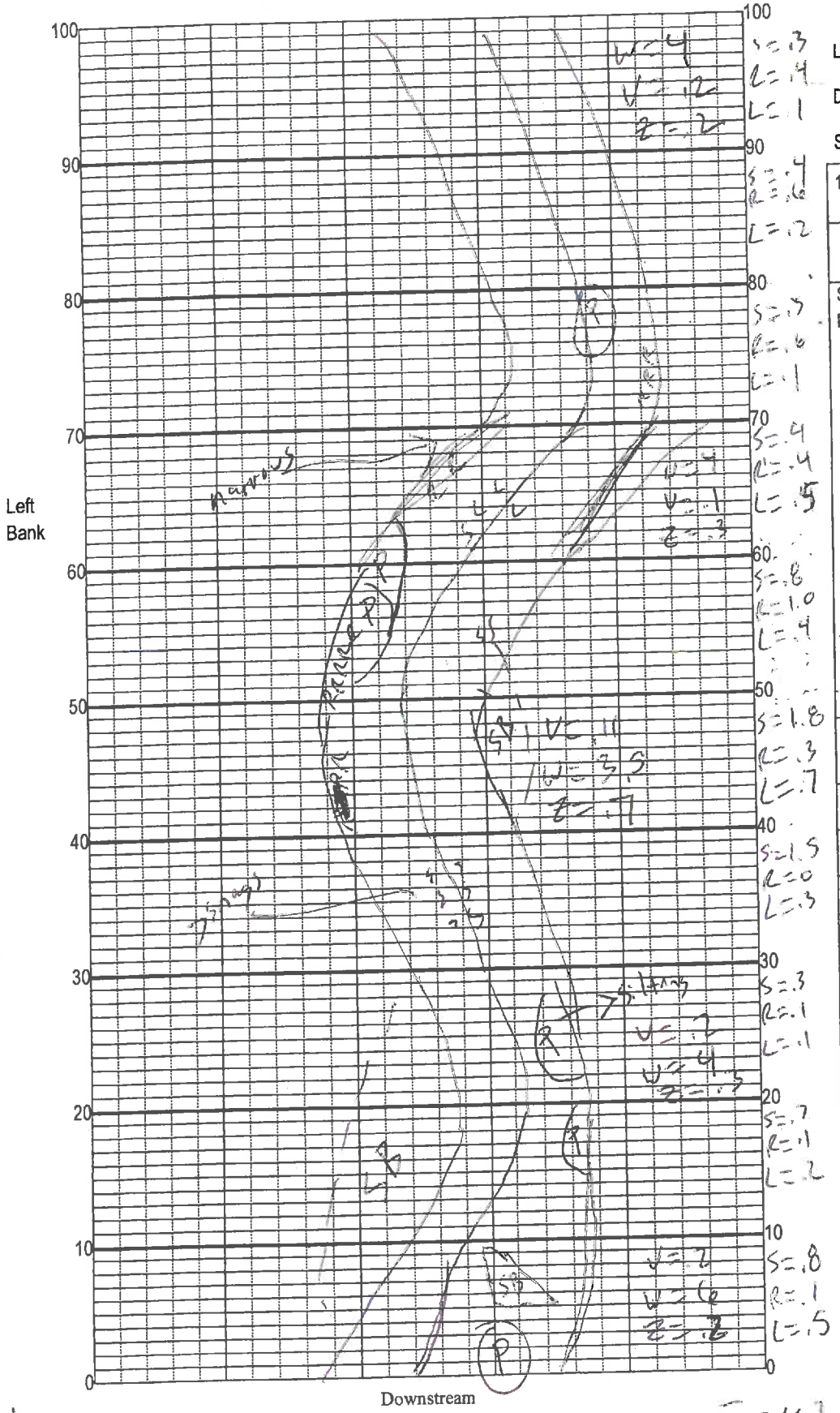
124 **TOTAL SCORE**

Date:	Analyst:	Signature:
8/3/16	Mike Linger	

62-160.800, F.A.C.

Revision Date: March 1, 2014

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: Orange Creek @ CR 21

Date: 8/3/16

Sampler: Mike Linger, Mike Brennan

100 m: Latitude	29.508828
Longitude	-81.947162
0 m: Latitude	29.509351
Longitude	-81.946405

Substrates: Code key, draw proportionate habitat abundance. %

S	Snags	
R	Roots/undercut banks	
L	Leaf Packs (or mats)	
A	Aquatic Macrophytes	
P	Pools	total # observed = 4; # range expected = 2-4

Average width 4.3 m

Average depth .4 m

Velocity measured at .16 m/s ~~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: 10+
Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:

SB = Sand bar

$\bar{W} = 4.3$

$\bar{Z} = .4$

$\bar{V} = .16$

14.2/430 = 3.3% (Habitat)

62-160.800, F.A.C

Revision Date: March 1, 2014

Form FD 9000-32 **FDEP Linear Stream Vegetation Survey (DEP SOP FS 7320)** Revised 6/12/12

Waterbody: Orange Creek @ CR 21 | Date: 8/3/16 | County: Marion | Storet Number: 20020560

Analyst: Mike Linzer | Signature:

Comments: No LIVS performed, <2m² of veg

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											
Cephalanthus occidentalis											
Ceratophyllum demersum											
Chara											
Cicuta maculata											
Cladium jamaicense											
Colocasia esculenta											
Crinum americanum											
Diodia virginiana											
Eichhornia crassipes											
Eleocharis (wispy viviparous)											
Hydrilla verticillata											
Hydrocotle											
Hygrophila polysperma											
Hymenocallis											
Itea virginica											
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 an "X"											

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											
Salix caroliniana											
Salvinia minima											
Samolus parviflora											
Saururus cernuus											
Typha											
Vallisneria americana											
Zizania aquatica											

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 9000-25 Rapid Periphyton Survey Field Sheet

Site:	County:	Date:	Investigators:
Orange Creek @ CR 21	Marion	8/3/16	Mike Linger

STORET Station Number: 20020560

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N	N	
	2	N		
	3	N		
	4	N		
	5	N		84
	6	N		
	7	N		
	8	N		
	9	N		
10	1	N		
	2	N		
	3	N		
	4	N		
	5	N		92
	6	N		
	7	N		
	8	N		
	9	N		
20	1	N		
	2	N		
	3	N		
	4	N		
	5	N		84
	6	N		
	7	N		
	8	N		
	9	N		
30	1	3		
	2	3		
	3	N		
	4	N		
	5	N		92
	6	N		
	7	N		
	8	N		
	9	N		
40	1	N		
	2	N		
	3	N		
	4	N		
	5	N		88
	6	N		
	7	N		
	8	N		
	9	N		
50	1	N		
	2	N		
	3	N		
	4	N		
	5	N		84
	6	N		
	7	N		
	8	N		
	9	N	N	

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
60	1	N	N	
	2	N		
	3	N		
	4	N		
	5	N		80
	6	N		
	7	N		
	8	N		
	9	N		
70	1	N		
	2	N		
	3	N		
	4	N		
	5	N		80
	6	N		
	7	N		
	8	N		
	9	3		
80	1	N		
	2	N		
	3	N		
	4	N		
	5	N		76
	6	N		
	7	N		
	8	N		
	9	N		
90	1	N		
	2	N		
	3	N		
	4	N		
	5	N		84
	6	N		
	7	N		
	8	N		
	9	N		
100	1	N		
	2	N		
	3	N		
	4	N		
	5	N		88
	6	N		
	7	N		
	8	N		
	9	N	N	

Secchi depth	0.2 (S)
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-2016-08-01-36

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%.