



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2018

Data Qualified?

Yes / No

WIN Station Name: Deep Creek @ 400m S of SR40

Date: 03/07/2018
(mm/dd/yyyy)

WIN/ Field ID: G2CE0167

WBID: 2908

Latitude: 29.20130

County: Volusia

ORG ID: 21 FL CEN

Longitude: -81.36886

Receiving Body of Water: Spring Garden Creek

RQ-2018- 03-05-72

Sampling Team Members				WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment			
									☒ Sample Container	☐ Van Dorn	☐ Pole	
									☐ Carboy	☒ Syringe		
									☐ Dipper	☐ Other		
									Depth Measured with <u>SECCHI DISK LINE</u>			
									Equipment ID			
									Collection Method			
									☒ Wading	☐ Canoe/Kayak		
									☐ From Shore	☐ Electric Motor		
									☐ Other	☐ Gasoline Motor		
Water Level: Dry/ Pooled/ <u>Low</u> / Normal / High / Flooded				Meter ID# <u>Boop/Non</u>				Matrix: <u>Fresh</u> Marine/ DI				
Photos: Yes / <u>No</u>				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 (PPT)	Sp COND (µmhos/cm)	Temp. (C°)		
<u>EST</u>	<u>1304</u>	<u>0.5</u>	<u>0.3</u>	<u>0.3</u>	<u>4.76</u>	<u>50.0</u>	<u>5.13</u>	<u>0.05</u>	<u>111</u>	<u>17.93</u>		
CEN												
Biological Samples Collected: None <u>HA</u> <u>SCI</u> <u>RPS</u> Algae ID LVS LVI Other:												
SBIO ID Numbers: SBIO-ID: <u>78261</u> HA-ID: <u>15070</u> RPS-ID: <u>8940</u> Macrophyte-ID: LIMS#: <u>1972930</u>												
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>SA7341020</u>	<u>12/7/18</u>	☒ <2			
Metals	☐ W-ICPMS ☐ W-JCP				☐ Ice ☐ HNO3				☐ <2			
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter				☒ Ice		<u>13615055</u>					
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							
Periphyton	☐ ALGAE-ID				☐ Ice							
Microbiology	☒ E Coli ☐ F Coli ☐ Enterococci				☒ Ice							
Molecular	☐ PCR-FILTER ☐ PCR-HF183 ☐ PCR-BacR ☐ PCR-GULL2 ☐ PCR-GFD				☐ Ice							
Tracers	☐ W-SUC-AA-R ☐ W-UHERB-AA ☐ W-AHERB-AA				☐ Ice							
Pesticides	☐ W-PSNP-TQ ☐ W-UHERB-AA ☐ W-AHERB-AA ☐ W-CARB-AA ☐ W-PCL-SQ-R ☐ W-PYR-AA-R ☐ W-GLYPH ☐ W-SUC-AA-R				☐ Ice ☐ Other							

Notes:

WIN ID / Field ID →

Deep Creek @ 400m
S of SR40 (2908)



G2CE0167

Signature: [Signature]

Date: 3/7/18

Enter Field Parameters, Verify Station ID In LIMS DMT: LMD 3/16/18
(Initials/Date)

QC Station ID, Field Parameters In LIMS DMT: MW 3/20/18
(Initials/Date)

Scan/Save Field Sheets

Migrate Data to WIN:

Verify Data In WIN:

(Initials/Date)

(Initials/Date)

(Initials/Date)

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

SAMPLE ID 78261 ORG ID 21FLCFN LATITUDE 29.20130
 COUNTY Volusia STORET # 62CE0167 LONGITUDE -81.36886
 DATE 3/7/18 TIME 1300 SAMPLING AGENCY FDEP CE-ROC
 SITE NAME Deep Creek
 FIELD ID/NAME 62CE0167 RECEIVING BODY OF WATER Spring Garden Creek

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☒ 100% ☐ 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 m wide m/s m/s m/s m deep m deep m deep			
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: Right Bank:				Hydrologic Modification Score (per FT 3101)					
High Water Mark: + = (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 ☐	
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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 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: Mid: Bottom: Meter ID: Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☐ Yes ☐ No Lot Number: Exp: Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: Exp: System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify)							
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 ☐							

AMBIENT FIELD CONDITIONS / NOTES:

70's clear
☒ The antecedent hydrologic conditions have been met to my best knowledge.

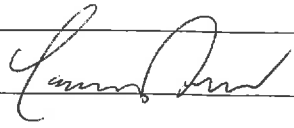
SAMPLING TEAM Mike Linger, Mike Drannen, Jerry Riordan, Volusia County **SIGNATURE** [Signature] **DATE:** 3/7/18

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

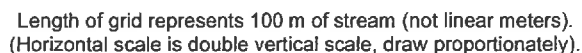
SAMPLING AGENCY: <u>FDEP-CEROC</u>		STORET STATION NUMBER: <u>62CE0167</u>	DATE (MM/DD/YY): <u>3/7/18</u>	RECEIVING BODY OF WATER: <u>Spring Garden Creek</u>
REMARKS: <u>Volusia Co members present</u>	COUNTY: <u>Volusia</u>	LOCATION: <u>Deep Creek</u>		FIELD ID/NAME: <u>62CE0167</u>

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>11</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>2</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 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 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>10</u> ----- Primary Score <u>36</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 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>	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 <u>10</u> Left Bank <u>10</u> <u>20</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>20</u>	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 <u>10</u> Left Bank <u>10</u> <u>20</u> ----- Secondary Score <u>80</u>	10 9	8 7 6	5 4	3 2 1

116 **TOTAL SCORE**

Date: <u>3/7/18</u>	Analyst: <u>Mike Linger, Mike Drennan, Terry Riordan, Kelly & Alise (Volusia Co.)</u>	Signature: 
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	Left Bank	Right Bank
S	.5	.5
R	.3	.3
L	.8	.8
S	.3	.3
R	.4	.4
L	.4	.4
S	.7	.7
R	.2	.2
L	1.0	1.0
S	.7	.7
R	.2	.2
L	.6	.6
S	1.2	1.2
R	.3	.3
L	.8	.8
S	.7	.7
R	.2	.2
L	.8	.8
S	1.3	1.3
R	0	0
L	.5	.5
S	2.0	2.0
R	.1	.1
L	.7	.7
S	1.5	1.5
R	.1	.1
L	1	1
S	.5	.5
R	.2	.2
L	1	1



- Canopy dominated by
Nyssa + cypress
- understory dominated by
Cephaanthis, Saururus,
Sabal palmetto, Carex
 - Stream is braided upstream

$S = 9.4$
 $R = 2.0$
 $L = 5.6$

$17m^2 / 830m^2 = 2\%$
 $\pm 2\%$ viable habitat

$$\begin{aligned} BH &= .4 > WL \\ \bar{Z} &= .74 \text{ m} \\ \bar{\omega} &= 8.3 \text{ m} \\ \bar{V} &= .17 \text{ m/s} \end{aligned}$$

Revision Date: March 1, 2014

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Deep Creek County: Nolusia Date: 3/7/18 Investigators: Mike Linger

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		80
	2		N		
	3		N		
	4		N	X	
	5		N	X	
	6		N	X	
	7		N	X	
	8		N	X	
	9		N	X	
10	1		N		68
	2		N		
	3		N	X	
	4		N	X	
	5		N	X	
	6		N	X	
	7		N	X	
	8		N	X	
	9		N	X	
20	1		N		72
	2		N		
	3		N	X	
	4		N	X	
	5		N	X	
	6		N	X	
	7		N	X	
	8		N	X	
	9		N	X	
30	1		N		90
	2		N		
	3		N	X	
	4		N	X	
	5		N	X	
	6		N	X	
	7		N	X	
	8		N	X	
	9		N	X	
40	1		N		76
	2		N		
	3		N	X	
	4		N	X	
	5		N	X	
	6		N	X	
	7		N	X	
	8		N	X	
	9		N	X	
50	1		N		72
	2		N		
	3		N	X	
	4		N	X	
	5		N	X	
	6		N	X	
	7		N	X	
	8		N	X	
	9		N	X	

STORET Station Number: 62CE0167

Secchi depth 0.3
Estimated?

points ranked 4-6 0
total points assessed 79
% points ranked 4-6 0

Check accompanying data collected at same site/date.
Algal mat sample
Linear Veg Survey
Habitat Assessment
SC/Biorecon
Water sample
RQ-2018-03-05-72

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%.