



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2017

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Data Qualified?

Yes / No

STORET Station Name: Spring Garden Creek 0.81 miles DS of Date: 2/1/17

STORET Station ID: 20011228 WBID: 2921F Latitude: 29.1335303

County: Volusia RQ: 2017-01-30-56 ORG ID: 21FLEN Longitude: -81.3861247

Receiving Body of Water: LK Woodnuff Field ID: G2CE0067

Sampling Team Members				WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Leif Bowman								
Katie Williams								

Sampling Equipment	
☐ Sample Container	☐ Van Dorn ☐ Pole
☐ Carboy	☒ Syringe
☐ Dipper	☐ Other
Equipment ID	

Collection Method	
☐ Wading	☐ Via Boat
☐ From Shore	☐ Canoe/Kayak
☐ Other (note below)	☐ Electric Motor
	☒ Gasoline Motor

Water Level: Dry / Pooled / <u>Low</u> / Normal / High / Flooded						Matrix: <u>Fresh</u> / Marine / DI				
Meter ID# <u>Betty 67</u>		Photos: <u>Yes</u> / No		Tide Falling: Yes / No / <u>NA</u>						
Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (umhos/cm)	Temp. (C°)
<u>EST</u>	<u>1215</u>	<u>0.3</u>	<u>1.1</u>	<u>12.4</u>	<u>131</u>	<u>8.1</u>	<u>0.54</u>	<u>0.6</u>	<u>1082</u>	<u>17.8</u>
<u>CEN</u>										

Biological Samples Collected:		None	<u>HA</u>	SCI	<u>RPS</u>	Algae ID	<u>LVS</u>	LVI	Other
SBIO ID Numbers:		SBIO-ID: <u>77302</u>		RPS-ID: <u>8573</u>		Macrophyte-ID: <u>10344</u>		LIMS#: <u>1869137</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 ☒ H2SO4			☒ <2
Metals	☐ W-ICPMS ☐ W-ICP	☐ Ice ☐ HNO3			☐ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 um Filter	☒ Ice			
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 ☐ Enter ☐ PCR-FILTER	☐ Ice			
Tracers	☐ W-SUC-AA-R ☐ W-UHERB-AA	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R	☐ Ice			
	☐ W-PCL-SQ-R ☐ W-UHERB-AA ☐ W-GLYPH	☐ Other			

Contains
1:1
Sulfuric Acid
SA - 6242080
EXP: 08/29/17
Warning!
See SDS

Notes:	Spring Garden Creek @ 0.81 miles DS of Spring Garden Lake RQ-2017-01-30-56 Date: 2/1/17	G2CE0067 Field ID STORET 20011228
Signature: <u>K Williams</u>	Date: <u>2/1/17</u>	

Field Parameters Entered into LIMS: <u>K Williams</u> <u>2/10/17</u>	Field Parameters QC in LIMS:
(Initials/Date)	(Initials/Date)
Date Migrated to STORET:	Field Sheets Scanned/Saved:
(Initials/Date)	(Initials/Date)

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

SAMPLE ID _____ ORG ID 21FCEN LATITUDE 29.1335303
 COUNTY Volusia STORET # 20011228 LONGITUDE -81.3861247
 DATE 2/1/17 TIME _____ SAMPLING AGENCY _____
 SITE NAME Spring Garden Creek
 FIELD ID/NAME _____ RECEIVING BODY OF WATER Lake Woodruff

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				Typical Width (m) <u>65</u> Depth (m) _____ Velocity (m/sec) _____ Transect _____				
Local Watershed NPS Pollution: ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy				Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>18</u> Right Bank: <u>>18</u>				
Hydrologic Modification Score (per FT 3101) _____				0.01 m/s 0.01 m/s 0.01 m/s				
High Water Mark: <u>0.7</u> + <u>1.1</u> = <u>2.8</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		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>17.8</u> <u>8.1</u> <u>12.4</u> <u>131</u> <u>1082</u> <u>0.54</u> <u>0.6</u> Mid: _____ Bottom: _____ Meter ID: <u>Betty 67</u>			
Woody Debris (Snags) _____ Undercut Banks / Roots _____ Leaf Packs or Mat _____ Aquatic Vegetation _____ Rock or Shell Rubble _____ Sand _____ Mud / Muck / Silt _____ Other _____ Other _____		Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water 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) _____	
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☐ ☒ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☐ ☐ ☒ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐		Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____		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 <u>LGB, kmw</u>		SIGNATURE: <u>[Signature]</u>		DATE: <u>2/1/17</u>	

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

20011228

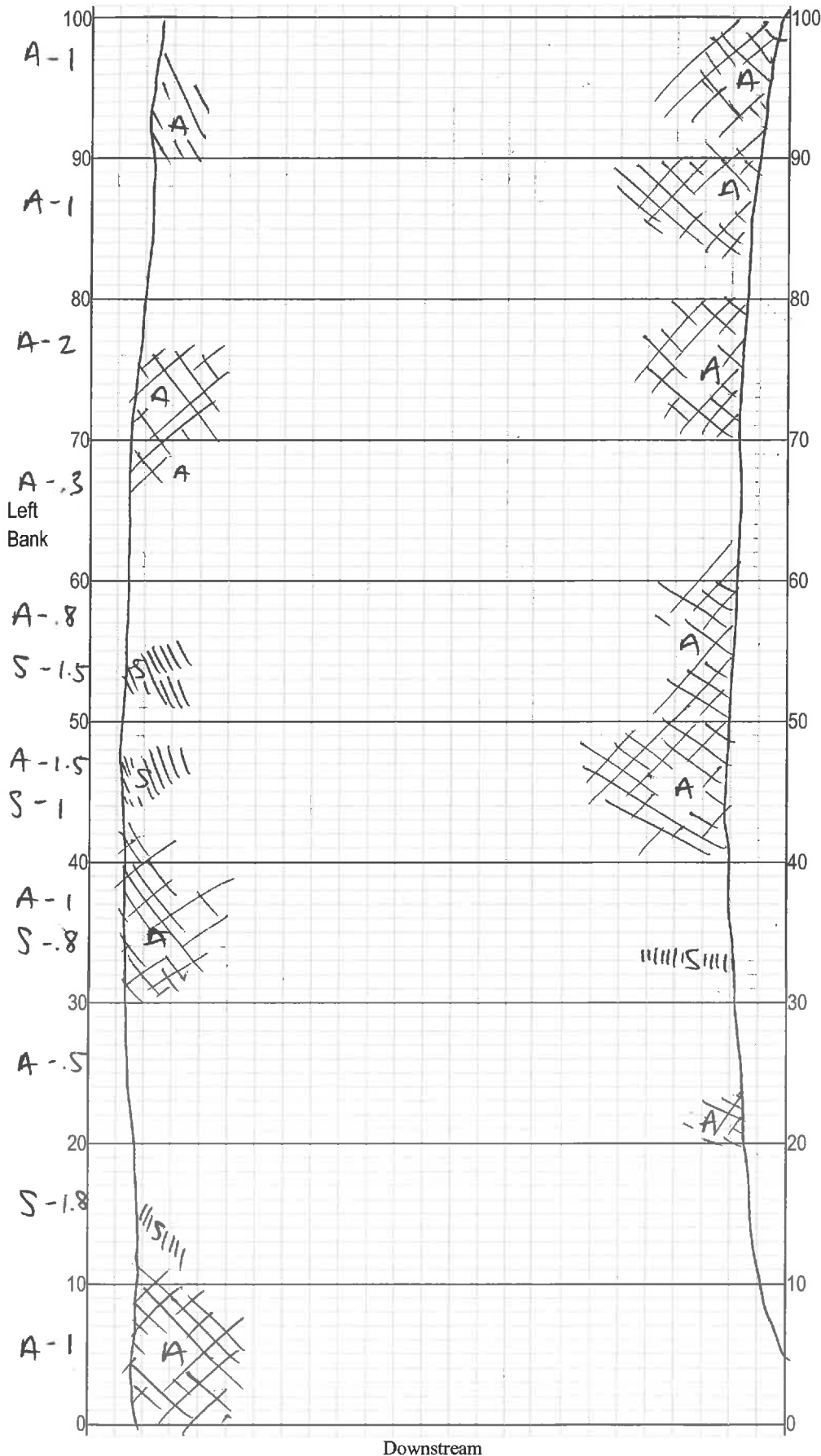
SAMPLING AGENCY: <u>2IFLCEN</u>	STORET STATION NUMBER: <u>20010123KW</u>	DATE (MM/DD/YY): <u>2/1/17</u>	RECEIVING BODY OF WATER: <u>LK Woodhuff</u>
REMARKS:	COUNTY: <u>Johns</u>	LOCATION: <u>Spring Garden Creek</u>	FIELD ID/NAME: <u>G2CE0067</u>

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>6</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>1</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>1</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>3</u> ----- Primary Score <u>11</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 Right Bank <u>10</u> Left Bank <u>10</u>	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. 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 <u>10</u> Left Bank <u>10</u>	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 <u>9</u> Left Bank <u>9</u> ----- Secondary Score <u>78</u>	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

89 TOTAL SCORE

Date: <u>2/1/17</u>	Analyst: <u>KMW, LCB</u>	Signature: <u>KWilliams</u>
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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: _____

Date: 02¹⁸
02/01/17

Sampler: Leif Bomen & Katie Williams

100 m: Latitude _____
Longitude _____

0 m: Latitude _____
Longitude _____

Substrates: Code key, draw proportionate habitat abundance. %

☒ Snags _____

☐ Roots/undercut banks _____

☐ Leaf Packs (or mats) _____

☒ Aquatic Macrophytes _____

☐ _____

☐ _____

☐ Pools total # observed = _____
range expected = _____

Average width 65 m

Average depth _____ m

Velocity measured at 50 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:

System affected by heavy muck bottom. Little to no flow.

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Spring Garden Creek County: Volusia Date: 2/1/17 Investigators: KMW, LGB

Transect (m) Point 1=right 9=left Algal Thickness Rank (N-6, X) Estimated Canopy Cover
 STORET Station Number: 20011228

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

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

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

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

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

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

Secchi depth 0.6
 Estimated?

points ranked 4-6 5
 total points assessed 99
 % points ranked 4-6 5

Check accompanying data collected at same site/date.
 Algal mat sample
 Linear Veg Survey
 Habitat Assessment
 SCI/Biorecon
 Water sample
 RQ- 2017-01-30-56

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%.