



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2019

Data Qualified?

Yes / No

WIN Station Name: Bull Creek Canal 0.5M Upstr of Dead Lake

Date: 06/12/2019

WIN/ Field ID: G2NE1192 CR

WBID: 2615

Latitude: 29.42792 29.43072

County: Putnam

ORG ID: 21FLA

Longitude: -81.48047 -81.436519

Receiving Body of Water: BJR

RQ-2019- 01-07-44 06-10-21

Sampling Team Members		WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment				
C. Ruben J. Parrish		X	X	X	X	X	☒ Sample Container	☐ Van Dorn	☐ Pole		
							☐ Carboy	☐ Syringe			
							☐ Dipper	☐ Other			
							Depth Measured with <u>meter</u>				
							Equipment ID				
							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>PRO DSS</u>		Matrix: Fresh / Marine / DI							
Photos: <u>Yes</u> No		Flow: No Flow / Intestinal / <u>Flowing</u> / NA		Tide: Rising/ Falling/ Slack/ NA		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 (umhos/cm)	Temp. (C°)	
EST	930	<u>0.6</u>	<u>0.3</u>	<u>0.6</u>	<u>3.25</u>	<u>41</u>	<u>6.96</u>	<u>0.93</u>	<u>1829</u>	<u>27.3</u>	
CEN		<u>0.7</u>									
Biological Samples Collected: None <u>HA</u> SCI <u>RPS</u> Algae ID LVS LVI Other:											
SBIO ID Numbers: SBIO-ID: HA-ID: RPS-ID: Macrophyte-ID: LIMS#:											
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>SA9010030</u>		<u>4/2020</u>		☒ <2	
Metals		☒ W-ICPMS ☒ W-ICP		☒ Ice ☒ HNO3		<u>NA9099030</u>		<u>4/2020</u>		☒ X	
Filtered Nutrients		☒ W-PO4-F ☒ Field Filtered 0.45 um Filter		☒ Ice		<u>R9BA86875</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-BR-IC / ☐ 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 ☒ WE8321-MS ☐ W-CARB-AA		☒ Ice							
Phytoplankton		☐ DTY-QN-C ☐ PKD-QN-C		☐ Ice							

Notes:

Manatees
in water

WIN ID/Field ID:



G2NE1194

Bull Creek Ditch 1 mile Upstream of Dead Lake

Signature: Clyde R

Date: 6/12/19

LIMS EVENT ID:

WIN Import ID:

Enter Field Parameters, Verify Station ID in LIMS DMT:

QC Station ID, Field Parameters in LIMS DMT:

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 WBID 2615 ORG ID 21FLA LATITUDE 29.43072
COUNTY Putnam Flagler STORET # G2NE1194 LONGITUDE -81.436519
DATE 6/12/19 TIME _____ SAMPLING AGENCY FDEP DEAR NE ROC
SITE NAME Bull Creek Ditch 1 mile Upstream of Dead Lake
FIELD ID/NAME G2NE1194 RECEIVING BODY OF WATER Dead Lake

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							Typical Width (m) Depth (m)/Velocity (m/sec) Transect 36 m wide m/s 0.05 m/s m/s m deep 0.7 m deep m deep
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) ☐			
High Water Mark: <u>0.4</u> + <u>0.7</u> = <u>1.1</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 <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>0.3</td><td>24.2</td><td>7.50</td><td>4.34</td><td>57</td><td>751</td><td>0.36</td><td>0.6</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>0.7</td><td></td><td></td><td></td><td></td><td></td><td></td><td>TOTAL DEPTH</td></tr></tbody></table> Meter ID: _____					Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)	Top:	0.3	24.2	7.50	4.34	57	751	0.36	0.6	Mid:								☐ VOB	Bottom:	0.7							TOTAL DEPTH
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Bottom:	0.7							TOTAL DEPTH																																	
Woody Debris (Snags) ☐		Invert ☐ PERI ☐		Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐		Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐																																			
Undercut Banks / Roots ☐				Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: _____ Exp: _____		Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐																																			
Leaf Packs or Mat ☐				Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____		Clarity Clear ☐ Slightly Turbid ☒ Turbid ☒ Opaque ☐																																			
Aquatic Vegetation <u>3</u>				System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☐																																					
Rock or Shell Rubble.. ☐																																									
Sand..... ☐																																									
Mud / Muck / Silt <u>97</u>																																									
Other ☐				ABUNDANCE <table border="1"><thead><tr><th></th><th>Not Obs.</th><th>Rare</th><th>Common</th><th>Abundant</th></tr></thead><tbody><tr><td>Periphyton:</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td></tr><tr><td>Fish:</td><td>☐</td><td>☐</td><td>☒</td><td>☐</td></tr><tr><td>Aquatic Plants:</td><td>☐</td><td>☐</td><td>☐</td><td>☒</td></tr><tr><td>Iron/Sulfur Bacteria:</td><td>☐</td><td>☒</td><td>☐</td><td>☐</td></tr></tbody></table>					Not Obs.	Rare	Common	Abundant	Periphyton:	☐	☒	☐	☐	Fish:	☐	☐	☒	☐	Aquatic Plants:	☐	☐	☐	☒	Iron/Sulfur Bacteria:	☐	☒	☐	☐									
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Fish:	☐	☐	☒					☐																																	
Aquatic Plants:	☐	☐	☐	☒																																					
Iron/Sulfur Bacteria:	☐	☒	☐	☐																																					
Other ☐				AMBIENT FIELD CONDITIONS / NOTES: <u>monotrees observed</u> <u>blue bloom sample downstream</u> ☐ The antecedent hydrologic conditions have been met to my best knowledge.																																					
SAMPLING TEAM <u>Jeremy Garsh / Cleveanne Fisher</u>				SIGNATURE: <u>Jeremy Garsh</u>		DATE: <u>6/12/19</u>																																			

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Bull Creek Ditch 1 mile upstream of Dead Lake

County: Flagler

Date: 6/12/19

Investigators: C Ruben, J Parrish

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	X		60	1	N	X	
	2		X			2		X	
	3		X			3		X	
	4		X			4		X	
	5		X	0		5		X	0
	6		X			6		X	
	7		X			7		X	
	8		X			8		X	
	9		X			9		X	
10	1	N	X		70	1	N	X	
	2		X			2		X	
	3		X			3		X	
	4		X			4		X	
	5		X	0		5		X	0
	6		X			6		X	
	7		X			7		X	
	8		X			8		X	
	9		X			9		X	
20	1	N	X		80	1	N	X	
	2		X			2		X	
	3		X			3		X	
	4		X			4		X	
	5		X	0		5		X	0
	6		X			6		X	
	7		X			7		X	
	8		X			8		X	
	9		X			9		X	
30	1	N	X		90	1	N	X	
	2		X			2		X	
	3		X			3		X	
	4		X			4		X	
	5		X	0		5		X	0
	6		X			6		X	
	7		X			7		X	
	8		X			8		X	
	9		X			9		X	
40	1	N	X		100	1	N	X	
	2		X			2		X	
	3		X			3		X	
	4		X			4		X	
	5		X	0		5		X	0
	6		X			6		X	
	7		X			7		X	
	8		X			8		X	
	9		X			9		X	
50	1	N	X						
	2		X						
	3		X						
	4		X						
	5		X	0					
	6		X						
	7		X						
	8		X						
	9		X						

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%.

STORET Station Number: G2NE1194

Secchi depth 0.6
Estimated? N

points ranked 4-6 0
total points assessed 0
% 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- 2019-06-21-10

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

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

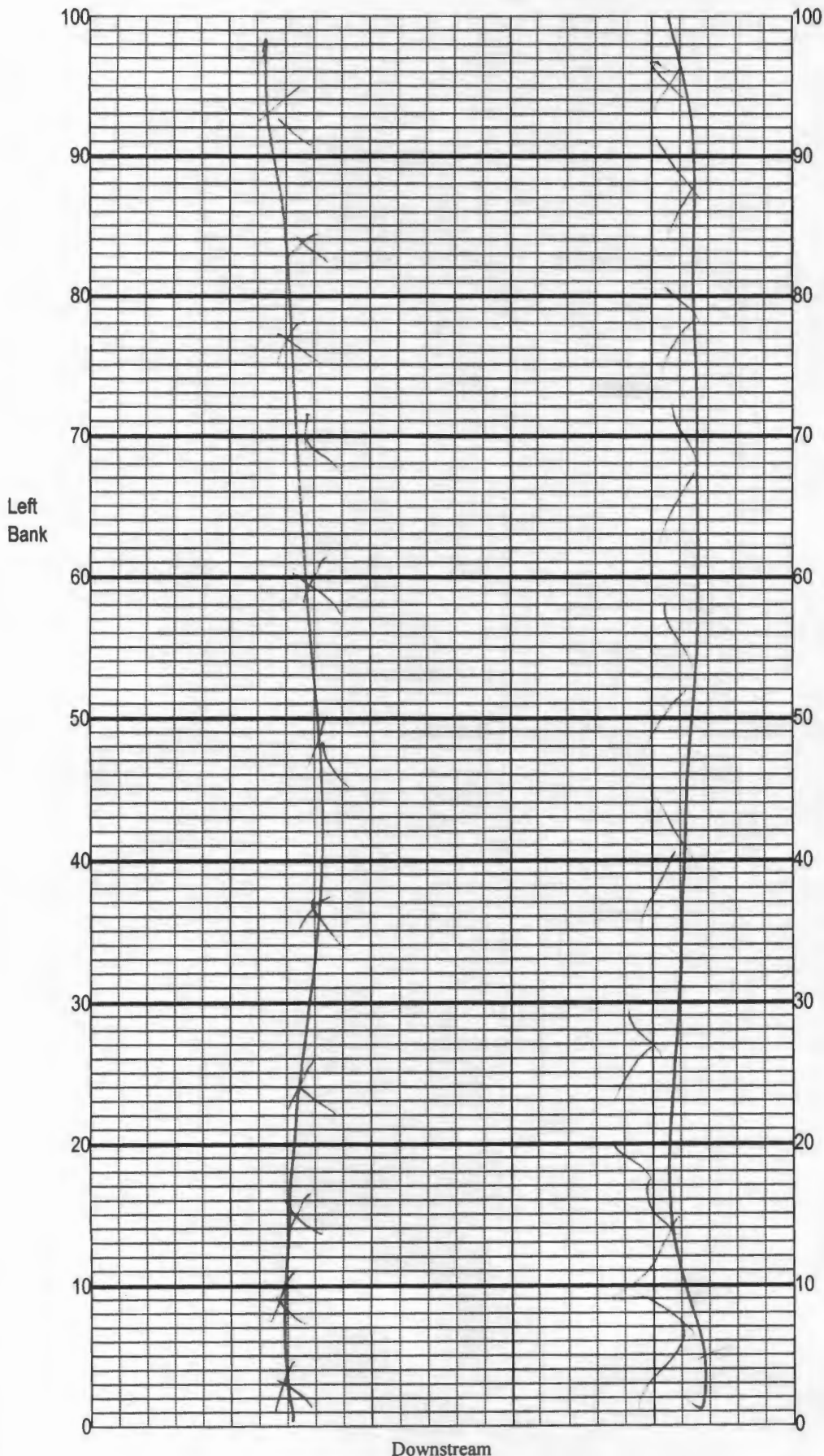
SAMPLING AGENCY: NE ROC		STORET STATION NUMBER: G2NE1194	DATE (MM/DD/YY): 6/12/19	RECEIVING BODY OF WATER: Dead Lake
REMARKS:	COUNTY: Flagler	LOCATION: Bull Creek Ditch 1 mile above road		FIELD ID/NAME:

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity <u>4</u>	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 <u>3</u> 2 1
Substrate Availability <u>3</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 <u>3</u> 2 1
Water Velocity <u>6</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 <u>6</u>	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>5</u> Primary Score <u>17</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. <u>5</u> 4 3 2 1
Secondary Habitat Components Artificial Channelization <u>15</u>	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 <u>4</u> Left Bank <u>4</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 <u>4</u>	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>9</u> Left Bank <u>0</u>	Width of vegetation greater than 18 m 10 <u>9</u>	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>5</u> Left Bank <u>4</u> Secondary Score <u>52</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. <u>5</u> <u>4</u>	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

69 **TOTAL SCORE**

Date: 6/12/19	Analyst: Jeremy Smith	Signature: Jeremy Smith
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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: Bull Creek Ditch

Date: 6/12/19

Sampler: J Parrish/C Ruben

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 3

☐ _____

☐ _____

☐ Pools total # observed = _____
range expected = _____

Average width 30 m

Average depth 0.7 m

Velocity measured at 0.5 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:

<2 M of Macrophytes was observed while doing the LVS? YES or NO

3000
30m wide

Waterbody: Bull Creek Ditch 1 mile above head Lake		Date: 6/12/19	County: Flagler	Storet Number: G2NE1194																			
Analyst: J Parrish / C. Ruben		Signature:																					
Comments:																							
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										Specime n collected (check)	HERBACEOUS SPECIES	Meter Mark										Specime n 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	
Alternanthera philoxeroides	C	C	C	C	C	C	C	C	C	C		Micranthemum glomeratum											
Bacopa caroliniana												Micranthemum umbrosum											
Bacopa monnieri												Myriophyllum aquaticum											
Bidens mitis												Najas guadelupensis											
Boehmeria cylindrica												Nuphar luteum											
Centella asiatica												Orontium aquaticum											
Ceratophyllum demersum												Panicum hemitomon											
Chara												Panicum repens											
Cicuta maculata	P	P	P	P	P	P	P	P	P	P		Panicum rigidulum											
Cladium jamaicense												Pistia stratioides	P	P	P	P	P	P	P	P	P		
Colocasia esculenta												Polygonum glabra											
Commelina diffusa												Polygonum hydropiperoides											
Commelina virginica												Polygonum punctatum											
Crinum americanum												Pontedaria cordata											
Diodia virginiana												Potamogeton illinoensis											
Eichhornia crassipes												Ruellia simplex											
Eleocharis (wispy viviparous)												Sacciolepis striata											
Hydrilla verticillata												Sagittaria kurziana											
Hydrocotyle	C	C	C	C	P	C	C	C	C	C		Sagittaria lancifolia											
Hygrophila polysperma												Sagittaria latifolia											
Hymenocallis												Salvinia minima	P	P	P	P	P	P	P	P	P		
Lachnanthes caroliniana												Samolus parviflora											
Landoltia punctata												Saururus cernuus											
Lemna			P	P								Sparganium americanum											
Limnophila sessiflora												Typha											
Ludwigia leptocarpa												Vallisneria americana											
Ludwigia palustris												Zizania aquatica											
Ludwigia peruviana	P	P	C	C	C	P						Myrica	P										
Ludwigia repens												Pladium		P	P					P	P		
Luziola fluitans												Hybiscus		P	P				P	P	P		
												Salix							P	P			