

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
CHAIN OF CUSTODY FORM

Date:	5/18/2023	Collected By:	Jeremy Parrish, Katrin Villinger
Customer:	NE-DIST	Sampling Agency:	FDEP
RQ:	RQ-2023-05-22-48	Project ID:	SCIREF

PLEASE RETURN THE ORIGINAL OF THIS FORM WITH SAMPLE SUBMITTAL
FORMS AND THE COOLER PACKING WORKSHEET TO THE LAB**Number of Coolers Shipped:** 2**Delivery Method:** FedEx**FIELD ID (Labels) submitted under this RQ for this collection date.**

Site Location	Field ID/WIN ID
Deep Creek CR 315	 G2NE1227

RELINQUISHED BY(SIGNATURE):

DATE/TIME: 5/18/2023
1630EST**THIS SECTION TO BE COMPLETED BY LABORATORY****Rec'd/Inspected By:****Rec'd/Inspected Date:**



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

REFERENCE STREAMS Field Sheet

July 2022

Meter
Passed End
of Day CCV

Yes / No

WIN Station Name:		Deep Creek CR 315				Sample Date:		5/18/2023	
WIN / Field ID:	G2NE1227	ORG ID:	21FLA	ENR:		Latitude:	29.57021		
County:	Putnam	WBID:	2730	STREAM		Longitude:	-81.87818		
Receiving Body of Water:		Ocklawaha				RQ-	2023-05-22-48		

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Jeremy Parrish		x		x	x
Katrin Villinger		x	x		
Katherine Halbert	x	x			
Niki Barham		x			

Sampling Equipment			
x	Sample Container	Carboy	
	Dipper	Van Dorn	
	Syringe	Pole	
Syringe Lot#		Filter Lot#	175533
Secchi Equipment ID:			
Collection Method			
x	Wading	Canoe/Kayak	
	From Shore	Electric Motor	
		Gasoline Motor	
Depth Measured With Meter			

Water Level:	Normal
Flow:	Flowing
Matrix:	Fresh
Tide Stage:	
High Tide:	
Low Tide:	
Photos:	No
Meter ID:	
Depth Gauge ID:	depth_gauge

Time Zone	Time	Total Depth (m)	Sample Depth (m)	DO (mg/L)	DO (%SAT)	Temp. (°C)	pH	Secchi Disk (m)	Sp COND (µmhos/cm)	Salinity (PPT)
EST	1030	0.351	0.15	7.11	83	23	7.39	0.351	146	0.07
VOB (s)										

Biological Samples Collected:

SCI

SBIO Visit ID:

HA ID:

RPS ID:

Macrophyte ID:

LIMS Sample ID Entered

Into The Macrophyte Module:

Parameter Suite	Parameter Methods (LIMS Test Codes)			Preservation			
	Type	Lot#	Expiration Date	pH Check			
Microbiology	E. coli			ICE			
Chlorophyll	CHLSUITE-W			ICE			
Physical/Aggregate	ALKALINITY, TURBIDITY, W-F, W-TSS			ICE			
Nutrients	W-CL-IC, W-COLOR, W-SO4-IC, W-TDS			ICE			
Filtered Nutrients	W-PO4-F	Field Filtered 0.45 µm Filter		ICE	Syringe Lot#; Filter Lot#:175533		
Acid Preserved Nutrients	W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP			ICE	H2SO4*	SA2229010	8/30/23
Metals	W-ICPMS	W-ICP	W-HARD	ICE	HNO3**	NA2126030	6/2/23
Organics (LC)	W-E8321-DI	W-E8321-MS					
Macroinvertebrates	MI-FW-QLDC			Formalin		8280122TR	
Organics (GC)	W-PSNP-TQ	W-TR-SQ-R		Ice	*2.0 ml of H2SO4 Used Unless Noted Otherwise **2.0 ml of HNO3 Used Unless Noted Otherwise		
Molecular	PCR-HF183	PCR-BacR	PCR-DG3	Ice			
Periphyton							
Phytoplankton							
BOD							
DOC							
Other(s)							
Field Comments:	/ SCI Collection Time: 1030						
Comments on COC:							
Relinquish Date:	05/18/2023	Signature:					

LIMS EVENT ID: _____ WIN Import ID: _____

Enter Field Parameters, Verify Station ID In LIMS DMT: _____

(Initials/Date)

QC Station ID, Field Parameters In LIMS DMT: _____

(Initials/Date)

Save Field Sheets on Network: _____

(Initials/Date)

Migrate Data to WIN: _____

(Initials/Date)

CALIBRATION AND VERIFICATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)

Boldly "X" this box if there are qualified data on this page.

Meter ID: Switch

RQ: 2023-05-22-48

Project: Deep Creek SCI

- Notes: (1) Always wait for meter to stabilize before recording any readings.
 (2) Report all digits displayed. Do not round before reporting measurements. (See special instructions for depth).
 (3) For Calibrations, record calibrated meter reading. Do not record initial meter reading before calibration.

Temperature (Quarterly) FT 1400

Date of Last Temperature Verification 2.15.23

DO DEP SOP FT 1500	Name	Date	Time CT-ET	Temp °C	Baro-meter mmHg	D.O. Chart mg/L	Meter D.O. mg/L	% DO	Probe Charge	Probe Gain	Pass / Fail	Lab / Field
Calibr.	<u>N Barham</u>	<u>5.18.23</u>	<u>7:29</u>	<u>21.8</u>	<u>758.6</u>	<u>8.8</u>	<u>-</u>	<u>99.8</u>	<u>-</u>	<u>1.069</u>	<u>P/F</u>	<u>L/F</u>
ICV			<u>7:31</u>	<u>21.8</u>	<u>758.6</u>	<u>8.8</u>	<u>8.76</u>	<u>99.9</u>	<u>-</u>	<u>1.069</u>	<u>P/F</u>	<u>L/F</u>
CCV			<u>15:07</u>	<u>23.2</u>	<u>759.3</u>	<u>8.6</u>	<u>8.51</u>	<u>99.8</u>	<u>-</u>	<u>1.069</u>	<u>P/F</u>	<u>L/F</u>
CCV											<u>P/F</u>	<u>L/F</u>

DO Acceptance criteria from Table ± 0.3 mg/L.

Rapid-Pulse Sensors: DO Gain Range 0.7 to 1.4; DO Charge Range 25-75.

Optical: DO gain range 0.85 to 1.15 (Pro DSS 0.75 to 1.50); DO charge N/A. Steady-state & Galvanic Sensors: DO Gain & Charge N/A.

Spec. Cond. FT 1200	Name	Date	Time CT-ET	Lot #	Expir. Date	Standard μ mhos/cm	Meter Reading μ mhos/cm	Pass / Fail	Lab / Field
Calibr.	<u>N Barham</u>	<u>5.18.23</u>	<u>7:32</u>	<u>230131B</u>	<u>2-24</u>	<u>1000</u>	<u>1000</u>	<u>P/F</u>	<u>L/F</u>
ICV			<u>7:34</u>	<u>220719B</u>	<u>7-23</u>	<u>100</u>	<u>98.7</u>	<u>P/F</u>	<u>L/F</u>
CCV			<u>15:09</u>	<u>230131B</u>	<u>2-24</u>	<u>1000</u>	<u>1001</u>	<u>P/F</u>	<u>L/F</u>
CCV								<u>P/F</u>	<u>L/F</u>

Conductivity Acceptance criteria $\pm 5\%$

pH DEP SOP FT 1100	Name	Date	Time CT-ET	Lot #	Expir. Date	pH Buffer SU	Temp °C	Meter reading SU	mV	Pass / Fail	Lab / Field
Calibr.	<u>N Barham</u>	<u>5.18.23</u>	<u>7:36</u>	<u>m241-15</u>	<u>9-1-24</u>	<u>7.01</u>	<u>22.8</u>	<u>7.01</u>	<u>-51.1</u>	<u>P/F</u>	<u>L/F</u>
Calibr.			<u>7:38</u>	<u>m346-07</u>	<u>12-11-24</u>	<u>4.00</u>	<u>22.9</u>	<u>4.00</u>	<u>124.3</u>	<u>P/F</u>	<u>L/F</u>
Calibr.			<u>7:40</u>	<u>m334-14</u>	<u>11-29-24</u>	<u>10.02</u>	<u>22.6</u>	<u>10.02</u>	<u>-218.7</u>	<u>P/F</u>	<u>L/F</u>
ICV			<u>7:42</u>	<u>m346-07</u>	<u>12-11-24</u>	<u>4.00</u>	<u>22.9</u>	<u>3.96</u>	<u>126.2</u>	<u>P/F</u>	<u>L/F</u>
CCV			<u>15:11</u>	<u>m334-14</u>	<u>11-29-24</u>	<u>10.02</u>	<u>23.1</u>	<u>9.95</u>	<u>-216.2</u>	<u>P/F</u>	<u>L/F</u>
CCV										<u>P/F</u>	<u>L/F</u>

pH Acceptance criteria ± 0.2 SU; mV pH 7 Range 0 ± 50 ; mV pH 4 Range $+180 \pm 50$; mV pH 10 Range -180 ± 50 ;

If mV are recorded: slope from 7 to 10 167.6, slope from 4 to 7 175.4 (both must be between 165 and 180 mV)

Does meter have a depth sensor that will be used to measure total depth & sample depth? YES / NO / NA (not surf. water project)

If YES, complete daily Calibr. & ICV below and list date of last quarterly depth verification: 2.9.23

If NO, what will be used? (circle one) Secchi Disk Line / Sonar Unique ID: _____; Date of last verification: _____

Depth Sensor (Daily Calibration & ICV)	Name	Date	Time CT-ET	Calibrated Value (0.00 or Offset), meters	ICV Value, meters	Pass / Fail	Lab / Field
Pressure mode in air	<u>N Barham</u>	<u>5.18.23</u>	<u>7:44</u>	<u>0.00</u>	<u>0.000</u>	<u>P/F</u>	<u>L/F</u>

Report two decimal places. Round numbers ≤ 4 down, ≥ 5 up. ICV acceptance criteria $\pm 5\%$ or ± 0.05 m, whichever is greater.

COMMENTS:

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

SAMPLING AGENCY:		STORET STATION NUMBER: <u>BZNE1227</u>	DATE (MM/DD/YY): <u>5/18/23</u>	RECEIVING BODY OF WATER:
REMARKS:	COUNTY: <u>Ruman</u>	LOCATION: <u>Deep creek c315</u>	FIELD ID/NAME:	

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>14</u>	20 19 18 17 16	15 <u>14</u> 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>5</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 <u>5</u> 4 3 2 1
Water Velocity <u>19</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 <u>19</u> 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>17</u> ----- Primary Score <u>55</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 <u>17</u> 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 or straightening 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>	<u>20</u> 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability Right Bank <u>9</u> Left Bank <u>9</u>	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the woody root zone with few raw, eroded areas. 10 <u>9</u>	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 woody root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>10</u> Left Bank <u>9</u>	Width of vegetation greater than 18 m <u>10</u> <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>10</u> Left Bank <u>10</u> ----- Secondary Score <u>77</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. <u>10</u> 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

132

TOTAL SCORE

Date: <u>5/18/23</u>	Analyst: <u>JPM</u>	Signature: <u>JPM</u>
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Downstream
5 m wide
Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).

102219 Revision Date: January 2017

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Keokuk CR 315</u>					County: <u>Polk</u>		Date: <u>5/18/23</u>		Investigators: <u>DM</u>	
Transect t (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect t (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	STORET Station Number: <u>62NE 1227</u>
0	1	N	N		60	1	N	N		Secchi depth <u>10.5</u>
	2					2				Estimated? <u>10.5</u>
	3					3				
	4					4				
	5			94		5			99	
	6					6				
	7					7				
	8					8				
	9					9				
10	1	N			70	1	N			# points ranked 4-6 <u>0</u>
	2					2				total points assessed <u>0</u>
	3					3				% points ranked 4-6 <u>0</u>
	4					4				
	5			96		5			96	
	6					6				
	7					7				
	8					8				
	9					9				
20	1	N			80	1	N			Check accompanying data collected at same site/date.
	2					2				Algal mat sample ☐
	3					3				Linear Veg Survey ☐
	4					4				Habitat Assessment ☐
	5			96		5			96	SCI/Biorecon ☐
	6					6				Water sample ☐
	7					7				
	8					8				
	9					9				
30	1	N			90	1	N			RQ-
	2					2				
	3					3				
	4					4				
	5			96		5			96	
	6					6				
	7					7				
	8					8				
	9					9				
40	1	N			100	1	N			Algal Thickness Rank
	2					2				N rough, no algae, slimy, algae up to 1mm
	3					3				3 >1mm - 6mm
	4					4				4 >6mm - 20mm
	5			92		5			96	5 >20mm - 10 cm
	6					6				6 >10 cm
	7					7				
	8					8				
	9					9				
50	1	N				1	N			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.
	2					2				Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.
	3					3				Record canopy cover as the number of small densimeter quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.
	4					4				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%.
	5			96		5				
	6					6				
	7					7				
	8					8				
	9					9				

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

SAMPLE ID _____ ORG ID 21FLA LATITUDE 29.57021
COUNTY Pulaski STORET # 62NE1227 LONGITUDE 81.87818
DATE 5/18/23 TIME 1030 SAMPLING AGENCY CP&NE
SITE NAME Deep Creek CR 315
FIELD ID/NAME _____ 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) ☐							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 <u>5m</u> wide <u>0.3</u> m/s <u>0.4</u> m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>718</u> Right Bank: <u>718</u>							Hydrologic Modification Score (per FT 3101) ☐
High Water Mark: <u>0.8</u> + <u>0.4</u> = <u>1.2</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>0.15</u> <u>23.0</u> <u>7.39</u> <u>7.11</u> <u>83.0</u> <u>146.0</u> <u>0.07</u> <u>0.351</u> Mid: _____ Bottom: _____ Meter ID: _____			Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____		
Woody Debris (Snags) <u>2</u> <u>5</u> Undercut Banks / Roots <u>2</u> <u>5</u> Leaf Packs or Mat <u>1</u> <u>5</u> Aquatic Vegetation _____ Rock or Shell Rubble _____ Sand <u>95</u> <u>5</u> Mud / Muck / Silt _____ Other _____ Other _____			Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐ Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐			System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☐		
ABUNDANCE Periphyton: ☐ Not Obs. ☒ Rare ☐ Common ☐ Abundant Fish: ☐ Not Obs. ☒ Rare ☐ Common ☐ Abundant Aquatic Plants: ☐ Not Obs. ☒ Rare ☐ Common ☐ Abundant Iron/Sulfur Bacteria: ☒ Not Obs. ☐ Rare ☐ Common ☐ Abundant			AMBIENT FIELD CONDITIONS / NOTES: Conductivity (<u>146.0</u> us/cm) @ <u>10:30</u> ☐ The antecedent hydrologic conditions have been met to my best knowledge.			SIGNATURE: <u>[Signature]</u> DATE: _____		
SAMPLING TEAM <u>[Signature]</u> <u>[Signature]</u>			Revision Date: January 2017					

62 NE 1227

Peeps @ CK315
nam

Date: 5/18/23 Co

Pvman

62 NE 1227

Signature: _____

Signature: 

HERBACEOUS SPECIES		Meter Mark										Specimen collected (check)	HERBACEOUS SPECIES		Meter Mark										Specimen 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													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													Panicum rigidulum												
Cladium jamaicense													Pistia stratioides												
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 viviparus)													Sacciolepis striata												
Hydrilla verticillata													Sagittaria kurziana												
Hydrocotyle													Sagittaria lancifolia												
Hygrophila polysperma													Sagittaria latifolia												
Hymenocallis													Salvinia minima												
Lachnanthes caroliniana													Samolus parviflora												
Landoltia punctata													Saururus cernuus												
Lemna													Sparganium angustifolium												
Limnophila sessiflora													Typha												
Ludwigia leptocarpa													Vallisneria spiralis												
Ludwigia palustris													Zizania aquatica												
Ludwigia peruviana																									
Ludwigia repens																									