

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
CHAIN OF CUSTODY FORM

Date: 7/20/2021 **Collected By:** Evelyn Becerra, Blake Spencer
Customer: WAS **Sampling Agency:** FDEP
RQ: RQ-2021-07-19-02 **Project ID:** SMP

PLEASE RETURN THE ORIGINAL OF THIS FORM WITH SAMPLE SUBMITTAL
FORMS AND THE COOLER PACKING WORKSHEET TO THE LAB

Number of Coolers Shipped: 1

Delivery Method: HandDelivered

FIELD ID (Labels) submitted under this RQ for this collection date.

Site Location	Field ID/WIN ID
Wakulla River at boat tram	 44059

RELINQUISHED BY(SIGNATURE):

DATE/TIME: 7/20/2021 EST

Evelyn B

THIS SECTION TO BE COMPLETED BY LABORATORY

Rec'd/Inspected By:

Rec'd/Inspected Date:



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2020

Meter Passed End
of Day CCV
Yes / No

WIN Station Name: Wakulla River at boat tram **Date:** 7/20/2021
WIN/Field ID: 44059 **WBID:** 1006 **ENR:** - **Latitude:** 30.23
County: WAKULLA **Org ID:** 21FLWQA **Longitude:** -84.29
Receiving Body of Water: Ochlockonee - St. Marks **RQ:** 2021-07-19-02

Sampling Team Members		WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
☒	Evelyn Becerra	x		x		
☒	Blake Spencer				x	x
☒	Caryn Crabb		x			
☐						

Sampling Equipment	
☒ Sample Container	☐ Carboy
☐ Dipper	☐ Van Dorn
☒ Syringe	☐ Pole
Depth measured with: Sonar	
Secchi Equipment ID:	
Collection Method	
☐ Wading	☐ Canoe/Kayak
☐ From Shore	☐ Electric Motor
☐ Other _____	☒ Gasoline Motor

Water Level: ☐ Normal ☒ Low ☐ High ☐ Dry ☐ Pooled ☐ Flooded						Meter ID# EXO #1							
Photos: NO		Flow: FLOW		Tide:		Tide Times: High: Low:							
Biological Samples Collected: ☐ None ☒ HA ☒ SCI ☒ RPS ☒ Algae ID ☒ LVS ☐ LVI Other:													
SBIO ID Numbers: SBIO ID:82687 LIMS ID:263578 Macrophyte ID:11898 RPS ID:9759 HA ID:16959													
Notes:													

Duplicate Sample

Time Zone: EST	Time:	Field ID: N/A	(WIN ID_DUP)
WIN DMT Activity ID:			

Blank

Time Zone:	Time:	Field ID:	(Blank Type_DDDMMYYY)
DI Source:		Location:	
DI Type:		Equipment ID:	
DI Container (Name/ID):		DI Container Type:	

LIMS EVENT ID: WAS-SECT-2021-07-20-01 **WIN Import ID:** 21FLWQA_WAS-SECT-2021-07-20-01_10-05-2021.TXT
Enter Field Parameters, Verify Station ID In LIMS DMT: ESB 8/17/21 **QC Station ID, Field Parameters In LIMS DMT:** CLC 8/25/2021
(Initials/Date) (Initials/Date)
Scan/Save Field Sheets ESB 8/17/21 **Migrate Data to WIN:** DT 10/5/21 **Verify Data In WIN:**
(Initials/Date) (Initials/Date) (Initials/Date)



RQ-2021-07-19-02

Customer: WQAP

Project ID: SMP

Collected By: Evelyn Becerra, Blake Spencer

Field Report Prepared By: Evelyn Becerra

Sampling Agency: FDEP

Place Label Here

WIN ID/Field ID:



44059

Location: Wakulla River at boat tram

Comments:

Matrix: Fresh

(Check one)

☒ GRAB☐ COMPOSITE

Date	Time	DO (mg/L)	DO (%SAT)	Temp. (C°)	pH	Sample Depth (m)	Secchi Disk (m)	Total Depth (m)	Sp COND (µmhos/cm)	Salinity (PPT _h)		
	1211 EST	3.84	42.8	21.527	7.48	0.3	0.8 ☒ VOB (S)	0.8	316.6	0.15		
7/20/2021												
	EST											
Parameter Suite		Parameter Methods				Preservation		pH Check	# Bottles sent to Lab	Bottle Group		
Preserved Nutrients (P-500ML)		☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP				☒ Ice ☒ H2SO4*		☒ <2	1	A		
		Lot #	SA0353110		Exp:	01/11/22						
Metals (P-500ML)		☒ W-ICPMS ☒ W-ICP ☒ W-HARD				☒ Ice ☒ HNO3*		☒ <2	1	A		
		Lot #	NA0344060		Exp:	01/04/22						
Filtered Nutrients (P125ML)		☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter				☒ Ice			1	A		
		Filter Lot #	16930646									
		Syringe Lot #	1091364									
Chlorophyll (BP-1L)		☒ CHLSUITE-W				☒ Ice			1	A		
Physical/Aggregate (Fresh) (P-1L)		☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS				☒ Ice			1	A		
Physical/Aggregate (Marine) (P-1L)		☐ Alkalinity / W-BR-IC / W-F / W-TSS / TURBIDITY				☐ Ice						
Macroinvertebrates (PJ-2L)		☒ MI-FW-QLDC	Formalin Lot #	9.46040721TR		☒ Formalin			2	B		
Periphyton (PT-50ML)		☒ ALGAE-ID				☒ Ice			1	B		
Microbiology (Contract Lab Bottle)		☐ E Coli ☐ F Coli ☐ Enterococci				☐ Ice						
Molecular (QPCR-P-500ML)		☐ PCR-HF183 ☐ PCR-BacR ☐ PCR-DG3				☐ Ice						
		☐ PCR-GULL2 ☐ PCR-GFD ☐				☐ Ice						
Tracers (BG-500ML)		☐ W-E8321-DI ☐ W-E8321-MS				☐ Ice						
Pesticides (BG-500ML) (BG-1L)		☒ W-E8321-DI	☒ WE8321-MS	☒ W-PSNP-TQ	W-CT-CL-R	☒ Ice			5	B		
Phytoplankton/Periphyton		W-PCL-TQ-R										
						DTY-QN-C						
						PKD-QN-BV		☐ Ice				
Name: Evelyn Becerra Caryn Crabb Blake Spencer					Signature: <i>Blake Spencer</i>					Date: 7/20/21		

*2.0 ml of Preservative used unless noted otherwise.

**MCAA: Monochloroacetic acid buffer solution

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

SAMPLING AGENCY: <u>FDLP</u>		STORET STATION NUMBER: <u>44059</u>	DATE (MM/DD/YY): <u>7/20/21</u>	RECEIVING BODY OF WATER: <u>St. Marks River</u>
REMARKS:	COUNTY: <u>Wakulla</u>	LOCATION: <u>Wakulla Springs @ Boat Tram</u>	FIELD ID/NAME: <u>44059</u>	

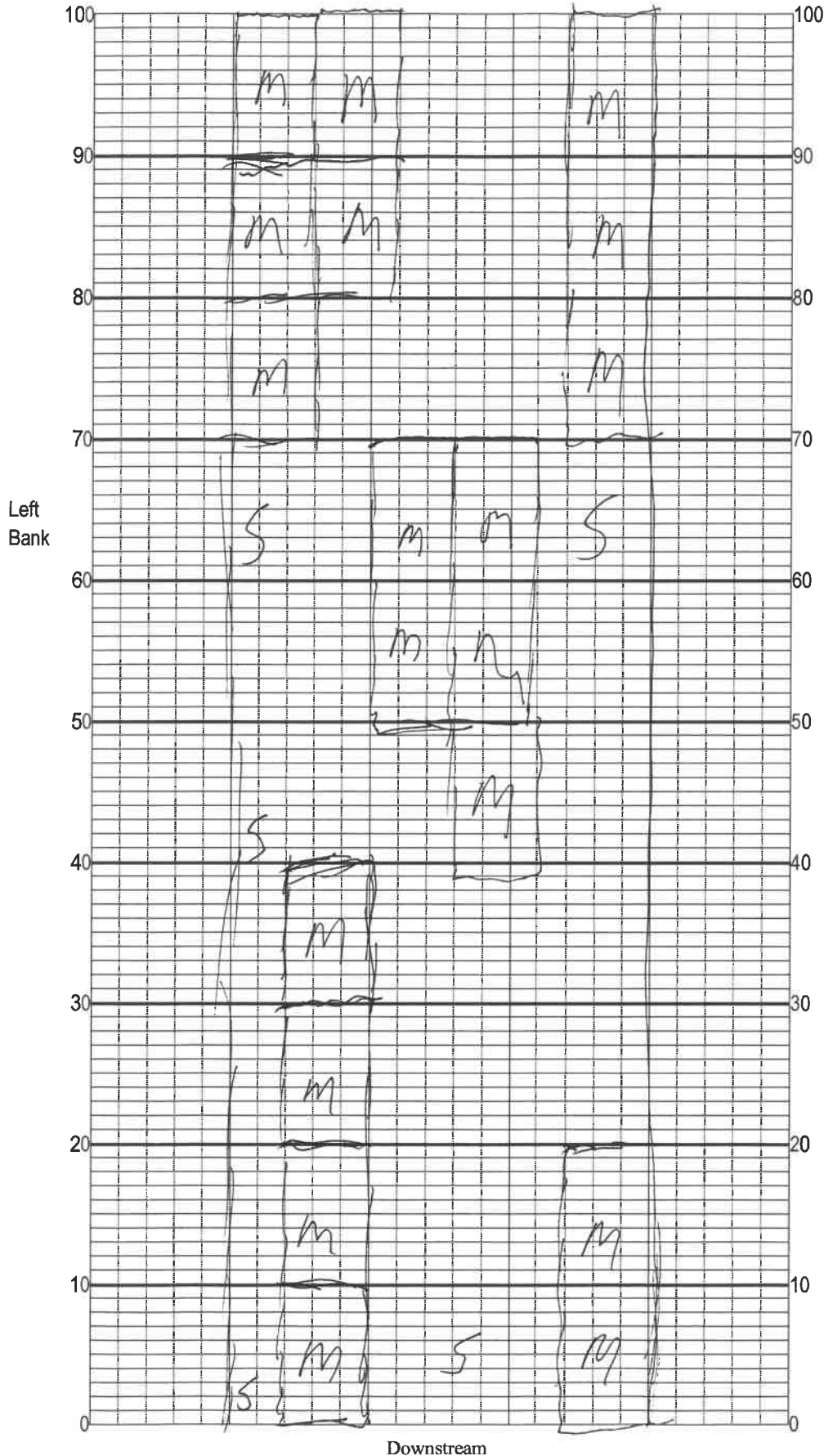
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity <u>9</u>	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock] 20 19 18 17 16	Three major productive habitats present. Adequate habitat. 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 3 2 1
Substrate Availability <u>20</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>20</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>11</u> Primary Score <u>60</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 Artificial Channelization <u>20</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 or straightening 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>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 woody 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 woody 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>10</u> Left Bank <u>10</u> Secondary Score <u>80</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

140

TOTAL SCORE

Date: <u>7/20/21</u>	Analyst: <u>Blake Spencer</u>	Signature: <u>[Signature]</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: Wakulla River @ Boat Tram

Date: 7/26/21

Sampler: Blake Spencer

100 m: Latitude 30.234248
Longitude -84.294304

0 m: Latitude 30.23459
Longitude -84.29447

Substrates: Code key, draw proportionate habitat abundance. %

S Snags 10%

R Roots/undercut banks 0

L Leaf Packs (or mats) 0

M Aquatic Macrophytes 730%

 Pools total # observed =
range expected =

Average width 85 m

Average depth 0.8 m

Velocity measured at 50 meter mark.

WQ & chemistry taken at 50 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:

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <i>Wakulla River @ Boat Tram</i>					County: <i>Wakulla</i>		Date: <i>7/20/21</i>		Investigators: <i>Bella Spencer + Evelyn Acosta</i>	
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	2	Y		60	1	X	X		
	2	6				2	6	Y		
	3	6				3	2			
	4	2				4	2			
	5	2		0		5	2			0
	6	2				6	2			
	7	6				7	2			
	8	6				8	6			
	9	2				9	X	X		
10	1	2	Y		70	1	X	X		
	2	6				2	2	Y		
	3	6				3	6			
	4	6				4	6			
	5	6		0		5	6			0
	6	2				6	2			
	7	6				7	6			
	8	6				8	6			
	9	2				9	6			
20	1	2	Y		80	1	X	X		
	2	6				2	2	Y		
	3	2				3	2			
	4	6				4	2			
	5	2		0		5	2			0
	6	2				6	2			
	7	6				7	2			
	8	2				8	6			
	9	2				9	6			
30	1	2	Y		90	1	X	X		
	2	6				2	6	Y		
	3	2				3	2			
	4	2				4	6			
	5	6		0		5	2			0
	6	6				6	2			
	7	2				7	2			
	8	6				8	6			
	9	2				9	6			
40	1	6	Y		100	1	X	X		
	2	6				2	2	Y		
	3	2				3	2			
	4	6				4	2			
	5	6		0		5	2			0
	6	2				6	2			
	7	6				7	2			
	8	6				8	6			
	9	2				9	6			
50	1	6	Y			1	X	X		
	2	2				2	2	Y		
	3	2				3	2			
	4	6				4	2			
	5	6		0		5	2		0	
	6	2				6	2			
	7	2				7	2			
	8	6				8	6			
	9	6				9	6			

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:
44059

Secchi depth	<i>28</i>
Estimated?	<i>N</i>

# points ranked 4-6	<i>46</i>
total points assessed	<i>93</i>
% points ranked 4-6	<i>49%</i>

Check accompanying data collected at same site/date.	
Algal mat sample	☒
Linear Veg Survey	☒
Habitat Assessment	☒
SCI/Biorecon	☒
Water sample	☒
RQ- <i>2021-07-19-02</i>	

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 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Wakkulla River @ Boat Train

Date: 7/20/21

County: Wakulla

Storet Number: 44059

Analyst: Blake Spencer

Signature: B. L. P.

Comments:

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1m² 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.

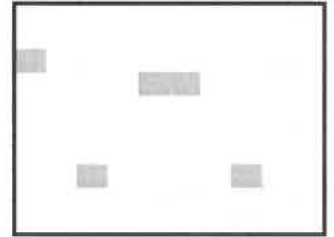
	Meter Mark											Meter Mark											
HERBACEOUS SPECIES	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)	HERBACEOUS SPECIES	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Alternanthera philoxeroides												Micranthemum glomeratum											
Bacopa caroliniana												Micranthemum umbrosum											
Bacopa monneri												Myriophyllum aquaticum											
Bidens mitis												Najas guadelupensis											
Boehmeria cylindrica					X							Nuphar luteum											
Centella asiatica												Orontium aquaticum											
Ceratophyllum demersum												Panicum hemitomon											
Chara												Panicum repens											
Cicuta maculata	X	X	X	X	X	X	X	X	X	X		Panicum rigidulum											
Cladium jamaicense		X	X	X	X		X		X			Pistia stratioides											
Colocasia esculenta												Polygonum glabra	X	X	X	X		X	X	X			
Commelina diffusa												Polygonum hydropiperoides											
Commelina virginica												Polygonum punctatum				X	X			X	X		
Crinum americanum												Pontedaria cordata	X	X	X	X	X	X	X	X	X		
Diodia virginiana												Potamogeton illinoensis											
Eichhornia crassipes												Ruellia simplex											
Eleocharis (wispy viviparous)												Sagittaria striata											
Hydrilla verticillata												Sagittaria kurziana	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	
Hydrocotyle			X	X	X	X	X		X			Sagittaria lancifolia	X	X	X	X	X	X	X				
Hygrophila polysperma												Sagittaria latifolia											
Hymenocallis												Salvinia minima											
Lachnanthes caroliniana												Samolus parviflora											
Landoltia punctata												Saururus cernuus											
Lemna	X	X	X	X	X	X	X	X	X	X		Sparganium americanum											
Limnophila sessiflora												Typha			X	X							
Ludwigia leptocarpa												Vallisneria americana											
Ludwigia palustris												Zizania aquatica											
Ludwigia peruviana												Mikania scandens	X	X	X	X	X	X	X	X	X		
Ludwigia repens	X	X	X	X	X	X		X	X			Rhynchospora inundata	X	X	X	X	X	X	X	X	X	X	
Luziola fluitans												Schoenoplectus californicus			X	X	X	X	X				
												Rumex verticillatus							X				
					</																		

Percent Cover Categories for macrophytes in a 10 m segment of a stream 5 m wide

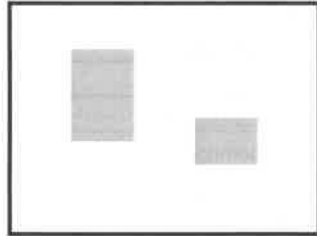
5% Macrophyte Coverage



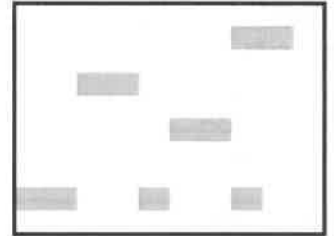
5% Macrophyte Coverage



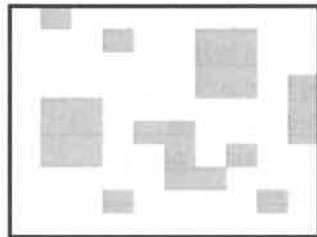
10% Macrophyte Coverage



10% Macrophyte Coverage



25% Macrophyte Coverage



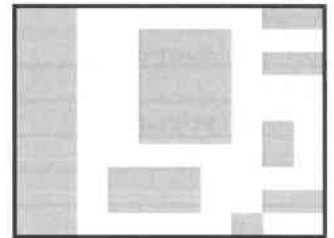
25% Macrophyte Coverage



50% Macrophyte Coverage



50% Macrophyte Coverage



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

SAMPLE ID 82687 ORG ID 21FLW3A LATITUDE 30.23459
 COUNTY Wakulla STORET # 44059 LONGITUDE -84.29447
 DATE 7/20/2021 TIME 12:11pm SAMPLING AGENCY DEP
 SITE NAME Wakulla River @ Boat Tram
 FIELD ID/NAME 44059 RECEIVING BODY OF WATER St. Marks River

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural <u>78</u> Silviculture <u>0</u> Field/Pasture <u>2</u> Agricultural <u>0.9</u> Residential <u>17</u> Commercial <u>0.7</u> Industry <u>0.9</u> Other (Specify) <u>water</u>								Landscape Development Intensity Index (LDI) <u>1.17</u>
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>85</u> m wide <u>0.5</u> m/s <u>0.5</u> m/s <u>0.5</u> m/s <u>0.8</u> m deep <u>0.8</u> m deep <u>0.8</u> m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>18m</u> Right Bank: <u>>18m</u>				Hydrologic Modification Score (per FT 3101) <u>3-4</u>				
High Water Mark: <u>0.2</u> + <u>0.8</u> = <u>1.0</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><u>0.3</u></td> <td><u>21.527</u></td> <td><u>7.48</u></td> <td><u>3.84</u></td> <td><u>42.8</u></td> <td><u>316.0</u></td> <td><u>0.15</u></td> <td></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></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>							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>21.527</u>	<u>7.48</u>	<u>3.84</u>	<u>42.8</u>	<u>316.0</u>	<u>0.15</u>		Mid:								☒ VOB	Bottom:								
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Mid:								☒ VOB																																				
Bottom:																																												
Woody Debris (Snags) <u>1</u> Undercut Banks / Roots <u>0</u> Leaf Packs or Mat <u>0</u> Aquatic Vegetation <u>>30</u> <u>10</u> Rock or Shell Rubble.. <u>0</u> Sand..... <u>10</u> Mud / Muck / Silt <u>0</u> Other <u>0</u> Other <u>0</u>			Meter ID: <u>EXO #1</u>			Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: <u>See field</u> Exp: <u>Sheet</u> Algae Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: <u>ICE</u> Exp:																																						
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:	☒	☐	☐	☐	Water Surface Oils Normal ☒ Sheen ☐ Globbs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐ Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐																
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SAMPLING TEAM <u>Blake Spenser, Evelyn Becerra, Caryn Crabb</u>			System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☒ Other (Specify) ☒ <u>Spring Run</u>			DATE: <u>7/20/21</u>																																						
AMBIENT FIELD CONDITIONS / NOTES: <u>Sunny, warm</u> ☒ The antecedent hydrologic conditions have been met to my best knowledge.																																												

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: **EXO #1**

RQ: **2021-07-19-02**

Project: **WAKULLA BMAP**

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 _____

DO DEP SOP FT 1500	Name	Date	Time CT-ET	Temp °C	Barometer mmHg	D.O. Chart mg/L	Meter D.O. mg/L	% DO	Probe Charge	Probe Gain	Pass / Fail	Lab / Field
Calibr.	Evelyn Becerra	7/20/21	7:36	21.0	756.4	8.9	8.97	100.8	-	1.10	(P) F	(L) F
ICV	Evelyn Becerra	7/20/21	7:39	21.0	756.3	8.9	9.03	101.5	-	-	(P) F	(L) F
CCV	Evelyn Becerra	7/20/21	1:59 pm	24.7	756.9	8.3	8.44	101.5	-	-	(P) F	(L) F
CCV											P / F	L / F

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.	Evelyn Becerra	7/20/21	7:44	201209 H	12/2021	1000	1000	(P) F	(L) F
ICV	Evelyn Becerra	7/20/21	7:49	2911C93	11/2021	100	100.5	(P) F	(L) F
CCV	Evelyn Becerra	7/20/21	14:04	201209 H	12/2021	1000	999	(P) F	(L) F
CCV								P / F	L / F

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.	Evelyn Becerra	7/20/21	7:52	210513A	11/2021	7.02	21.4	7.02	-24.2	(P) F	(L) F
Calibr.	Evelyn Becerra	7/20/21	7:57	201112A	05/2022	4.00	21.5	4.00	146.4	(P) F	(L) F
Calibr.	Evelyn Becerra	7/20/21	8:00	201209 G	06/2022	10.04	21.6	10.03	-190.3	(P) F	(L) F
ICV	Evelyn Becerra	7/20/21	8:05	201112A	05/2022	4.00	21.4	4.01	145.1	(P) F	(L) F
CCV	Evelyn Becerra	7/20/21	14:08	201209 G	06/2022	10.03	21.8	10.01	-189.0	(P) F	(L) F
CCV										P / F	L / F

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 _____, slope from 4 to 7 _____ (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: _____

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	Evelyn Becerra	7/20/21	8:07	0.00	0.000	(P) F	(L) F

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

COMMENTS:

Cooler Packing Worksheet for Request: RQ-2021-07-19-02**Wakulla BMAP****Ship Cooler On: 7/15/2021****Customer/Project: WAS-SECT/BMAP**

Assigned To: REYNOLDS_T

Requester: Curtis Musson

Priority: 3

850-245-8453

2600 Blair Stone Rd

Tallahassee, FL 32399

Attn: Curtis Musson

Comments:

Group A: Nutrients, Metals, Tracers, W-PSNP-TQ

Group B: SCI, Algae_ID

Packing Notes:

1 - case sulfuric acid

1 - case nitric acid

No FedEx Labels

No Trash Bag

Requested Analyses:**Bottle Group: A****# of Sites: 1****Container ID: P-1L****Qty: 1 Preservation: ICE****Lot #**

WV 86826

Description: Plastic Bottle 1L**Analysis**

ALKALINITY

TURBIDITY

W-CL-IC

W-COLOR

W-F

W-SO4-IC

W-TDS

W-TSS

DescriptionAlkalinity in aqueous matrices as mg CaCO₃/L

Turbidity in aqueous matrices

Chloride in aqueous matrices

True Color measured at 450 nm (not valid for NPDES monitoring)

Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)

Sulfate in aqueous matrices

Total Dissolved Solids in aqueous matrices

Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample

Container ID: BP-1L**Qty: 1 Preservation: ICE****Lot #**

BLW 1516

Description: Brown Plastic Bottle 1L**Analysis**

CHLSUITE-W

Description

Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry

Container ID: BG-500ML

Qty: 1 Preservation: ICE

Lot # 02088039

Description: Brown Glass Bottle 500ML

Affix BLUE dot to container.

Analysis

W-E8321-DI

W-E8321-MS

Description

Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS

Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS

Container ID: P-500ML

Qty: 1 Preservation: HNO3

Lot # 020880369

Description: Plastic Bottle 500 mL

Affix RED nitric acid dot to container.

Analysis

W-HARD

W-ICP

W-ICPMS

Description

Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3

Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects

Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects

Container ID: P-500ML

Qty: 1 Preservation: ICE And H2SO4

Lot # 020880369

Description: Plastic Bottle 500 mL

Affix YELLOW sulfuric acid dot to container.

Analysis

W-NH3

W-NO2NO3

W-S-A-TP

W-TKN

W-TOC

Description

Ammonia in aqueous matrices as mg N/L

Nitrite/Nitrate in aqueous matrices as mg N/L

Total Phosphorus in aqueous matrices as mg P/L

Total Kjeldahl Nitrogen in aqueous matrices

Nonpurgeable Organic Carbon in aqueous matrices

Container ID: P-125ML

Qty: 1 Preservation: FILTER-ICE

Lot # 020880369
79279

Description: Plastic Bottle 125 mL

Analysis

W-PO4-F

Description

Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L

Container ID: BG-1L

Qty: 4 Preservation: ICE

Lot # 02075967

Description: Brown Glass Bottle 1L

Affix BLUE dot to container.

Analysis

W-PSNP-TQ

Description

Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS

Bottle Group: B

of Sites: 1

Container ID: PT-50ML

Qty: 1 Preservation: ICE

Lot #

Description: Plastic Tube 50 mL

Analysis

ALGAL_ID

Description

Qualitative assessment of algal taxa present without counts

Container ID: PJ-2L

Qty: 2 Preservation: Formalin

Lot #

Description: Plastic Jar 2 L

Analysis

MI-FW-QLDC

Description

No. Taxa of FW macroinverts, qual samp, 20 dipnets.

Cooler Packed By: Tyler

Number of Coolers: 2

Date: 07/12/21

Kit must also include:

- ☒ Field Sheets
- ☒ Temperature Control Bottle
- ☒ FedEx Bills, if applicable
- ☒ Plastic Bags/Zip Ties
- ☒ Acid Labels (sets of 24)

If Preservation Included:

ID <u>SA</u>	Exp <u>04/30/22</u>	Lot # <u>1165060</u>
ID <u>NA</u>	Exp <u>06/07/22</u>	Lot # <u>1105100</u>
ID _____	Exp _____	Lot # _____
ID _____	Exp _____	Lot # _____
ID _____	Exp _____	Lot # _____

PLEASE RETURN ALL COOLERS FOR RQ-2021-07-19-02