FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2019

Data Qualified? (Yes) / No — Sp COND

WIN Station Name: Wakulla River at Boat Tram **Date:** 01/23/2019 (mm/dd/yyyy)

WIN/ Field ID: 44059 **WBID:** 1006 **Latitude:** 30.23458 (Decimal Degrees)

County: Wakulla **ORG ID:** 21FLWQA **Longitude:** -84.29447 (Decimal Degrees)

Receiving Body of Water: St. Marks River **RQ-** 2019-01-14-07

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Curtis Musson		X		X	X
Blake Spencer	X				
Avril Wood-McGrath		X	X		

Sampling Equipment
- [X] Sample Container [ ] Van Dorn [ ] Pole
- [ ] Carboy [X] Syringe
- [ ] Dipper [ ] Other
- Depth Measured with SONAR #1
- Equipment ID

Collection Method
- [ ] Wading [ ] Canoe/Kayak
- [ ] From Shore [ ] Electric Motor
- [ ] Other [X] Gasoline Motor

Water Level: Dry/ Pooled/ Low / (Normal) / High / Flooded **Meter ID#** Biology #2 **Matrix:** (Fresh) / Marine / DI

Photos: Yes / (No) **Flow:** No Flow / Intestital / (Flowing) / NA **Tide:** Rising/ Falling/ Slack/ (NA) **Tide Times:** High NA Low NA

Time Zone	Time	Total Depth (m)	Sample Depth (m)	Secchi Disk (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (PPTh)	Sp COND (µmhos/cm)	Temp. (C°)
(EST)	12:36	1.3	0.3	VOB	3.81	42.3	7.53	0.15	313J	~~24~~ 20.48 1.23.17 AWM
CEN										

Biological Samples Collected: None (HA) (SCI) (RPS) (Algae ID) (LVS) LVI Other:

SBIO ID Numbers: SBIO-ID: 79197 HA-ID: 15630 RPS-ID: 9219 Macrophyte-ID: 1201 LIMS#: 2056362

Parameter Suite	Parameter Methods	Preservation	Lot#	Expiration	pH Check
Preserved Nutrients	[X] W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	[X] Ice [X] H_2SO_4	SA8101020	04.11.19	[X] <2
Metals	[X] W-ICPMS [X] W-ICP	[X] Ice [X] HNO_3	NA-8080070	08.21.19	[X] <2
Filtered Nutrients	[X] W-PO4-F [X] Field Filtered 0.45 µm Filter	[X] Ice	10827054		
Chlorophyll	[X] CHLSUITE-W	[X] Ice			
Physical/Aggregate (Fresh)	[X] Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS	[X] Ice			
Physical/Aggregate (Marine)	[ ] Alkalinity / W-BR-IC / W-F / W-TSS / TURBIDITY	[ ] Ice			
Macroinvertebrates	[X] MI-FW-QLDC	[X] Formalin			
Periphyton	[X] ALGAE-ID	[X] 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	[X] W-PSNP-TQ [ ] W-CT-CL-R [X] W-E8321-DI [ ] W-PCL-SQ-R [X] WE8321-MS [ ] W-CARB-AA	[X] Ice			
Phytoplankton	[ ] DTY-QN-C [ ] PKD-QN-C	[ ] Ice			

Notes:
SCI Kit
RPS, LVS, Algal ID,HA

↓ Location ↓
Wakulla River Boat Tram
← WIN ID/Field ID
44059

Signature: [signature] **Date:** 1/23/19

LIMS EVENT ID: ~~[illegible] 2/2/19~~ WAS-SECT-2019-01-23-01 WIN Import ID:

Enter Field Parameters, Verify Station ID in LIMS DMT: ~~AWB~~ 2/2/19 (Initials/Date) QC Station ID, Field Parameters in LIMS DMT: AWM 2.15.19 (Initials/Date)

Scan/Save Field Sheets (Initials/Date) Migrate Data to WIN: (Initials/Date) Verify Data in WIN: (Initials/Date)

Entered by BSL 2/8/19

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

SAMPLE ID 29197 ORG ID 21FLWQA LATITUDE 30.23458
COUNTY Wakulla STORET # 44059 LONGITUDE -84.29447
DATE 1.23.19 TIME 12:36 SAMPLING AGENCY FDEP
SITE NAME Wakulla River at 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	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)
78	—	2	0.9	17	0.7	0.9	water 0.5

Landscape Development Intensity Index (LDI): 1.17

Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy

Local Watershed NPS Pollution: ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side
Left Bank: >18 Right Bank: >18

Hydrologic Modification Score (per FT 3101): 3-4

High Water Mark: 0.3 (m) + 1.3 (above present water level) = 1.6 (present depth) (above bed)

Artificially Impounded: ☐ Yes ☒ No

Typical Width (m) Depth (m)/Velocity (m/sec) Transect

— m/s	— m/s	— m/s
— m deep	1.3 m deep	— m deep

85 m wide

Artificially Channelized: ☒ No ☐ Some recovery ☐ Mostly recovered, more sinuous ☐ 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

	None	Slight	Moderate	Severe
Sand Smothering:	☐	☒	☐	☐
Silt Smothering:	☐	☒	☐	☐
Algae Smothering:	☐	☐	☐	☒

SUBSTRATE TYPE

Assessment Tool: ☒ SCI ☒ RPS ☒ LVS ☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	<1	7	—
Undercut Banks / Roots	—	—	—
Leaf Packs or Mat	—	—	—
Aquatic Vegetation	>30	7	—
Rock or Shell Rubble..	>30	6	—
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)
Top:	0.3	20.48	7.53	3.81	42.3	313	0.15
Mid:	—	—	—	—	—	—	—
Bottom	—	—	—	—	—	—	—

Secchi (M): — ☒ VOB

Total Depth: 1.3m

Meter ID: BIOLOGY # 2

Water Odors: Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐

Water Surface Oils: Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐

Water Sample Taken? ☒ Yes ☐ No
Sample Preserved? ☒ Yes ☐ No
Lot Number: See Field Sheet Exp:

Color: Tannic ☒ Green (Algae) ☐ Clear ☒ Other (Specify) ☐

Algae Sample Taken? ☒ Yes ☐ No
Sample Preserved? ☒ Yes ☐ No
Lot Number: ICE Exp: —

Clarity: Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐

ABUNDANCE

	Not Obs.	Rare	Common	Abundant
Periphyton:	☐	☐	☐	☒
Fish:	☐	☐	☒	☐
Aquatic Plants:	☐	☐	☐	☒
Iron/Sulfur Bacteria:	☒	☐	☐	☐

System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☒ Spring Run

AMBIENT FIELD CONDITIONS / NOTES:

☑ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM Blake Spencer Amil Wood-McGrath Curtis Musson

SIGNATURE: Curtis Musson DATE: 1-24-2019

Entered by: BBB 2/7/19
QC'd by: AWM 2/15/19

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

SBIO: 79197 HA: 15630

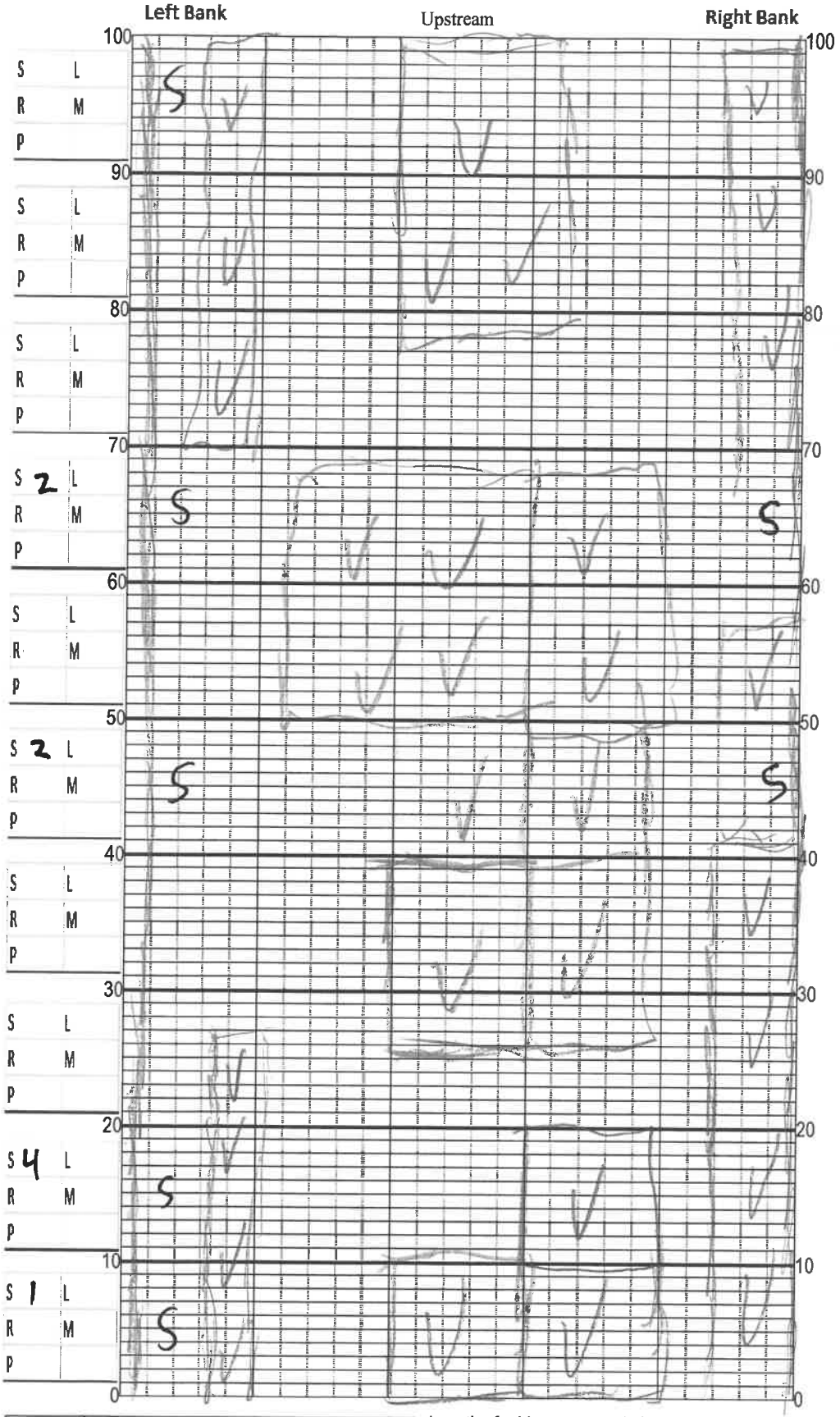
SAMPLING AGENCY: Florida Department of Environmental Protection	STORET STATION NUMBER: 44059	DATE (MM/DD/YY): 1.23.19	RECEIVING BODY OF WATER: St. Marks River
REMARKS: BMAP	COUNTY: Wakulla	LOCATION: Wakulla River at Boat Tram	FIELD ID/NAME: 44059

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components (Snag, Roots, Leaf, Rock, Aquatic Vegtation) **Substrate Diversity** 8	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 20 _____%	Major productive habitat present at site (>30% 27.2% 25.8% 24.4% 26.6%) (20) 19 18 17 16	Major productive habitat, by aerial extent (21.6% 20.2% 18.8% 17.4% 16%) 15 14 13 12 11	6% to 15% major productive habitat (15% 13% 11% 9% 6%) 10 9 8 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity 20 _____m/s	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 13 Primary Score 61	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** 20	Expected sinuosity given the stream width. No evidence of dredging or artificial straight-ening. No spoil banks. (20) 19 18 17 16	Good sinuosity within old chan-nelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered. May have spoil banks. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. May have spoil banks. 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 10 + Left Bank 10 + If Banks are PipeClay, BedRock or Concrete at Bank full: Optimal	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankful 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 10 Left Bank 10	Width of vegetation greater than 18 m (10) 9	Width of vegetation >12 to 18m 8 7 6 (18m 15m 12m)	Width of vegetation 6 to 12 m. human activities close to system 5 4 (9m)	Less than 6 m of buffer zone due to intensive human activities 3 2 1 (6-5m) (4-3m) (<2m)
Riparian Zone Vegetation Quality Right Bank 10 Left Bank 10 Secondary Score 80	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

141 **TOTAL SCORE**

Date: 1.23.19	Analyst: Curtis Mussey	Signature:

DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: Wakulla River @ Boat Tram

Date: 1/23/19

Sampler: Blake Spencer

100 m:	Latitude	30.234248
	Longitude	-84.294304
0 m:	Latitude	30.234197
	Longitude	-84.292789

Substrates: Code key, draw proportionate habitat abundance.

		%
S	Snags	1%
R	Roots/undercut banks	0
L	Leaf Packs (or mats)	0
M	Aquatic Macrophytes	>30%
Rc	Rock	0
P	Pools — total # observed = ____ ; # range expected = ____	

Average width 65 m

Average depth 1.5 m

Velocity measured at 50 meter mark.

Velocity 0.5 m/s

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.

Notes/Plants Observed:
$2m^2$ = 13.2 Sweeps

Meter Mark	Depth (m)	Width (m)	Velocity Measurement (Sec)
Avg.			

Length of grid represents 100 m of stream (not linear meters). (Horizontal scale is double vertical scale, draw proportionately).

Expected Number of Pools

$$\left(\frac{100}{12 * \_\_\_\_W}\right) * 1 =$$

$$\left(\frac{100}{12 * \_\_\_\_W}\right) * 2 =$$

# of Sweeps	Conversion	m^2	%
Snag	÷ 8	m^2	
Root	÷ 8	m^2	
Leaf	÷ 8	m^2	
Macrophyte	÷ 8	m^2	
Rock	÷ 8	m^2	
Total Available Habitat		m^2	
Total Area		m^2	
Total Unavailable Habitat		m^2	

SBID: 79197 Macrophyte: 11201

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Wakulla @ boat tram | Date: 1.23.19 | County: Wakulla | Storet Number: 44059

Analyst: Curtis Nilsson Blake Spencer | Signature: Curtis

Comments: BMAP Sampling

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 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											
Bacopa caroliniana											
Bacopa monneri											
Bidens mitis											
Boehmeria cylindrica											
Centella asiatica											
Ceratophyllum demersum											
Chara											
Cicuta maculata	X	X	X	X	X	X	X	X	X	X	
Cladium jamaicense							X				
Colocasia esculenta											
Commelina diffusa											
Commelina virginica											
Crinum americanum											
Diodia virginiana											
Eichhornia crassipes											
Eleocharis (wispy viviparous)											
Hydrilla verticillata	X	X			X		X	X		X	
Hydrocotle					X						
Hygrophila polysperma											
Hymenocallis						X					
Lachnanthes caroliniana											
Landoltia punctata											
Lemna	X	X	X	X	X	X	X	X	X		
Limnophila sessiflora	X										
Ludwigia leptocarpa											
Ludwigia palustris											
Ludwigia peruviana											
Ludwigia repens	X	X	X	X	X	X	X	X	X	X	
Luziola fluitans											
Micranthemum glomeratum											
Micranthemum umbrosum											
Mikania scandens	X	X	X	X	X	X	X	X	X	X	
Myriophyllum aquaticum					(Restriction) →						
If no Dominant or Co-Dominant were selected, indicate with "X"											

HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Myriophyllum heterophyllum											
Najas guadelupensis											
Nuphar luteum											
Orontium aquaticum											
Panicum hemitomon											
Panicum repens											
Panicum rigidulum											
Peltandra virginica											
Pistia stratioides											
Polygonum glabra	X	X	X	X	X	X	X	X	X	X	
Polygonum hydropiperoides											
Polygonum punctatum											
Pontedaria cordata	X	X	X	X	X	X	X	X	X	X	
Potamogeton illinoensis											
Rhynchospora inundata	X	X	X	X	X	X	X	X	X	X	
Rosa palustris								X			
Ruellia simplex											
Rumex verticillatus		X	X	X	X					X	
Sacciolepis striata											
Sagittaria kurziana	D	D	D	D	D	D	D	D	D	D	
Sagittaria lancifolia	X	X	X	X	Y		X	X			
Sagittaria latifolia											
Salvinia minima											
Samolus parviflora											
Saururus cernuus											
Scirpus (schenoplectus) californicus	X		X	X	X				X	X	
Sparganium americanum											
Typha				X							
Vallisneria americana	X										
Zizania aquatica											
liver wort/riccia	X	X	X	X	X	X	X	X	X	X	
Azolla Caroliniana	X		X		X	X			X		
Juncus Effusus	X	X									
Mustard pepper weed		X									
1.23.19 AWM fontinalis			X	X		X	X	X	X		
purple flower		X			X	X					

Indicate % cover macrophytes per section											
0-5% Macrophyte Coverage											
>5 and ≤10% Macrophyte Coverage											
>10 and ≤25% Macrophyte Coverage											
>25 and ≤50% Macrophyte Coverage											
> 50% Macrophyte Coverage	X	X	X	X	X	X	X	X	X		

Notes: Cyperus (Conoclinium coelestinum) X

~~1 2m²~~

AWM 1.23.19

Entered by: ~~SBB~~ 2/18/19

Qcd by: AWM 2.15.19

Macrophyte QC Report

STORET: 44059
Visit ID: 79197
Macrophyte ID: 11201
LIMS ID: 2056362

Sample Date: 1/23/2019
Collector Name: Musson, Curtis
Identifier Name: Musson, Curtis

Macrophyte Sample Comments:

Taxa Name:	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Azolla filiculoides	P		P		P	P			P	
Cicuta maculata	P	P	P	P	P	P	P	P	P	P
Cladium jamaicense							P			
Conoclinium coelestinum		P			P	P				
Fontinalis			P	P		P	P	P	P	
Hydrilla verticillata	P	P			X		X	X		X
Hydrocotyle					P					
Hymenocallis						P				
Juncus effusus	P	P								
Lemna	P	P	P	P	P	P	P	P	P	P
Limnophila sessiliflora										
Ludwigia repens	P	P	P	P	P	P	P	P	P	P
Mikania scandens	P	P	P	P	P	P	P	P	P	P
Nasturtium		P								
Polygonum glabrum	P	P	P	P	P	P	P	P	P	P
Pontederia cordata	P	P	P	P	P	P	P	P	P	P
Potamogeton illinoensis										
Rhynchospora inundata	P	P	P	P	P	P	P	P	P	P
Riccia	P	P	P	P	P	P	P	P	P	P
Rosa palustris								P		
Rumex verticillatus		P	P	P	P					P
Sagittaria kurziana	D	D	D	D	D	D	D	D	D	D
Sagittaria lancifolia	P	P	P	P	P		P	P		
Schoenoplectus californicus	P		P	P	P				P	P
Typha				P						
Vallisneria americana	P									

QCd by Ann 2/15/19

This data has not been fully approved at this time.

FDEP Plant Sampling Review

Entered by: [illegible] 2/8/19
QC'd by: AWM 2.15.19

SRIO: 79197 RPS: 9219

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Wakulla River at Boat Ramp | County: Wakulla | Date: 1.23.19 | Investigators: Curtis Musson

STORET Station Number: 44059

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	X	X	
	2	6		
	3	6		
	4	6		
	5	6		Ø
	6	6		
4	7	6		
	8	6		
	9	6		
4 10	1	6		
	2	6		
	3	6		
	4	6		
	5	6		Ø
	6	6		
	7	6		
1.23.19 AWM	8	6		
	9	4 X	X	
4	1	6		
	2	6		
	3	6		
	4	6		
20	5	6		Ø
	6	6		
	7	6		
	8	6		
	9	X	X	
3	1	6		
	2	6		
	3	6		
	4	6		
30	5	6		Ø
	6	6		
	7	6		
	8	6		
	9	X	X	
6	1	X	X	
	2	6		
	3	6		
	4	6		
40 H	5	6		Ø
	6	6		
	7	6		
	8	6		
	9	X	X	
5	1	6		
	2	6		
	3	6		
	4	6		
50	5	6		Ø
	6	6		
	7	6		
	8	6		
	9	6		

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
6 60 H	1	X	X	
	2	6		
	3	6		
	4	6	1.23.19 AWM	
	5	6	Ø	Ø
	6	6		
	7	6		
	8	6	1	
	9	6	X	
3 70 H	1	X	X	
	2	N		
	3	N		
	4	N	1.23.19 AWM	
	5	6	Ø	Ø
	6	6		
	7	6		
	8	N		
	9	X	X	
3 80	1	X	X	
	2	N		
	3	N		
	4	N	1.23.19 AWM	
	5	N	Ø	Ø
	6	N		
	7	N		
	8	N		
	9	X	X	
3 90 H	1	X	X	
	2	N		
	3	N		
	4	N	1.23.19 AWM	
	5	N	Ø	Ø
	6	N		
	7	N		
	8	N		
	9	X	X	
3 100	1	X	X	
	2	N		
	3	N		
	4	N	1.23.19 AWM	
	5	N	Ø	Ø
	6	N		
	7	N		
	8	N		
	9	X	X	

Secchi depth	100
Estimated?	N
# points ranked 4-6	44
total points assessed	85
% points ranked 4-6	52%

(Exclude X's)

Check accompanying data collected at same site/date.	
Algal mat sample	✓
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	✓
Water sample	✓

RQ- 2019-01-14-01

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

(> 3 considered smothered)

(N to 1 mm)
(3) 6mm
(4) 20mm
(5) 10cm
(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%.

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

Boldly "X" this box if there is qualifying info on this page

Meter ID: Biology #2 RQ- 2019-01-14-07 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.

Circle/Fill In: (Lab Calibration) or Calibration/Verification on Site _____

Temperature (Quarterly) FT 1400 Date of Last Temperature Verification 11/27/18

DO DEP SOP FT 1500	Name	Date	Time CT-ET	Temp	D.O. Chart mg/L	Meter D.O. mg/L	% DO	Probe Charge	Probe Gain	Pass / Fail	Lab / Field
Calibr.	Blake Spencer	1/23/19	0716	19.76	9.129	9.13	99.8	99.2	~	(P) / F	(L) / F
ICV	Blake Spencer	1/23/19	0713	19.77	9.129	9.11	99.7	99.2	—	(P) / F	(L) / F
CCV	Blake Spencer	1/23/19	1432	21.99	8.744	8.50	97.1	99.2	~	(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; 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 µmhos/cm	Meter Reading µmhos/cm	Pass / Fail	Lab / Field
Calibr.	Blake Spencer	0719	1/23/19	180621C	07/2019	1000	1000	(P) / F	(L) / F
ICV	Blake Spencer	0720	1/23/19	180621C	07/2019	1000	999	(P) / F	(L) / F
CCV	Blake Spencer	1/23/19	1437	1805F81	05/2020	100	112	P (F)	(L) / F
CCV								P / F	L / F

Conductivity Acceptance criteria ± 5%

pH DEP SOP FT 1100	Name	Date	Time CT-ET	Lot #	Expir. Date	pH Buffer SU	Meter reading SU	mV	Pass / Fail	Lab / Field
Calibr.	Blake Spencer	1.23.19	0730	180403C	10/2019	7.0	7.00	-6.3	(P) / F	(L) / F
Calibr.	Blake Spencer	1.23.19	0737	180621D	7/2019	4.0	4.00	166.7	(P) / F	(L) / F
Calibr.	Blake Spencer	1.23.19	0743	180621F	1/2020	10.0	9.99	-174.8	(P) / F	(L) / F
ICV	Blake Spencer	1/23/19	0744	180621F	1/2020	10.0	9.99	-174.8	(P) / F	(L) / F
CCV	Blake Spencer	1/23/19	1442	180403C	10/2019	7.0	7.10	-10.7	(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 ± 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)

Is meter equipped with depth sensor? (Yes) / No If yes, list date of last quarterly depth 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	Blake Spencer	1/23/19	0745	0.00	0.00	(P) / F	(L) / F

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

COMMENTS:

Request Number: RQ-2019-01-14-07

Wakulla BMAP

Florida Department of Environmental Protection
Central Laboratory Submittal Form

last revised Jan 25, 2018

Customer: WAS-SECT

Project ID: BMAP

Requester: Curtis Musson

Collected By: Curtis Musson / Avril Wood-McGrath

Field Report Prepared By: Avril Wood-McGrath

Sampling Agency: FDEP

Location: ↓ Location ↓ Wakulla River Boat Tram ← WIN ID/Field ID 44059

Field ID:

WIN/STORET #:

Latitude: 30.23458 ☒dd ☐dms | Longitude: -84.29447 ☒dd ☐dms

☐ Comp ☒ Grab | Collection (comp begin or grab) Date 1.23.19 Time 12:36 (Eastern) Central | Composite end Date Time | Bottle Group(s) (See pg 2): A

Matrix (type, e.g., Salt, Fresh, etc): Fresh | Diss. Oxygen: 42.3 ☐ mg/L ☒ % sat | Total Res. Chlorine (mg/L):

Temp (C): 20.48 | pH: 7.53 | Sample Depth: 0.3 ☐ ft ☒ m | Sp. Conductance (umho/cm): 313

Salinity (ppt): 0.15 | Comments:

Location: ↓ Location ↓ Wakulla River Boat Tram ← WIN ID/Field ID 44059

Field ID:

WIN/STORET #:

Latitude: 30.23458 ☒dd ☐dms | Longitude: -84.29447 ☒dd ☐dms

☐ Comp ☒ Grab | Collection (comp begin or grab) Date 1.23.19 Time 12:36 (Eastern) Central | Composite end Date Time | Bottle Group(s): B

Matrix (type, e.g., Salt, Fresh, etc): Biological ~~Fresh~~ AWM 1.23.19 | Diss. Oxygen: 42.3 ☐ mg/L ☒ % sat | Total Res. Chlorine (mg/L):

Temp (C): 20.48 | pH: 7.53 | Sample Depth: 0.3 ☐ ft ☒ m | Sp. Conductance (umho/cm): 313

Salinity (ppt): 0.15 | Comments:

Location:

Field ID:

WIN/STORET #:

Latitude: ☐dd ☐dms | Longitude: ☐dd ☐dms

☐ Comp ☐ Grab | Collection (comp begin or grab) Date Time Eastern Central | Composite end Date Time | Bottle Group(s):

Matrix (type, e.g., Salt, Fresh, etc): | Diss. Oxygen: ☐ mg/L ☐ % sat | Total Res. Chlorine (mg/L):

Temp (C): | pH: | Sample Depth: ☐ ft ☐ m | Sp. Conductance (umho/cm):

Salinity (ppt): | Comments:

Location:

Field ID:

WIN/STORET #:

Latitude: ☐dd ☐dms | Longitude: ☐dd ☐dms

☐ Comp ☐ Grab | Collection (comp begin or grab) Date Time Eastern Central | Composite end Date Time | Bottle Group(s):

Matrix (type, e.g., Salt, Fresh, etc): | Diss. Oxygen: ☐ mg/L ☐ % sat | Total Res. Chlorine (mg/L):

Temp (C): | pH: | Sample Depth: ☐ ft ☐ m | Sp. Conductance (umho/cm):

Salinity (ppt): | Comments:

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
Avril Wood-McGrath	1.23.19 14:14			AB	1.23.19 14:14

Group: A	Bottle Type: P-1L	# of Bottles: 2	Preservative: ICE	Enter Number of Bottles Sent to Lab	1	
	ALKALINITY TURBIDITY W-CL-IC W-COLOR W-F W-SO4-IC W-TDS W-TSS					
Group: A	Bottle Type: BP-1L	# of Bottles: 2	Preservative: ICE	Enter Number of Bottles Sent to Lab	1	
	CHLSUITE-W					
Group: A	Bottle Type: BG-500ML	# of Bottles: 2	Preservative: ICE	Enter Number of Bottles Sent to Lab	1	
	W-E8321-DI W-E8321-MS					
Group: A	Bottle Type: P-500ML	# of Bottles: 2	Preservative: HNO3	Enter Number of Bottles Sent to Lab	1	
	W-ICP W-ICPMS		HNO3 LOT# NA3080070 EXP: 03/21/19			
Group: A	Bottle Type: P-500ML	# of Bottles: 2	Preservative: ICE And H2SO4	Enter Number of Bottles Sent to Lab	1	
	W-NH3 W-NO2NO3 W-S-A-TP W-TKN W-TOC		H2SO4 LOT# SA8101020 EXP: 04/11/2019			
Group: A	Bottle Type: P-125ML	# of Bottles: 2	Preservative: FILTER-ICE	Enter Number of Bottles Sent to Lab	1	
	W-PO4-F		LOT # ~~1082704~~ AWM 1.23.19 1D827054			
Group: A	Bottle Type: BG-1L	# of Bottles: 6	Preservative: ICE	Enter Number of Bottles Sent to Lab	4	
	W-PSNP-TQ					
Group: B	Bottle Type: PT-50ML	# of Bottles: 2	Preservative: ICE	Enter Number of Bottles Sent to Lab	1	
	ALGAL_ID					
Group: B	Bottle Type: PJ-2L	# of Bottles: 4	Preservative: Formalin	Enter Number of Bottles Sent to Lab	2	
	MI-FW-QLDC					

Cooler Packing Worksheet for Request: RQ-2019-01-14-07
Wakulla BMAP
Ship Cooler On: 1/11/2019
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:
No preservatives needed.

Group A: Nutrients, Metals, Tracers, Q-PSNP-TQ
Group B: SCI, Algae_ID

Packing Notes
No FedEx labels needed
No Trash Bags

Requested Analyses:

Bottle Group: A **# of Sites: 2**

Container ID: P-1L **Qty: 2** **Preservation: ICE** **Lot #** 00072522

Description: Plastic Bottle 1L

Analysis	Description
ALKALINITY	Alkalinity in aqueous matrices as mg CaCO3/L
TURBIDITY	Turbidity in aqueous matrices
W-CL-IC	Chloride in aqueous matrices
W-COLOR	True Color measured at 450 nm
W-F	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)
W-SO4-IC	Sulfate in aqueous matrices
W-TDS	Total Dissolved Solids in aqueous matrices
W-TSS	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample

Container ID: BP-1L **Qty: 2** **Preservation: ICE** **Lot #** 1233955

Description: Brown Plastic Bottle 1L

Analysis	Description
CHLSUITE-W	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry

Container ID: PT-50ML **Qty: 2** **Preservation: ICE** **Lot #** 63775063

Description: Plastic Tube 50 mL

Analysis	Description
ALGAL_ID	Qualitative assessment of algal taxa present without counts

Container ID: PJ-2L **Qty: 4** **Preservation: Formalin** **Lot #** BLOWASH

Description: Plastic Jar 2 L

Analysis	Description
MI-FW-QLDC	No. Taxa of FW macroinverts, qual samp, 20 dipnets.

Cooler Packed By: Tyler R. Number of Coolers: 3 Date: 01/14/19

Kit must also include:
- ✓ Field Sheets
- ✓ Temperature Control Bottle
- ✓ FedEx Bills, if applicable
- ✓ Plastic Bags/Zip Ties
- X Acid Labels (sets of 24)

If Preservation Included:

ID _____ Exp _____ Lot # _____
ID _____ Exp _____ Lot # _____
ID _____ Exp _____ Lot # _____
ID _____ Exp _____ Lot # _____
ID _____ Exp _____ Lot # _____

PLEASE RETURN ALL COOLERS FOR RQ-2019-01-14-07

Container ID: BG-500ML **Qty: 2** **Preservation: ICE** **Lot #** 0002346

Description: Brown Glass Bottle 500ML Affix BLUE dot to container.

Analysis	Description
W-E8321-DI	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS
W-E8321-MS	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS

Container ID: P-500ML **Qty: 2** **Preservation: HNO3** **Lot #** 00072570

Description: Plastic Bottle 500 mL Affix RED nitric acid dot to container.

Analysis	Description
W-ICP	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects
W-ICPMS	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects

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Container ID: P-500ML **Qty: 2** **Preservation: ICE And H2SO4** **Lot #** 00072570

Description: Plastic Bottle 500 mL Affix YELLOW sulfuric acid dot to container.

Analysis	Description
W-NH3	Ammonia in aqueous matrices as mg N/L
W-NO2NO3	Nitrite/Nitrate in aqueous matrices as mg N/L
W-S-A-TP	Total Phosphorus in aqueous matrices as mg P/L
W-TKN	Total Kjeldahl Nitrogen in aqueous matrices
W-TOC	Nonpurgeable Organic Carbon in aqueous matrices

Container ID: P-125ML **Qty: 2** **Preservation: FILTER-ICE** **Lot #** 00058268

Description: Plastic Bottle 125 mL

Analysis	Description
W-PO4-F	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L

Container ID: BG-1L **Qty: 6** **Preservation: ICE** **Lot #** 00071178

Description: Brown Glass Bottle 1L Affix BLUE dot to container.

Analysis	Description
W-PSNP-TQ	Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS

Bottle Group: B # of Sites: 2