

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: 154179 RQ: 2021-02-15-37 Project: SMP

- 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 2/9/21

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.	H Schmuck	3/16/21	8:11	22.0	761	8.8	8.6	98.8			P/F	L/F
ICV	↓	↓	8:12	22.0	761	8.8	8.6	98.8			P/F	L/F
CCV	↓	↓	14:50	21.7	760	8.8	8.7	98.6			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.	H Schmuck	3/16/21	8:14	200124B	8/21	1000	1000	P/F	L/F
ICV	↓	↓	8:15	201013A	10/21	100	99.9	P/F	L/F
CCV	↓	↓	14:53	201013A	10/21	100	104.9	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.	H Schmuck	3/16/21	8:17	202114	5/22	7.01	22.5	7.01	-32.7	P/F	L/F
Calibr.	↓	↓	8:18	203620	6/22	4.00	21.8	4.00	138.2	P/F	L/F
Calibr.	↓	↓	8:19	201473	5/22	10.04	22.2	10.04	-222.1	P/F	L/F
ICV	↓	↓	8:20	203620	6/22	4	22.2	3.96	143.0	P/F	L/F
CCV	↓	↓	14:54	202114	5/22	7	21.3	6.87	-306	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: 2/9/21
 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	H Schmuck	3/16/21	8:21	0.00	0.00	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:

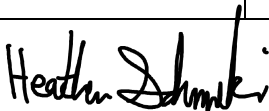
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
CHAIN OF CUSTODY FORM

Date:	<u>3/16/2021</u>	Collected By:	<u>Heather Schmuki, Nathan Mulkey</u>
Customer:	<u>NW-DIST</u>	Sampling Agency:	<u>FDEP</u>
RQ:	<u>RQ-2021-02-15-37</u>	Project ID:	<u>SMP</u>

PLEASE RETURN THE ORIGINAL OF THIS FORM WITH SAMPLE SUBMITTAL
FORMS AND THE COOLER PACKING WORKSHEET TO THE LAB**Number of Coolers Shipped: 1****FIELD ID (Labels) submitted under this RQ for this collection date.**

Site Location	Field ID/WIN ID
Titi Creek above SR 285	 G4NW0365

RELINQUISHED BY(SIGNATURE):



DATE/TIME:

3/16/2021; 16:00

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: Titi Creek above SR 285 **Date:** 3/16/2021
WIN/Field ID: G4NW0365 **WBID:** 321 **ENR:** **Latitude:** 30.702054
County: WALTON **Org ID:** 21FLPNS **Longitude:** -86.38687
Receiving Body of Water: Pensacola **RQ:** 2021-02-15-37

Sampling Team Members		WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
☒	Heather Schmuki	x		x		
☒	Nathan Mulkey		x		x	x
☐						
☐						

Sampling Equipment	
☒ Sample Container	☐ Carboy
☐ Dipper	☐ Van Dorn
☒ Syringe	☐ Pole
Depth measured with: Meter	
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# 154179 (PRODSS)							
Photos: NO		Flow: FLOW		Tide: N/A		Tide Times: High: Low:							
Biological Samples Collected: HS ☒ None ☒ HA ☒ SCI ☒ RPS ☐ Algae ID ☐ LVS ☐ LVI Other:													
SBIO ID Numbers: SBIO ID 81962 HA ID 16783 RPS ID 9676													
Notes:													

Duplicate Sample

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

Blank

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

LIMS EVENT ID: WIN Import ID:
Enter Field Parameters, Verify Station ID In LIMS DMT: QC Station ID, Field Parameters In LIMS DMT:
(Initials/Date) (Initials/Date)
Scan/Save Field Sheets Migrate Data to WIN: Verify Data In WIN:
(Initials/Date) (Initials/Date) (Initials/Date)



RQ-2021-02-15-37

Customer: WQAP

Project ID: SMP

Collected By: Heather Schmuki, Nathan Mulkey

Field Report Prepared By: Heather Schmuki

Sampling Agency: FDEP

Place Label Here

WIN ID/Field ID:



G4NW0365

Location: Titi Creek above SR 285

Comments: Microbiology sample(s) submitted to contract laboratory

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)
3/16/2021	955 CEN	8.81	94.6	18.7	4.48	0.15	0.3 ☒ VOB (S)	0.3	13.8	0.01
	CEN						Central Lab please use top row for login purposes			

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 # Sa0293040 Exp: 10/19/21				
Metals (P-500ML)	☒ W-ICPMS ☒ W-ICP ☒ W-HARD	☒ Ice ☒ HNO3*	☒ <2	1	A
	Lot # Na0344060 Exp: 1/4/22				
Filtered Nutrients (P125ML)	☒ W-PO4-F ☐ Field Filtered 0.45 µm Filter	☒ Ice		1	A
	Filter Lot # 17097890				
	Syringe Lot # 0079929				
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			
Periphyton (PT-50ML)	☐ ALGAE-ID	☐ Ice			
Microbiology (Contract Lab Bottle)	☒ E Coli ☐ F Coli ☐ Enterococci ☒ Contract Lab	☒ Ice		1	A
Molecular (QPCR-P-500ML)	☐ PCR-HF183 ☐ PCR-BacR ☐ PCR-DG3 ☐ PCR-GULL2 ☐ PCR-GFD ☐	☐ Ice			
Tracers (BG-500ML)	☒ W-E8321-DI ☒ W-E8321-MS	☒ Ice		1	A
Pesticides (BG-500ML) (BG-1L)	☐ W-E8321-DI ☐ WE8321-MS ☒ W-PSNP-TQ ☐ W-CT-CL-R	☒ Ice		A	A
	☐ W-PCL-SQ-R ☐ W-CARB-AA (5 ml of MCAA** Buffer Solution) ☐ W-DIELDRIN				
Phytoplankton/Periphyton	☐ DTM-QL-C ☐ PEN-QL-C ☐ DTY-QN-C ☐ PKD-QN-C	☐ Ice			
	☐ DTM-QN-C ☐ PRN-QN-C ☐ PKD-QN-BV ☐				

Name:
Heather Schmuki
Nathan Mulkey

Signature:

Date:

3/16/2021

*2.0 ml of Preservative used unless noted otherwise.

**MCAA: Monochloroacetic acid buffer solution

Site Name Titi Creek above SR 285

Date: 03/16/2021

Field ID G4NW0365 Storet G4NW0365

Project: SMP / TMDL Studies

Visit ID 81962

RQ: 2021-02-15-37

RPS ID 9676

LIMS ID: 2232062

Macro ID N/A

WBID: 321

HA ID 16783

☒ SCI

☐ RPS/LVS Only

☐ Sample Site Created in SBIO

☒ Phys/Chem entered in SBIO

☒ HA entered in SBIO Initial FB, 3/31/2021

☒ Date and Initial QA: 04/08/2021, SS

☒ RPS entered in SBIO Initial FB, 3/31/2021

☒ Date and Initial QA: 04/08/2021, SS

☐ LVS entered in SBIO Initial _____

☐ Date and Initial QA: _____

☐ < 2 m² vegetation

☐ Plants getting verified Date submitted: _____

☐ Plants verified Date returned: _____

☒ RPS authorized in SBIO

☒ Date and Initial: 04/12/2021, FB

☒ RPS score: 0.00

☐ Macro authorized in SBIO

☐ Date and Initial: N/A

☐ LVS Score: _____

☒ SCI complete: M. Heyn 05/14/2021

SCI Score: 73

☒ Add SBIO-ID, HA-ID, RPS-ID, MACROPHYTE-ID and LIMS# to field sheet in database

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

SAMPLE ID 81962 ORG ID 21FLPNS LATITUDE 30.702054 ^{HS} 30.70203
 COUNTY Walton WIN ID/STORET # 641W0365 LONGITUDE -86.386871 -86.38673
 DATE 3/16/21 TIME 955 CTZ SAMPLING AGENCY FL DEP - NWROC
 SITE NAME Titi Creek above SR 285 RQ- 2021-02-15-37
 FIELD ID/NAME 641W0365 RECEIVING BODY OF WATER Pensacola WBID 321 Project: SMP

RIPARIAN ZONE / STREAM FEATURES

WBID 321

LIMS ID: 2232062

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) N/A
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 7 m wide 0.5 m/s 0.5 m/s 0.5 m/s 0.3 m deep 0.3 m deep 0.3 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) <u>1-2</u>				
High Water Mark: ☐ + ☐ = <u>3</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%)				

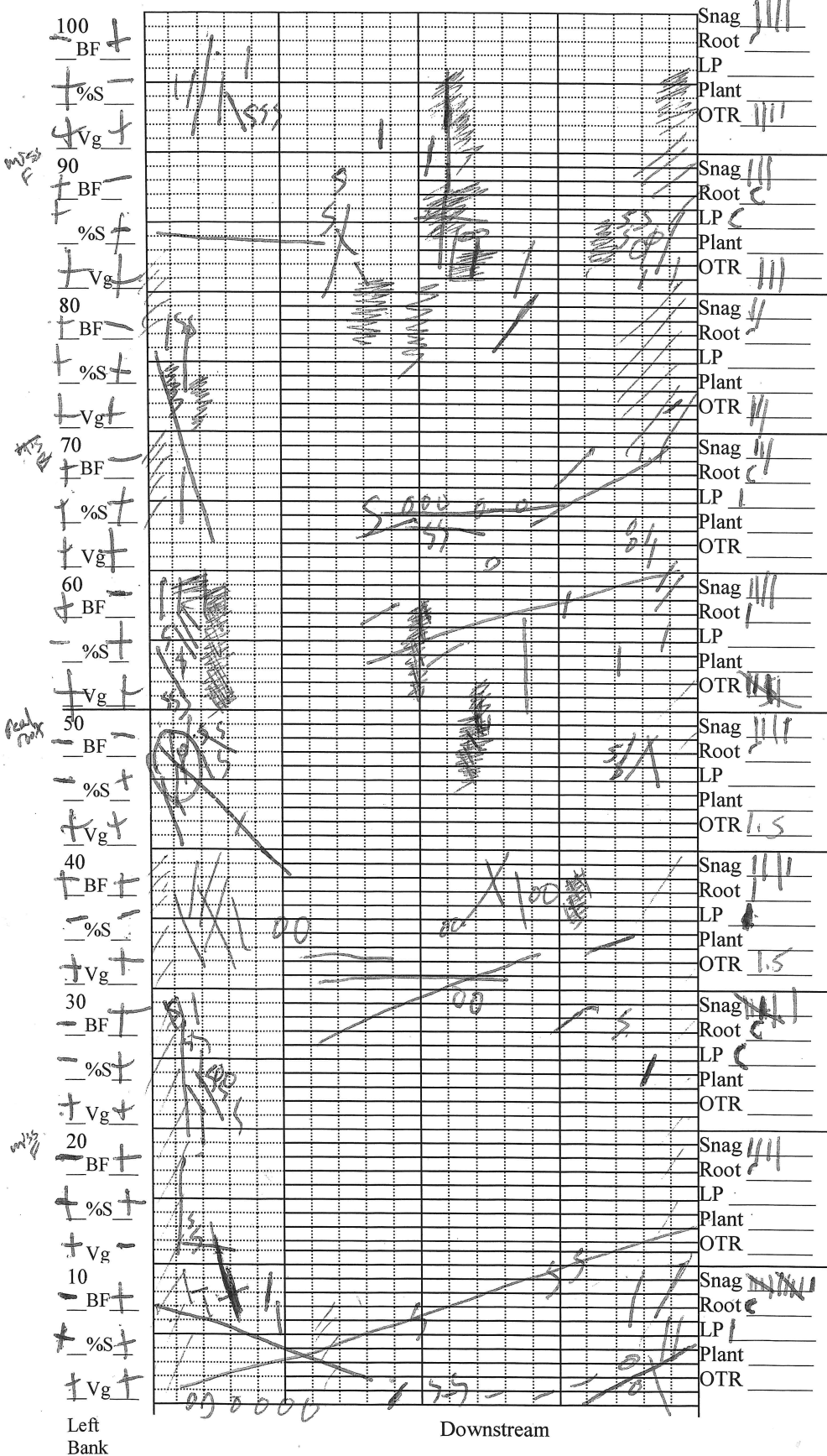
SEDIMENT / SUBSTRATE

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) <u>0.3</u> Temp. (°C) <u>18.7</u> pH (SU) <u>4.48</u> D.O. (MG/L) <u>8.81</u> D.O. Sat (%) <u>94.6</u> Cond. (UMHO/CM) <u>13.8</u> Salinity (PPT) <u>0.01</u> SECCHI (M) <u>0.3</u> Top : <u>0.3</u> Mid: Bottom: <u>0.3</u> Meter ID: <u>15479</u>			
Woody Debris (Snags) <u>6.7</u> <u>5</u> Undercut Banks / Roots <u>0.6</u> <u>5</u> Leaf Packs or Mat <u>0.6</u> <u>5</u> Aquatic Vegetation Rock or Shell Rubble..... Sand..... <u>3</u> Mud / Muck / Silt Other <u>pubble</u> <u>2.5</u> <u>2</u> Other		Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: Exp: Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☒ No Lot Number: Exp:			
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☐ ☒ ☐ Fish: ☐ ☒ ☐ ☒ ^{HS} 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 ☐			
System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐		AMBIENT FIELD CONDITIONS / NOTES: ☒ The antecedent hydrologic conditions have been met to my best knowledge.			
SAMPLING TEAM: <u>N. Mulkey, H. Schenck</u>		SIGNATURE : <u>HS</u>		DATE : <u>3/16/21</u>	

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (June 1, 2001)

Length of grid represents 100 m of stream (not linear meters).

(Horizontal scale is double vertical scale, draw proportionately).



WIN ID

Substrates: Code key, draw proportionate habitat abundance.



Snags

45



Roots/undercut banks

4



Leaf Packs (or mats)

4



Macrophytes



Substrate 16.5



Pool



Silt

Velocity: 0.5

Note where velocity measures were taken. 70 m

Habitat Smothering:

Note areas (on map) where sand or silt is something 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.

Average width 6.7 m

Average depth 0.4 m

WQ & chemistry taken @ 0 m

Titi Creek above SR 285
Little Black Creek upstream of Black Creek - H5

Project. SMP / TMDL Studies

Sampled By/Date: 3/16/21

0 m Latt. 30.70203

0 m Long. -86.38673

100 m Latt. 30.70208

100 m Long. -86.38580

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

SAMPLING AGENCY: <u>NW ROL</u> <u>21FLPNS</u>		STORET STATION NUMBER: <u>64NW0365</u>	DATE (MM/DD/YY): <u>03/16/21</u>	RECEIVING BODY OF WATER: <u>Pensacola</u>
REMARKS: WBID <u>321</u>	COUNTY: <u>Walton</u>	LOCATION: <u>TIN Creek above SR285</u>		FIELD ID/NAME: <u>64NW0365</u>

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock]	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity <u>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>7</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 <u>HS</u> 10 9 <u>8</u> 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 <u>20</u> 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>17</u> ----- Primary Score <u>58</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 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>17</u>	20 19 18 <u>17</u> 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 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 root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>9</u> Left Bank <u>10</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>74</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>3/16/21</u>	Analyst: <u>H Schumke</u>	Signature: <u>H Schumke</u>
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Nathan Mulkey

SBIO ID: 81962
62-160.800, F.A.C.

HA ID: 16783

Revision Date: March 1, 2014

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Titt Creek above SR 285</u>					County: <u>Walton</u>		Date: <u>3/16/21</u>		Investigators: <u>N. Mulkey H. Schmidt</u>	
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	STORET Station Number: <u>CHW0365</u>

0	1	N	No	60	1	N	No
	2				2		
	3				3		
	4				4		
	5				5		
	6		35		6		40
	7				7		
	8				8		
	9				9		
10	1	N		70	1	N	
	2				2		
	3				3		
	4				4		
	5				5		
	6		40		6		40
	7				7		
	8				8		
	9				9		
20	1	N		80	1	N	
	2				2		
	3				3		
	4				4		
	5				5		
	6		50		6		45
	7				7		
	8				8		
	9				9		
30	1	N		90	1	N	
	2				2		
	3				3		
	4				4		
	5				5		
	6		40		6		60
	7				7		
	8				8		
	9				9		
40	1	N		100	1	N	
	2				2		
	3				3		
	4				4		
	5				5		
	6		50		6		50
	7				7		
	8				8		
	9				9	No	
50	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						
	3						
	4						
	5		75				
	6						
	7						
	8						
	9		No				

Secchi depth	<u>UoB</u>
Estimated?	No
# points ranked 4-6	99
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	X
SCI/Biorecon	X
Water sample	X
RQ- 2021-02-15-37	

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

SBIO ID 81962
RPS ID 9676
RPS score 0.0

Waterbody: 321	Date: 3/16/21	County: Walton	Storet Number: 64NW0365
Analyst: H. Schmitz		Signature: [Signature]	

Comments: *no vegetation to note*

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m² 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										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 monneri												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 viviparous)												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 americanum											
Limnophila sessiflora												Typha											
Ludwigia leptocarpa												Vallisneria americana											
Ludwigia palustris												Zizania aquatica											
Ludwigia peruviana																							
Ludwigia repens																							
Luziola fluitans																							

VPDB ID	N/A
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DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

BCH

SAMPLE ID 64NW0365 ORG ID 21FLPNS LATITUDE 30.702054 ^{HS} 30.70203
 COUNTY Walton WIN ID/STORET # 64NW0365 LONGITUDE -86.386771 ^{HS} -86.38673
 DATE 3/16/21 TIME 955 CTZ
 SAMPLING AGENCY FL DEP - NWROC
 SITE NAME T+1 Creek above SR 285 RQ- 2021-02-15-37
 FIELD ID/NAME 64NW0365 RECEIVING BODY OF WATER Pensacola WBID 321 Project: SMP

RIPARIAN ZONE / STREAM FEATURES

LIMS ID:

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 7 m wide 0.5 m/s 0.5 m/s 0.5 m/s 0.3 m deep 0.3 m deep 0.3 m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>18</u> Right Bank: <u>718</u>				Hydrologic Modification Score (per FT 3101) ☐			
High Water Mark: ☐ + ☐ = <u>3</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 % Coverage INVERT # Times Sampled PERI # Times Sampled Woody Debris (Snags) <u>6.7</u> <u>5</u> Undercut Banks / Roots <u>0.6</u> <u>5</u> Leaf Packs or Mat <u>0.6</u> <u>5</u> Aquatic Vegetation Rock or Shell Rubble..... Sand..... <u>3</u> Mud / Muck / Silt Other <u>grub</u> <u>2.5</u> <u>2</u> Other			WATER QUALITY Depth (M) <u>0.15</u> Temp. (°C) <u>18.7</u> pH (SU) <u>4.48</u> D.O. (MG/L) <u>8.81</u> D.O. Sat (%) <u>94.6</u> Cond. (UMHO/CM) <u>13.8</u> Salinity (PPT) <u>0.01</u> SECCHI (M) <u>0.3</u> Top: <u>0.3</u> Mid: Bottom: Meter ID: <u>HS 13-15479</u>					
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☐ ☒ ☐ Fish: ☐ ☒ ☐ ☒ ^{HS} Aquatic Plants: ☒ ☐ ☐ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐			Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: Exp:			Water Surface Oils Normal ☐ Sheen ☐ Globbs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify)		
System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify)			Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐			AMBIENT FIELD CONDITIONS / NOTES: ☒ The antecedent hydrologic conditions have been met to my best knowledge.		
SAMPLING TEAM: <u>N. McKey, H. Schenck</u>			SIGNATURE: <u>HS</u>			DATE: <u>3/16/21</u>		

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

SAMPLING AGENCY: <u>NW ROL</u>		STORET STATION NUMBER: <u>64NW0365</u>	DATE (MM/DD/YY): <u>03/16/21</u>	RECEIVING BODY OF WATER: <u>Pensacola</u>
REMARKS: WBID <u>321</u>	COUNTY: <u>Walton</u>	LOCATION: <u>T.H. Creek about 5000</u>		FIELD ID/NAME: <u>64NW0365</u>

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock)	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity <u>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>7</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 <u>HS</u> 10 9 <u>8</u> 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 <u>20</u> 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>17</u> ----- Primary Score <u>58</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 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>17</u>	20 19 18 <u>17</u> 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability	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.	Only meets 2 of the 3 requirements for optimal bank stability.	Only meets 1 of the 3 requirements for optimal bank stability.	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas.
Right Bank <u>9</u> Left Bank <u>9</u>	10 <u>9</u>	8 7 6	5 4	3 2 1
Riparian Buffer Zone Width	Width of vegetation greater than 18 m	Width of vegetation >12 to 18m	Width of vegetation 6 to 12 m. human activities close to system	Less than 6 m of buffer zone due to intensive human activities
Right Bank <u>9</u> Left Bank <u>10</u>	<u>10</u> <u>9</u>	8 7 6	5 4	3 2 1
Riparian Zone Vegetation Quality	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.	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed.	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious.	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions).
Right Bank <u>10</u> Left Bank <u>10</u> ----- Secondary Score <u>74</u>	<u>10</u> 9	8 7 6	5 4	3 2 1

132 TOTAL SCORE

Date: <u>3/16/21</u>	Analyst: <u>H Schumke</u>	Signature: <u>H Schumke</u>
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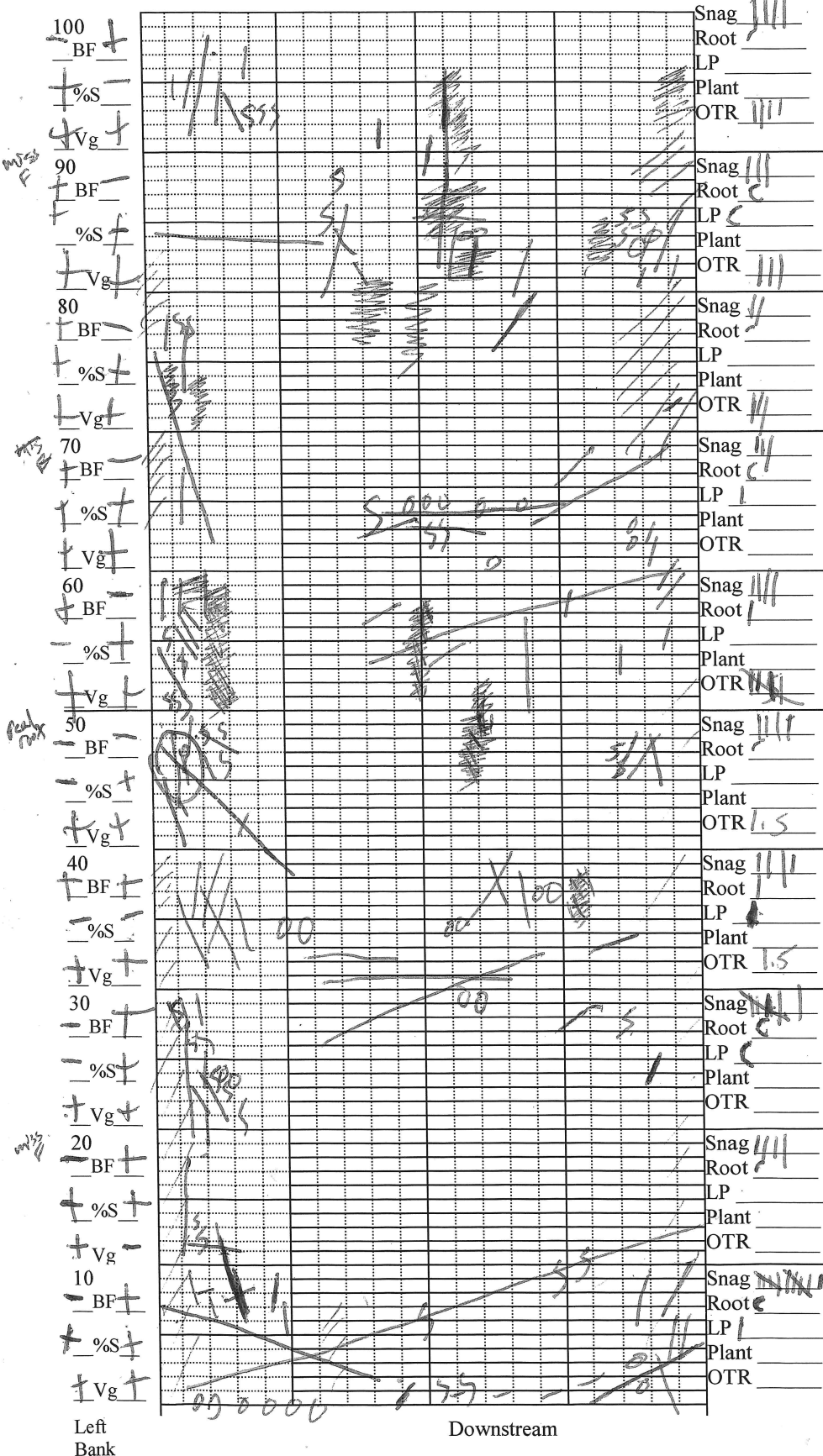
SBIO ID: _____ HA ID: _____

62-160.800, F.A.C.

Revision Date: March 1, 2014

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (June 1, 2001)

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



WIN ID

Substrates: Code key,
draw proportionate habitat
abundance.



Snags

45



Roots/undercut banks

4



Leaf Packs (or mats)

4



Macrophytes



Substrates

16.5



Velocity

2.0



Silt

2.0

Velocity: 0.5

Note where velocity
measures were taken. 70 m

Habitat Smothering:

Note areas (on map) where
sand or silt is something
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.

Average width 6.7 m

Average depth 0.4 m

WQ & chemistry taken @ 0 m

TH Creek above 50285
Little Black Creek upstream
of Black Creek

Project. SMP / TMDL Studies

Sampled By/Date: 3/16/21

0 m Latt. 30.70203

0 m Long. -86.38673

100 m Latt 30.70208

100 m Long -86.38580

Photo Log

Storet

Station Name:

Date:

Samplers.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	

Notes.

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Titt Creek above SR 285</u>					County: <u>Walton</u>		Date: <u>3/16/21</u>		Investigators: <u>N. Mulkey H. Schmidt</u>	
					STORET Station Number: <u>64MN0365</u>					
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			60	1	N			
	2					2				
	3					3				
	4					4				
	5			35		5				40
	6					6				
	7					7				
	8					8				
	9					9				
10	1	N			70	1	N			
	2					2				
	3					3				
	4					4				
	5			40		5				40
	6					6				
	7					7				
	8					8				
	9					9				
20	1	N			80	1	N			
	2					2				
	3					3				
	4					4				
	5			50		5				45
	6					6				
	7					7				
	8					8				
	9					9				
30	1	N			90	1	N			
	2					2				
	3					3				
	4					4				
	5			40		5				60
	6					6				
	7					7				
	8					8				
	9					9				
40	1	N			100	1	N			
	2					2				
	3					3				
	4					4				
	5			50		5				50
	6					6				
	7					7				
	8					8				
	9					9				
50	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. 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%.					
	2									
	3									
	4									
	5			75						
	6									
	7									
	8									
	9									

Secchi depth UoB
Estimated?

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

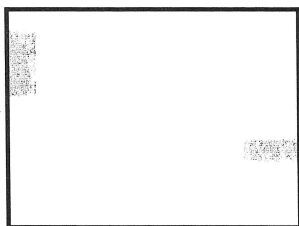
Check accompanying data collected at same site/date.
Algal mat sample
Linear Veg Survey
Habitat Assessment
SCI/Biorecon
Water sample
RQ-

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

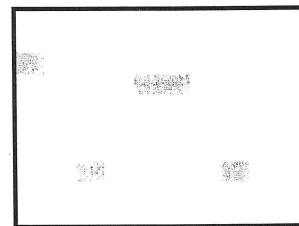
Waterbody: 321	Date: 3/16/21	County: Wilcox	Storet Number:
Analyst: F Butera H Schmidt		Signature: H Schmidt	
Comments:			
Date:			

[illegible]

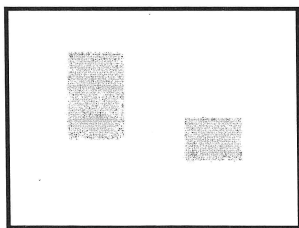
5% Macrophyte Coverage



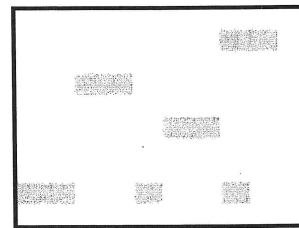
5% Macrophyte Coverage



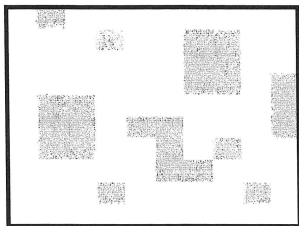
10% Macrophyte Coverage



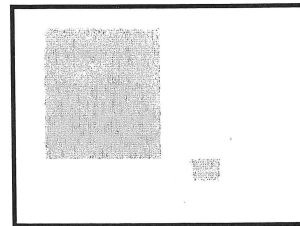
10% Macrophyte Coverage



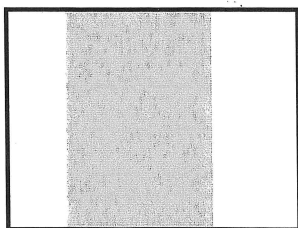
25% Macrophyte Coverage



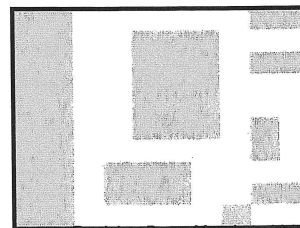
25% Macrophyte Coverage



50% Macrophyte Coverage



50% Macrophyte Coverage



0-10 meter [A]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
0m width (m)	Root		
10m width	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

50-60 meter [F]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
60m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

Station Name

Storet:

Date

0 meter (Dec Deg)

100 meter (Dec Deg)

10-20 meter [B]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
20m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

60-70 meter [G]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
70m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

Water Quality Measured at

Stream Velocity and location.

_____m/s _____ meter mark

Number of Pools & Location

High Water:

Silt smothering @

Sand Smothering @

Algae Smothering @

20-30 meter [C]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
30m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

70-80 meter [H]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
80m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

Degraded Banks @

Fe/Sulfur Bact. @

30-40 meter [D]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
40m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

80-90 meter [I]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
90m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

40 - 50 meter [E]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
50m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

90 - 100 meter [J]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
100m width	Root		
	Leaf	Slope	Slope
Avg. Depth	Veg		
Max Depth	Gravel	Veg	Veg
Rip. Buff L	Rock		
Rip. Buff R	Other	Other	

Total Habitat	Sq. Meters	Percent
Snags		
Roots		
Leaf		
Veg		
Rock		
Gravel		
Sand		
Other		
Sum 1° Habitat		

Avg. Depth	Max. Depth	Avg. Width

Bank Stability Score. Left Bank _____ Right Bank _____ Category Left Bk _____ Right Bk _____
 Add all plus signs (Max. 30 possible) and Divide by 10. Scoring. **Poor:** 0.0 - 0.9 pts. **Marginal:** 1.0-1.9 pts. **Suboptimal:** 2.0 - 2.9 **Optimal:** 2.1 +

Notes.

Document Reference # 05.1.0

Sampler's initials: NA

Date/Time: 3/6/21 1312

Date/Time: 03/16/21, 1312

Instructions: Fill in all fields except "Lab ID" on sample transport form completely. Each sample container must use a separate line. Place this form in a waterproof bag and place it with the samples for transport. If a field log or other chain of custody is attached, that information may be referenced on this form and the log or COC attached.

[illegible]

Surface water, no chlorine expected

Surface water, no chlorine expected

Phone: _____

Sampler's name: N McIlroy

the Water, BW = Brackish Water, S = soil/Sediment, Other X =

Recorded using IRT-2