



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

STRATEGIC MONITORING PLAN Field Sheet

July 2022

Meter
Passed End
of Day CCV

Yes / No

WIN Station Name:	Rattlesnake Slough @ Linden				Sample Date:	11/29/2022	
WIN / Field ID:	G2SW0017	ORG ID:	21FLTPA	ENR:	-	Latitude:	27.41019
County:	Manatee	WBID:	1923	STREAM		Longitude:	-82.51175
Receiving Body of Water:	Braden River Above Ward Lake				RQ-	2022-11-07-62	

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Ben Paswater		x		x	x
Sarah Meyer	x		x		

Sampling Equipment			
x	Sample Container		Carboy
	Dipper		Van Dorn
	Syringe		Pole
	Syringe Lot# 1145497		Filter Lot# 17232873
	Secchi Equipment ID:	Secchi #3	
Collection Method			
x	Wading		Canoe/Kayak
	From Shore		Electric Motor
			Gasoline Motor
	Depth Measured With	Secchi	

Water Level:	Normal
Flow:	Flowing
Matrix:	Fresh
Tide Stage:	
High Tide:	
Low Tide:	
Photos:	Yes
Meter ID:	Leia
Depth Gauge ID:	depth_gauge

Time Zone	Time	Total Depth (m)	Sample Depth (m)	DO (mg/L)	DO (%SAT)	Temp. (°C)	pH	Secchi Disk (m)	Sp COND (µmhos/cm)	Salinity (PPTth)
EST	1200	0.3	0.15	6.75	76.5	21.5	7.04	0.3	352.8	0.17
								VOB (s)		

Biological Samples Collected:

HA RPS SCI

SBIO Visit ID: 85896 HA ID: 18063 RPS ID: 10012 Macrophyte ID: N/A LIMS Sample ID Entered 2371801
Into The Macrophyte Module:

Parameter Suite	Parameter Methods (LIMS Test Codes)			Preservation			
				Type	Lot#	Expiration Date	pH Check
Microbiology	E. coli			ICE			
	Contract Lab	Benchmark					
Chlorophyll	CHLSUITE-W			ICE			
Physical/Aggregate	ALKALINITY, TURBIDITY, W-F, W-TSS			ICE			
Nutrients	W-CL-IC, W-COLOR, W-SO4-IC, W-TDS			ICE			
Filtered Nutrients	W-PO4-F	Field Filtered 0.45 µm Filter		ICE	Syringe Lot#:1145497; Filter Lot#:17232873		
Acid Preserved Nutrients	W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP			ICE	H2SO4*	SA2229010	08/30/23
Metals	W-ICPMS	W-ICP	W-HARD	ICE	HNO3**	NA1105100	06/07/2023
Organics (LC)	W-E8321-DI	W-E8321-MS		Ice			
Macroinvertebrates	MI-FW-QLDC			Formalin	1234		
Organics (GC)	W-PSNP-TQ	W-TR-SQ-R		Ice	*2.0 ml of H2SO4 Used Unless Noted Otherwise **2.0 ml of HNO3 Used Unless Noted Otherwise		
Molecular							
Periphyton							
Phytoplankton							
BOD							
DOC							
Other(s)					SyringeLot#		FilterLot#
Field Comments:	/ SCI Collection Time: 1200						
Comments on COC:	Microbiology sample(s) submitted to contract laboratory.						
Relinquish Date:	11/29/2022	Signature:					

LIMS EVENT ID: SW-DIST-2022-11-30-01

WIN Import ID: 37980

Enter Field Parameters, Verify Station ID In LIMS DMT: DM 12/20/2022

QC Station ID, Field Parameters In LIMS DMT: MM 1/5/2023

Save Field Sheets on Network: MM 2/10/2023 (Initials/Date)

Migrate Data to WIN: MM 2/10/2023 (Initials/Date)

(Initials/Date)

(Initials/Date)

Site Name:

Rattlesnake Slough @ Linden

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

FIELD ID/NAME: <u>↑</u>		COUNTY: <u>Manatee</u>	STORET STATION NUMBER: <u>↑</u>	DATE (MM/DD/YYYY): <u>11/29/2022</u>	SAMPLING AGENCY: FDEP SWROC
			LOCATION: <u>↑</u>	RECEIVING BODY OF WATER: <u>Bradley River</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>SM</u> <u>46</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 <u>6</u>	5 <u>4</u> 3 2 1
Substrate Availability <u>3</u>	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 <u>3</u> 2 1
Water Velocity <u>10</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 <u>10</u> 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>7</u> ----- Primary Score <u>24</u> <u>26</u> <u>SM</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 <u>7</u> 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>10</u>	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging in the past (>25 yrs) but mostly recovered. 15 14 13 12 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. <u>10</u> 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>6</u> Left Bank <u>6</u>	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 <u>6</u>	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>4</u> Left Bank <u>4</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 <u>4</u>	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank <u>3</u> Left Bank <u>3</u> ----- Secondary Score <u>36</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). <u>3</u> 2 1

SM 62 **TOTAL SCORE**

Date: <u>11/29/2022</u>	Analyst: <u>B Paswater & S Meyer</u>	Signature: <u>Sarah Meyer</u>
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Site Name:

Rattlesnake Slough @ Linden

21FLTPA

LATITUDE

LONGITUDE

SAMPLING AGENCY FDEP SW ROC

RECEIVING BODY OF WATER

Braden River

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☐ Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential ☒ 90 Commercial ☒ 10 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 m wide m/s m/s m/s m deep m deep m deep	
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: 26 Right Bank: 26				Hydrologic Modification Score (per FT 3101) 5			
High Water Mark: 0.3 + 0.3 = 0.6 (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☒ Yes ☐ No			
Artificially ☐ No ☒ Mostly recovered, more sinuous Channelized: ☒ Some recovery ☐ Recent, severe				Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☒ Moderate Shaded (46-80%)			

SEDIMENT / SUBSTRATE

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse			Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify):			Smothering of Substrates Sand Smothering: None ☐ Slight ☐ Moderate ☒ Severe ☐ Silt Smothering: None ☐ Slight ☒ Moderate ☐ Severe ☐ Algae Smothering: None ☐ Slight ☒ Moderate ☐ Severe ☐																																						
SUBSTRATE TYPE Assessment Tool: ☒ SCI ☒ RPS ☒ LVS ☐ LCI ☐ BioRecon			WATER QUALITY <table border="1"> <thead> <tr> <th></th> <th>Depth (M)</th> <th>Temp. (°C)</th> <th>pH (SU)</th> <th>D.O. (MG/L)</th> <th>D.O. Sat (%)</th> <th>Cond. (UMHO/CM)</th> <th>Salinity (PPT)</th> <th>SECCHI (M)</th> </tr> </thead> <tbody> <tr> <td>Top:</td> <td>0.15</td> <td>21.5</td> <td>7.04</td> <td>6.75</td> <td>76.5</td> <td>352</td> <td>1.17</td> <td>0.3</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:	0.15	21.5	7.04	6.75	76.5	352	1.17	0.3	Mid:								☒ VOB	Bottom:								
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Mid:								☒ VOB																																				
Bottom:																																												
Woody Debris (Snags) 7 7 Undercut Banks / Roots 7 7 Leaf Packs or Mat 4 4 Aquatic Vegetation 2 2 Rock or Shell Rubble Sand Mud / Muck / Silt Other Other			Meter ID: hein			Water Odors Normal ☐ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐																																						
			Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: see Water Datasheet			Water Surface Oils Normal ☒ Sheen ☐ Globbs ☐ Slick ☐ Other ☐																																						
			Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☒ Yes ☐ No Lot Number: see water sheet			Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify)																																						
			System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify)			Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐																																						
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:	☒	☐	☐	☐	AMBIENT FIELD CONDITIONS / NOTES: ☒ The antecedent hydrologic conditions have been met to my best knowledge.																
	Not Obs.	Rare	Common	Abundant																																								
Periphyton:	☐	☒	☐	☐																																								
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SAMPLING TEAM Ben Paswater, Sarah Meyer			SIGNATURE: Ben Paswater			DATE: 11/29/2022																																						

Site Name:

Rattlesnake Slough @ Linden

County:

Manatee

Waterbody: See Sticker

Date:

11/29/2022

Signature:

Ben P. P. P.

Analyst:

Ben P. P. P.

Comments:

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. **BOLD is exotic invasive**

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 (Lemon)												Micranthemum umbrosum											
Bacopa monnieri												Myriophyllum aquaticum											
Bidens mitis												Najas guadelupensis											
Boehmeria cylindrica												Nitella sp.											
Centella asiatica												Nuphar luteum											
Ceratophyllum demersum												Orontium aquaticum											
Chara sp.												Panicum hemitomon											
Cicuta maculata												Panicum repens											
Cladium jamaicense												Panicum rigidulum											
Colocasia esculenta												Pistia stratioides											
Commelina diffusa												Polygonum glabra											
Commelina virginica												Polygonum hydropiperoides											
Crinum americanum												Polygonum punctatum											
Cyperus												Pontedaria cordata											
Diodia virginiana												Potamogeton illinoensis											
Eichhornia crassipes												Ruellia simplex (Mex Petunia)											
Eleocharis (wispy viviparous)												Sacciolepis striata											
Fontinalis sp. (Aquatic Moss)												Sagittaria kurziana											
Fraxinus caroliniana												Sagittaria lancifolia											
Hydrilla verticillata												Sagittaria latifolia											
Hydrocotyle sp.												Salvinia minima											
Hygrophila polysperma												Samolus parviflora											
Hymenachne amplexicaulis												Saururus cernuus											
Hymenocallis												Sparganium americanum											
Lachnanthes caroliniana												Schoenoplectus americanus											
Landoltia punctata												Sphagneticola trilobata (Wedelia)											
Lemna sp.												Typha sp.											
Limnophila sessiflora												Urochloa mutica (Brachiaria)											
Ludwigia leptocarpa												Vallisneria americana											
Ludwigia palustris												Zizania aquatica											
Ludwigia peruviana																							
Ludwigia repens																							
Luziola fluitans																							
If no Dominant or Co-Dominant were selected, indicate with "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																							

Site Name:



Rattlesnake Slough @ Linden

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

Location: Rattlesnake Slough @ Linden

Date: 11/29/2022

Sampler: B Paswater & S Meyer

100 m: Latitude _____

Longitude _____

0 m: Latitude _____

Longitude _____

Substrates: Code key, draw proportionate habitat abundance.	%
1. <i>Phragmites</i>	10
2. <i>Spartina patens</i>	10
3. <i>Spartina alterniflora</i>	10
4. <i>Spartina patens</i>	10
5. <i>Spartina patens</i>	10
6. <i>Spartina patens</i>	10
7. <i>Spartina patens</i>	10
8. <i>Spartina patens</i>	10
9. <i>Spartina patens</i>	10
10. <i>Spartina patens</i>	10
11. <i>Spartina patens</i>	10
12. <i>Spartina patens</i>	10
13. <i>Spartina patens</i>	10
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93. <i>Spartina patens</i>	10
94. <i>Spartina patens</i>	10
95. <i>Spartina patens</i>	10
96. <i>Spartina patens</i>	10
97. <i>Spartina patens</i>	10
98. <i>Spartina patens</i>	10
99. <i>Spartina patens</i>	10
100. <i>Spartina patens</i>	10

 Snags 

	Roots/undercut banks	1.5
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 Leaf Packs (or mats) 1

Aquatic Macrophytes

ROCKS

 Springer
 <https://doi.org/10.1007/s11067-020-09550-9>

total # observed = 2

Average width 1.5 m

Average depth 0.3 m

Velocity measured at _____ meter mark.

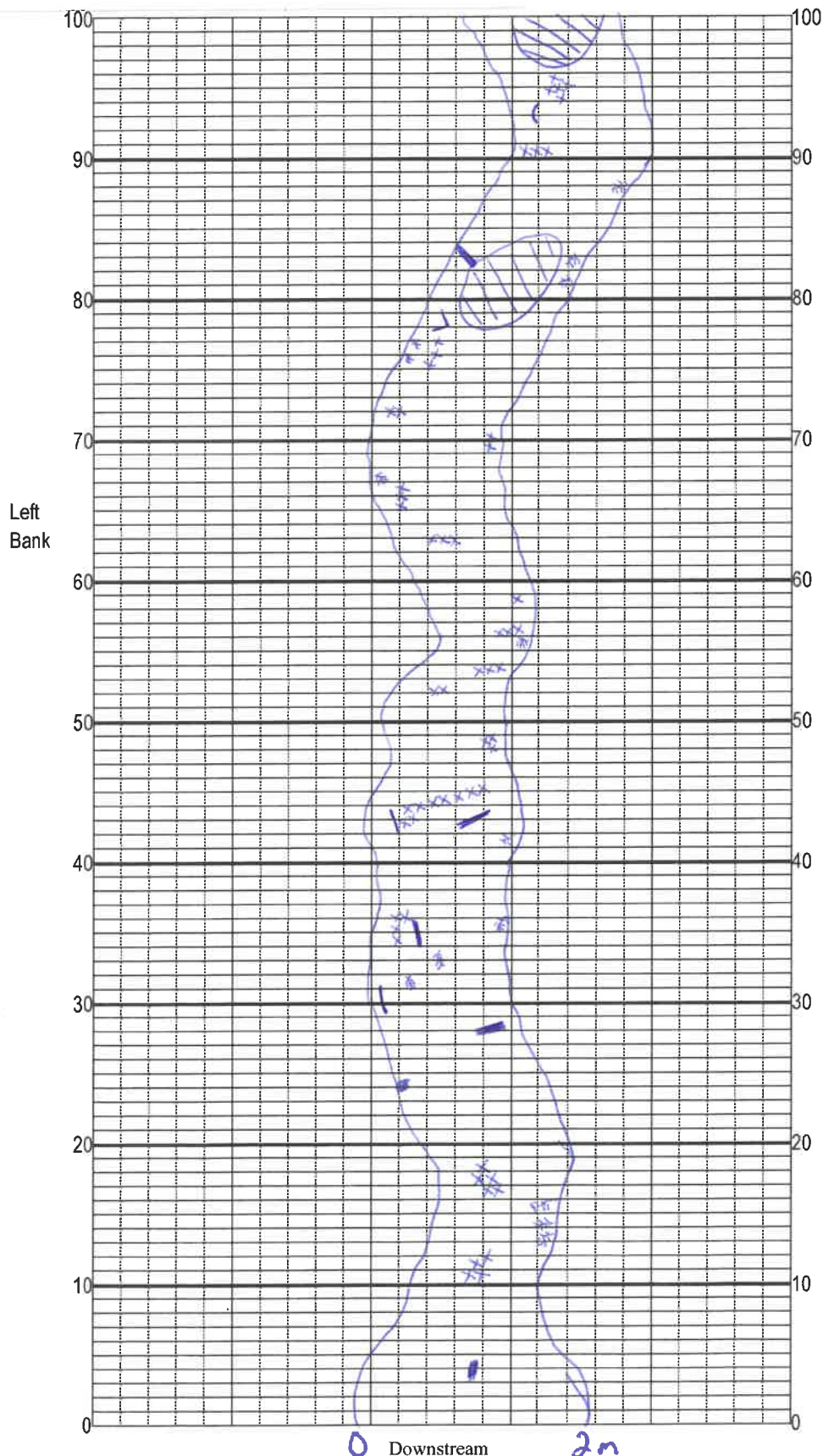
WQ & chemistry taken at 0 meter mark.

Habitat Smothering:
Note areas (on map) where sand or silt is smothering substrates, limiting habitability.

Bank Stability:
Note areas (on map) with unstable, eroding banks.

Riparian Buffer Width:
Note areas (on map) where natural vegetation
is altered or eliminated.

Plants observed / other notes:



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

Site Name:

Rattlesnake Slough @ Linden

Rapid Periphyton Survey Field Sheet

County:					Date: 11/29/2022					Investigators: BP, SM					
STORET Station Number:															
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	Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	
0	1	N			60	1	N			96	1	N			
	2					2					2				
	3					3					3				
	4					4					4				
	5			48		5					5				
	6					6					6				
	7					7					7				
	8					8					8				
	9					9					9				
10	1	N			70	1	N			76	1	N			
	2					2					2				
	3					3					3				
	4					4					4				
	5			76		5					5				
	6					6					6				
	7					7					7				
	8					8					8				
	9					9					9				
20	1	N			80	1	N			7	1	N			
	2					2					2				
	3					3					3				
	4					4					4				
	5			54		5					5				
	6					6					6				
	7					7					7				
	8					8					8				
	9					9					9				
30	1	N			90	1	N			72	1	N			
	2					2					2				
	3					3					3				
	4					4					4				
	5			52		5					5				
	6					6					6				
	7					7					7				
	8					8					8				
	9					9					9				
40	1	N			100	1	N			81	1	N			
	2					2					2				
	3					3					3				
	4					4					4				
	5			68		5					5				
	6					6					6				
	7					7					7				
	8					8					8				
	9					9					9				
50	1	N			86	1	N			86	1	N			
	2					2					2				
	3					3					3				
	4					4					4				
	5					5					5				
	6					6					6				
	7					7					7				
	8					8					8				
	9					9					9				

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%.

Secchi depth
Estimated? NO

points ranked 4-6 0
total points assessed 96
% points ranked 4-6 0

Check accompanying data collected at same site/date.

Algal mat sample ☐

Linear Veg Survey ☒

Habitat Assessment ☒

SCI/Biorecon ☒

Water sample ☒

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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