

**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

STRATEGIC MONITORING PLAN Field Sheet

July 2022

Meter
Passed End
of Day CCV☒ Yes / No

WIN Station Name:	Mustang Rch @ Hopewell				Sample Date:	12/27/2022	
WIN / Field ID:	G2SW0026	ORG ID:	21FLTPA	ENR:	-		
County:	Hillsborough	WBID:	1592C	STREAM	3F		
Receiving Body of Water:	Medard Reservoir				RQ-	2022-11-21-09	

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Ben Paswater		x	x	x	x
Devin Mathias		x	x	x	x
Ken Turman	x	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	1220	0.5	0.25	10.3	100.7	14.3	7.02	0.5	222.9	0.11
								VOB (s)		

Biological Samples Collected: HA LVS RPS SCI

SBIO Visit ID: 85922 HA ID: 18076 RPS ID: 10023 Macrophyte ID: N/A LIMS Sample ID Entered Into The Macrophyte Module: 2377485

Parameter Suite	Parameter Methods (LIMS Test Codes)			Preservation			
	Type	Lot#	Expiration Date	pH Check			
Microbiology	E. coli			ICE			
Chlorophyll	CHLSUITE-W			ICE			
Physical/Aggregate	ALKALINITY, TURBIDITY, W-F, W-TSS			ICE			
Nutrients	W-CL-IC, W-COLOR, W-SO4-IC, W-TDS			ICE			
Filtered Nutrients	W-PO4-F	Field Filtered 0.45 µm Filter		ICE	Syringe Lot#: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					
Macroinvertebrates	MI-FW-QLDC			Formalin		9.28091819T R	
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)							
Field Comments:	/ SCI Collection Time: 1220						
Comments on COC:							
Relinquish Date:	12/27/2022	Signature:					

LIMS EVENT ID: SW-DIST-2022-12-28-01

WIN Import ID: 38726

Enter Field Parameters, Verify Station ID in LIMS DMT: DM 12/29/2022

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

Save Field Sheets on Network: MM 3/27/2023 (Initials/Date)

Migrate Data to WIN: MM 3/27/2023 (Initials/Date)

(Initials/Date)

(Initials/Date)

Form ID: 9.28091819TR

Field ID/WIN

G2SW0026

iver Habitat Assessment Field Sheet

Site Name:

Mustang Ranch Creek @ Hopewell

ORET STATION NUMBER:

DATE (MM/DD/YY):

RECEIVING BODY OF WATER:

FIELD ID/NAME:

RA-2022-11-21-09

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>5</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<u>5</u> 4 3 2 1
Substrate Availability <u>5</u>	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat <u>5</u> 4 3 2 1
Water Velocity <u>13</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 <u>13</u> 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>5</u> ----- Primary Score <u>28</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. <u>5</u> 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>5</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. <u>5</u> 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>6</u>	Width of vegetation greater than 18 m 10 <u>9</u>	Width of vegetation >12 to 18m 8 7 <u>6</u>	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>6</u> Left Bank <u>6</u> ----- Secondary Score _____	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 <u>6</u>	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

TOTAL SCORE

Date:

12/27/2022

Analyst:

Dawn Mathias, Ben Paswater,
Ken Turman

Signature:



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

Field ID/WIN

G2SW0026

LATITUDE

LONGITUDE

SAMPLING AGENCY

SWROC

Site Name:

Mustang Ranch Creek @ Hopewell

RECEIVING BODY OF WATER

Lake Metoka

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☐ Silviculture ☐ Field/Pasture ☒ 60 Agricultural ☒ 30 Residential ☒ 10 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 1 m wide 0.17 m/s 0.17 m/s 0.17 m/s 0.25 m deep 0.5 m deep 0.25 m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: 13 Right Bank: 18				Hydrologic Modification Score (per FT 3101) 5			
High Water Mark: 2.0 + 0.5 = 2.5 (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>0.25</td> <td>14.3</td> <td>7.02</td> <td>10.3</td> <td>100.7</td> <td>222.9</td> <td>0.11</td> <td>0.5</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> Meter ID: Leta TOTAL DEPTH: 0.5					Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)	Top:	0.25	14.3	7.02	10.3	100.7	222.9	0.11	0.5	Mid:								☒ VOB	Bottom:												
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ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☒ ☐ ☐ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☒ ☐ ☐ ☐ Iron/Sulfur Bacteria: ☐ ☒ ☐ ☐		Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: _____ Exp: _____		Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐																																									
		Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____		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 Devin Mathias, Ben Aswater, Ken Torman			SIGNATURE: 		DATE: 12/27/22																																								



Site Name: Mustang Ranch Creek @ Hopewell

County:

Waterbody: See Sticker

Date:

Signature:

Analyst:

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 monneri												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																							

NO SAV
52 sqm



Mid Periphyton Survey Field Sheet

Site Name: Mustang Ranch Creek @ Hopewell

Date:

12/07/22

Investigators:

B.R. KT, DM

STORET Station Number:

R Label 02

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			86		5			80	
	6					6				
	7					7				
	8					8				
	9					9				
10	1	N			70	1	N			
	2					2				
	3					3				
	4					4				
	5			58		5			96	
	6					6				
	7					7				
	8					8				
	9					9				
20	1	N			80	1	N			
	2					2				
	3					3				
	4					4				
	5			75		5			87	
	6					6				
	7					7				
	8					8				
	9					9				
30	1	N			90	1	N			
	2					2				
	3					3				
	4					4				
	5			96		5			94	
	6					6				
	7					7				
	8					8				
	9					9				
40	1	N			100	1	N			
	2					2				
	3					3				
	4					4				
	5			96		5			88	
	6					6				
	7					7				
	8					8				
	9					9				
50	1	N				1	N			
	2					2				
	3					3				
	4					4				
	5			92		5				
	6					6				
	7					7				
	8					8				
	9					9				

Secchi depth	0.5
Estimated?	No

# points ranked 4-6	0
total points assessed	99
% 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	✓

RQ-2022-11-21-09

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

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%.

G2SW0026

9000-4 (March 07, 2013)

(not linear meters).
aw proportionately).

Site Name:

Mustang Ranch Creek @ Hopewell

R

100

Sl.
%
Armor

90

Sl.
%
Armor

80

Sl.
%
Armor

70

Sl.
%
Armor

60

Sl.
%
Armor

50

Sl.
%
Armor

40

Sl.
%
Armor

30

Sl.
%
Armor

20

Sl.
%
Armor

10

Sl.
%
Armor

0

Downstream

88

94

87

96

80

92

96

96

75

58

86

Location: Mustang Branch @ Hopewell

Date: 12/27/22

Samplers: D. Mathias
A. Aschwater
R. Turman

Substrates: Code key, draw proportionate habitat abundance. %

☒ S Snags 8 = 0.32%

☒ R Roots/undercut banks 82 = 3.2%

☒ L Leaf Packs (or mats) 6 = 0.24%

☒ V Macrophytes 0

☐ _____

☐ _____

Total observed 0

Pools Range expected 8

Velocity measured at 100 meter mark.

WQ & chemistry taken at 100 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: 13m R 18m L

Note areas (on map) where natural vegetation is altered or eliminated.

1 sec per 1 m	1m/s	sec	m/s
2	0.5	12	0.08
3	0.33	13	0.076
4	0.25	14	0.071
5	0.2	15	0.066
6	0.16	16	0.062
7	0.14	17	0.058
8	0.12	18	0.055
9	0.11	19	0.052
10	0.1	20	0.052
11	0.09	21	0.047
22	0.045	NO	FLOW

Prod. hab	1	2	3	4	5
Sweeps (Maj)	10	7	5	4	3
Sweeps (Min)	10	6	5	4	5

$R = 82/2500 = 3.2\%$

$S = 8/2500 = 0.32\%$

$L = 6/2500 = 0.24\%$

1m