



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

March 2017

PAGE 1 OF

Data Qualified?

Yes / No

STORET Station Name: Elbow Creek @ 540m DS of Apollo Date: 4/10/17
(mm/dd/yyyy)

STORET Station ID: G5CE0070 WBID: 3087 Latitude: 28.117744
(Decimal Degrees)

County: Brevard RQ: 2017-03-20-57 ORG ID: 2IFUEN Longitude: -80.633997
(Decimal Degrees)

Receiving Body of Water: _____ Field ID: G5CE0070

Sampling Team Members				WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment		
<u>Leif Boman</u> <u>Vatle-Williams</u>				☒	☒	☒	☒	☒	☒ Sample Container	☐ Van Dorn	☐ Pole
									☐ Carboy	☒ Syringe	
									☐ Dipper	☐ Other	
									Equipment ID _____		
									Collection Method		
									☒ Wading	☐ Via Boat	
									☐ From Shore	☐ Canoe/Kayak	
									☐ Other (note below)	☐ Electric Motor	
										☐ Gasoline Motor	

Water Level: Dry / Pooled / <u>Low</u> / Normal / High / Flooded						Matrix: <u>Fresh</u> / Marine / DI				
Meter ID# <u>Bottle 67</u>		Photos: <u>Yes</u> / No		Tide Falling: Yes / No / <u>NA</u>						
Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (µmhos/cm)	Temp. (C°)
<u>EST</u>	<u>1042</u>	<u>0.05</u>	<u>0.1</u>	<u>7.4</u>	<u>84</u>	<u>7.4</u>	<u>0.33</u>	<u>0.1(s)</u>	<u>686</u>	<u>21.1</u>
CEN										

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

SBIO ID Numbers: SBIO-ID: 77526 RPS-ID: 8659 Macrophyte-ID: 10448 LIMS#: 1886860

Parameter Suite	Parameter Methods	Preservation	Acid Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H2SO4			☒ <2
Metals	☐ W-ICPMS ☐ W-ICP	☐ Ice ☐ HNO3			☐ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice			
Chlorophyll	☒ CHLSUITE-W	☒ Ice			
Physical/Aggregate (Fresh)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-CH-IC / W-COLOR / W-SO4-IC / W-TDS	☒ Ice			
Physical/Aggregate (Marine)	☐ Alkalinity / W-F / W-TSS / TURBIDITY	☐ Ice			
Macroinvertebrates	☐ MI-FW-QLDC	☐ Formalin			
Periphyton	☐ ALGAE-ID	☐ Ice			
Microbiology	☐ E Coli ☐ F Coli ☐ Enterococcus ☐ PCR-FILTER	☐ Ice			
Tracers	☐ W-SUC-AA-R ☐ W-UHERB-AA ☐ W-AHERB-AA	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R ☐ W-SUC-AA-R	☐ Ice			
	☐ W-PCL-SQ-R ☐ W-UHERB-AA ☐ W-GLYPH	☐ Other			

Notes: need photos!

Elbow Creek @ 540m
Downstream of Apollo
Blvd.

RQ-2017-03-20-57
Date: 04/10/17

G5CE0070
Field ID
STORET
G5CE0070

Signature: K Williams Date: 4/10/17

Field Parameters Entered into LIMS: K Williams 4/11/17 (Initials/Date)

Date Migrated to STORET: _____ (Initials/Date)

Field Parameters QC in LIMS: _____ (Initials/Date)

Field Sheets Scanned/Saved: _____ (Initials/Date)

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

SAMPLE ID	ORG ID <u>21KEN</u>	LATITUDE
COUNTY <u>Breward</u>	STORET # <u>65CE0070</u>	LONGITUDE
DATE <u>9/10/17</u>	TIME	SAMPLING AGENCY
SITE NAME <u>65CE0070</u>		
FIELD ID/NAME <u>Elbow Creek</u>		RECEIVING BODY OF WATER <u>Indian River</u>

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural <u>20</u> Silviculture <u>0</u> Field/Pasture <u>0</u> Agricultural <u>0</u> Residential <u>40</u> Commercial <u>0</u> Industry <u>40</u> Other (Specify) <u>0</u>		Landscape Development Intensity Index (LDI) <u>0</u>
Local Watershed Erosion (select one): ☐ None ☐ Slight ☒ Moderate ☐ Heavy Local Watershed NPS Pollution: ☐ No evidence ☐ Slight ☒ Moderate ☐ Heavy		Typical Width (m) Depth (m)/Velocity (m/sec) Transect <u>4</u> m wide <u>0.25</u> m/s <u>0.25</u> m/s <u>0.25</u> m/s
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>718</u> Right Bank: <u>0</u>		Hydrologic Modification Score (per FT 3101) <u>0</u>
High Water Mark: <u>0.2</u> + <u>0.1</u> = <u>0.3</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 <table border="1" style="width:100%"> <thead> <tr> <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: <u>0.05</u></td> <td><u>21.1</u></td> <td><u>7.4</u></td> <td><u>7.6</u></td> <td><u>86</u></td> <td><u>686</u></td> <td><u>0.33</u></td> <td><u>0.1</u></td> </tr> <tr> <td>Mid:</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>TOTAL DEPTH</td> </tr> </tbody> </table>			Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)	Top: <u>0.05</u>	<u>21.1</u>	<u>7.4</u>	<u>7.6</u>	<u>86</u>	<u>686</u>	<u>0.33</u>	<u>0.1</u>	Mid:							☒ VOB	Bottom:							TOTAL DEPTH
Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)																														
Top: <u>0.05</u>	<u>21.1</u>	<u>7.4</u>	<u>7.6</u>	<u>86</u>	<u>686</u>	<u>0.33</u>	<u>0.1</u>																														
Mid:							☒ VOB																														
Bottom:							TOTAL DEPTH																														
Woody Debris (Snags) <u>0</u> <u>0</u> <u>0</u> Undercut Banks / Roots <u>0</u> <u>0</u> <u>0</u> Leaf Packs or Mat <u>0</u> <u>0</u> <u>0</u> Aquatic Vegetation <u>0</u> <u>0</u> <u>0</u> Rock or Shell Rubble <u>0</u> <u>0</u> <u>0</u> Sand <u>0</u> <u>0</u> <u>0</u> Mud / Muck / Silt <u>0</u> <u>0</u> <u>0</u> Other <u>0</u> <u>0</u> <u>0</u> Other <u>0</u> <u>0</u> <u>0</u>			Meter ID: <u>Betty67</u> 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: ☐ ☒ ☐ ☐ Aquatic Plants: ☐ ☐ ☒ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐			Water Surface Oils Normal ☒ Sheen ☐ Globs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐ Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐																																		
SAMPLING TEAM <u>KMW, LCB</u>			SIGNATURE: <u>KMW</u>																																		
DATE: <u>4/10/17</u>			DATE: <u>4/10/17</u>																																		

AMBIENT FIELD CONDITIONS / NOTES:

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

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

SAMPLING AGENCY: FDEP - CEROC		STORET STATION NUMBER: G5LE0070	DATE (MM/DD/YY): 04/10/17	RECEIVING BODY OF WATER: IRL
REMARKS:	COUNTY: BROWARD	LOCATION: ELBOW	FIELD ID/NAME:	

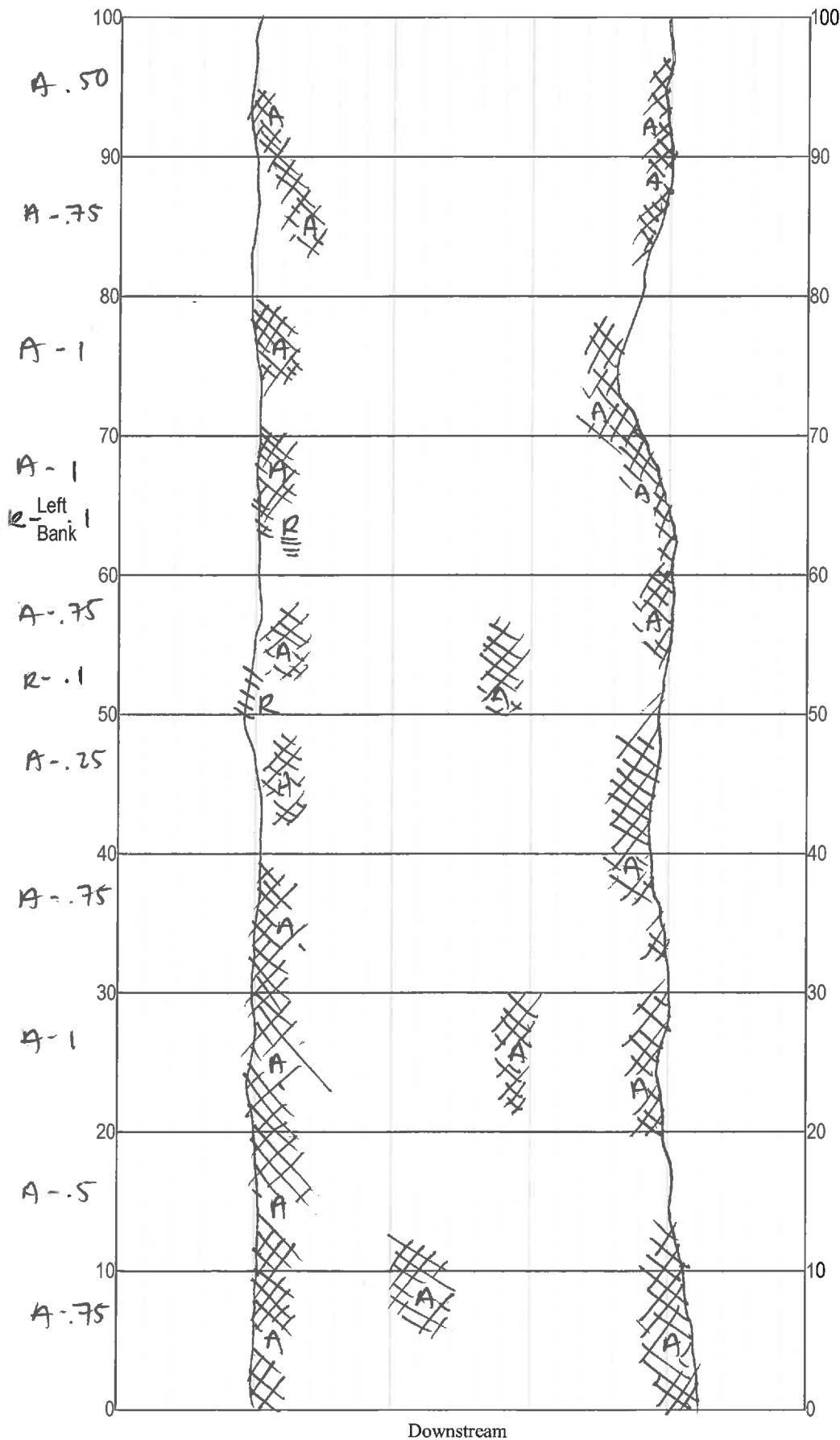
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock)	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh 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 4	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability 5	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity 15	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 19 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 2 4 ----- LB Primary Score 28 LB	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	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 3	20 19 18 17 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 1 Left Bank 1	10 9	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 1 Left Bank 10	10 9	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 2 Left Bank 3 ----- Secondary Score 21	10 9	8 7 6	5 4	3 2 1

49

TOTAL SCORE

Date: 4/10/17	Analyst: KMW, LGB	Signature: <i>Kullans</i>
----------------------	--------------------------	---------------------------

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



Location: ELBOW

Date: 4/10/17

Sampler: _____

100 m: Latitude _____
Longitude _____

0 m: Latitude _____
Longitude _____

Substrates: Code key, draw proportionate habitat abundance. %

☐ Snags _____

☒ R Roots/undercut banks .05

☐ Leaf Packs (or mats) _____

☒ A Aquatic Macrophytes 1.81

☐ _____

☐ _____

☒ Pools total # observed = 0
range expected = _____

Average width 4 m

Average depth .1 m

Velocity measured at 50 meter mark. 4 sec

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:

Primarily invasive aquatic macrophytes. Algae covering some macrophytes. Sandy bottom unstable. Banks on right side unstable

A = 7.25

R = .2

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

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET																											
Waterbody: Elbow Creek										Date: 4/10/17					County: Breward					Storet Number: 65K0070							
Analyst: Katie Williams										Signature: KWilliams																	
Comments:																											
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										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	/	/		C	C		/	/	/	/		Micranthemum glomeratum															
Bacopa caroliniana												Micranthemum umbrosum			/			/	/	/							
Bacopa monnieri												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 kuziana filiformis?			/	/	/	/	/	/							
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 spiralis americana			/	/	/	/	/	/							
Ludwigia palustr																											

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Elbow Creek County: Breward Date: 4/10/17 Investigators: _____

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	3			60	1	5		
	2	4				2	6		
	3	2				3	5		
	4	2				4	3		
	5	2		33		5	7		80
	6	2				6	2		
	7	2				7	2		
	8	2				8	2		
	9	2				9	2		
10	1	3			70	1	3		
	2	5				2	5		
	3	2				3	2		
	4	6				4	2		
	5	2		40		5	2		90
	6	2				6	2		
	7	2				7	2		
	8	3				8	2		
	9	2				9	2		
20	1	2			80	1	2		
	2	2				2	2		
	3	2				3	2		
	4	2				4	2		
	5	2		15		5	2		74
	6	2				6	2		
	7	2				7	2		
	8	2				8	2		
	9	2				9	2		
30	1	2			90	1	2		
	2	2				2	2		
	3	2				3	2		
	4	2				4	2		
	5	2		15		5	2		53
	6	2				6	2		
	7	2				7	2		
	8	2				8	2		
	9	2				9	2		
40	1	2			100	1	2		
	2	2				2	2		
	3	2				3	2		
	4	2				4	2		
	5	2		64		5	2		75
	6	2				6	2		
	7	2				7	2		
	8	2				8	2		
	9	2				9	2		
50	1	2			50	1	2		
	2	2				2	2		
	3	2				3	2		
	4	2				4	2		
	5	2		85		5	2		
	6	2				6	2		
	7	2				7	2		
	8	2				8	2		
	9	2				9	2		

Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.

Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank.

Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6.

Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.

STORET Station Number:
65CE0070

Secchi depth 0.16
Estimated? _____

points ranked 4-6 10
total points assessed 100
% points ranked 4-6 10

Check accompanying data collected at same site/date.

Algal mat sample _____
Linear Veg Survey ☒
Habitat Assessment ☒
SCI/Biorecon _____
Water sample ☒

RQ- 2017-03

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