



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2019

Data Qualified?

Yes No

WIN Station Name:

GARNIER CREEK UPSTREAM OF LEWIS TURNER BLVD

Date:

6/3/19
(mm/dd/yyyy)

WIN/ Field ID:

G3NW0205

WBID:

655

Latitude:

30.48072

(Decimal Degrees)

County:

Okaloosa

ORG ID:

21FLPNS

Longitude: 86.58548

(Decimal Degrees)

Receiving Body of Water:

Garnier Bayou

RQ-2019- 2019-06-03-52

Sampling Team Members

Michael King

Nathan Mulkey

Sampling Equipment

☒ Sample Container ☐ Van Dorn ☐ Pole
☐ Carboy ☒ Syringe
☐ Dipper ☐ Other

Depth Measured with

Equipment ID

Collection Method

☒ Wading ☐ Canoe/Kayak
☐ From Shore ☐ Electric Motor
☐ Other ☐ Gasoline Motor

Water Level: Dry/ Pooled/ Low / Normal / High / Flooded

Meter ID#

154179

Matrix: Fresh / Marine / DI

Photos: Yes / No

Flow: No Flow / Intertidal / Flowing / NA

Tide: Rising/ Falling/ Slack/ NA

Tide Times: High Low

Time Zone	Time	Total Depth (m)	Sample Depth (m)	Secchi Disk (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (PPT)	Sp COND (µmhos/cm)	Temp. (C°)
EST	1230	0.8	0.3	0.8 (S) V08	7.24	82.0	5.84	0.02	37.4	22.0
CEN										

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

SBIO ID Numbers: SBIO-ID: 79809 HA-ID: 16058 RPS-ID: 9368 Macrophyte-ID: 11371 LIMS#: 2091077

Parameter Suite	Parameter Methods	Preservation	Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☐ H2SO4	SA 8344070	12/10/19	☒ <2
Metals	☐ W-ICPMS ☐ W-ICP	☐ Ice ☐ HNO3	NA 8344050	12/10/19	☒ <2
Filtered Nutrients	☐ W-PO4-F ☐ Field Filtered 0.45 µm Filter	☒ Ice	15159049		
Chlorophyll	☒ CHLSUITE-W	☒ Ice			
Physical/Aggregate (Fresh)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS	☒ Ice			
Physical/Aggregate (Marine)	☐ Alkalinity / W-BR-IC / W-F / W-TSS / TURBIDITY	☐ Ice			
Macroinvertebrates	☒ ML-FW-QLDC	☒ Formalin			
Periphyton	☒ ALGAE-ID	☒ 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	☒ W-PSNP-TQ	☒ Ice			
Phytoplankton	☐ DTY-QN-C ☐ PKD-QN-C	☐ Ice			

Place Preservative Sticker(s) Here
(If Available)

Notes:

Place Label Here

Signature:

Date:

6/3/19

LIMS EVENT ID:

WIN Import ID:

Enter Field Parameters, Verify Station ID In LIMS DMT:

QC Station ID, Field Parameters In LIMS DMT:

Scan/Save Field Sheets

Migrate Data to WIN:

Verify Data In WIN:

(Initials/Date)

(Initials/Date)

(Initials/Date)

(Initials/Date)

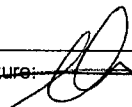
DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: <u>FDEP NW ROC</u>		STORET STATION NUMBER: <u>G3NW0205</u>	DATE (MM/DD/YY): <u>06/3/19</u>	RECEIVING BODY OF WATER: <u>GARNIER BAYOU</u>
REMARKS:	COUNTY: <u>OKALOOSA</u>	LOCATION: <u>GARNIER CREEK ABOVE LEWIS TURN</u>	FIELD ID/NAME: <u>G3NW 0205</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>16</u>	20 19 18 17 <u>16</u>	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>16</u>	Greater than 30% major productive habitat present at site 20 19 18 17 <u>16</u>	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 <u>14</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 <u>14</u> 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>5</u> ----- Primary Score <u>51</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>1-3 ft of silt/muck</u> <u>5</u> 4 3 2 1
Secondary Habitat Components Artificial Channelization <u>18</u>	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 <u>18</u> 17 16	Good sinuosity within old channelized area. Evidence of dredging or straightening 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. 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 <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 woody 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 woody root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>9</u> Left Bank <u>9</u>	Width of vegetation greater than 18 m 10 <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>5</u> Left Bank <u>5</u> ----- Secondary Score <u>64</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. <u>5</u> 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). 3 2 1

115

TOTAL SCORE

Date: <u>6/3/2019</u>	Analyst: <u>MIKE KING</u>	Signature: 
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DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID 79809 ORG ID 21FLPNS LATITUDE 30.48072
COUNTY OKALDOGA STORET # G3NW0205 LONGITUDE 86.58548
DATE 6/3/19 TIME 1230 SAMPLING AGENCY DEP NW ROC
SITE NAME Garnier Creek WBID 655
FIELD ID/NAME G3NW0205 RECEIVING BODY OF WATER GARNIER BAYO
RQ-2019-06-03-52

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) <u>EGLIN AFB</u>							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 <u>9</u> m wide <u>0.25</u> m/s <u>0.2</u> m/s <u>0.1</u> m/s <u>0.6</u> m deep <u>1.0</u> m deep <u>0.7</u> m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>>18</u> Right Bank: <u>>18</u> Hydrologic Modification Score (per FT 3101) ☐				Artificially Impounded ☐ Yes ☒ No			
High Water Mark: <u>1.0</u> + <u>1.0</u> = <u>2.0</u> (m) (above present water level) (present depth) (above bed)				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) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat (%) Cond. (UMHO/CM) Salinity (PPT) SECCHI (M) Top: <u>0.3</u> <u>22.0</u> <u>5.84</u> <u>7.24</u> <u>82.0</u> <u>37.4</u> <u>0.02</u> <u>0.8</u> Mid: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☒ VOB Bottom: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ Meter ID: <u>154179</u> TOTAL DEPTH <u>0.8</u>			
Woody Debris (Snags) <u>4</u> <u>4</u> ☐ Undercut Banks / Roots <u>2</u> <u>4</u> ☐ Leaf Packs or Mat <u>5</u> <u>4</u> ☐ Aquatic Vegetation <u>21</u> <u>4</u> ☐ Rock or Shell Rubble ☐ ☐ ☐ Sand <u>19</u> <u>4</u> ☐ Mud / Muck / Silt <u>50</u> ☐ ☐ Other ☐ ☐ ☐ Other ☐ ☐ ☐		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: <u>SA 8344070</u> Exp: <u>12/10/19</u> <u>NW 8344050</u> <u>12/10/19</u>		Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐		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) ☐			
AMBIENT FIELD CONDITIONS / NOTES: ☒ The antecedent hydrologic conditions have been met to my best knowledge.					

SAMPLING TEAM

Mike King / Nathan Murray

SIGNATURE

[Signature]

DATE:

6/3/19

A3NW0205

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: GARNIER CREEK					County: OKLAHOMA		Date: 6/3/19		Investigators: MIKE KMS	
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	N		60	1	X	Y		
	2					2				
	3					3				
	4	3				4				
	5	3		20		5				60
	6	3				6				
	7	N				7				
	8					8				
	9					9				
10	1	N	N		70	1	X			
	2	X	Y			2				
	3	X	Y			3				
	4					4				
	5			24		5				80
	6					6				
	7					7				
	8					8				
	9	N	N			9				
20	1	N	N		80	1	X			
	2					2				
	3					3				
	4					4				
	5			42		5				72
	6					6				
	7					7				
	8					8				
	9					9				
30	1	N	N		90	1	X			
	2					2				
	3					3				
	4					4				
	5			18		5				64
	6					6				
	7					7				
	8					8				
	9					9				
40	1	N			100	1	X			
	2					2				
	3					3				
	4					4				
	5			68.24		5				72
	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 densimeter 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								
	3	4								
	4	4								
	5	3		24						
	6	3								
	7									
	8	N								
	9	N								

STORET Station Number:
G3NW0205

Secchi depth	0.9
Estimated?	Y

# points ranked 4-6	2
total points assessed	54
% points ranked 4-6	4

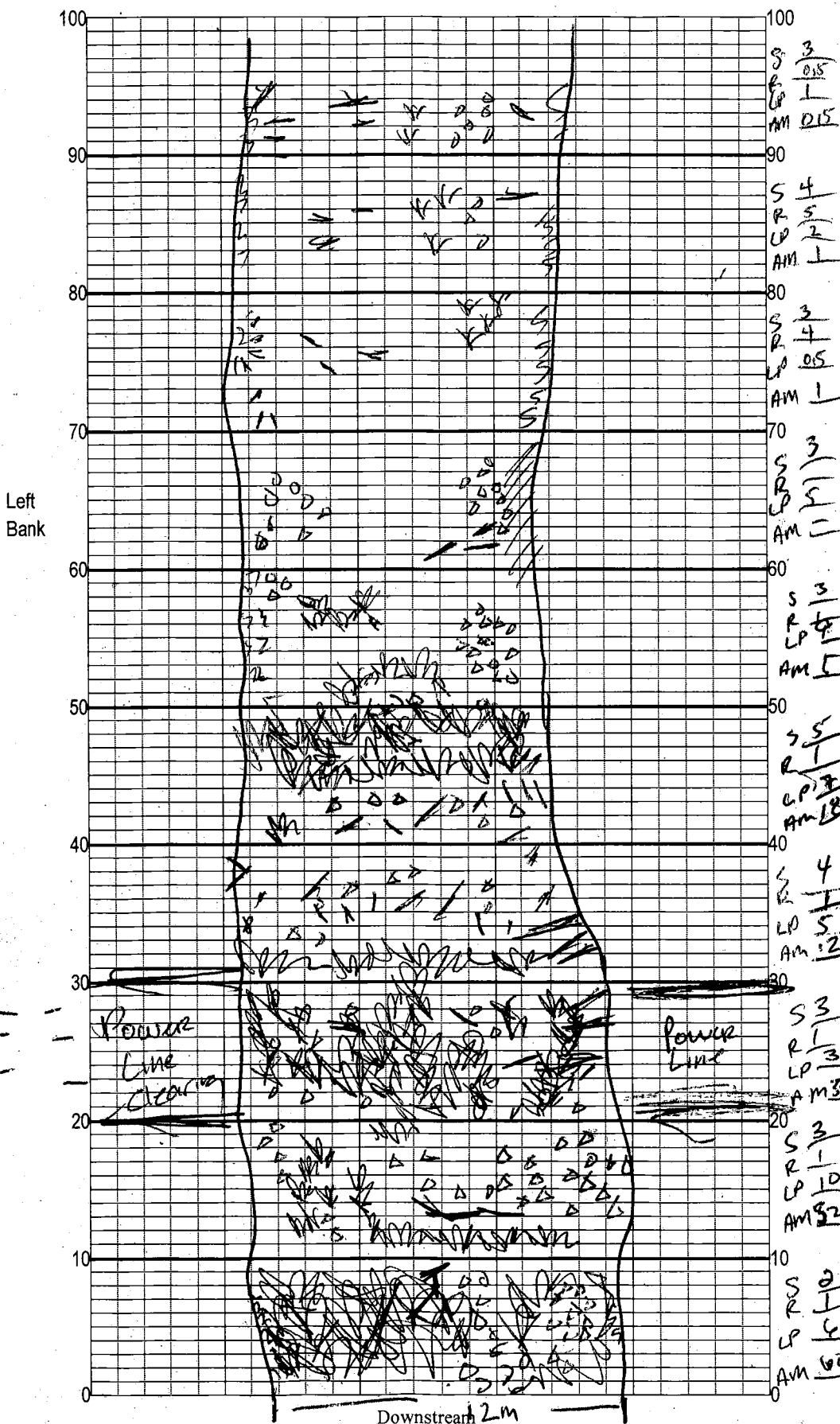
Check accompanying data collected at same site/date.	
Algal mat sample	
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	✓
Water sample	✓
RQ- 2019-06 03-S2	

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

Visit ID 79809

RPS ID 9368

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



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

Location: Garnier Creek
Date: 6/3/19
Sampler: NIKE KIM

100 m:	Latitude	<u>30.481353</u>
	Longitude	<u>86.584878</u>
0 m:	Latitude	<u>30.48072</u>
	Longitude	<u>86.58548</u>

Substrates: Code key, draw proportionate habitat abundance. 30.5%

	Snags	$33 \frac{3}{9}$	<u>9.6</u>
	Roots/undercut banks	15.5	<u>1.7</u>
	Leaf Packs (or mats)	9	<u>4.5</u>
	Aquatic Macrophytes	40.8	<u>20.7</u>
		186.5	
		9	
			
	Pools	total # observed =	<u>0</u>
		# range expected =	<u>1</u>

Average width 9 m
Average depth 0.9 m

Velocity measured at 40 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:

Storet G3NW0205

Sbio Visit ID 79809