

Site Name Moore Creek above Chamuckla Springs Road

Date: 02/11/2019

Field ID G4NW0355 Storet G4NW0355

Project: SMP. TMDL Studies

Visit ID 79201

RQ: 2019-02-11-25

RPS ID 9231

LIMS ID: 2061889

VPDB ID 1124

HA ID 15645

☒ ~~LVI~~ SCI

☐ RPS/LVS Only

☒ Sample Site Created in SBIO

☒ Phys/Chem entered in SBIO

☒ HA entered in SBIO

Initial FR 2/20/2019 ☐ Date and Initial QA: _____

☒ RPS entered in SBIO

Initial FR 2/20/2019 ☐ Date and Initial QA: _____

☒ LVI entered in SBIO

Initial FR 2/20/2019 ☐ Date and Initial QA: _____

☐ < 2 m² vegetation

☒ Plants getting verified

Date submitted: In House

☒ Plants verified

Date returned: In House

☐ RPS authorized in SBIO

☐ Date and Initial: _____

☐ RPS score: _____

☐ VPDB authorized in SBIO

☐ Date and Initial: _____

☐ VPDB score: _____

☐ SCI complete: _____

SCI Score: _____

☐ If SMP, scanned into database


**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET**

January 2019

Data Qualified?

Yes / No

WIN Station Name: Moore Creek above Chamuckla Springs RoadDate: 02/11/2019
(mm/dd/yyyy)WIN/ Field ID: G4NW0355WBID: 111Latitude: 30.81000

(Decimal Degrees)

County: Santa RosaORG ID: 21FLPNSLongitude: -87.25355

(Decimal Degrees)

Receiving Body of Water: Escambia RiverRQ-2019- 02-11-25

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment ☒ Sample Container ☐ Van Dorn ☐ Pole ☐ Carboy ☒ Syringe ☐ Dipper ☐ Other Depth Measured with <u>YSI</u> <u>Pro-DSS</u> Equipment ID <u>154179</u>
<u>Mike King</u>						Collection Method ☒ Wading ☐ Canoe/Kayak ☐ From Shore ☐ Electric Motor ☐ Other ☐ Gasoline Motor
<u>Frank Butler</u>						

Water Level: Dry/ Pooled/ Low / Normal / High / FloodedMeter ID# 154179Matrix: fresh Marine / DI

Photos: Yes / No

Flow: No Flow / Intertidal / Flowing / NATide: 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	9:15	0.30	0.15	0.5"	9.32	96.1	5.20	0.02	47.8	16.8
CEN				0.3						

Biological Samples Collected: None HA SCI RPS Algae ID LVS LVI Other:SBIO ID Numbers: SBIO-ID: 79201 HA-ID: 15645 RPS-ID: 9231 Macrophyte-ID: 11211 LIMS#: 2061889

Parameter Suite	Parameter Methods	Preservation	Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H ₂ SO ₄	<u>SAB101020</u>	<u>4/11/19</u>	☒ 2
Metals	☒ W-ICPMS ☒ W-ICP	☒ Ice ☒ HNO ₃			☒ 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-Cl-IC / W-COLOR / W-SO4-IC / W-TDS	☒ Ice			
Physical/Aggregate (Marine)	☐ Alkalinity / W-BR-IC / W-F / W-TSS / TURBIDITY	☐ Ice			
Macroinvertebrates	☒ MI-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: E. coli not collected.

Field/WIN ID



G4NW0355

Location:

Moore Creek above Chamuckla Springs Road

Signature: Frank ButlerDate: 02/11/2019

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: _____

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

SAMPLE ID 79201 ORG ID 21FLPNS LATITUDE 30.81000
 COUNTY Santa Rosa WIN ID/STORET # G4NW0355 LONGITUDE -87.25355
 DATE 02/11/2019 TIME 09:15 CTZ SAMPLING AGENCY FL DEP - NWROC
 SITE NAME Moore Creek above Chamuckla Springs Road RQ-2019-02-11-25
 FIELD ID/NAME G4NW0355 RECEIVING BODY OF WATER Escambia River WBID 111 Project SMP- TMDL Studies

RIPARIAN ZONE / STREAM FEATURES

LIMS ID 2061889

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 ☒ HeavyLocal Watershed NPS Pollution: ☐ No evidence ☐ Slight ☒ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side

Left Bank: 718 Right Bank: 718

Hydrologic Modification Score (per FT 3101)

1-2

Typical Width (m) Depth (m)/Velocity (m/sec) Transect

25m 7 m wide

0.33 m/s 0.33 m/s 0.25 m/s

High Water Mark: 1.8 + 0.8 = 2.6
(m) (above present water level) (present depth) (above bed)

Artificially Impounded

☐ Yes ☒ No

0.5 m deep 0.4 m deep 0.3 m deep

Artificially ☒ No ☐ Mostly recovered, more sinuousChannelized: ☐ Some recovery ☐ Recent, severeCanopy Cover % ☒ Open ☐ Lightly Shaded (11-45%)

83%

☒ 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

INVERT PERI
 % # Times # Times
 Coverage Sampled Sampled

Woody Debris (Snags) 25.3 4 Undercut Banks / Roots 2.2 4 Leaf Packs or Mat 0.5 4 Aquatic Vegetation 0.5 4 Rock or Shell Rubble Sand 93.3 2 Mud / Muck / Silt Other Gravel 0.3 2 Other

WATER QUALITY

Depth (M) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat (%) Cond. (UMHO/CM) Salinity (PPT) SECCHI (M)

Top: 0.15 16.8 5.20 9.32 96.1 47.8 0.02 0.3Mid: ☒ VOBBottom: 0.3 TOTAL DEPTHMeter ID: 154179 13 0.3Water Odors Normal ☒ Petroleum ☐Sewage ☐ Chemical ☐ Other ☐Water Surface Oils Normal ☒ Sheen ☐Globs ☐ Slick ☐ Other ☐Water Sample Taken? ☒ Yes ☐ NoSample Preserved? ☒ Yes ☐ NoLot Number: Exp: Color Tannic ☐ Green (Algae) ☐Clear ☒ Other (Specify) ☐Algae Sample Taken? ☐ Yes ☒ NoSample Preserved? ☐ Yes ☐ NoLot Number: Exp: 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: Frank Butera, Mike King

SIGNATURE:

Frank Butera

DATE:

02/11/2019

MOORE Creek above Chamuckla Springs Road

0-10 meter [A]	Habitat Area (M)	Left Bank	Right Bank
	Snag 4.0	Bankfull	Bankfull
0m width (m) 7.5	Root 3.0	+	+
10m width 7.5	Leaf 0.1	Slope	Slope
Max Depth 0.7	Veg 0.3	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t	Sand	

10-20 meter [B]	Habitat Area (M)	Left Bank	Right Bank
	Snag 5.0	Bankfull	Bankfull
20m width 7.5	Root 5.0	+	+
	Leaf 0.1	Slope	Slope
Max Depth 0.8	Veg	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t	Sand	

20-30 meter [C]	Habitat Area (M)	Left Bank	Right Bank
	Snag 1.5	Bankfull	Bankfull
30m width 7m	Root 2.0	+	+
	Leaf 0.1	Slope	Slope
Max Depth 0.6	Veg	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t		

30-40 meter [D]	Habitat Area (M)	Left Bank	Right Bank
	Snag 3.5	Bankfull	Bankfull
40m width 9.0	Root 3.0	+	+
	Leaf 2.0	Slope	Slope
Max Depth 0.6	Veg 1.0	+	+
Avg. Depth 0.4	Gravel 2.0	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t		

40 - 50 meter [E]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.5	Bankfull	Bankfull
50m width 8.0	Root 0.6	+	+
	Leaf 0.3	Slope	Slope
Max Depth 0.6	Veg	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t		

50-60 meter [F]	Habitat Area (M)	Left Bank	Right Bank
	Snag 3.0	Bankfull	Bankfull
60m width 8.2	Root 0.5	+	+
	Leaf 0.3	Slope	Slope
Max Depth 0.6	Veg	+	+
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t		

60-70 meter [G]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.7	Bankfull	Bankfull
70m width 8.0	Root 1.0	+	+
	Leaf 0.2	Slope	Slope
Max Depth 0.6	Veg 0.5	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t		

70-80 meter [H]	Habitat Area (M)	Left Bank	Right Bank
	Snag 0.6	Bankfull	Bankfull
80m width 8.0	Root 0.3	+	+
	Leaf 0.2	Slope	Slope
Max Depth 0.7	Veg 0.5	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t		

80-90 meter [I]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.0	Bankfull	Bankfull
90m width 9m	Root 0.5	+	+
	Leaf 0.4	Slope	Slope
Max Depth 0.5	Veg 0.2	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t		

90 - 100 meter [J]	Habitat Area (M)	Left Bank	Right Bank
	Snag 0.5	Bankfull	Bankfull
100m width 7.0	Root 1.4	+	+
	Leaf 0.3	Slope	Slope
Max Depth 0.5	Veg 0.1	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	5.1t		

Station Name: Pine Barren Cr.

Abv. Lumber Bridge Rd.

Storet: G4W0218

Date: 6/11/2019

GPS Coordinates

0 meter 30.81004
-87.25335

100 meter 30.81071
-87.25295

Water Quality Measured at 0m

Stream Velocity and location.
0.33 m/s 25 meter mark

Number of Pools & Location

1, 20m

Silt smothering @
A, C, D, E, F, J

Sand Smothering @
A, B, C, J

Algae Smothering @
B, D, E, H,

Degraded Banks @
B, G, H, J

Total Habitat	Sq. Meters	Percent
Snags	25.3	3.2
Roots	17.3	2.2
Leaf	4.0	0.5
Veg	4.1	0.5
Rock		
Gravel	2.0	0.3
Sand	737.3	93.3
Other		
Other		
Sum 1 st Habitat	6.4	

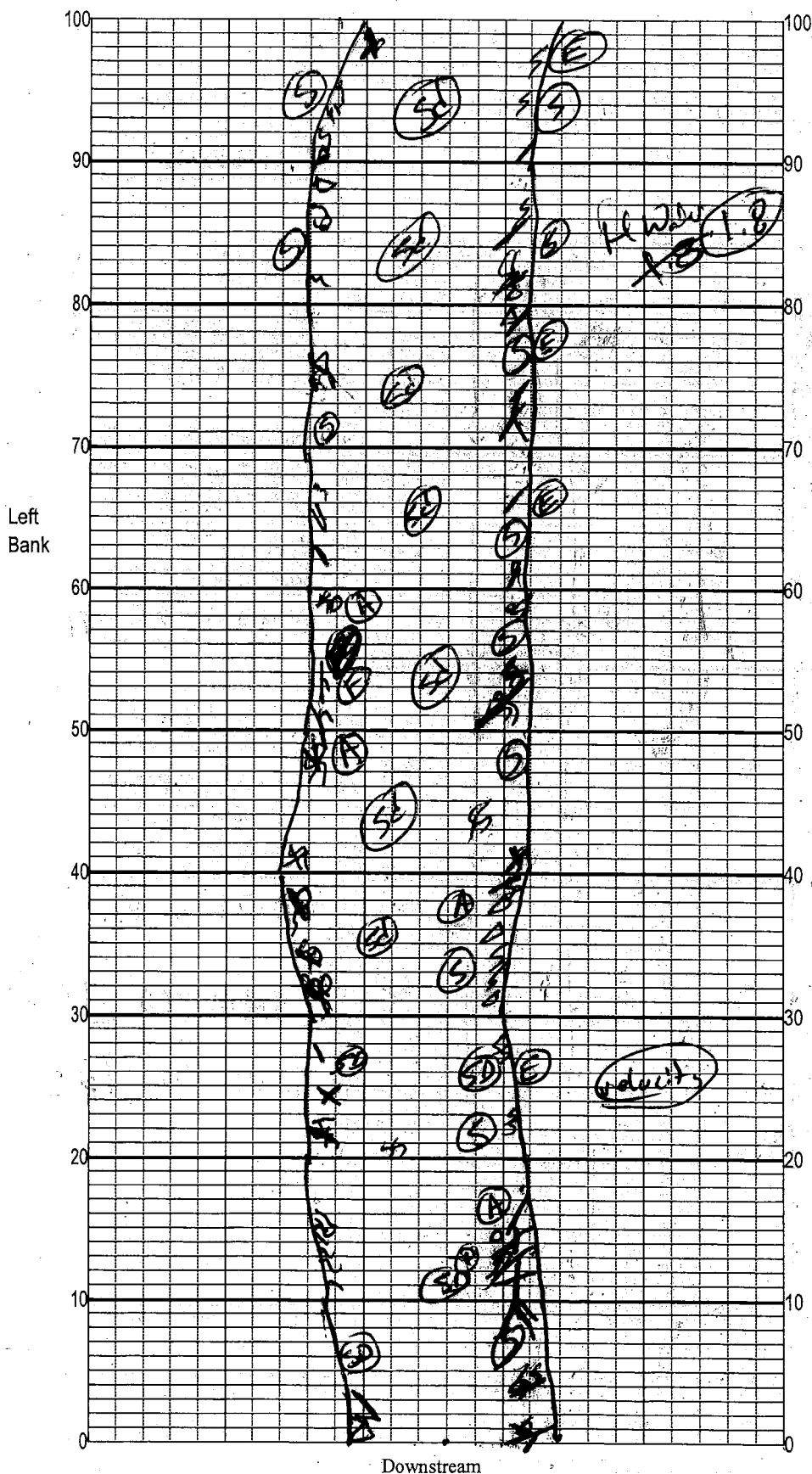
5810 2D 79201

Notes:

High water 1.8m. Fe Sulfur Bacteria @ F(50-60m)
Avg. width 0.7m Avg. Depth = 3.9
0.39m

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

SB10 ID 79201



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

Location: Moore Ck. abn. chan...

Date: 02/11/2019

Sampler: F. Butler

100 m: Latitude 30.81000
Longitude 87.25355
100 m: Latitude 30.81071
Longitude 87.25295

Substrates: Code key, draw proportionate habitat abundance. %

1	Snags	3.2
5	Roots/undercut banks	2.2
0	Leaf Packs (or mats)	0.5
△	Aquatic Macrophytes	0.5
Ⓟ	Pools	total # observed = 1 # range expected = 1

Average width 8.7 m
Average depth 0.39 m

Velocity measured at 25 meter mark.

WQ & chemistry taken at 12 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:

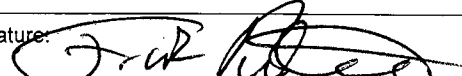
③: 1P = ⑤
① = Algae
② = Fe/Sulfur
③ = Eroding Bank
④ = Sand

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

SAMPLING AGENCY: 21FLPNS		STORET STATION NUMBER: G4NW0355	DATE (MM/DD/YY): 02/11/2019	RECEIVING BODY OF WATER: Escambia River
REMARKS: WBID 111	COUNTY: Santa Rosa	LOCATION: Moore Creek above Chamuckla Springs Road		FIELD ID/NAME: G4NW0355

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 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>6</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 <u>6</u>	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>2φ</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 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>12</u> Primary Score <u>54</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 <u>12</u> 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>19</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bank Stability Right Bank <u>1φ</u> Left Bank <u>1φ</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 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>1φ</u> Left Bank <u>1φ</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 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank <u>1φ</u> Left Bank <u>1φ</u> Secondary Score <u>79</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). 3 2 1

133 TOTAL SCORE

Date: <u>02/11/2019</u>	Analyst: <u>F. Butler</u>	Signature: 
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SBIO ID: 79201

HA ID: 15645

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Moore Ck abo Chamuckla... County: Santa Rosa Date: 02/11/2019 Investigators: F. Butera

Transect t (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect t (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N	NO	78 92	60	1	3N	NO	88
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9	N	NO						
10	1	5N	NO	94	70	1	N	NO	53
	2	N							
	3								
	4								
	5								
	6								
	7	N							
	8	3N							
	9	N	NO						
20	1	N	NO	70	80	1	N	NO	84
	2								
	3								
	4								
	5								
	6								
	7								
	8	N							
	9	N	NO						
30	1	N	NO	88	90	1	N	NO	65
	2								
	3								
	4								
	5								
	6								
	7								
	8	3N							
	9	3	NO						
40	1	3	NO	82	100	1	N	NO	70
	2	N							
	3								
	4								
	5								
	6								
	7	N							
	8	5N							
	9	N	NO						
50	1	N	NO	90	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								
	6								
	7								
	8	N							
	9	4	NO						

STORET Station Number: G4NW0355

Secchi depth 0.8
Estimated? NO

points ranked 4-6 2
total points assessed 99
% points ranked 4-6 2.01

Check accompanying data collected at same site/date.
Algal mat sample
Linear Veg Survey
Habitat Assessment
SCI/Biorecon
Water sample
RE-02-11-25 (FB)

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

RE-2019-02-11-25

SB10 ID 79201

RPS ID 9231

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Moore Cr abv. Chumuck...	Date: 2/14/19	County: Santa Rosa	Storet Number: GLENWOOD355
Analyst: PButera	Signature: [Signature]		

Comments:

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1m² 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.

[illegible]

MACRO-ZD 1121

LIMS ID 2061889