

RQ-2019-05-06-14

Data Management (to be completed by field personnel)

- ☒ Date sampled Date: 05/09/2019 initials: FB
- ☒ Entered into MAT Date: 05/20/2019 initials: FB
- ☒ In SMP Tracker Date: 05/14/2019 initials: FB
- ☒ RQ Sheet – from LIMS (display/print request)

Ready for folder system (top)

LIMS processing (to be completed by field/office personnel)

- ☐ Field Sheets scanned into local folder and
initialed/dated on Field Sheets Date: _____ initials: _____
- ☐ New Field IDs created (when appropriate) Date: _____ initials: _____ ☐ NA
- ☐ Field parameters entered into LIMS Date: _____ initials: _____
- ☐ Date submitted for QA/QC Date: _____ initials: _____
- ☐ Create entry in SMP Station Creation File if new station is used

Digital Archiving

- ☐ Digital field Sheets put into archive Date: _____ initials: _____
- ☐ Photos put into archive Date: _____ initials: _____ ☐ NA
- ☐ Lab results put into archive (CB/WB) Date: _____ initials: _____

WINS processing (Cheryl)

- ☐ Field parameters QA/QC in LIMS Date: _____ initials: _____
- ☐ Data migrated to WINS Date: _____ initials: _____
- ☐ Update "Data Tracker" in SMP Tracker

Notes:

Biology Collected at 2 sampling sites, G4NW0489 Williams Creek and G4NW0349 Pond Creek in McCloud Bay.

Date of Request: 19-MAR-2019
 Created By: KING_M On: 19-MAR-2019
 Modified By: JASROTIA_P On: 17-APR-2019
 Customer: NW-DIST
 Project: SMP
 Division: Division of Environmental Assessment and Restoration
 District: Northwest District NWROC
 Sampling Event: SMP Bioassessment - Boiling Creek

Send Coolers To:

Phone: 850-595-0605
 160 Government Center
 Suite 208
 Pensacola, FL 32502-5794
 Attn: Michael King

Program Module Number:

Priority: 3
 Event Status: A
 Criminal Investigation: NO
 Chemistry Request Reviewed By: WATTS_J On: 17-APR-2019
 Biology Request Reviewed By: JASROTIA_P On: 17-APR-2019
 Sampling Kit Required: NO Ship on:
 Sampling Kit Shipped:
 Sampling Kit Packed By:
 Preservatives Needed: NO
 Date to Receive Samples: 09-MAY-2019
 Received By:

Send Final Report To:

160 Government Center
 Suite 208
 Pensacola, FL 32502-5794
 Attn: Cheryl bunch

Report Type: Final Only
 FTP Data: NO
 QC Report: YES
 Date Log: NO
 Authorization Log: NO

Comments: Group A: Nutrients, Metals, Tracers, Q-PSNP-TQ
 Group B: SCI, Algae_ID

Bottle Group A (Water) With 1 Samples:

Bottle Type: P-1L	Number of Bottles: 2	Preserved With: ICE
ALKALINITY	Template: DEFAULT	(SM 2320 B-97) Alkalinity in aqueous matrices as mg CaCO3/L
Total Alkalinity		
TURBIDITY	Template: DEFAULT	(EPA 180.1 Rev. 2.0) Turbidity in aqueous matrices
Turbidity		
W-CL-IC	Template: DEFAULT	(EPA 300.0 Rev. 2.1) Chloride in aqueous matrices
Chloride		
W-COLOR	Template: DEFAULT	(SM 2120 B) True Color measured at 450 nm
Color (true)		
W-F	Template: DEFAULT	(SM 4500 F-C-97) Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)
Fluoride		
W-SO4-IC	Template: DEFAULT	(EPA 300.0 Rev. 2.1) Sulfate in aqueous matrices
Sulfate		
W-TDS	Template: DEFAULT	(SM 2540 C-97) Total Dissolved Solids in aqueous matrices
TDS		
W-TSS	Template: DEFAULT	(SM 2540 D-97) Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample
TSS		
Bottle Type: BP-1L	Number of Bottles: 1	Preserved With: ICE
CHLSUITE-W	Template: DEFAULT	(SM 10200 H (mod.)) Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry
Chlorophyll-a, Corrected		
Chlorophyll-a, Uncorrected		
Phaeophytin-a		
Bottle Type: TEST HAS NO	Number of Bottles: 1	Preserved With: ICE

Printed: 4/30/2019 4:28:38 PM

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Bottle Group A (Water) With 1 Samples:

Bottle Type: TEST HAS NO Number of Bottles: ~~1~~ ² Preserved With: ICE
 NW-UWF-ECQ Template: DEFAULT (SM 9223 B Quanti-Tray) Escherichia coli by Colliert 18 Quanti-Tray method by UWF Laboratory in Pensacola

Escherichia Coli-Quanti-Tray

Bottle Type: BG-500ML Number of Bottles: 1 Preserved With: ICE
 W-E8321-DI Template: DEFAULT (EPA 8321B) Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS

*Acesulfame K
 *AMPA
 *Endothall
 *Glufosinate
 *Glyphosate
 *Sucralose

W-E8321-MS Template: DEFAULT (EPA 8321B) Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS

*Acetaminophen
 *Carbamazepine
 *Fluridone
 *Hydrocodone
 *Ibuprofen
 *Imazapyr
 *Naproxen
 *Primidone
 *Pyraclostrobin
 *Triclopyr
 2,4-D
 Bentazon
 Diuron
 Fenuron
 Imidacloprid
 Linuron
 MCPP

Bottle Type: P-500ML Number of Bottles: ~~1~~ ² Preserved With: HNO3
 W-ICP Template: (EPA 200.7 Rev. 4.4) Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects

Barium
 Calcium
 Iron
 Magnesium
 Potassium
 Sodium
 Zinc

W-ICPMS Template: (EPA 200.8 Rev. 5.4) Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects

*Boron
 Aluminum
 Antimony
 Arsenic
 Cadmium
 Chromium
 Copper
 Lead
 Nickel
 Selenium
 Silver
 Thallium

Bottle Type: P-500ML Number of Bottles: ~~1~~ ² Preserved With: ICE And H2SO4
 W-NH3 Template: DEFAULT (EPA 350.1 Rev. 2.0) Ammonia in aqueous matrices as mg N/L
 Ammonia-N
 W-NO2NO3 Template: DEFAULT (EPA 353.2 Rev. 2.0) Nitrite/Nitrate in aqueous matrices as mg N/L
 NO2NO3-N
 W-S-A-TP Template: DEFAULT (EPA 365.1 Rev. 2.0) Total Phosphorus in aqueous matrices as mg P/L
 Total-P

Bottle Group A (Water) With 1 Samples:

Bottle Type: P-500ML Number of Bottles: 1 ^{FB} Preserved With: ICE And H2SO4
 W-TKN Template: DEFAULT (EPA 351.2 Rev. 2.0) Total Kjeldahl Nitrogen in aqueous matrices
 Kjeldahl Nitrogen
 W-TOC Template: DEFAULT (SM 5310 B-00) Nonpurgeable Organic Carbon in aqueous matrices
 Organic Carbon
 Bottle Type: P-125ML Number of Bottles: 1 ^{FB} Preserved With: FILTER-ICE
 W-PO4-F Template: DEFAULT (EPA 365.1 Rev. 2.0) Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L
 O-Phosphate-P
 Bottle Type: BG-1L Number of Bottles: 4 ^{FB} Preserved With: ICE
 W-PSNP-TQ Template: DEFAULT (EPA 8270E) Organonitrogen and phosphorus pesticides in water matrices by GC/MS/MS

*Dimethenamid
 *Dithiopyr
 *Fipronil Desulfinyl
 *Oxadiazon
 *Prodiamine
 *Tebuconazole
 Acetochlor
 Alachlor
 Ametryn
 Atrazine
 Atrazine Desethyl
 Azinphos Methyl
 Bromacil
 Butylate
 Chlorpyrifos Ethyl
 Chlorpyrifos Methyl
 Cyanazine
 Demeton
 Diazinon
 Disulfoton
 EPTC
 Ethion
 Ethoprop
 Fenamiphos
 Fipronil
 Fipronil Sulfide
 Fipronil Sulfone
 Fonofos
 Hexazinone
 Malathion
 Metalaxyl
 Metolachlor
 Metribuzin
 Mevinphos
 Molinate
 Norflurazon
 Parathion Ethyl
 Parathion Methyl
 Pendimethalin
 Phorate
 Prometon
 Prometryn
 Simazine
 Terbufos
 Terbutylazine

Bottle Group B (Biological) With 1 Samples:

Bottle Type: PJ-2L Number of Bottles: 2 ^{4 FB} Preserved With: Formalin
 MI-FW-QLDC Template: DEFAULT (SOP-IZ06) No. Taxa of FW macroinverts, qual samp, 20 dipnets.
 *Macroinvert-FW-Qual-DipnetX20-#Taxa-Rep2
 *Stream Condition Index (SCI)
 Bottle Type: PT-50ML Number of Bottles: 1 Preserved With: ICE

Bottle Group B (Biological) With 1 Samples:

Bottle Type: PT-50ML

Number of Bottles: ~~1~~ ² ¹³

Preserved With: ICE

ALGAL_ID

Template: DEFAULT

(SOP-AB05) Qualitative assessment of algal taxa present without counts

*Dominant sample taxon

* - The laboratory is not NELAP certified for this analyte/method, or certification is not applicable.



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2019

Data Qualified?

Yes / ☒ No

WIN Station Name:

Williams Creek West Fork upstream of P.J. Adams Road

Date: 05/09/2019

WIN/ Field ID: G4NW0489

WBID: 331

Latitude: 30.70930

30.70949

County: Okaloosa

ORG ID: 21FLPNS

Longitude: -86.600209

-86.60056

Receiving Body of Water: Shoal River

RQ-2019-05-06-14

Sampling Team Members

Frank Butler
Stephen Stader

WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
☒	☒	☒	☒	☒

Sampling Equipment

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

Depth Measured with YSI
Equipment ID 155077

Collection Method

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

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

Meter ID# 155077 (FB)

Matrix: Fresh Marine/ DI

Photos: Yes / No

Flow: No Flow / Intestinal / 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 (PPTH)	Sp COND (umhos/cm)	Temp. (C°)
EST	12:15	0.3	0.2	5 ^h	7.92	91.3	6.40	0.08	162.6	22.4
CEN				0.3						

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

SBIO ID Numbers: SBIO-ID: 79539 HA-ID: 15864 RPS-ID: 9329 Macrophyte-ID: N/A LIMS#:

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	SA8197090	7/16/19	☒ <2
Metals	☒ W-ICPMS ☒ W-ICP	☒ Ice ☒ HNO3	NA8344050	12/10/19	☒ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 um 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-BactR ☐ 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: 155077 → YSI → ID
2nd Vegetation - NO LVS
BIOLOGY

Field/WIN ID →



G4NW0489

Location:

Williams Creek West Fork upstream of P.J. Adams Road

Signature: [Signature]

Date: 05/09/2019

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

(Initials/Date)

Migrate Data to WIN:

(Initials/Date)

Verify Data In WIN:

(Initials/Date)

(Initials/Date)

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

SAMPLE ID 79539 ORG ID 21FLPNS LATITUDE 30.70930
 COUNTY Okaloosa (Crestview) WIN ID/STORET # G4NW0489 LONGITUDE -86.600209
 DATE 05/09/2019 TIME 12:15 CTZ SAMPLING AGENCY FL DEP - NWROC
 SITE NAME Williams Ck. W. Fork upstream of P.J. Adams Road - Antioch Rd RQ-2019-05-06-14
 FIELD ID/NAME G4NW0489 RECEIVING BODY OF WATER Yellow River WBID 331 Project SMP- TMDL Studies

RIPARIAN ZONE / STREAM FEATURES

LIMS ID:

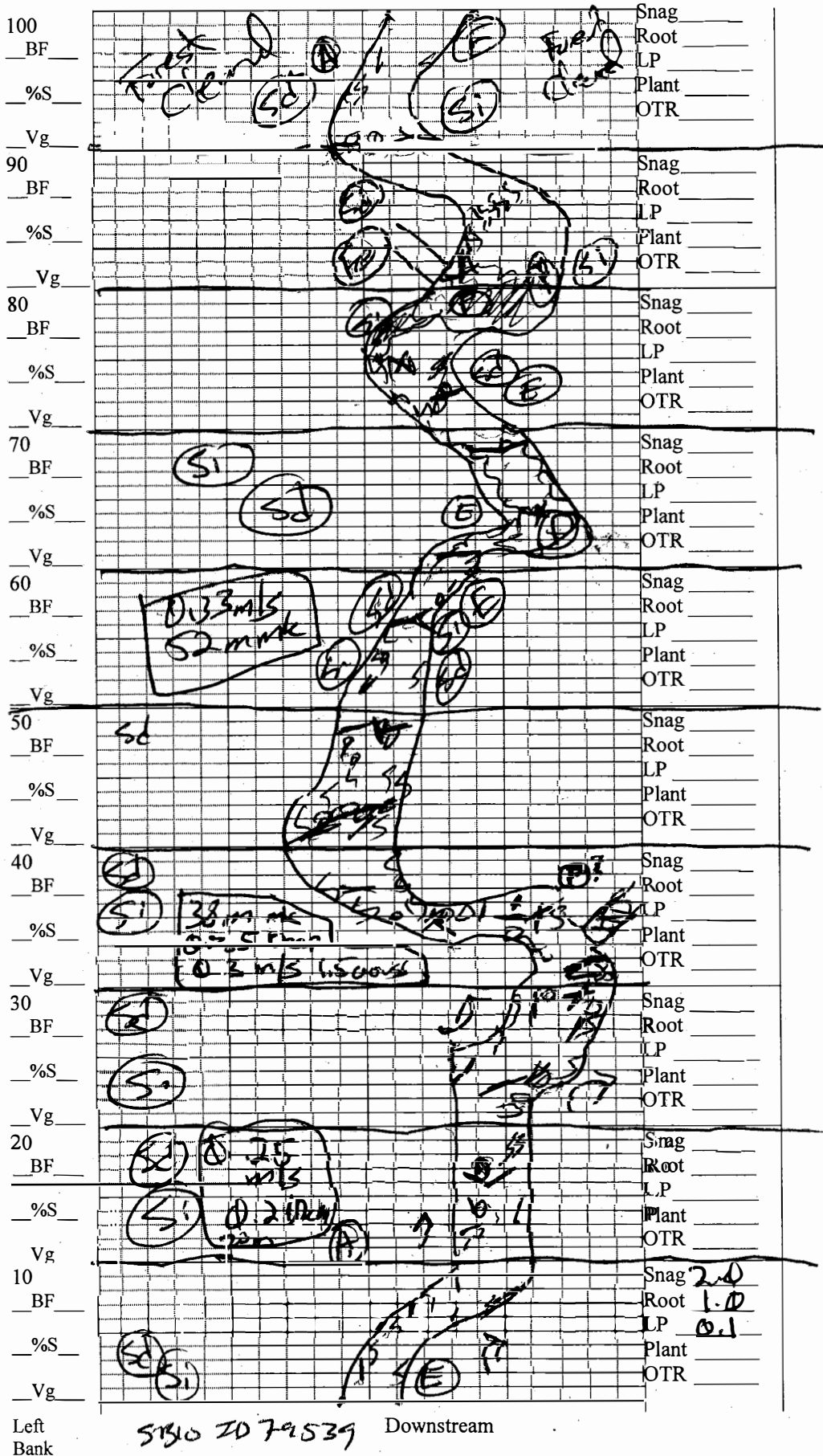
PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural ☐ Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industry ☐ Other (Specify) ☐								Landscape Development Intensity Index (LDI) <u>7-8 2.37</u>
Local Watershed Erosion (select one): ☐ None ☐ Slight ☒ Moderate ☒ Heavy Local Watershed NPS Pollution: ☐ No evidence ☐ Slight ☐ Moderate ☒ Heavy								Typical Width (m) Depth (m)/Velocity (m/sec) Transect <u>300 m</u> <u>1.2</u> <u>0.33</u> <u>1.2</u> wide
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>12</u> Right Bank: <u>17</u>				Hydrologic Modification Score (per FT 3101) <u>7-8</u>				m/s <u>0.33</u> m/s <u></u> m/s <u></u>
High Water Mark: <u>2.0</u> + <u>0.9</u> = <u>2.9</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No				m deep <u>0.2</u> m deep <u></u> m deep <u></u>
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		
% Coverage Woody Debris (Snags) <u>14.1</u> <u>5</u> Undercut Banks / Roots <u>19.1</u> <u>5</u> Leaf Packs or Mat <u>3.4</u> <u>5</u> Aquatic Vegetation Rock or Shell Rubble.. Sand..... <u>64.8</u> <u>5</u> Mud / Muck / Silt Other Other			Depth (M) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat (%) Cond. (UMHO/CM) Salinity (PPT) SECCHI (M) Top: <u>0.2</u> <u>22.4</u> <u>6.40</u> <u>7.92</u> <u>91.3</u> <u>162.6</u> <u>0.08</u> <u>0.3</u> Mid: <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u>4</u> VOB Bottom: <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> Meter ID: <u>165077</u> <u>13</u> <u>0.3</u> TOTAL DEPTH		
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☐ ☐ ☒ ☐ Fish: ☐ ☐ ☒ ☐ Aquatic Plants: ☒ ☐ ☐ ☐ Iron/Sulfur Bacteria: ☐ ☒ ☐ ☐			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: _____		
			Water Surface Oils Normal ☐ Sheen ☐ Globbs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐ Clarity Clear ☐ Slightly Turbid ☒ Turbid ☐ Opaque ☐		
System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐			AMBIENT FIELD CONDITIONS / NOTES: Last 10m reach cleared for power lines 2m ² vegetation NO LVS Old Street 33040016 ☒ The antecedent hydrologic conditions have been met to my best knowledge.		
SAMPLING TEAM: Frank Butera, Stopher Slade			SIGNATURE: <u>[Signature]</u>		
			DATE: <u>05/09/2019</u>		

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (June 1, 2001)

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



WIN ID G4NW0489

Substrates: Code key, draw proportionate habitat abundance.



Snags



Roots/undercut banks



Leaf Packs (or mats)



Macrophytes



Sand Bar

P = Pool S = silt



Sd = Sd Fe = Fe/silt



Gravel

A = Algae E = Eroding Bank

Velocity:

0.33 m/s

Note where velocity measures were taken. 52m

Habitat Smothering:

Note areas (on map) where sand or silt is something 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.

Average width 1.6 m

Average depth 0.4 m

WQ & chemistry taken @ 0 m

Pools 4 / ornel 5

Williams Creek W. Fork

upstream of Antioch Road

Project. TMDL Studies

Sampled By/Date: 5/09/2019

FB, SS

0 m Latt. 30.70949

0 m Long. 86.60056

100 m Latt. 30.70949

100 m Long. 86.60039

Left Bank

5150 20 79539

Downstream

0-10 meter [A]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.0	Bankfull	Bankfull
0m width (m) 0.0	Root 1.0	+	+
10m width 1.5	Leaf 0.1	Slope	Slope
Max Depth 0.5	Veg	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 1.0	Rock	+	+
Rip. Buff R 718	(S) (S)		

10-20 meter [B]	Habitat Area (M)	Left Bank	Right Bank
	Snag 1.0	Bankfull	Bankfull
20m width 1.5	Root 1.5	-	-
	Leaf 0.2	Slope	Slope
Max Depth 0.5	Veg	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 1.0	Rock	+	+
Rip. Buff R 718	(S) (S) (A)		

20-30 meter [C]	Habitat Area (M)	Left Bank	Right Bank
	Snag 3.0	Bankfull	Bankfull
30m width 1.5	Root 3.0	-	-
	Leaf 0.5	Slope	Slope
Max Depth 0.6	Veg	+	+
Avg. Depth 0.35	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	(S) (S)		

30-40 meter [D]	Habitat Area (M)	Left Bank	Right Bank
	Snag 3.0	Bankfull	Bankfull
40m width 2.0	Root 5.0	-	-
	Leaf 0.5	Slope	Slope
Max Depth 0.8	Veg	+	+
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 1.4	Rock	+	+
Rip. Buff R 718	(S) (S)		

40 - 50 meter [E]	Habitat Area (M)	Left Bank	Right Bank
	Snag 4.0	Bankfull	Bankfull
50m width 1.5	Root 3.5	-	-
	Leaf 0.8	Slope	Slope
Max Depth 0.5	Veg	+	+
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 0.18	Rock	+	+
Rip. Buff R 718	(S) (S)		

50-60 meter [F]	Habitat Area (M)	Left Bank	Right Bank
	Snag 1.0	Bankfull	Bankfull
60m width 1.0	Root 2.0	+	-
	Leaf 0.2	Slope	Slope
Max Depth 0.4	Veg	+	-
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	(S) (S) (E)		

60-70 meter [G]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.0	Bankfull	Bankfull
70m width 1.5	Root 8.0	+	+
	Leaf 0.5	Slope	Slope
Max Depth 0.8	Veg 0.5	-	-
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	(P) (S) (E)		

70-80 meter [H]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.5	Bankfull	Bankfull
80m width 2.5	Root 3.5	-	-
	Leaf 0.2	Slope	Slope
Max Depth 0.9	Veg	-	-
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 1.5	Rock	+	+
Rip. Buff R 718	(S) (S) (E)		

80-90 meter [I]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.0	Bankfull	Bankfull
90m width 2.0	Root 2.5	+	-
	Leaf 0.2	Slope	Slope
Max Depth 0.9	Veg	-	-
Avg. Depth 0.5	Gravel	Veg	Veg
Rip. Buff L 2.0	Rock	+	+
Rip. Buff R 718	(E) (S) (S)		

90 - 100 meter [J]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.0	Bankfull	Bankfull
100m width 1.5	Root 0.5	-	-
	Leaf 0.2	Slope	Slope
Max Depth 0.5	Veg	-	-
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 2.0	Rock	+	+
Rip. Buff R 0.0	Cleared		

Station Name

Williams Ck West Fork upstream of
Antioch Rd Storet: G4NW0489

Date 05/09/2019

GPS Coordinates

0 meter
30.74949
86.60056

100 meter
30.71017
86.60039

Water Quality Measured at

0 m

Stream Velocity and location.

0.33 m/s 5 meter mark

Number of Pools & Location

24 40, 70-90
Silt smothering @ D, G+I

A-J

Sand Smothering @

A-J

Algae Smothering @

B, J

Degraded Banks @

F, G, H, I
Felsulfre @ I

Total Habitat	Sq. Meters	Percent
Snags	22.5	14.1
Roots	30.5	19.1
Leaf	3.4	2.1
Veg		
Rock		
Gravel		
Sand	103.6	64.8
Other		
Other		
Sum 1 st Habitat		35.3

SR10 20 7-9539

Notes: 52m with 0.33 m/s, 1.2m wide, 0.2 deep
Cleared Forest cleared @ 90m / 1 pool every 12 stream on d/s
4 pool / 20 m = 57.6 pools

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

SAMPLING AGENCY: 21FLPNS		STORET STATION NUMBER: G4NW0489	DATE (MM/DD/YY):	RECEIVING BODY OF WATER: Yellow River
REMARKS: WBID 331	COUNTY: Okaloosa	LOCATION: Williams Creek West Fork upstream off of Antioch Road		FIELD ID/NAME: G4NW0489

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>13</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>17</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 3 2 1
Water Velocity <u>24</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>14</u> ----- Primary Score <u>64</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. 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>20</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>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 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>8</u> Left Bank <u>5</u>	Width of vegetation greater than 18 m 10 9	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12m. 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>8</u> Left Bank <u>6</u> ----- Secondary Score <u>78</u> <u>58</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

118 **TOTAL SCORE**

Date: <u>05/09/17</u>	Analyst: <u>FB Butler</u>	Signature: <u>[Signature]</u>
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SBIO ID: 79539
62-160.800, F.A.C.

HA ID: 15864

Revision Date: March 1, 2014

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Williams Creek West Fork upstream
Antioch Road

County:
Okaloosa

Date:
05/09/2019

Investigators: F. Butera

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	No		60	1	N	No		
	2					2				
	3					3				
	4					4				
	5			96		5			96	
	6					6				
	7					7				
	8					8				
	9					9				
10	1	N	No		70	1	N	No		
	2					2				
	3					3				
	4					4				
	5			96		5			96	
	6					6				
	7					7				
	8					8				
	9					9				
20	1	N	No		80	1	N	No		
	2					2				
	3					3				
	4					4				
	5			96		5			96	
	6					6				
	7					7				
	8					8				
	9					9				
30	1	N	No		90	1	N	No		
	2					2				
	3					3				
	4					4				
	5			96		5			96	
	6					6				
	7					7				
	8					8				
	9					9				
40	1	N	No		100	1	N	No		
	2					2				
	3					3				
	4					4				
	5			96		5				
	6					6				
	7					7				
	8					8				
	9					9				
50	1	N	No		100	1	N	No		
	2					2				
	3					3				
	4					4				
	5			96		5				
	6					6				
	7					7				
	8					8				
	9					9				

STORET Station Number:
G4NW0489

Secchi depth 0.3
Estimated? 00

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

Check accompanying data collected at same site/date.

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

RQ-2019-05-06-14

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

SBIO Visit ID. 79539

RPS ID. 9329

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%.

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

Waterbody: Williams Creek upstream of Antioch Road	Date: 5/9/19	County: Okaloosa	Storet Number: G4NW0489
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Analyst: F. Butera Signature: 

Comments: Less Than 2m² Vegetation, LUS NOT Performed

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.

[illegible]

Field ID G4NW4489

RPS ID

SBIO ID 79539

VPDB ID	N/A
---------	-----

LIMS ID
62-160,800, F.A.C.



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

January 2019

Data Qualified?

Yes / No

WIN Station Name: Pond Creek in McCloud Bay upstream of Hwy 393

Date: 05/09/2019
(mm/dd/yyyy)

WIN/ Field ID: G4NW0349

WBID: 35A

Latitude: 30.81036

County: Okaloosa

ORG ID: 21FLPNS

Longitude: -86.40802

Receiving Body of Water: Yellow River

RQ-2019- 05-06-14
(Decimal Degrees)

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment		
Frank Butera Stefan Glade					☒	☒	☒	☒	☒	☒ 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# 55077

Matrix: Fresh / Marine / DI

Photos: Yes / No

Flow: No Flow / Intestinal / 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 (PPTH)	Sp COND (µmhos/cm)	Temp. (C°)
EST	14:15	0.3	0.15	1.3	8.32	97.8	5.86	0.01	33	23.4
CEN				"5"						

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

SBIO ID Numbers: SBIO-ID: 79483 HA-ID: 15797 RPS-ID: 9328 Macrophyte-ID: N/A LIMS#:

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	SA8197490	7/16/19	☒ <2
Metals	☒ W-ICPMS ☒ W-ICP	☒ Ice ☒ HNO ₃	PA8344050	12/10/19	☒ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice	1057048		
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	☒ MIPW-QLDC	☒ Formalin			
Periphyton	☐ ALGAE-ID	☐ Ice			
Microbiology	☒ E Coli ☐ F Coli ☐ Enterococci	☒ Ice			
Molecular	☐ PCR-FILTER ☐ PCR-BacR ☐ PCR-GAL2 ☐ PCR-HF183 ☐ PCR-DG3 ☐ PCR-GFD	☐ Ice			
Tracers	☒ W-E8321-DI ☒ W-E8321-MS	☒ Ice			
Pesticides	☒ W-MPSNP-TQ	☒ Ice			
Phytoplankton	☐ DTY-QN-C ☐ PKD-QN-C	☐ Ice			

Notes: 6 H2SO4 Lot NO. SA8197490. 7/16/2019
Biology.
<2 m² veg. NO LVS conducted

Signature: [Signature]

Field/WIN ID →

G4NW0349

Location:

Pond Creek in McCloud Bay upstream of Hwy 393

Date: 05/09/2019

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 (Initials/Date) Migrate Data to WIN: (Initials/Date) Verify Data In WIN: (Initials/Date)

(Initials/Date)

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

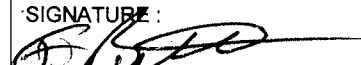
SAMPLE ID 79483 ORG ID 21FLPNS LATITUDE 30.81036
 COUNTY Okaloosa WIN ID/STORET # G4NW0349 LONGITUDE -86.40802
 DATE 05/09/2019 TIME 14:15 CTZ SAMPLING AGENCY FL DEP - NWROC
 SITE NAME Pond Creek in McCloud Bay upstream of Hwy 393 RQ-2019-05-06-14
 FIELD ID/NAME G4NW0349 RECEIVING BODY OF WATER Yellow River WBID 35A Project SMP- TMDL Studies

RIPARIAN ZONE / STREAM FEATURES

LIMS ID:

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) <u>7.3</u> 71.37
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>0 m</u> <u>mk</u> <u>18.0</u> m wide <u>0.3</u> m/s <u>.33</u> m/s <u>.25</u> m/s			
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>718</u> Right Bank: <u>718</u>		Hydrologic Modification Score (per FT 3101) <u>3-4</u> 1-2		High Water Mark: <u>3.0</u> + <u>0.9</u> = <u>3.9</u> (m) (above present water level) (present depth) (above bed)			
Artificially ☒ No ☐ Mostly recovered, more sinuous Channelized: ☐ Some recovery ☐ Recent, severe		Artificially Impounded ☐ Yes ☒ No		Canopy Cover % ☐ Open ☐ Lightly Shaded (11-45%) ☐ Heavily Shaded ☒ Moderate Shaded (46-80%)			

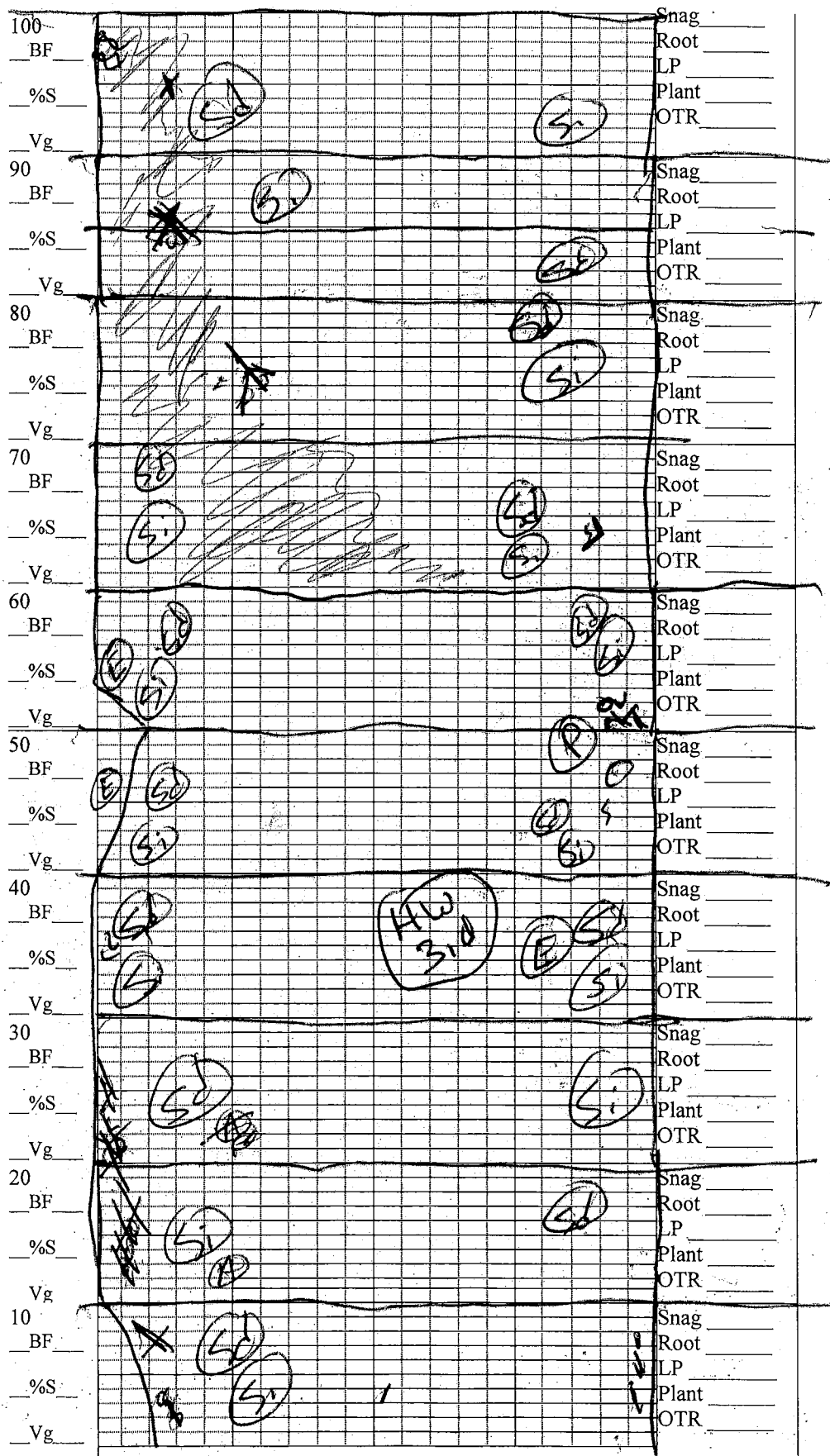
SEDIMENT / SUBSTRATE

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>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>0.15</u></td> <td><u>23.4</u></td> <td><u>5.86</u></td> <td><u>8.32</u></td> <td><u>47.8</u></td> <td><u>33.0</u></td> <td><u>0.01</u></td> <td><u>0.3</u></td> </tr> <tr> <td>Mid: <u>0.15</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>☒ VOB</td> </tr> <tr> <td>Bottom: <u>0</u></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: <u>0.15</u>	<u>23.4</u>	<u>5.86</u>	<u>8.32</u>	<u>47.8</u>	<u>33.0</u>	<u>0.01</u>	<u>0.3</u>	Mid: <u>0.15</u>							☒ VOB	Bottom: <u>0</u>							
Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)																														
Top: <u>0.15</u>	<u>23.4</u>	<u>5.86</u>	<u>8.32</u>	<u>47.8</u>	<u>33.0</u>	<u>0.01</u>	<u>0.3</u>																														
Mid: <u>0.15</u>							☒ VOB																														
Bottom: <u>0</u>																																					
Woody Debris (Snags) <u>1.4</u> <u>5</u> Undercut Banks / Roots <u>0.1</u> <u>5</u> Leaf Packs or Mat <u>0.19</u> <u>5</u> Aquatic Vegetation <u></u> <u></u> Rock or Shell Rubble <u></u> <u></u> Sand <u>98.3</u> <u>5</u> Mud / Muck / Silt <u></u> <u></u> Other <u></u> <u></u> Other <u></u> <u></u>		Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐ Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☐ Yes ☐ No Lot Number: Exp:		Water Surface Oils Normal ☒ Sheen ☐ Globbs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☒ Other (Specify) ☐																																	
Abundance: Not Obs. Rare Common Abundant Periphyton: ☐ ☒ ☐ ☐ Fish: ☐ ☐ ☒ ☒ Aquatic Plants: ☒ ☐ ☐ ☐ Iron/Sulfur Bacteria: ☒ ☐ ☐ ☐		Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot 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, Stopher Slade			SIGNATURE: 		DATE: <u>05/09/2019</u>																																

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (June 1, 2001)

Length of grid represents 100 m of stream (not linear meters).

(Horizontal scale is double vertical scale, draw proportionately).



Left
Bank

Downstream

WIN ID G4NW0349

Substrates: Code key, draw proportionate habitat abundance.



Snags $\frac{28.2}{2090} = 1.4\%$



Roots/undercut banks $\frac{2.8}{2090} = 0.1\%$



Leaf Packs (or mats) $\frac{3.9}{2090} = 0.19\%$



Macrophytes



P = Pool



Sd = Sand



Si = Silt



E = Erosion

Velocity:

Note where velocity measures were taken ϕ m

Habitat Smothering:

Note areas (on map) where sand or silt is something 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.

Average width 20.9 m

Average depth 0.3 m

WQ & chemistry taken @ ϕ m

Pond Creek @ McCloud Bay

Project. TMDL Studies

Sampled By/Date $6509/2019$

FB, SS

0 m Latt. 30.81035

0 m Long. 86.40855

100 m Latt 30.81024

100 m Long 86.40948

0-10 meter [A]	Habitat Area (M)	Left Bank	Right Bank
	Snag 2.0	Bankfull	Bankfull
0m width (m) 18.0	Root 0.3	—	—
10m width 20	Leaf 0.1	Slope	Slope
Max Depth 0.5	Veg.	—	+
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	(S) (E) (A)		

10-20 meter [B]	Habitat Area (M)	Left Bank	Right Bank
	Snag 5.0	Bankfull	Bankfull
20m width 21	Root 0.4	—	—
	Leaf 1.0	Slope	Slope
Max Depth 0.5	Veg	—	+
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	—
Rip. Buff R 718	(S) (E) (A)		

20-30 meter [C]	Habitat Area (M)	Left Bank	Right Bank
	Snag 8.0	Bankfull	Bankfull
30m width 22	Root 0.2	—	—
	Leaf 0.1	Slope	Slope
Max Depth 0.8	Veg	—	+
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	—
Rip. Buff R 718	(S) (E) (A)		

30-40 meter [D]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
40m width 20	Root 0.2	—	—
	Leaf	Slope	Slope
Max Depth 0.4	Veg	—	+
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	—
Rip. Buff R 718	(S) (E) (A)		

40-50 meter [E]	Habitat Area (M)	Left Bank	Right Bank
	Snag	Bankfull	Bankfull
50m width 18	Root 0.2	—	—
	Leaf 1.0	Slope	Slope
Max Depth 1.0	Veg	+	—
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	(P) (E) (S) (A)		

50-60 meter [F]	Habitat Area (M)	Left Bank	Right Bank
	Snag 1.0	Bankfull	Bankfull
60m width 22	Root	+	—
	Leaf 0.3	Slope	Slope
Max Depth 1.0	Veg 0.3	+	—
Avg. Depth 0.4	Gravel	Veg	Veg
Rip. Buff L 718	Rock	—	—
Rip. Buff R 718	(E) (S) (A)		

60-70 meter [G]	Habitat Area (M)	Left Bank	Right Bank
	Snag 0.3	Bankfull	Bankfull
70m width 22	Root 0.1	+	—
	Leaf 0.1	Slope	Slope
Max Depth 0.5	Veg	+	—
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	(S) (E) (A)		

70-80 meter [H]	Habitat Area (M)	Left Bank	Right Bank
	Snag 1.0	Bankfull	Bankfull
80m width 21	Root	—	—
	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	(S) (E) (A)		

80-90 meter [I]	Habitat Area (M)	Left Bank	Right Bank
	Snag 7.0	Bankfull	Bankfull
90m width 21	Root 0.4	—	—
	Leaf 0.4	Slope	Slope
Max Depth 0.5	Veg	—	+
Avg. Depth 0.3	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	(S) (E) (A)		

90-100 meter [J]	Habitat Area (M)	Left Bank	Right Bank
	Snag 0.5	Bankfull	Bankfull
100m width 22	Root 0.4	—	—
	Leaf	Slope	Slope
Max Depth 0.6	Veg	—	—
Avg. Depth 0.2	Gravel	Veg	Veg
Rip. Buff L 718	Rock	+	+
Rip. Buff R 718	(S) (E) (A)		

Station Name

Pond Creek Creek at McCloud Bay

Storet: G4NW0349

Date 05/09/2019

GPS Coordinates

0 meter

30.81035

86.40855

100 meter

30.81024

86.40948

Water Quality Measured at

Stream Velocity and location.

33 m/s 0 meter mark

Number of Pools & Location

1 E (50m)

Silt smothering @

A-J

Sand Smothering @

A-J

Algae Smothering @

B

Degraded Banks @

E, F

Total Habitat	Sq. Meters	Percent
Snags	28.8	1.4
Roots	2.2	0.1
Leaf	3.9	0.19
Veg	0.3	—
Rock		
Gravel		
Sand		
Other		
Other		
Sum 1° Habitat		169

Notes:

HW 45m = 3.0
SB10 ID 79483

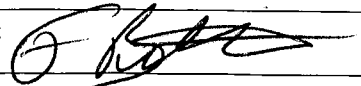
Avg. Depth = 0.3 Avg. W = 20.9m

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

SAMPLING AGENCY: 21FLPNS		STORET STATION NUMBER: G4NW0349	DATE (MM/DD/YY): 05/09/19	RECEIVING BODY OF WATER: Yellow River
REMARKS: WBID 35A	COUNTY: Okaloosa	LOCATION: Pond Creek McCloud Bay upstream Of Hwy 393		FIELD ID/NAME: G4NW0349

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>11</u>	20 19 18 17 16	15 14 13 12 <u>11</u>	10 9 8 7 6	5 4 3 2 1
Substrate Availability <u>1</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 3 2 <u>1</u>
Water Velocity <u>24</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>11</u> Primary Score <u>43</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 <u>11</u>	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>18</u>	20 19 <u>18</u> 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 <u>3</u> Left Bank <u>4</u>	10 9	8 7 6	5 <u>4</u>	<u>3</u> 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 <u>10</u> Left Bank <u>10</u>	<u>10</u> 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 <u>9</u> Left Bank <u>9</u> Secondary Score <u>63</u>	10 <u>9</u>	8 7 6	5 4	3 2 1

106 TOTAL SCORE $106/160 = 66\%$

Date: 05/09/19	Analyst: F Buterz	Signature: 
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SBIO ID: 79483

HA ID: 15797

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Pond Creek McCloud Bay upstream Hwy 393

County: Okaloosa

Date: 05/09/2019

Investigators: F. Butera

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	No	96	60	1	N	No	42
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9	N	No						
10	1	N	No	39	70	1	N	No	96
	2	N							
	3	N							
	4	N							
	5								
	6								
	7								
	8								
	9	N	No						
20	1	N	No	21	80	1	N	No	96
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9	N	No						
30	1	3	No	1	90	1	N	No	96
	2	5							
	3	5							
	4								
	5								
	6								
	7								
	8								
	9	N	No						
40	1	N	No	96	100	1	N	No	96
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9	N	No						
50	1	N	No	96		1	N	No	
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9	N	No						

STORET Station Number: G4NW0349

Secchi depth 0.3
Estimated? No

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

Check accompanying data collected at same site/date.

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

RQ-2019-05-06-14

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

SBIO Visit ID: 79483

RPS ID: 9328

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%.

Waterbody: Pond Creek McCloud Bay upstream HWY 393	Date: 5/9/19	County: Okaloosa	Storet Number: G4NW0349
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Signature: _____

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.

HERBACEOUS SPECIES	Meter Mark										Specime n collected (check)	HERBACEOUS SPECIES	Meter Mark										Specime n 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												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 kurziana											
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 americana											
Ludwigia palustris												Zizania aquatica											
Ludwigia peruviana																							
Ludwigia repens																							
Luziola fluitans																							

VPDB ID N/A

Revision Date: March 1, 2014