



U.S. DEPARTMENT OF ENVIRONMENTAL PROTECTION RING PROGRAM FIELD SHEET

PAGE 1 OF 1

Field ID:



G2NE1143 0752017

March 2017

Data Qualified?

Yes / No

Cow cr. Putnam county blvd

STORET:



G2NE1143

Date: 7.5.2017

(mm/dd/yyyy)

WBID: 2583Latitude: 29.67721

(Decimal Degrees)

County: Putnam RQ - 2017-07-03-53ORG ID: 21FLALongitude: 81.60530

(Decimal Degrees)

Receiving Body of Water: St Johns R

Field ID: See Label

Sampling Team Members				WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment			
<u>J. Parrish</u> <u>A. Kalmbacher</u>				☒	☒	☒	☒	☒	☒ Sample Container	☐ Van Dorn	☒ Pole	
									☐ Carboy	☐ Syringe		
									☐ Dipper	☐ Other		
								Equipment ID OrthoKit #				
								Collection Method				
								☐ Wading			☐ Via Boat	
								☒ From Shore			☐ Canoe/Kayak	
								☐ Other (note below)			☐ Electric Motor	
											☐ Gasoline Motor	
Water Level: Dry / Pooled / Low / Normal / <u>High</u> / Flooded				Matrix: <u>Fresh</u> Marine / DI								
Meter ID#				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 (umhos/cm)	Temp. (C°)		
<u>DST</u>	<u>1000</u>	<u>0.3</u>	<u>0.4</u>	<u>4.06</u>	<u>50.4</u>	<u>6.63</u>	<u>0.77</u>	<u>0.45</u>	<u>1530</u>	<u>26.4</u>		
<u>CEN</u>				<u>4.72</u>	<u>58.6</u>	<u>YSI Meter</u>						

Biological Samples Collected:	<u>None</u>	HA	SCI	RPS	Algae ID	LVS	LVI	Other
SBIO ID Numbers:	SBIO-ID:	RPS-ID:	Macrophyte-ID:	LIMS#:				

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 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-F / W-TSS / TURBIDITY	☐ Ice			
Macroinvertebrates	☐ MI-FW-QLDC	☐ Formalin			
Periphyton	☐ ALGAE-ID	☐ Ice			
Microbiology	☐ E Coli ☐ F Coli ☐ Enterococci ☐ qPCR	☐ 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-PCL-SQ-R ☐ W-UHERB-AA ☐ W-GLYPH ☐ W-SUC-AA-R	☐ Ice ☐ Other			

Contains
1:1
Sulfuric Acid
SA-7093018
EXP: 04/03/18
Warning!
See SDS

Place Sticker(s) Here
(table)

Notes:

Place Label Here
(If Available)

Signature:

A. Kalmbacher

Date:

7-5-2017

Field Parameters Entered into LIMS:

JP 7/2/17

(Initials/Date)

Field Parameters QC in LIMS:

(Initials/Date)

Date Migrated to STORET:

(Initials/Date)

Field Sheets Scanned/Saved:

(Initials/Date)

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

SAMPLE ID 77729 ORG ID 2IFLA LATITUDE 29.6772
 COUNTY Putnam STORET # 62NE1143 LONGITUDE 81.6053
 DATE 7/5/2017 TIME 1000 SAMPLING AGENCY _____
 SITE NAME Cow Creek @ Putnam Co Blvd
 FIELD ID/NAME G2NE1143 RECEIVING BODY OF WATER St. Johns R

RIPARIAN ZONE / STREAM FEATURES

Meter 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) ☐
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 _____ m wide _____ m/s <u>0.09</u> m/s _____ m/s _____ m deep <u>0.4</u> m deep _____ m deep
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>0.6m</u> Right Bank: <u>1.8m</u>				Hydrologic Modification Score (per FT 3101) ☐				
High Water Mark: <u>0.4</u> + <u>0.4</u> = <u>0.8</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

	% Coverage	# Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	<u><1</u>		
Undercut Banks / Roots	<u>2.5</u>		
Leaf Packs or Mat			
Aquatic Vegetation			
Rock or Shell Rubble..			
Sand.....			
Mud / Muck / Silt			
Other			
Other			

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top:								<u>VOB</u>
Mid:	<u>0.3</u>	<u>26.4</u>	<u>6.6</u>	<u>4.7</u>	<u>58.6</u>	<u>1530</u>	<u>0.77</u>	TOTAL DEPTH
Bottom:	<u>0.4</u>							<u>0.4</u>

System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☐

Water Odors Normal ☒ Petroleum ☐ Sewage ☐ Chemical ☐ Other ☐	Water Surface Oils Normal ☒ Sheen ☐ Globbs ☐ Slick ☐ Other ☐
Water Sample Taken? ☒ Yes ☐ No Sample Preserved? ☒ Yes ☐ No Lot Number: _____ Exp: _____	Color Tannic ☒ Green (Algae) ☐ Clear ☐ Other (Specify) ☐
Algae Sample Taken? ☐ Yes ☒ No Sample Preserved? ☐ Yes ☐ No Lot Number: _____ Exp: _____	Clarity Clear ☐ Slightly Turbid ☒ Turbid ☐ Opaque ☐

ABUNDANCE

Not Obs. Rare Common Abundant

Periphyton:	☒	☒	☐	☐
Fish:	☐	☐	☒	☐
Aquatic Plants:	☐	☒	☐	☐
Iron/Sulfur Bacteria:	☐	☐	☒	☐

AMBIENT FIELD CONDITIONS / NOTES:

Pinched flow

Hydrologic Disturbance Scoring ☐ 1-2 ☐ 3-4 ☐ 5-6 ☒ 7-8 ☐ 9-10
☐ The antecedent hydrologic conditions have been met to my best knowledge.

SAMPLING TEAM

J. Parrish / A. Kalmbacher

SIGNATURE:

7-5-2017

77729

APB 8716

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: <u>Cow Cr. @ Putnam Co. Blvd</u>					County: <u>Putnam</u>		Date: <u>7/5/17</u>		Investigator: <u>JP/AK</u>	
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	STORET Station Number: <u>G2NE 1143</u>
0	1	N	N	96	60	1	N	N	96	Secchi depth <u>0.4</u> <u>VOB</u> Estimated?
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
10	1	N	N	92	70	1	N	N	94	# points ranked 4-6 <u>0</u> total points assessed <u>99</u> % points ranked 4-6 <u>0%</u>
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
20	1	N	N	96	80	1	N	N	92	Check accompanying data collected at same site/date: Algal mat sample ☒ Linear Veg Survey ☒ Habitat Assessment ☒ SCI/Biorecon ☒ Water sample ☒ RQ- <u>2017-07-03-53</u>
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
30	1	N	N	94	90	1	N	N	94	
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
40	1	N	N	96	100	1	N	N	92	
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
50	1	N	N	96		1	N	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									
	4									
	5									
	6									
	7									
	8									
	9									

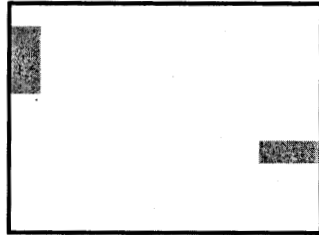
Waterbody: Cow Creek @ Ptarmigan Rd	Date: 7/5/17	County: Pima	Store Number: 62NE119
Analyst: [Signature]	Signature: [Signature]		
Comments:			

[illegible]

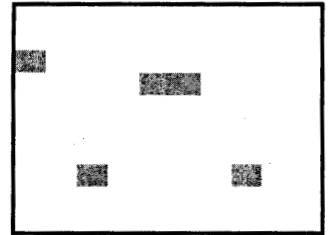
FDEP FORM FD 9000-32 LINEAR VEGETATION SURVEY FIELD SHEET

Percent Cover Categories for macrophytes in a 10 m segment of a stream 5 m wide

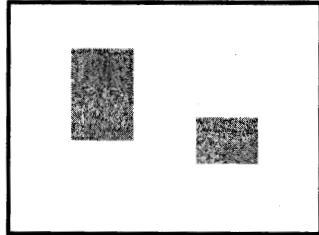
5% Macrophyte Coverage



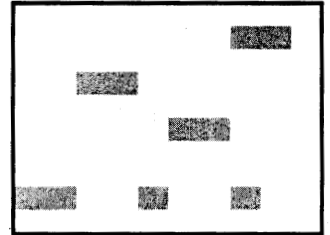
5% Macrophyte Coverage



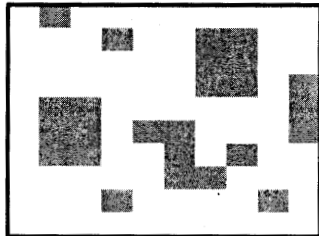
10% Macrophyte Coverage



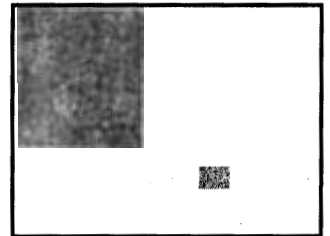
10% Macrophyte Coverage



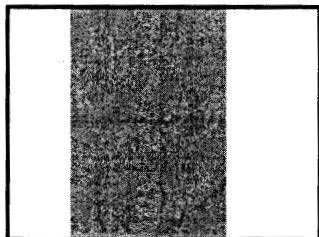
25% Macrophyte Coverage



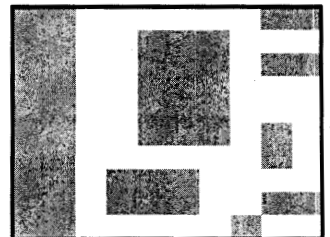
25% Macrophyte Coverage



50% Macrophyte Coverage



50% Macrophyte Coverage



77729

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

SAMPLING AGENCY: NE ROC		STORET STATION NUMBER: 62NE1143	DATE (MM/DD/YY): 7-5-2017	RECEIVING BODY OF WATER:
REMARKS:	COUNTY: Putnam	LOCATION: Cow Creek Co. Blvd	FIELD ID/NAME:	

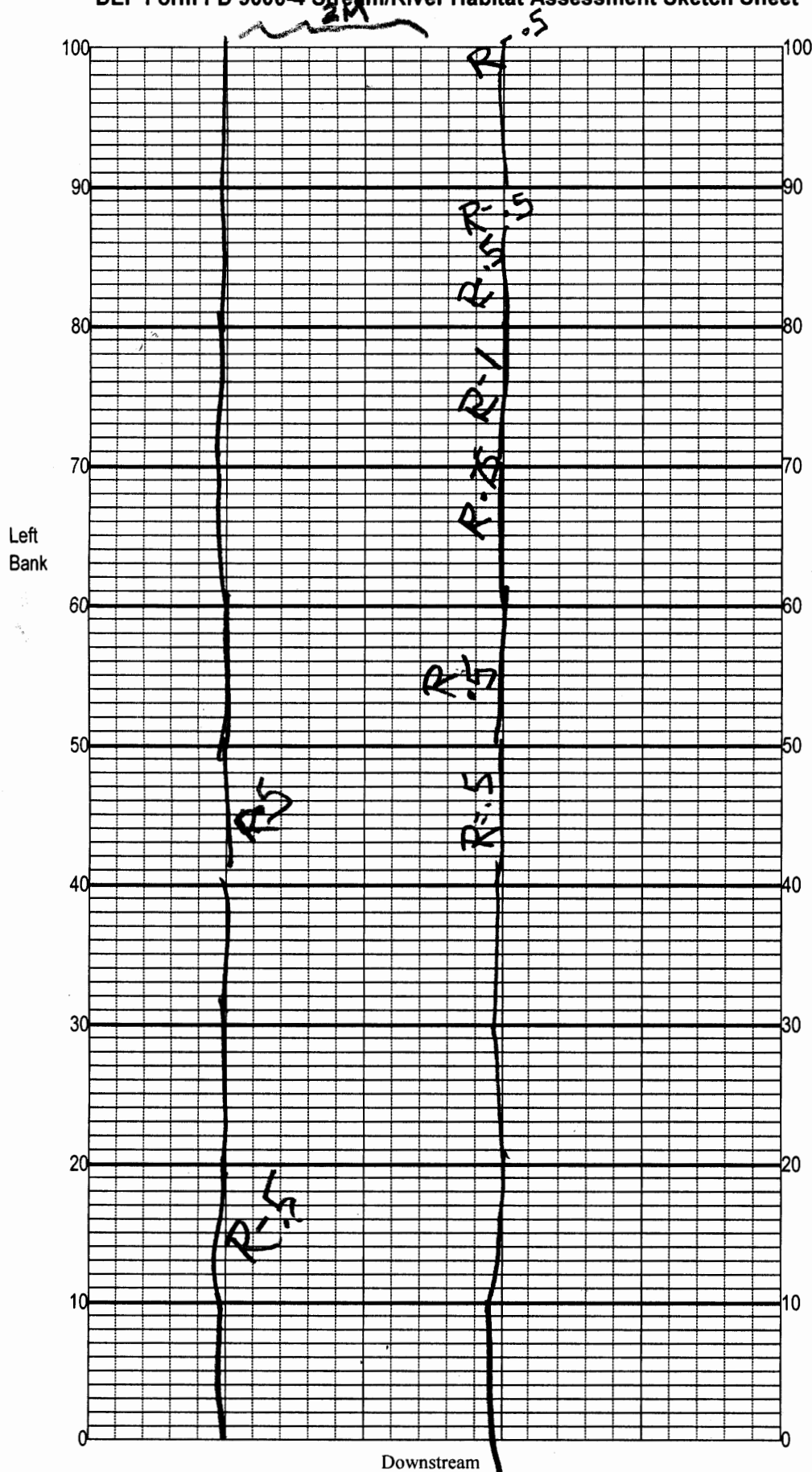
Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock]	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh 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 <u>4</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 <u>4</u> 3 2 1
Substrate Availability <u>3</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 <u>3</u> 2 1
Water Velocity <u>9</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 <u>9</u> 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>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. <u>5</u> 4 3 2 1
Secondary Habitat Components	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>5</u>	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	<u>5</u> 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. 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 <u>4</u>	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the root zone with raw, eroded areas. 3 2 1
Right Bank <u>4</u> Left Bank <u>4</u>				
Riparian Buffer Zone Width	Width of vegetation greater than 18 m <u>10</u> 9	Width of vegetation >12 to 18m 8 7 6	Width of vegetation 6 to 12 m. human activities close to system <u>5</u> 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Right Bank <u>10</u> Left Bank <u>5</u>				
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. 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 <u>7</u> 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
Right Bank <u>7</u> Left Bank <u>5</u>				
..... Secondary Score <u>40</u>				

61

TOTAL SCORE

Date: 7-5-2017	Analyst: J. Parrish/A. Kalmbacher	Signature:
----------------	-----------------------------------	------------

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: Cow Creek
Date: 7-5-2017
Sampler: J. Parrish/A. Kalmback

100 m: Latitude _____	
Longitude _____	
0 m: Latitude _____	
Longitude _____	
Substrates: Code key, draw proportionate habitat abundance. %	
☐	Snags _____
☒ R	Roots/undercut banks <u>2.5</u>
☐	Leaf Packs (or mats) _____
☐	Aquatic Macrophytes _____
☐	_____
☐	_____
☐	Pools total # observed = _____ # range expected = _____
Average width <u>2</u> m	
Average depth <u>0.4</u> m	
Velocity measured at <u>0.1</u> meter mark.	
WQ & chemistry taken at <u>100</u> 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:

<2 M of Macrophytes was observed while doing the LVS YES or NO

Air Potato
Coral Ardisia
Japanese Climbing Fern

CALIBRATION AND VERIFICATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)

Boldly "X" this box if there is qualified data on this page.

Meter

Quanta +YSI

for DO

4 RQ-

2017-07-03-53

Project

Cow Creek

- Notes: (1) Numbers ≤ 4 , are rounded down; numbers ≥ 5 are rounded up (e.g., 5.15 becomes 5.2).
 (2) Always wait for meter to stabilize before recording any readings.
 (3) For Calibrations, record calibrated meter reading. Do not record initial meter reading before calibration.

Circle/Fill In: Lab Calibration or Calibration/Verification on Site

Temperature (Quarterly) FT 1400

Date of Last Temperature Verification

5/31/2017

DO DEP SOP FT 1500	Name	Date	Time CT-ET	Temp	D.O. Chart mg/L	Meter D.O. mg/L	% DO	Probe Charge	Probe Gain	Pass / Fail	Lab / Field
Calibr.	A. Kalmbacher	7-5-17	0745	24.0	8.44	8.42	100.1				QUANTA
ICV			0810	24.5	8.34						DID NOT CAL
CCV	A. Kalmbacher	7-5-17	0820	23.4	8.51	8.51	100	54.2	10.8508		
CCV			0825	23.5	8.49	8.50	100.1	54.2	10.8508	P	L

Report DO mg/L with one decimal figure and DO % saturation as a whole number with no decimals.

DO Acceptance criteria from Table ± 0.3 mg/L.

Rapid-Pulse Sensors: DO Gain Range 0.7 to 1.4; DO Charge Range 25-75.

Optical: DO gain range 0.85 to 1.15; DO charge N/A.

Steady-state & Galvanic Sensors: DO Gain & Charge N/A.

CCV A. Kalmbacher 7-5-17 1140 23.6 8.48 8.36 98.6 51.2 0.85508 P L

Spec. Cond. FT 1200	Name	Date	Time CT-ET	Lot #	Expir. Date	Standard μ mhos/cm	Meter Reading μ mhos/cm	Pass / Fail	Lab / Field
Calibr.	A. Kalmbacher	7-5-17	0750	170315R	3-2018	1000	995		
ICV			0755	170315A	3-2018	100	101	P	L
CCV			1150	129817	2-2017	12,900	13,300	P	L
CCV									

Report specific conductance as a whole number with no decimal figure.

Conductivity Acceptance criteria $\pm 5\%$

pH DEP SOP FT 1100	Name	Date	Time CT-ET	Lot #	Expir. Date	pH Buffer SU	Meter reading SU	mV	Pass / Fail	Lab / Field
Calibr.	A. Kalmbacher	7-5-17	0805	270247	2-2019	7.0	7.01			
Calibr.			0808	2702743	1-2019	4.0	3.80			
Calibr.						10.0				
ICV			0810	270247	2-2019	7.00	6.98		P	L
CCV			1154	270247	2-2019	7.00	7.06		P	L
CCV										

Report pH with one decimal place; pH Acceptance criteria ± 0.2 SU; mV pH7 Range 0 $\pm$ 50;

mV pH 4 Range +180 $\pm$ 50;

mV pH 10 Range -180 $\pm$ 50; Slope from 7 to 10 and 4 to 7 must be between 165 and 180 mV

Depth (Quarterly)

Date of Last Depth Verification

N/A-on Quanta

Depth Sensor (Daily)	Name	Date	Time CT-ET	Zero the Sensor	ICV Value	Pass/ Fail	Lab/ Field
Pressure mode in air	A. Kalmbacher	7-5-2017	0830	0.000	0.00		

ICV acceptance criteria $\pm 5\%$ or ± 0.05 m, whichever is greater

NF 7/10/17