

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

SAMPLE ID 78326-FA ORG ID 21FLDNS LATITUDE 30.41426
 COUNTY Okechosa STORET # G3NW0001 LONGITUDE 86.60085
 DATE 4/5/18 TIME 1200 SAMPLING AGENCY FDOP NWROC
 SITE NAME Direct Runoff
 FIELD ID/NAME Direct G3NW0001 RECEIVING BODY OF WATER Lake Earl / Choct Bay

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) ☐
Landscape Development Intensity Index (LDI) ☐

Local Watershed Erosion (select one): ☐ None ☐ Slight ☒ Moderate ☐ Heavy
 Local Watershed NPS Pollution: ☐ No evidence ☐ Slight ☒ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side
 Left Bank: 0 Right Bank: 2-10

Hydrologic Modification Score (per FT 3164) 9-10 3-4-5-6

High Water Mark: 0.5 + 0.6 = 1.1
 (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%)

Typical Width (m) Depth (m)/Velocity (m/sec) Transect
0.05 m/s 0.05 m/s 6.05 m/s
0.7 m deep 0.6 m deep 0.5 m deep

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
☐ BioRecon
☐ < 2 m² SAV
 Woody Debris (Snags)... 0.75
 Undercut Banks / Roots 0.85
 Leaf Packs or Mat 0.5
 Aquatic Vegetation 7.5
 Rock or Shell Rubble...
 Sand... 90.4
 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: 0.3 21.35 6.57 4.52 51.0 108 0.05
 Mid:
 Bottom:
 Meter ID: 113529 Meter verify? ☐ Yes ☐ No 0.5
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:
Algae Sample Taken? ☐ Yes ☒ No
Sample Preserved? ☐ Yes ☐ No
 Lot Number: Exp:
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 CONDITION
S310 70 78328 **Field/WIN ID** G3NW0001
☒ The antecedent hydrologic
 Location: Direct Runoff to Choctawhatchee Bay below Oregon Drive.

SAMPLING TEAM MICHAEL King / Nathan Mulkey **SIGNATURE:** [Signature] **DATE:** 4/5/18

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Direct runoff County: OKLAHOMA Date: 4/4/18 Investigators: Nathan Mulkey

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			60	1	N		
	2					2			
	3					3			
	4					4			
	5	4		6		5			72
	6	4				6			
	7					7			
	8					8			
	9	X				9	X		
10	1	N			70	1	N		
	2					2			
	3					3			
	4			8		4			
	5					5			66
	6					6			
	7					7			
	8					8			
	9	X				9	X		
20	1	N			80	1	N		
	2					2			
	3					3			
	4			6		4			
	5					5			68
	6					6			
	7					7			
	8					8			
	9	X				9	X		
30	1	N			90	1	N		
	2					2			
	3					3			
	4			20		4			
	5					5			70
	6					6			
	7					7			
	8					8			
	9	X				9	X		
40	1	N			100	1	N		
	2					2			
	3					3			
	4			66		4			
	5					5			70
	6					6			
	7					7			
	8					8			
	9	X				9	X		
50	1	N				1	N		
	2					2			
	3					3			
	4			80		4			
	5					5			
	6					6			
	7					7			
	8					8			
	9	X				9	X		

STORET Station Number:
G3NW0001

Secchi depth 0.5
 Estimated? N

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

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

SBW ID 78328
78328

RPS ID 8967
8967

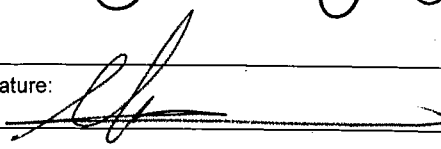
Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached.
 Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. 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 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: <u>FDRPNW RUC</u>		STORET STATION NUMBER: <u>G3NW0001</u>	DATE (MM/DD/YY): <u>4/4/18</u>	RECEIVING BODY OF WATER: <u>LAKE EARL</u>
REMARKS: <u>SBI02D 78328 FD</u>	COUNTY: <u>OKALOOSA</u>	LOCATION: <u>DIRECT RUNOFF</u>		FIELD ID/NAME: <u>G3NW0001</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>8</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 <u>8</u> 7 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>5</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 <u>5</u> 4 3 2 1
Habitat Smothering <u>7</u> ----- Primary Score <u>36</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 <u>8</u> 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>8</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>9</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 <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. <u>5</u> 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>4</u> Left Bank <u>1</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 <u>4</u>	Less than 6 m of buffer zone due to intensive human activities 3 2 <u>1</u>
Riparian Zone Vegetation Quality Right Bank <u>3</u> Left Bank <u>1</u> ----- Secondary Score <u>FD 33</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 <u>4</u>	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). <u>3</u> 2 <u>1</u>

FD 69 TOTAL SCORE HA ID 15101

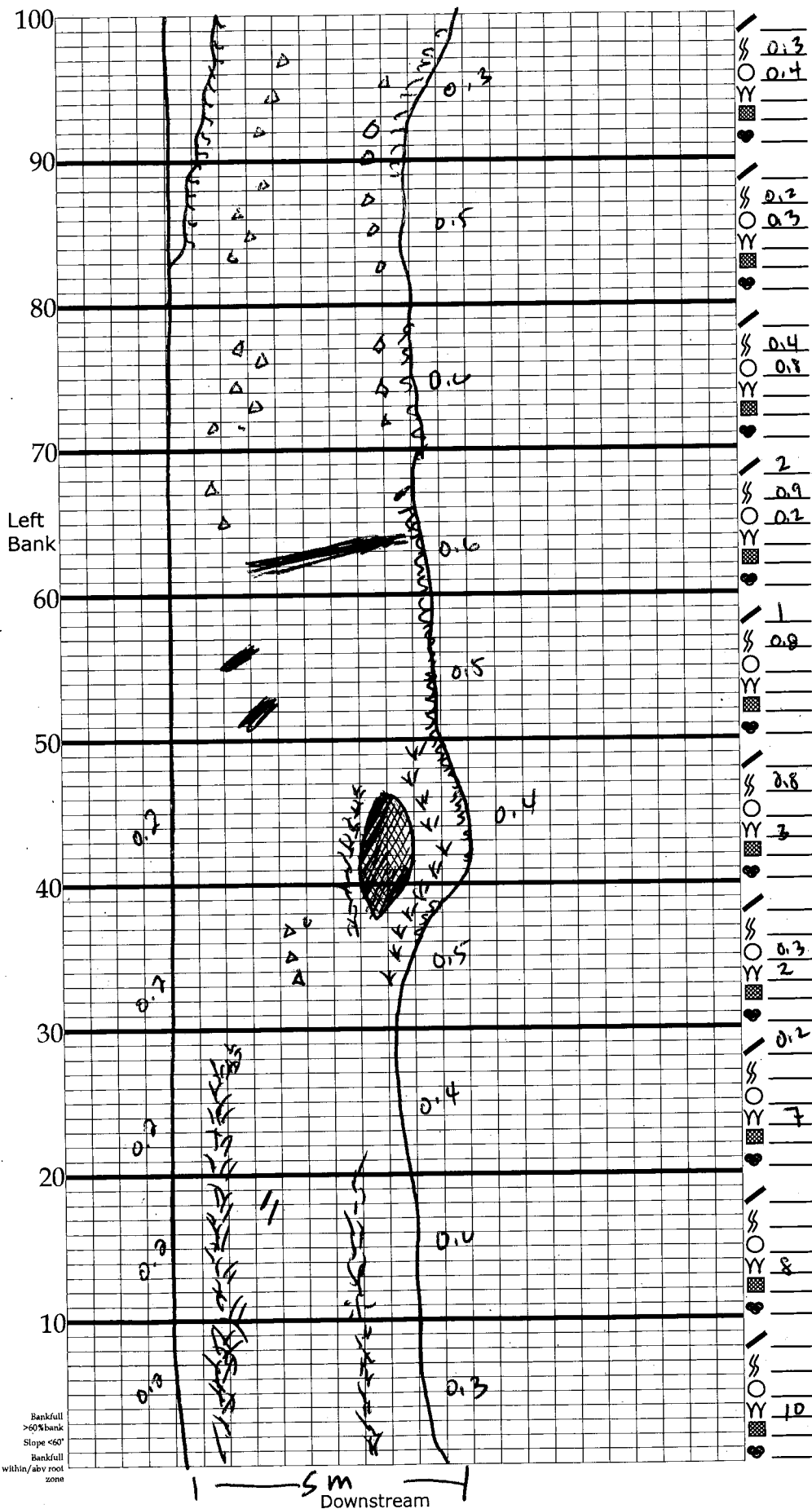
Date: <u>4/4/18</u>	Analyst: <u>MICHAEL KING / Nathan Muirney</u>	Signature: 
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DEP-SOP-001 Form FD 9000-4
Stream/River Habitat Sketch Sheet

Location: DIRECT RUNOFF

Date: 4/4/18

Sampler: MIKE KING / NATHAN MIKE



100m: Latitude	<u>30.41689</u>
Longitude	<u>86.601795</u>
0m: Latitude	<u>30.41726</u>
Longitude	<u>86.60085</u>
Substrates: Total <u>10</u> %	
Snags	<u>3</u> <u>0.75</u>
Roots/undercut banks	<u>3.4</u> <u>0.85</u>
Leaf Packs (or mats)	<u>2.0</u> <u>0.5</u>
Aquatic Macrophytes	<u>30</u> <u>7.5</u>
Rock	___
Gravel	___
Other	___
Pools observed/expected	<u>0</u> , <u>2</u>
Average width: <u>4</u> m	
Average depth: <u>0.5</u> m	
Velocity measured at: <u>30</u> meter mark	
WQ & chemistry taken at: <u> </u> meter mark	
Habitat smothering: <u> </u>	
Bank stability: <u> </u>	
Altered Riparian Buffer Width: <u> </u>	
Plants observed & notes: <u> </u>	

Waterbody: DIRECT RUNOFF Date: 4/9/18 County: OKALOOSA Storet Number: A3NW0001
 Analyst: MIKE KING Signature: [Signature]

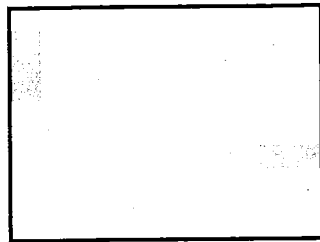
Comments:

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

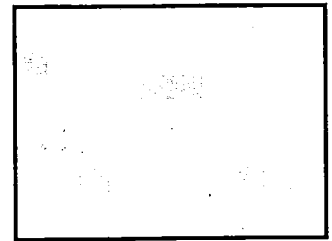
HERBACEOUS SPECIES	Meter Mark										Specime n collected (check)	UPDB ID 78328	Meter Mark										Specime n collected (check)
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100			0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
Alternanthera philoxeroides													Micranthemum glomeratum										
Bacopa caroliniana													Micranthemum umbrosum										
Bacopa monneri													Myriophyllum aquaticum										
Bidens mitis													Najas guadelupensis										
Boehmeria cylindrica													Nuphar										
Centella asiatica													Orontium aquaticum										
Cephalanthus occidentalis													Panicum hemitomon										
Ceratophyllum demersum													Panicum repens										
Chara													Panicum rigidulum										
Cicuta maculata													Pistia stratioides										
Cladium jamaicense													Polygonum glabra										
Colocasia esculenta													Polygonum hydropiperoides										
Crinum americanum													Polygonum punctatum										
Diodia virginiana													Pontedaria cordata										
Eichhornia crassipes													Potamogeton illinoensis										
Eleocharis (wispy viviparous)													Sacciolepis striata										
Fontinalis													Sagittaria kurziana										
Hydrilla verticillata													Sagittaria lancifolia										
Hydrocotyle													Sagittaria latifolia										
Hygrophila polysperma													Salix caroliniana										
Hymenocallis													Salvinia minima										
Itea virginica													Samolus parviflora										
Lachnanthes caroliniana													Saururus cernuus										
Landoltia punctata													Scirpus										
Lemna													Sparganium americanum										
Limnophila sessiflora													Typha										
Lobelia cardinalis													Vallisneria americana										
Ludwigia leptocarpa													Zizania aquatica										
Ludwigia palustris													Zizaniopsis milacea										
Ludwigia peruviana													Xyris										
Ludwigia repens sp. (FS)													peruviana										
Luziola fluitans													panicum sp										
Cyperus surinamensis													Eragrostis sp										
Sagittaria sp? (C/LC)													Flat sedge										
If no Dominant or Co-Dominant were selected, indicate with an "X"													Purple Flower										
Indicate % cover macrophytes per section													possible Sagittaria or Rhexia										
0-5% Macrophyte Coverage																							
>5 and ≤10% Macrophyte Coverage																							
>10 and ≤25% Macrophyte Coverage																							
>25 and ≤50% Macrophyte Coverage																							
> 50% Macrophyte Coverage																							

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

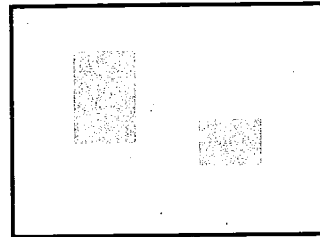
5% Macrophyte Coverage



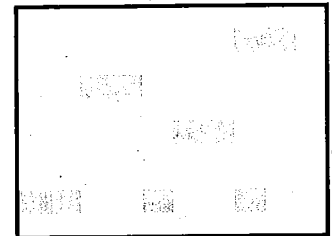
5% Macrophyte Coverage



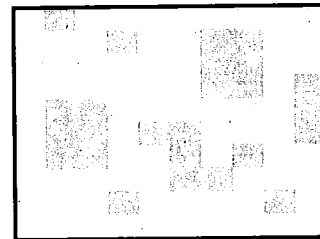
10% Macrophyte Coverage



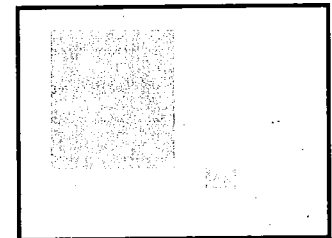
10% Macrophyte Coverage



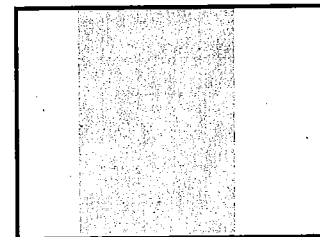
25% Macrophyte Coverage



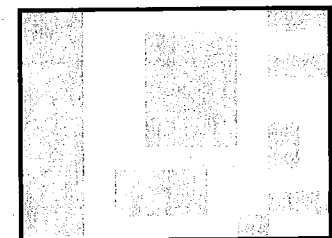
25% Macrophyte Coverage



50% Macrophyte Coverage



50% Macrophyte Coverage



Station: Direct Runoff
 GPS: 30.41426 X -86.60085
 Storet: G3NW0001 Field ID G3NW0001
 SBIO Sample ID : 78328
 Macro ID: 10891

Sampled : 04/04/2018
 Sampled By: M. King, N.Mulkey
 Location: Okaloosa County
 Receiving Waters: Lake Earl/ Choctawhatchee Bay

	Taxa	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	C of C	Coll.	Verified
1	<i>Cyperus</i> sp.	1	1	1										
2	<i>Panicum</i> sp.	1	1	1								4.96		
3	<i>Xyris</i> sp.	1	1	1										
4	<i>Alternanthera philoxeroides</i>	D	D	D	D	1						0.00		
5	<i>Centella asiatica</i>	1	1	1								1.92		
6	<i>Ludwigia</i> sp.	1	1	1	1	D								
	Total	6	6	6	2	2	0	0	0	0	0			
	Taxa per section	6	6	6	2	2	0	0	0	0	0	Herb. Taxa	6	
	Exotic Present	1	1	1	1	1	0	0	0	0	0	Woody Taxa	0	
	Avg. taxa per section	2										Ferns	0	
	sections with exotics	5										Macro Algae	0	
	Exotic Taxa	1	Exotics per Section: 0.5									Total Taxa	6	