data entry 8/19/19 SN
Scanned 8/19/19 SN

DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: 80095 | MACROPHYTE ID: 11451 | LATITUDE: 30.02396
COUNTY: Wakulla | STORET #: 22020090 | LONGITUDE: -84.42161
DATE: 8.14.19 | TIME: 12:30 | SAMPLING AGENCY: FDEP/AEQA
SITE NAME: Otter Lake | WBID: 1165A
FIELD ID/NAME: Otter Ref | LAKE SIZE: 138 acres | RQ: 2019-08-12-30

WATERSHED / LAKESIDE FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category – from GIS):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)
100%							

LANDSCAPE DEVELOPMENT INTENSITY (100 m buffer) — LDI: 1.17

Land Use Source & Year: 2016

Local Watershed Erosion (select one): ☐ None ☑ Slight ☐ Moderate ☐ Heavy

Local Watershed NPS Pollution: ☐ No evidence ☑ Slight ☐ Moderate ☐ Heavy

Artificially Impounded: ☐ Yes ☑ No

STORMWATER INPUTS: 19	Stormwater enters system via sheet flow over non-cultivated and/or natural vegetation	Some direct stormwater inputs (ditches, pipes, cultivated vegetation < 10%) but good BMPs in place	Moderate direct inputs of stormwater (ditches, pipes, cultivated vegetation 11%-50%) but few BMPs in place	Much direct input of stormwater (ditches, pipes, cultivated vegetation > 51%) and no or ineffective BMPs in place
	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
LAKESIDE ALTERATIONS: 19	Very few man-made structures, roads, or other disturbance adjacent to lake (<10% lakeside affected)	Moderate disturbance visible - structures, roads or other (10%-49% lakeside affected)	Many structures, roads or other human disturbance visible (50%-70% lakeside affected)	Highly developed or disturbed (>70% of lakeside affected)
	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
BUFFER ZONE: 19	Expected native vegetation between uplands and littoral zone, greater than 90% of shore with >18 m buffer	89%-51% of shoreline with >18m buffer or >75% with 10m to 18m buffer	50%-30% of shoreline with >18m buffer or 50%-74% with 10m to 18m buffer	< 29% of shoreline with >18m buffer
	20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1

WATER / SUBSTRATE / BIOLOGICAL: SAMPLES AND OBSERVATIONS

Water:
Nutrient Sample Taken? ☑ Yes ☐ No — Preserved? ☑ Yes ☑ pH<2 ☐ No
Color Sample Taken? ☑ Yes ☐ No — Lot # HNO_3 101246 — Exp. Date: 8.20.20
Alkalinity Sample Taken? ☑ Yes ☐ No — H_2SO_4: 101232 — 10.13.19
Water Level ☐ Low ☑ Normal ☐ High

Water Odors: ☑ Normal ☐ Sewage ☐ Petroleum ☐ Other

Water Surface Oils: ☑ None ☐ Sheen/Slick ☐ Glob ☐ Other

Meter Readings:

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat. (%)	Cond. (UMHO/CM)	Salinity (PPT)
Top:	0.2	32.8	5.24	5.20	71.1	311.6	—
Mid-Depth:	2	30.7	4.80	3.28	43.1	272.5	—
Bottom:	3.5	28.9	6.07	.14	1.7	509	—

Meter ID: 154185

Clarity: ☑ Clear ☐ Opaque ☐ Turbid ☐ Slightly Turbid

Color: ☐ Clear ☑ Tannic ☐ Green

SECCHI (M): 0.7 — VOB ☐

Total Station Depth (M): 4.1

Sediment Type: (may check more than one) — Sample Taken? ☐ Yes ☑ No
☐ Sandy ☑ Organic fibrous (peaty, CPOM) ☐ Vegetated
☐ Sand/Silt ☐ Organic smooth (muck) ☐ Other (Specify):

Sediment Odors: ☑ Normal ☐ Other (Specify): ☐ Anaerobic

Biological Communities:
LVI Conducted? ☑ Yes ☐ No
Phytoplankton Sample Taken? ☑ Yes ☐ No
Sample Preserved? ☐ Yes ☑ No
Lot #: _____ Exp Date: _____
Algal Bloom/Algal ID Sample Taken? Yes (No)
Active Vegetation Mgmt? ☐ Yes ☑ No ☐ Don't Know

Abundance:

	Absent	Rare	Common	Abundant
Periphyton	☐	☑	☐	☐
Nuisance Plants	☐	☐	☑	☐
Submersed Plants	☐	☑	☐	☐
Exotic Apple Snails	☑	☐	☐	☐

Additional Notes:
Field Blank collected.
I qualify pH-meter did not verify.

Weather Conditions: HOT, HUMID, SUNNY

SAMPLING TEAM: A. O'Neal, S. Noble, K. Sapp | **SIGNATURE:** Sarah Noble | **DATE:** 8.14.19

DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: Otter Lake	County: Wakulla	Date: 8·14·19
Analyst: S Noble, A O'Neal	Signature: [signature]	STORET: 22020090

Except where noted as "sp." species level identification required. *Genera that may require lab verification* Plants in bold= FLEPPC invasive exotic.

It is important to note dominant or co-dominant taxa (by areal extent) for each unit. Use "D" to denote dominant taxon, or "C" for the 2 co-dominant taxa.

Lake units sampled (circle one group):
1, 4, 7, 10 (2, 5, 8, 11)
3, 6, 9, 12

SPECIES	2	5	8	11	Collected? (√)	SPECIES	2	5	8	11	Collected? (√)
Acer rubrum						Habenaria repens					
Alternanthera philoxeroides	1	1	1	1		**Hydrilla verticillata**					
Andropogon sp.						Hydrocotyle sp.	1	1	1	1	
Azolla filiculoides (A. caroliniana)						**Hygrophila polysperma**					
Baccharis sp.						*Hypericum fasciculatum					
Bacopa caroliniana						*Hypericum hypericoides					
Bacopa monnieri						*Hypericum myrtifolium					
Bidens laevis						Ilex cassine					
Bidens mitis						**Ipomoea aquatica**					
Blechnum serrulatum						Ipomoea sagittata					
Boehmeria cylindrica						Itea virginica					
Brasenia schreberi						Juncus effusus					
Cabomba caroliniana						*Juncus marginatus					
Casuarina equisitifolia						*Juncus megacephalus					
Centella asiatica						Juncus repens					
Cephalanthus occidentalis	1	1	1	1		*Juncus scirpoides					
Ceratophyllum demersum						Lachnanthes caroliniana					
Chara sp.						Leersia hexandra					
Cladium jamaicense	1		1	1		**Landoltia punctata (Spirodela punctata)**					
Cliftonia monophylla						Lemna sp.	1	1		1	
Colocasia esculenta						Leucothoe racemosa (Eubotrys racemosa)	1				
*Commelina						Limnobium spongia					
Crinum americanum						**Limnophila sessiliflora**					
***Cyperus alternifolius** (C. involucratus)						Liquidamber styraciflua					
Cyperus articulatus						*Ludwigia arcuata					
Cyperus haspan						*Ludwigia leptocarpa					
*Cyperus lecontei						*Ludwigia linearis					
*Cyperus polystachyos						*Ludwigia octovalvis					
*Cyperus odoratus						***Ludwigia peruviana**					
*Cyperus surinamensis						*Ludwigia repens					
Cyrilla racemiflora	1	1	1	1		*Ludwigia native	1	1	1		KS
Decodon verticillatus			1			Luziola fluitans (Hydrochloa carolinensis)					
Diodia virginiana						Lyonia lucida					
*Echinochloa crus-galli						Magnolia virginiana	1				
*Echinochloa muricatum					SN	Mayaca fluviatilis					
Echinochloa walteri	1				✓	**Melaleuca quinquenervia**					
Eclipta prostrata (E. alba)						Micranthemum glomeratum					
Egeria densa						Micranthemum umbrosum					
Eichhornia crassipes						Mikania scandens					
*Eleocharis baldwinii						**Mimosa pigra**					
*Eleocharis sub dip	1	1	1	1		Myrica cerifera		1			
Eleocharis cellulosa											
Eleocharis equisetoides						Carex verrucosa	1				✓ SN/AO
Eleocharis interstincta											
*Eriocaulon compressum											
*Eriocaulon decangulare											
Eupatorium capillifolium											
*Fuirena											
Fuirena scirpoidea											
Gordonia lasianthus											

FORM FD 9000-27: LAKE VEGETATION INDEX FIELD SHEET

Site: Otter Lake | Date: 8.14.19

SPECIES	2	5	8	11	Collected? (√)
Myriophyllum aquaticum					
*Myriophyllum heterophyllum					
*Myriophyllum laxum					
*Myriophyllum pinnatum					
Myriophyllum spicatum					
*Najas filifolia					
*Najas guadalupensis					
*Najas minor					
Nelumbo lutea					
Nitella spp.					
Nuphar sp.	1	1	1	1	
Nymphaea odorata					
Nymphoides aquatica					
Nyssa sylvatica var. biflora				1	
Orontium aquaticum					
Osmunda cinnamomea					
Osmunda regalis	1			1	
~~Panicum hemitomon~~ Sacciolepis striata	1		1	1	AO
Panicum repens					
Paspalidium geminatum					
*Paspalum repens					
Paspalum urvillei					
Peltandra sp.					
Persea sp.					
Pennisetum purpureum					
Phragmites australis					
Pinus elliottii					
Pistia stratioides					
Pluchea sp.					
*Polygonum glabrum (densiflorum)					
*Polygonum hydropiperoides					
*Polygonum punctatum					SN
*Polygonum punctatum	1	1	1	1	✓
Pontederia cordata	1	1	1	1	
*Potamogeton diversifolius			X		
*Potamogeton illinoensis					
*Potamogeton pusillus					
*Potamogeton pectinatus (Stuckenia pectinatus)					
Proserpinaca pectinata					
*Rhexia					
*Rhynchospora corniculata					
*Rhynchospora inundata					
Rhynochospora tracyi					
Ricciocarpus natans					
Sabal palmetto					
Sacciolepis striata					
*Sagittaria filiformis					
*Sagittaria graminea					
*Sagittaria isoetiformis					
Sagittaria lancifolia	1	1	1	1	
Sagittaria latifolia					

SPECIES	2	5	8	11	Collected? (√)
Salix caroliniana		1			
Salvinia minima	1	1	1	1	
Sambucus canadensis					
Sapium sebiferum					
Saururus cernuus					
Schinus terebinthifolius					
*Schoenoplectus californicus					
*Schoenoplectus pungens					
*Schoenoplectus tabernaemontani (Scirpus validus)					
Scirpus cubensis (Oxycaryon cubense)					
Scirpus cyperinus	1				
*Sesbania					
Solidago sp.					
Sparganium americanum					
Spartina bakeri	1	1	1	1	
Spirodela polyrhiza					
Taxodium sp.	D	D	D	D	
Thalia geniculata					
Thelypteris palustris					
Triadenum virginicum					
Typha sp.	1	1	1	1	
Urochloa mutica (Brachiaria mutica)					
*Utricularia gibba (U. biflora)					
*Utricularia floridana					
*Utricularia foliosa					
*Utricularia inflata					
*Utricularia purpurea					
*Utricularia cornuta					
*Utricularia radiata					
Vallisneria americana					
*Websteria confervoides					
Wedelia trilobata (Sphagneticola trilobata)					
Wolffiella spp.					
Woodwardia virginica					
Xyris sp.					
Zizania aquatica					
Zizaniopsis milacea					

BLAB Water Field Form 031306.doc

SITE NAME: Otter Lake **DATE:** 8-14-19 **TIME** 12:30 (military) EST CST **DEPTH^:** 0.2 ft (m) **FIELD ID:** Otter Ref

SAMPLING TEAM MEMBERS	WQ MEASUREMENTS	DOCUMENTATION	SAMPLE COLLECTION	PRESERVATION	PRESERVATION CHECK
Ashley O'neal	X			XX	
Sarah ~~KS~~ Noble			X		
Kristen Sapp		X			

SAMPLING EQUIPMENT

- [x] Sample Container
- [ ] Pole
- [ ] Pump ID#: _____
- [ ] Tubing type: _____
- [ ] Other _____
- [ ] Other _____

WATER QUALITY MEASUREMENTS

Instrument ID: 154185

COLLECTION MODE

- [ ] Wading
- [ ] Diving
- [ ] From Shore
- [ ] Other _____

Via Boat
- [ ] Canoe
- [ ] Electric Motor
- [x] Gasoline Motor

Parameter Suite	Parameter(s)/Method	Matrix Code*	Preservation**	Preservative Lot #	pH Check	# Bottles ***
Preserved Nutrients	[x] TKN [x] TP [x] NOx [x] NH3 [ ] TOC [ ] Total N [ ] Other:	W	[ ] Ice [ ] H_2SO_4	101232	[ ] <2	1
Filtered Nutrients	[x] oP [ ] Other:	S W	[x] Ice [x] .45 um Filter			1
Unpreserved Nutrients	[ ] NO_2 [ ] NO_3 [ ] SO4 [ ] Other:	W	[ ] Ice			
Physical/Aggregate Properties	[ ] TDS [ ] TSS [ ] TS [ ] Turbidity [x] Alk [x] Color [ ] Other: Cl, F, SO4	S W	[x] Ice			1
Chlorophyll	[x] CHL-PPTN-W	S W	[x] Ice			1
BOD	[ ] BOD-INHB [ ] BOD-UNIN	W	[ ] Ice			
Microbiology	MF: [ ] E coli [ ] T Coli [ ] F Coli [ ] Entero [ ] F Strep	W	[ ] Ice			
Macroinvertebrates	[ ] MI-FW-QLDC [ ] MI-FW-QLBR [ ] MI-FW-QNNC [ ] MI-MN-QNNC	W	[ ] Formalin			
Phytoplankton	[x] PKD-QN-C [x] DTY-QN-C	S W	[ ] Lugol's NO			1
Periphyton	[ ] PRN-QL-C [ ] DTM-QL-C [ ] PRN-QN-C [ ] DTM-QN-C	W	[ ] Formalin			
AGP	[ ] AA-AGP [ ] AA-LIM-NUT	W	[ ] Ice			
Metals	[x] W-ICP [ ] W-FIAS [x] W-ICPMS [ ] W-ICP-Tr	S W	[x] HNO_3	101246	[x] <2	1
Filtered Metals	[ ] W-ICP-F [ ] W-FIAS-F [ ] W-ICPMS-F [ ] W-ICP-Tr-F	W	[ ] HNO_3 [ ] .45 um Filter		[ ] <2	
Mercury	[ ] W-HG-AF	W				
BaseNeutral / Acid Extractable	[ ] W-BNA [ ] W-AE [ ] W-BN [ ] W-PAH	W	[ ] Ice			
	[ ] W-FL-PRO [ ] W [ ] Other:	W	[ ] Ice [ ] H_2SO_4		[ ] <2	
Pesticides	[ ] W-PEST-CL [ ] W-PCB [ ] W PEST-NP [ ] W-PSCL-PCB	W	[ ] Ice			
	[ ] W-NP-AA-SF [ ] W-PC-AA-SF [ ] W-PSHRB-NP [ ] W-SLFN-UREA [ ] W-SULFN-LC [ ] Other:	W	[ ] Ice			
	[ ] W-ACIDHERB	W	[ ] Ice [ ] H_2SO_4			
	[ ] W-CARB	W	[ ] Ice [ ] MCAA			
Purgeables	[ ] W-VOC-MS	W	[ ] Ice			
	[ ] W-VOC-MS-A	W	[ ] Ice [ ] HCl			
Bioassay	Specify Test:	W	[ ] Ice			
OTHER		W	[ ] Other:			

Notes: _____

Use one line for each set of sample (as supplied by the laboratory) containers. Use separate sheet for field or laboratory duplicate or blank or different water depth

Enter "S" for surface if collected at a depth less than or equal to 1 foot

Matrix Codes (Insert prefix): **SW** = Surface Water **GW** = Groundwater **DW** = Drinking Water **WW** = Wastewater **O** = Other: _____

*PRESERVATIVES: 1 ml added unless otherwise noted

**Enter number of containers supplied by the laboratory for the test (e.g., 3 for volatile organics, etc.)

DEP Bureau of Laboratories Water Sample Collection Record

(Use with FDEP SOP-001/01 Form FD 9000-3 Physical/Chemical Characterization Field Sheet)

BLAB Water Field Form 031306.doc

Field Blank

SITE NAME: Otter Lake - BLANK DATE: 8-14-19 TIME 12:30 (military) EST CST DEPTH^: ____ ft m FIELD ID: _____

SAMPLING TEAM MEMBERS	WQ MEASUREMENTS	DOCUMENTATION	SAMPLE COLLECTION	PRESERVATION	PRESERVATION CHECK
Ashley O'neal	X				
Sarah ~~KS~~ Noble			X	X	X
Kristen Sapp		X			

SAMPLING EQUIPMENT

☑ Sample Container ☐ Pole ☐ Pump ID#: ____ ☐ Tubing type: _____ ☐ Other _____ ☐ Other _____

WATER QUALITY MEASUREMENTS

Instrument ID: ~~154185~~ 6N

COLLECTION MODE

☐ Wading ☐ Diving ☐ From Shore ☐ Other _____

Via Boat: ☐ Canoe ☐ Electric Motor ☑ Gasoline Motor

Parameter Suite	Parameter(s)/Method	Matrix Code*	Preservation**	Preservative Lot #	pH Check	# Bottles ***
Preserved Nutrients	☒TKN ☒TP ☒NOx ☒NH3 ☐TOC ☐Total N ☐Other:	6 W	☒Ice ☒H_2SO_4	101232 10-18-19	☑<2	1
Filtered Nutrients	☒oP ☐Other:	6 W	☒Ice ☐.45 um Filter			1
Unpreserved Nutrients	☐NO_2 ☐NO_3 ☐SO4 ☐Other:	W	☐Ice			
Physical/Aggregate Properties	☐TDS ☐TSS ☐TS ☐Turbidity ☐Alk ☒Color ☐Other: See below	6 W	☒Ice			1
Chlorophyll	☐CHL-PPTN-W	W	☐Ice			
BOD	☐BOD-INHB ☐BOD-UNIN	W	☐Ice			
Microbiology	MF: ☐E coli ☐T Coli ☐F Coli ☐Entero ☐F Strep	W	☐Ice			
Macroinvertebrates	☐MI-FW-QLDC ☐MI-FW-QLBR ☐MI-FW-QNNC ☐MI-MN-QNNC	W	☐Formalin			
Phytoplankton	☐PKD-QN-C ☐DTY-QN-C	W	☐Lugol's			
Periphyton	☐PRN-QL-C ☐DTM-QL-C ☐PRN-QN-C ☐DTM-QN-C	W	☐Formalin			
AGP	☐AA-AGP ☐AA-LIM-NUT	W	☐Ice			
Metals	☒W-ICP ☐W-FIAS ☒W-ICPMS ☐W-ICP-Tr	6 W	☑HNO_3	101246	☑<2	1
Filtered Metals	☐W-ICP-F ☐W-FIAS-F ☐W-ICPMS-F ☐W-ICP-Tr-F	W	☐HNO_3 ☐.45 um Filter		☐<2	
Mercury	☐W-HG-AF	W				
BaseNeutral / Acid Extractable	☐W-BNA ☐W-AE ☐W-BN ☐W-PAH	W	☐Ice			
	☐W-FL-PRO ☐W ☐Other:	W	☐Ice ☐H_2SO_4		☐<2	
Pesticides	☐W-PEST-CL ☐W-PCB ☐W PEST-NP ☐W-PSCL-PCB	W	☐Ice			
	☐W-NP-AA-SF ☐W-PC-AA-SF ☐W-PSHRB-NP ☐W-SLFN-UREA ☐W-SULFN-LC ☐Other:	W	☐Ice			
	☐W-ACIDHERB	W	☐Ice ☐H_2SO_4			
	☐W-CARB	W	☐Ice ☐MCAA			
Purgeables	☐W-VOC-MS	W	☐Ice			
	☐W-VOC-MS-A	W	☐Ice ☐HCl			
Bioassay	Specify Test:	W	☐Ice			
OTHER		W	☐Other:			

Notes: Metals: Lot # 101246 Exp: 8-20-20

Ions: CL, F, SO4

FIELD BLANK

Use one line for each set of sample (as supplied by the laboratory) containers. Use separate sheet for field or laboratory duplicate or blank or different water depth

Enter "S" for surface if collected at a depth less than or equal to 1 foot

Matrix Codes (Insert prefix): **SW** = Surface Water **GW** = Groundwater **DW** = Drinking Water **WW** = Wastewater **O** = Other:_____

*PRESERVATIVES:1 ml added unless otherwise noted

**Enter number of containers supplied by the laboratory for the test (e.g., 3 for volatile organics, etc.)

DEP Bureau of Laboratories Water Sample Collection Record

(Use with FDEP SOP-001/01 Form FD 9000-3 Physical/Chemical Characterization Field Sheet)

Request Number: RQ-2019-08-12-30

Reference Lake Sampling

Florida Department of Environmental Protection
Central Laboratory Submittal Form

last revised Jan 25, 2018

Customer: BSSP

Project ID: LAKESREF

Requester: Sarah ~~Panek~~ KS Noble

Collected By: Sarah Noble

Field Report Prepared By: Kristen Sapp

Sampling Agency: FDEP

Location: Otter Lake	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 8.14.19 Time 12:30 (Eastern) Central	Composite end Date	Time	Bottle Group(s) (See pg 2): A					
Field ID: OtterRef	Matrix (type, e.g., Salt, Fresh, etc): Fresh, Surface	Diss. Oxygen 5.2 mg/L ☐ mg/L ☑ % sat 71.1%	Total Res. Chlorine (mg/L)							
WIN/STORET #: 22020090	Temp (C) 32.2	pH 5.24	Sample Depth 0.2 ☐ ft ☑ m	Sp. Conductance (umho/cm) 311.6						
Latitude: 30.02396 ☒ dd ☐ dms	Longitude: -84.42161 ☒ dd ☐ dms	Salinity (ppt)	Comments							
Location: ~~KS~~ Field blank	☐ Comp ☑ Grab	Collection (comp begin or grab) Date 8.14.19 Time 12:30 (Eastern) Central	Composite end Date	Time	Bottle Group(s): B					
Field ID: Field blank	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen ☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)							
WIN/STORET #	Temp (C)	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)						
Latitude: ☐ dd ☐ dms	Longitude: ☐ dd ☐ dms	Salinity (ppt)	Comments							
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time Eastern Central	Composite end Date	Time	Bottle Group(s)					
Field ID	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen ☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)							
WIN/STORET #	Temp (C)	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)						
Latitude: ☐ dd ☐ dms	Longitude: ☐ dd ☐ dms	Salinity (ppt)	Comments							
Location	☐ Comp ☐ Grab	Collection (comp begin or grab) Date Time Eastern Central	Composite end Date	Time	Bottle Group(s)					
Field ID	Matrix (type, e.g., Salt, Fresh, etc)	Diss. Oxygen ☐ mg/L ☐ % sat	Total Res. Chlorine (mg/L)							
WIN/STORET #	Temp (C)	pH	Sample Depth ☐ ft ☐ m	Sp. Conductance (umho/cm)						
Latitude: ☐ dd ☐ dms	Longitude: ☐ dd ☐ dms	Salinity (ppt)	Comments							

Relinquished By:	Date/Time	Shipping Method	Number of Coolers Shipped:	Received By:	Date/Time
S. Noble	8/14/19; 1500	hand delivered	1 cooler	ABG	8-14-19/1540