

DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: 83191 MACROPHYTE ID: 11960 LATITUDE: 30.02396
 COUNTY: Wakulla STORET #: 22020090 LONGITUDE: -84.42161
 DATE: 9/21/21 TIME: 11:25 SAMPLING AGENCY: AEGAS / FDEP
 SITE NAME: Otter Lake WBID: 1165A
 FIELD ID/NAME: Otter Lake LAKE SIZE: 138 acres RQ: 2021-08-23-08

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) ☐					LANDSCAPE DEVELOPMENT INTENSITY (100 m buffer) LDI:				
Local Watershed Erosion (select one) : ☒ None ☐ Slight ☐ Moderate ☐ Heavy					Artificially Impounded ☐ Yes ☒ No				
Local Watershed NPS Pollution : ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy					Land Use Source & Year:				
STORMWATER INPUTS <u>20</u>		Stormwater enters system via sheet flow over non-cultivated and/or natural vegetation ☒ 20 ☐ 19 ☐ 18 ☐ 17 ☐ 16		Some direct stormwater inputs (ditches, pipes, cultivated vegetation < 10%) but good BMPs in place ☐ 15 ☐ 14 ☐ 13 ☐ 12 ☐ 11		Moderate direct inputs of stormwater (ditches, pipes, cultivated vegetation 11%-50%) but few BMPs in place ☐ 10 ☐ 9 ☐ 8 ☐ 7 ☐ 6		Much direct input of stormwater (ditches, pipes, cultivated vegetation > 51%) and no or ineffective BMPs in place ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	
LAKESIDE ALTERATIONS <u>19</u>		Very few man-made structures, roads, or other disturbance adjacent to lake (<10% lakeside affected) ☒ 20 ☐ 19 ☐ 18 ☐ 17 ☐ 16		Moderate disturbance visible - structures, roads or other (10%-49% lakeside affected) ☐ 15 ☐ 14 ☐ 13 ☐ 12 ☐ 11		Many structures, roads or other human disturbance visible (50%-70% lakeside affected) ☐ 10 ☐ 9 ☐ 8 ☐ 7 ☐ 6		Highly developed or disturbed (>70% of lakeside affected) ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	
BUFFER ZONE <u>19</u>		Expected native vegetation between uplands and littoral zone, greater than 90% of shore with >18 m buffer ☒ 20 ☐ 19 ☐ 18 ☐ 17 ☐ 16		89%-51% of shoreline with >18m buffer or >75% with 10m to 18m buffer ☐ 15 ☐ 14 ☐ 13 ☐ 12 ☐ 11		50%-30% of shoreline with >18m buffer or 50%-74% with 10m to 18m buffer ☐ 10 ☐ 9 ☐ 8 ☐ 7 ☐ 6		< 29% of shoreline with >18m buffer ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1	

WATER / SUBSTRATE / BIOLOGICAL: SAMPLES AND OBSERVATIONS

Water: Nutrient Sample Taken? ☒ Yes ☐ No Preserved? ☒ Yes ☐ No pH < 2 ☐ No Color Sample Taken? ☒ Yes ☐ No Lot # <u>NA1105100</u> Exp. Date: <u>6/7/22</u> Alkalinity Sample Taken? ☒ Yes ☐ No <u>4NO3</u> Water Level ☐ Low ☐ Normal ☒ High <u>HS04 ex 1/30/22</u> <u>SA1105060</u>						Water Odors: ☒ Normal ☐ Sewage ☐ Petroleum ☐ Other _____ Water Surface Oils: ☒ None ☐ Sheen/Slick ☐ Glob ☐ Other _____																																					
Meter Readings: <table border="1"> <thead> <tr> <th></th> <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> </tr> </thead> <tbody> <tr> <td>Top:</td> <td><u>0.1</u></td> <td><u>28.5</u></td> <td><u>4.6</u></td> <td><u>5.44</u></td> <td><u>70.2</u></td> <td><u>99.9</u></td> <td></td> </tr> <tr> <td>Mid-Depth:</td> <td><u>2.3</u></td> <td><u>26.9</u></td> <td><u>4.3</u></td> <td><u>2.23</u></td> <td><u>28.2</u></td> <td><u>89.2</u></td> <td></td> </tr> <tr> <td>Bottom:</td> <td><u>3.1</u></td> <td><u>26.7</u></td> <td><u>3.3</u></td> <td><u>1.69</u></td> <td><u>21.1</u></td> <td><u>85.3</u></td> <td></td> </tr> </tbody> </table>							Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat. (%)	Cond. (UMHO/CM)	Salinity (PPT)	Top:	<u>0.1</u>	<u>28.5</u>	<u>4.6</u>	<u>5.44</u>	<u>70.2</u>	<u>99.9</u>		Mid-Depth:	<u>2.3</u>	<u>26.9</u>	<u>4.3</u>	<u>2.23</u>	<u>28.2</u>	<u>89.2</u>		Bottom:	<u>3.1</u>	<u>26.7</u>	<u>3.3</u>	<u>1.69</u>	<u>21.1</u>	<u>85.3</u>		Clarity: ☒ Clear ☐ Opaque ☐ Turbid ☐ Slightly Turbid Color: ☐ Clear ☒ Tannic ☐ Green SECCHI (M) <u>0.6</u> Total Station Depth (M) <u>4.6</u> VOB ☐					
	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat. (%)	Cond. (UMHO/CM)	Salinity (PPT)																																				
Top:	<u>0.1</u>	<u>28.5</u>	<u>4.6</u>	<u>5.44</u>	<u>70.2</u>	<u>99.9</u>																																					
Mid-Depth:	<u>2.3</u>	<u>26.9</u>	<u>4.3</u>	<u>2.23</u>	<u>28.2</u>	<u>89.2</u>																																					
Bottom:	<u>3.1</u>	<u>26.7</u>	<u>3.3</u>	<u>1.69</u>	<u>21.1</u>	<u>85.3</u>																																					
Sediment Type: (may check more than one) ☐ Sandy ☒ Organic fibrous (peaty, CPOM) ☐ Vegetated ☐ Sand/Silt ☐ Organic smooth (muck) ☐ Other (Specify): _____						Sediment Odors: ☒ Normal ☐ Anaerobic ☐ Other (Specify): _____																																					
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: <table border="1"> <thead> <tr> <th></th> <th>Absent</th> <th>Rare</th> <th>Common</th> <th>Abundant</th> </tr> </thead> <tbody> <tr> <td>Periphyton</td> <td>☒</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Nuisance Plants</td> <td>☒</td> <td>☒</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Submersed Plants</td> <td>☐</td> <td>☒</td> <td>☐</td> <td>☐</td> </tr> <tr> <td>Exotic Apple Snails</td> <td>☒</td> <td>☐</td> <td>☐</td> <td>☐</td> </tr> </tbody> </table>							Absent	Rare	Common	Abundant	Periphyton	☒	☐	☐	☐	Nuisance Plants	☒	☒	☐	☐	Submersed Plants	☐	☒	☐	☐	Exotic Apple Snails	☒	☐	☐	☐							
	Absent	Rare	Common	Abundant																																							
Periphyton	☒	☐	☐	☐																																							
Nuisance Plants	☒	☒	☐	☐																																							
Submersed Plants	☐	☒	☐	☐																																							
Exotic Apple Snails	☒	☐	☐	☐																																							
Weather Conditions: <u>cloudy but sunny</u>						Additional Notes: <u>pH was malfunctioning</u> <u>*pH meter did not pass CCV.</u> <u>KJS</u>																																					
SAMPLING TEAM: <u>S. Noble, C. Hammond, K. Sprague</u>						SIGNATURE: <u>K. Sprague</u> DATE: <u>9/21/21</u>																																					

Site: Otter Lake						Date: 9/21/21					
SPECIES	2	5	8	11	Collected? (✓)	SPECIES	2	5	8	11	Collected? (✓)
Myriophyllum aquaticum						Salix caroliniana		1			
*Myriophyllum heterophyllum						Salvinia minima	1	1	1	1	
*Myriophyllum laxum						Sambucus canadensis					
*Myriophyllum pinnatum						Sapium sebiferum					
Myriophyllum spicatum						Saururus cernuus					
*Najas filifolia						Schinus terebinthifolius					
*Najas guadalupensis						*Schoenoplectus californicus					
*Najas minor						*Schoenoplectus pungens					
Nelumbo lutea						*Schoenoplectus tabernaemontani (Scirpus validus)					
Nitella spp.						Scirpus cubensis (Oxycaryon cubense)					
Nuphar sp.	1			1		Scirpus cyperinus					
Nymphaea odorata						*Sesbania					
Nymphoides aquatica						Solidago sp.					
Nyssa sylvatica var. biflora						Sparganium americanum					
Orontium aquaticum						Spartina bakeri	1	1	1	1	
Osmunda cinnamomea						Spirodela polyrhiza					
Osmunda regalis						Taxodium sp.	0	0	0	0	
Panicum hemitomon	1					Thalia geniculata					
Panicum repens						Thelypteris palustris					
Paspalidium geminatum						Triadenum virginicum					
*Paspalum repens						Typha sp.	1		1	1	
Paspalum urvillei						Urochloa mutica (Brachiaria mutica)					
Peltandra sp.		3	5			*Utricularia gibba (U. biflora)		1	1		
Persea sp.						*Utricularia floridana					
Pennisetum purpureum						*Utricularia foliosa					
Phragmites australis						*Utricularia inflata					
Pinus elliotii				1		*Utricularia purpurea					
Pistia stratioides						*Utricularia cornuta					
Pluchea sp.						*Utricularia radiata					
*Polygonum glabrum (densiflorum)						Vallisneria americana					
*Polygonum hydropiperoides						*Websteria confervoides					
*Polygonum punctatum						Wedelia trilobata (Sphagnetocola trilobata)					
*Polygonum sp. punctatum	1	1	1	1	✓	Wolffia spp.					
Pontederia cordata	1	1	1	1		Woodwardia virginica					
*Potamogeton diversifolius						Xyris sp.					
*Potamogeton illinoensis						Zizania aquatica					
*Potamogeton pusillus						Zizaniopsis milacea					
*Potamogeton pectinatus (Stuckenia pectinatus)						Unknown grass					✓
Proserpinaca pectinata						echinochloa?					
Rhexia											
*Rhynchospora comiculata											
*Rhynchospora inundata											
Rhynchospora tracyi											
Ricciocarpus natans											
Sabal palmetto											
Sacciolepis striata	1	1	1	1							
Sagittaria filiformis											
Sagittaria graminea											
Sagittaria isoetiformis			</								

DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: <u>Otter Lake</u>		County: <u>Wakulla</u>		Date: <u>9/21/21</u>							
Analyst: <u>Sarah Noble</u>		Signature: <u>Sarah L. Noble</u>		STORET: <u>2202090</u>							
Except where noted as "sp." species level identification required. *Genera that may require lab verification* Plants in bold= FLEPPC invasive exotic.				Lake units sampled (circle one group): 1, 4, 7, 10 2, 5, 8, 11 3, 6, 9, 12							
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.											
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)		3	5			Hygrophila polysperma					
Baccharis sp.						*Hypericum fasciculatum					
Bacopa caroliniana						*Hypericum hypericoides					
Bacopa monnieri						*Hypericum myrtifolium					
Bidens laevis						Ilex cassine		1	1		pic
Bidens mitis						Ipomoea aquatica					
Blechnum serrulatum						Ipomoea sagittata					
Boehmeria cylindrica						Itea virginica					
Brasenia schreberi						Juncus effusus					
Cabomba caroliniana						*Juncus marginatus					
Casuarina equisetifolia						*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			Landoltia punctata (Spirodela punctata)					
Cliftonia monophylla						Lemna sp.	1	1	1	1	
Colocasia esculenta						Leucothoe racemosa (Eubotrys racemosa)					
*Commelina						Limnium spongia					
Crinum americanum						Limnophila sessiliflora					
* Cyperus alternifolius (C. involucratus)						Liquidambar styraciflua					
Cyperus articulatus						*Ludwigia arcuata					
Cyperus haspan						*Ludwigia leptocarpa	1	1	1	1	✓
*Cyperus lecontei						*Ludwigia linearis					
*Cyperus polystachyos						*Ludwigia octovalvis					
*Cyperus odoratus						* Ludwigia peruviana					
*Cyperus surinamensis						*Ludwigia repens					
Cyrtia racemiflora	1	1	1	1		*Ludwigia					
Decodon verticillatus	1					Luziola fluitans (Hydrochloa carolinensis)					
Diodia virginiana						Lyonia lucida					
*Echinochloa crus-galli						Magnolia virginiana	1				
*Echinochloa muricatum						Mayaca fluviatilis					
Echinochloa walteri						Melaleuca quinquenervia					
Eclipta prostrata (E. alba)						Micranthemum glomeratum					
Egeria densa						Micranthemum umbrosum					
Eichhornia crassipes						Mikania scandens	1				pic
*Eleocharis baldwinii			1			Mimosa pigra					
*Eleocharis <u>sub viviparus</u>			1	1		Myrica cerifera			1	1	
Eleocharis cellulosa											
Eleocharis equisetoides											
Eleocharis interstincta						Cyperus surinamensis	1				✓
*Eriocaulon compressum											
*Eriocaulon decangulare						unknown tree	1				✓ pic
Eupatorium capillifolium						unknown small opposite leaf regal					
*Fuirena						<u>fernish</u>					
Fuirena scirpoides											
Gordonia lasianthus											

Florida Department of Environmental Protection

Central Laboratory Submittal Form

Customer: BSSP

Project ID: LAKESREF

Requester: Jennifer. N. Piacente

Field Report Prepared By:

Collected By:

K. Sprague
C. Hammond, K. Sprague, S. Noble
FDEP - AEQAS

Location Otter Lake		☐ Comp ☒ Grab		Collection (comp begin or grab) Date 9/21/21 Time 1125		☒ Eastern ☐ Central		Composite end Date Time		Bottle Group(s) (See pg 2)	
Field ID Otter Ref		Matrix (type, e.g., Salt, Fresh, etc) fresh		Diss. Oxygen 5.44 mg/L		☒ mg/L ☐ % sat		Total Res. Chlorine (mg/L)		A	
WIN/STORET # 22020090		Temp (C) 28.5		pH 4.6		Sample Depth 0.1		Sp. Conductance (umho/cm) 99.9			
Latitude 30.02396		☒ dd ☐ dms		Longitude -84.42161		☒ 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		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		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		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		Sp. Conductance (umho/cm)			
Latitude		☐ dd ☐ dms		Longitude		☐ dd ☐ dms		Salinity (ppt)		Comments	

Relinquished By: K. Sprague	Date/Time 9/21/21 1315	Shipping Method hand delivery	Number of Coolers Shipped 1	Received By: HK	Date/Time 9.21.21/1315
--------------------------------	---------------------------	----------------------------------	--	--------------------	---------------------------

Group: A	Bottle Type:	P-500ML	# of Bottles: 1	Preservative: ICE	Enter Number of Bottles Sent to Lab	1
	ALKALINITY					
	W-CL-IC					
	W-COLOR					
	W-F					
	W-SO4-IC					
Group: A	Bottle Type:	BP-1L	# of Bottles: 1	Preservative: ICE	Enter Number of Bottles Sent to Lab	1
	CHLSUITE-W					
Group: A	Bottle Type:	BP-1L	# of Bottles: 1	Preservative: Lugols no preservative	Enter Number of Bottles Sent to Lab	1
	DTY-QN-C					
	PKD-QN-C					
Group: A	Bottle Type:	P-500ML	# of Bottles: 1	Preservative: HNO3 HNO3 LOT# NA1105100 EXP: 06/07/2022	Enter Number of Bottles Sent to Lab	1
	W-ICP					
	W-ICPMS					
Group: A	Bottle Type:	P-500ML	# of Bottles: 1	Preservative: ICE And H2SO4 H2SO4 LOT# SA1105060 EXP: 04/30/2022	Enter Number of Bottles Sent to Lab	1
	W-NH3					
	W-NO2NO3					
	W-S-A-TP					
	W-TKN					
Group: A	Bottle Type:	P-125ML	# of Bottles: 1	Preservative: FILTER-ICE	Enter Number of Bottles Sent to Lab	1
	W-PO4-F					

Cooler Packing Worksheet for Request: RQ-2021-08-23-08

Reference Lake Sampling

Ship Cooler On: 8/19/2021

Customer/Project: BSSP/LAKESREF

Assigned To: KLUG_K

Requester: Jennifer. N.

Priority: 3

850-245-8073

2600 Blair Stone Rd.

Tallahassee, FL 32399-2400

Attn: Jennifer Piacente

Comments:

No preservatives needed.

Requested Analyses:

Bottle Group: A

of Sites: 1

Container ID: P-500ML

Qty: 1

Preservation: ICE

Lot # 00680679

Description: Plastic Bottle 500 mL

Analysis

ALKALINITY

W-CL-IC

W-COLOR

W-F

W-SO4-IC

Description

Alkalinity in aqueous matrices as mg CaCO₃/L

Chloride in aqueous matrices

True Color measured at 450 nm (not valid for NPDES monitoring)

Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)

Sulfate in aqueous matrices

Container ID: BP-1L

Qty: 1

Preservation: ICE

Lot # 1259820

Description: Brown Plastic Bottle 1L

Analysis

CHLSUITE-W

Description

Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry

Container ID: BP-1L

Qty: 1

Preservation: Lugols

Lot # 1259820

Description: Brown Plastic Bottle 1L

Analysis

DTY-QN-C

PKD-QN-C

Description

No. of diatom taxa of quantitative phytoplankton sample.

No. of wet taxa of quantitative phytoplankton sample.

Container ID: P-500ML

Qty: 1 Preservation: HNO3

Lot # 00080679

Description: Plastic Bottle 500 mL

Affix RED nitric acid dot to container.

Analysis

W-ICP

W-ICPMS

Description

Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects

Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects

Container ID: P-500ML

Qty: 1 Preservation: ICE And H2SO4

Lot # 00080679

Description: Plastic Bottle 500 mL

Affix YELLOW sulfuric acid dot to container.

Analysis

W-NH3

W-NO2NO3

W-S-A-TP

W-TKN

Description

Ammonia in aqueous matrices as mg N/L

Nitrite/Nitrate in aqueous matrices as mg N/L

Total Phosphorus in aqueous matrices as mg P/L

Total Kjeldahl Nitrogen in aqueous matrices

Container ID: P-125ML

Qty: 1 Preservation: FILTER-ICE

Lot # 00072954

Description: Plastic Bottle 125 mL

Analysis

W-PO4-F

Description

Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L

Cooler Packed By: klk

Number of Coolers: 1

Date: 8/13/21

Kit must also include:

- ☒ Field Sheets
- ☒ Temperature Control Bottle
- ☐ FedEx Bills, if applicable
- ☐ Plastic Bags/Zip Ties
- ☐ Acid Labels (sets of 24)

If Preservation Included:

ID _____	Exp _____	Lot # _____
ID _____	Exp _____	Lot # _____
ID _____	Exp _____	Lot # _____
ID _____	Exp _____	Lot # _____
ID _____	Exp _____	Lot # _____

PLEASE RETURN ALL COOLERS FOR RQ-2021-08-23-08