



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

STRATEGIC MONITORING PLAN Field Sheet

July 2022

Meter
Passed End
of Day CCV
Yes / No

WIN Station Name:	CLAY LAKE NEAR CENTER					Sample Date:	9/21/2023
WIN / Field ID:	G4SE0177	ORG ID:	21FLWPB	ENR:	-	Latitude:	27.3109
County:	HIGHLANDS	WBID:	1932B	LAKE		Longitude:	-81.3478
Receiving Body of Water:	Grassy Creek					RQ-	2023-09-11-25

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Andrew Luering	x		x		
Tirzah Chichester		x		x	x
Natalie Howard					
Jordan Skaggs					

Sampling Equipment			
x	Sample Container		Carboy
	Dipper		Van Dorn
	Syringe		Pole
	Syringe Lot#	2298556	Filter Lot# 17866251
	Secchi Equipment ID:	Secchi Disc 2	
Collection Method			
	Wading		Canoe/Kayak
	From Shore		Electric Motor
		x	Gasoline Motor
	Depth Measured With	Meter	

Water Level:	Normal
Flow:	NA
Matrix:	Fresh
Tide Stage:	
High Tide:	
Low Tide:	
Photos:	Yes
Meter ID:	Hodor
Depth Gauge ID:	depth_gauge

Time Zone	Time	Total Depth (m)	Sample Depth (m)	DO (mg/L)	DO (%SAT)	Temp. (°C)	pH	Secchi Disk (m)	Sp COND (µmhos/cm)	Salinity (PPTth)
EST	1110	3.17	0.3	7.14	94.1	29.8	7.19	1.3	164.1	0.08
	1105		2	7.05	91.7	29.3	7.15		164.1	0.08
	1103		2.67	6.85	90.4	29.3	7.05		164.1	0.08

Biological Samples Collected: LVI

SBIO Visit ID: 87967 HA ID: 18634 RPS ID: Macrophyte ID: 12563 LIMS Sample ID In The Macrophyte Module: 2439205

Parameter Suite	Parameter Methods (LIMS Test Codes)			Preservation				
	Type	Lot#	Expiration Date	pH Check				
Microbiology								
Chlorophyll	CHLSUITE-W	ICE						
Physical/Aggregate	ALKALINITY, TURBIDITY, W-F, W-TSS	ICE						
Nutrients	W-CL-IC, W-COLOR, W-SO4-IC, W-TDS	ICE						
Filtered Nutrients	W-PO4-F	Field Filtered 0.45 µm Filter	ICE		Syring Lot#: 2298556; Filter Lot#: 17866251			
Acid Preserved Nutrients	W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	ICE	H2SO4*	SA3193140	07/31/2024	H2SO4 pH<2		
Metals	W-ICPMS	W-ICP	W-HARD	ICE	HNO3**	NA3123030	05/10/2024	HNO3 pH<2
Organics (LC)	W-E8321-DI	W-E8321-MS						
Macroinvertebrates								
Organics (GC)	W-PSNP-TQ	W-TR-SQ-R		Ice	*2.0 ml of H2SO4 Used Unless Noted Otherwise **2.0 ml of HNO3 Used Unless Noted Otherwise			
Molecular								
Periphyton								
Phytoplankton								
BOD								
DOC					SyringLot#		FilterLot#	
Other(s)								
Field Comments:								
Comments on COC:								
Relinquish Date:	09/21/2023	Signature:						

LIMS EVENT ID: SE-DIST-2023-09-22-01

WIN Import ID: 43378

Enter Field Parameters, Verify Station ID In LIMS DMT: NH 10/2/23

QC Station ID, Field Parameters In LIMS DMT: AL 10/31/2023

Save Field Sheets on Network: NH 10/2/23 (Initials/Date)

Migrate Data to WIN: AL 10/31/2023 (Initials/Date)

(Initials/Date)

(Initials/Date)

045E0177

DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: <u>Lake Olan</u>				County: <u>Highlands</u>				Date: <u>9/21/23</u>			
Analyst: <u>Natanié Howard, A. L. J. S. K.</u>				Signature: <u>T. Chichester</u>				STORET:			
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 <u>3, 6, 9, 12</u>			
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	3	6	9	12	Collected? (✓)	SPECIES	3	6	9	12	Collected? (✓)
Acer rubrum						Gordonia lasianthus					
Acrostichum danaeifolium						Habenaria repens					
Alternanthera philoxeroides			✓	TC		Hydrilla verticillata					
Andropogon sp.			✓			Hydrocotyle sp.	✓				
Annona glabra						Hygrophila polysperma					
Azolla filiculoides (A. caroliniana)						*Hypericum fasciculatum					
Baccharis sp.						*Hypericum hypericoides					
Bacopa caroliniana						*Hypericum myrtifolium					
Bacopa monnieri						Ilex cassine					
Bidens laevis						Ipomoea aquatica					
Bidens mitis						Ipomoea sagittata					
Blechnum serrulatum	✓					Itea virginica					
Boehmeria cylindrica						Juncus effusus					
Brasenia schreberi						*Juncus marginatus					
Cabomba caroliniana						*Juncus megacephalus					
Casuarina equisetifolia						Juncus repens					
Centella asiatica						*Juncus scirpoides					
Cephalanthus occidentalis			✓			Lachnanthes caroliniana					
Ceratophyllum demersum						Leersia hexandra					
Chara sp.						Landoltia punctata (Spirodela punctata)					
Cladium jamaicense			✓			Lemna sp.					
Cliftonia monophylla						Leucothoe racemosa (Eubotrys racemosa)					
Colocasia esculenta	✓	✓	✓			Limnium spongia					
*Commelina						Limnophila sessiliflora					
Crinum americanum						Liquidambar styraciflua					
*Cyperus alternifolius (C. involucratus)						*Ludwigia arcuata					
Cyperus articulatus						*Ludwigia leptocarpa					
Cyperus blepharoleptos						*Ludwigia linearis					
Cyperus haspan						*Ludwigia octovalvis					
*Cyperus lecontei						*Ludwigia peruviana	✓	✓	✓	✓	
*Cyperus polystachyos						*Ludwigia repens					
*Cyperus odoratus			✓			*Ludwigia spicata TC					✓ TC
*Cyperus surinamensis						Luziola fluitans (Hydrochloa carolinensis)					
Cyrilla racemiflora						Lyonia lucida					
Decodon verticillatus						Magnolia virginiana					
Diodia virginiana						Mayaca fluviatilis					
*Echinochloa crus-galli						Melaleuca quinquenervia		✓			
*Echinochloa muricatum						Micranthemum glomeratum					
Echinochloa walteri						Micranthemum umbrosum					
Eclipta prostrata (E. alba)						Mikania scandens	✓	✓		✓	
Egeria densa						Mimosa pigra					
Eichhornia crassipes						Myrica cerifera					
*Eleocharis baldwinii						<u>Grape vine Muscadine Vitis rotundifolia</u>	✓				
Eleocharis cellulosa	✓	✓		✓	✓						
Eleocharis equisetoides											
Eleocharis interstincta											
Eleocharis vivipara											
*Eleocharis			✓	TC							
*Eriocaulon compressum											
*Eriocaulon decangulare											
Eupatorium capillifolium			✓	✓							
*Fuirena	✓	✓	✓	✓	✓						
Fuirena scirpoidea	✓	✓									

5810 87967

FORM FD 9000-27: LAKE VEGETATION INDEX FIELD SHEET

Site: <u>Clay Lake</u>					Date: <u>9/21/2023</u>						
SPECIES	3	6	9	12	Collected? (✓)	SPECIES	3	6	9	12	Collected? (✓)
Myriophyllum aquaticum						Sapium sebiferum (Triadeca sebifera)					
*Myriophyllum heterophyllum						Saururus cernuus					
*Myriophyllum laxum						Schinus terebinthifolius	✓				
*Myriophyllum pinnatum						*Schoenoplectus californicus				✓	
Myriophyllum spicatum						*Schoenoplectus pungens					
*Najas filifolia						*Schoenoplectus tabernaemontani (Scirpus validus)					
*Najas guadalupensis						Scirpus cyperinus					
*Najas minor						*Sesbania	✓			✓	
Nelumbo lutea						Solidago sp.					
Nitella spp.				✓		Sparganium americanum					
Nuphar sp.			✓			Spartina bakeri					
Nymphaea odorata						Spirodela polyrhiza					
Nymphoides aquatica		✓				Taxodium sp.			✓	✓	
Nyssa sylvatica var. biflora						Thalia geniculata					
Orontium aquaticum						Thelypteris palustris					
Osmunda cinnamomea						Triadenum virginicum					
Osmunda regalis						Typha sp.	✓	✓	✓		
Panicum hemitomon	✓		✓			Urochloa mutica (Brachiaria mutica)					
Panicum repens	✓	✓	✓	✓		*Utricularia gibba (U. biflora)					
Paspalidium geminatum						*Utricularia floridana					
*Paspalum repens						*Utricularia foliosa					
Paspalum urvillei						*Utricularia inflata					
Peltandra sp.						*Utricularia purpurea					
Persea sp.						*Utricularia cornuta					
Pennisetum purpureum						*Utricularia radiata					
Phragmites australis						Vallisneria americana					
Pinus elliotii						*Websteria confervoides					
Pistia stratioides						Wedelia trilobata (Sphagneticola trilobata)	✓		✓		
Pluchea sp.						Wolffiella spp.					
*Persicaria glabrum (densiflorum)						Woodwardia virginica					
*Persicaria hydropiperoides						Xyris sp.					
*Persicaria punctatum						Zizania aquatica					
*Persicaria						Zizaniopsis milacea					
Pontederia cordata	✓	✓	✓	✓							
*Potamogeton diversifolius											
*Potamogeton illinoensis			✓								
*Potamogeton pusillus											
*Potamogeton pectinatus (Stuckenia pectinatus)											
Proserpinaca pectinata											
*Rhexia											
*Rhynchospora corniculata											
*Rhynchospora inundata											
Rhynchospora tracyi											
Ricciocarpus natans											
Sabal palmetto											
Sacciolepis striata											
*Sagittaria filiformis											
*Sagittaria graminea											
*Sagittaria isoetiformis											
Sagittaria lancifolia		✓									
Sagittaria latifolia											
Salix caroliniana	✓										
Salvinia minima											
Sambucus canadensis											

DEP Form FD 9000-6: Lake Habitat Assessment Field Sheet

STORET STATION NUMBER:	DATE (M/D/Y) 9/21/2023	LAKE NAME Clay Lake		FIELD ID / NAME: 645E0177	
ECO-REGION:	COUNTY: Highlands	SAMPLING LOCATION / DESCRIPTION: Clay Lake Near Center		LAKE SIZE:	
PARAMETER	No surface inflow or outflow present, very long water residence time, groundwater seepage dominates ☐	Surface water inflow present, but flow is rare, moderate to long water residence time ☒	Surface water inflow and outflow present (or outflow only), sometimes with visible flow, short water residence time ☐	Impounded, hydrology of system artificially controlled ☐	
HYDROLOGY					
Color	Very clear, uncolored water (benthic sampling appropriate) ☐	Water somewhat tannin stained (benthic sampling appropriate) ☒	Dark, discolored water (water color 20 PCU or higher) ☐	Visibility extremely reduced due to high color ☐	
	Optimal	Suboptimal	Marginal	Poor	
Secchi ☐	Secchi >3 m Or VOB 20 19 18 17 16	3 2.6 2.2 1.8 1.4 15 14 13 12 ☐	1.0 0.9 0.8 0.7 0.6 10 9 8 7 6	0.5 0.4 0.3 0.2 0.1 5 4 3 2 1	
Vegetation Quality ☐	Diverse, expected native vegetation (emergent or submersed), less than 5% nuisance taxa 20 19 18 17 16	Mostly expected native plants, but moderate growths (6%-20% of lake) of nuisance macrophytes, or more than 50% of lake covered with plants 15 14 13 12 ☐	Large masses (21%- 40%) of nuisance macrophytes (e.g., Hydrilla, hyacinth, cattail, etc.) or algal mats 10 9 8 7 6	Lake choked (>40%) with nuisance macrophytes (duckweed, hyacinth, etc.) or algal mats, or few plants present at all (e.g., plants removed) 5 4 3 2 1	
Stormwater Inputs ☐	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 ☐ 7 6	Much direct input of stormwater (ditches, pipes, cultivated vegetation > 51%) and no or ineffective BMPs in place 5 4 3 2 1	
Bottom Substrate Quality ☐	Diverse mixture of sand, detritus, with small amounts of CPOM/mud/muck. SAV may be present 20 19 18 17 16	Mixture of sand or clay and detritus with higher % CPOM/mud/muck content. SAV may be present 15 14 ☐ 12 11	Moderate layer of CPOM/ mud/muck, or hardpacked sand only, or moderate algal growth (mats or Chara) on bottom 10 9 ☐ 7 6	Thick deposits of CPOM, or fine detritus and anaerobic muck/mud/silt, or algal growth or nuisance plants (Hydrilla) cover bottom 5 4 3 2 1	
Lakeside Adverse Human Alterations ☐	Very few man-made structures, roads, or other disturbance adjacent to lake (<10%) 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 ☐ 7 6	Highly developed or disturbed (>70% of lakeside affected) 5 4 3 2 1	
Upland Buffer Zone ☐	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 ☐ 7 6	< 29% of shoreline with >18m buffer 5 4 3 2 1	
Adverse Watershed Land Use ☐	Score the potential effects from adverse human land uses, based on a continuum of amount and type, with least to most adverse as follows: Native vegetation, Silviculture, Pasture or Citrus, Low Density Residential, Row Crops, Commercial, High Density Residential, Urban, Industrial 20 19 18 17 16				
TOTAL SCORE	COMMENTS:				
ANALYSIS DATE: 9/21/23	ANALYST: Lucyng / Skaggs / Howard / Chickater		SIGNATURE: 		

DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: 2439205 MACROPHYTE ID: _____ LATITUDE: 27.3109
 COUNTY: Highland STORET #: _____ LONGITUDE: -81.3478
 DATE: 9/21/2023 TIME: _____ SAMPLING AGENCY: SERC/SE-Dist
 SITE NAME: Clay Lake Near Center WBID: 1932B
 FIELD ID/NAME: 645E0177 LAKE SIZE: _____ RQ: 2023-09-11-25

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>8</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>10</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>7</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 ☐ pH<2 ☐ No Color Sample Taken? ☒ Yes ☐ No Lot # _____ Exp. Date: _____ Alkalinity Sample Taken? ☒ Yes ☐ No Water Level ☐ Low ☒ Normal ☐ High								Water Odors: ☒ Normal ☐ Sewage ☐ Petroleum ☐ Other _____															
Meter Readings: Top: <u>0.3</u> <u>29.8</u> <u>7.19</u> <u>7.14</u> <u>94.1</u> <u>164.1</u> <u>0.08</u> Mid-Depth: <u>2.0</u> <u>29.3</u> <u>7.15</u> <u>7.05</u> <u>91.7</u> <u>164.1</u> <u>0.08</u> Bottom: <u>2.67</u> <u>29.3</u> <u>7.05</u> <u>6.85</u> <u>90.4</u> <u>164.1</u> <u>0.08</u>								Water Surface Oils: ☒ None ☐ Sheen/Slick ☐ Glob ☐ Other _____															
Meter ID: <u>Hedon</u>								Clarity: ☐ Clear ☒ Turbid ☐ Slightly Turbid Color: ☐ Clear ☒ Tannic ☐ Green															
Sediment Type: (may check more than one) ☒ Sandy ☐ Organic fibrous (peaty, CPOM) ☐ Vegetated ☐ Sand/Silt ☒ Organic smooth (muck) ☐ Other (Specify): _____								SECCHI (M) <u>1.3</u> Total Station Depth (M) <u>3.17</u> VOB ☐															
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:																							

Weather Conditions :

SAMPLING TEAM: Luering/Skaggs/Howard/Chichester SIGNATURE: [Signature] DATE: 9/21/23

