

**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

STRATEGIC MONITORING PLAN Field Sheet

July 2022

Meter
Passed End
of Day CCV

Yes / No

WIN Station Name:	LITTLE LAKE HOWELL AT CENTER OF LAKE				Sample Date:	8/1/2023	
WIN / Field ID:	G2CE0275	ORG ID:	21FLCEN	ENR:	-	Latitude:	28.66792
County:	SEMINOLE	WBID:	2994X	LAKE		Longitude:	-81.28078
Receiving Body of Water:	-				RQ-	2023-07-31-09	

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Denver Bourassa		x		x	x
Terry Riordan	x		x		

Sampling Equipment			
x	Sample Container		Carboy
	Dipper		Van Dorn
	Syringe		Pole
	Syringe Lot# 2327923		Filter Lot# 17769663
	Secchi Equipment ID:	Light	
Collection Method			
	Wading		Canoe/Kayak
	From Shore		Electric Motor
		x	Gasoline Motor
	Depth Measured With	Secchi	

Water Level:	Normal
Flow:	NA
Matrix:	Fresh
Tide Stage:	
High Tide:	
Low Tide:	
Photos:	Yes
Meter ID:	Shrimp Trap
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	1241	3.8	0.3	6.76	91.9	31.6	6.93	1.1	117.7	0.05
	1247		2	6.43	86.1	30.3	6.99		117.4	0.05
	1250		3.3	6.13	81.5	30.1	6.92		117	0.05

Biological Samples Collected:

LVI

SBIO Visit ID: 87696 **HA ID:** **RPS ID:** **Macrophyte ID:** 12535 **LIMS Sample ID In The Macrophyte Module:** 2428058

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	Syringe Lot#:2327923 ; Filter Lot#:17769663			
Acid Preserved Nutrients	W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP			ICE	H2SO4*	SA3013020	01/25/2024	H2SO4 pH<2
Metals	W-ICPMS	W-ICP	W-HARD	ICE	HNO3**	NA2230040	09/01/2023	HNO3 pH<2
Organics (LC)	W-E8321-DI	W-E8321-MS		Ice	MCAA***			
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								
Other(s)								
Field Comments:	88 overcast							
Comments on COC:								
Relinquish Date:	08/01/2023	Signature:						

LIMS EVENT ID: CEN-DIST-2023-08-02-01

WIN Import ID: 42534

Enter Field Parameters, Verify Station ID In LIMS DMT: KWM 8/25/23

QC Station ID, Field Parameters In LIMS DMT: VLS 9/6/23

Save Field Sheets on Network: KWM 9/8/23 (Initials/Date)

Migrate Data to WIN: KWM 9/8/23 (Initials/Date)

(Initials/Date)

(Initials/Date)

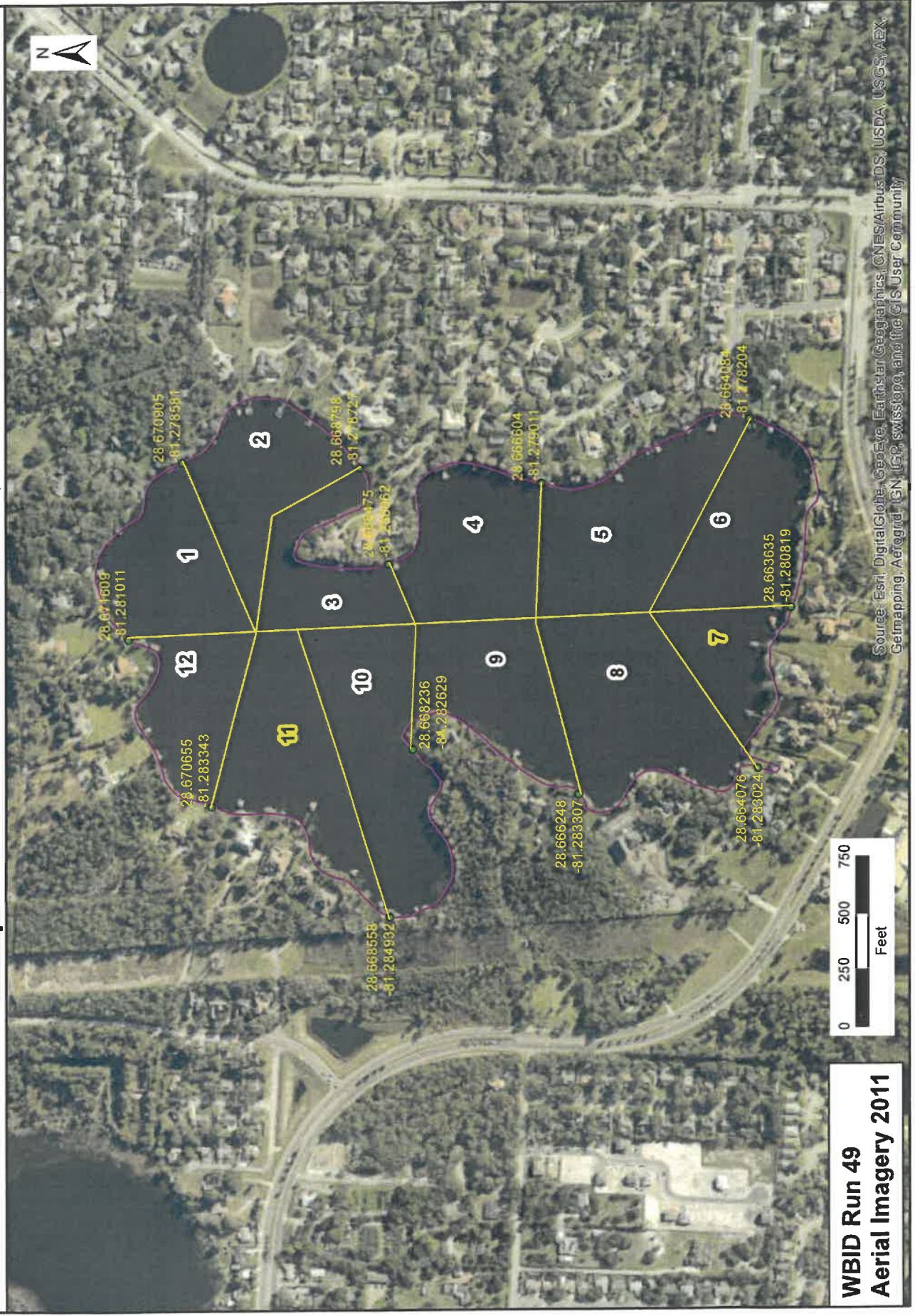
DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: <u>Little Lake Howell</u>		County: <u>Seminole</u>		Date: <u>08/01/23</u>							
Analyst: <u>T. Riordan, D. Baxassi</u>		Signature: <u>TR</u> <u>DB</u>		STORET:							
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 <u>(2, 5, 8, 11)</u> 3, 6, 9, 12							
SPECIES	2	5	8	11	Collected? (✓)	SPECIES	2	5	8	11	Collected? (✓)
Acer rubrum	/	/	/	/		Habenaria repens					
Alternanthera philoxeroides	/	/	/	/		Hydrilla verticillata					
Andropogon sp.						Hydrocotyle sp.	/	/	/	/	
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 equisetifolia						*Juncus megacephalus					
Centella asiatica						Juncus repens					
Cephalanthus occidentalis	/		/	/		*Juncus scirpoides					
Ceratophyllum demersum						Lachnanthes caroliniana					
Chara sp.						Leersia hexandra					
Cladium jamaicense				/		Landoltia punctata (Spirodela punctata)					
Cliftonia monophylla						Lemna sp.	/				
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	/	/	/	/	
*Cyperus lecontei						*Ludwigia linearis					
*Cyperus polystachyos		/	/	/		*Ludwigia octovalvis	/	/	/	/	
*Cyperus odoratus		/	/	/		* Ludwigia peruviana	/	/	/	/	
*Cyperus surinamensis						*Ludwigia repens					
Cyrilla racemiflora						*Ludwigia					
Decodon verticillatus						Luziola fluitans (Hydrochloa carolinensis)	/	/	/	/	
Diodia virginiana			/	/		Lyonia lucida					
*Echinochloa crus-galli			/	/		Magnolia virginiana	/	/	/	/	
*Echinochloa muricatum			/	/		Mayaca fluviatilis					
Echinochloa walteri		/	/	/	✓	Melaleuca quinquenervia					
Eclipta prostrata (E. alba)						Micranthemum glomeratum	/	/	/	/	
Egeria densa						Micranthemum umbrosum					
Eichhornia crassipes						Mikania scandens		/			
*Eleocharis baldwinii	/	/	/	/		Mimosa pigra					
*Eleocharis						Myrica cerifera					
Eleocharis cellulosa						Flowerweed Erechtites hieracifolius	/	/	/	/	
Eleocharis equisetoides						Climbing Aster Aster	/	/	/	/	
Eleocharis interstincta						Air potato Dioscorea bulbifera	/	/	/	/	
*Eriocaulon compressum						#10 → Symphyotrichum carolinianum					
*Eriocaulon decangulare											
Eupatorium capillifolium	/	/	/	/							
*Fuirena											
Fuirena scirpoidea											
Gordonia lasianthus			/	/							

FORM FD 9000-27: LAKE VEGETATION INDEX FIELD SHEET

Site: <u>Little Lake Howell</u>					Date: <u>08/01/13</u>						
SPECIES	2	5	8	11	Collected? (✓)	SPECIES	2	5	8	11	Collected? (✓)
Myriophyllum aquaticum						Salix caroliniana	/	/			
*Myriophyllum heterophyllum						Salvinia minima	/	/			
*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.	/	/	/	/		Scirpus cyperinus					
Nymphaea odorata	/	/	/	/		*Sesbania					
Nymphoides aquatica						Solidago sp.					
Nyssa sylvatica var. biflora		/	/	/		Sparganium americanum					
Orontium aquaticum						Spartina bakeri				/	
Osmunda cinnamomea						Spirodela polyrhiza					
Osmunda regalis						Taxodium sp.	/	/	/	/	
Panicum hemitomon	/					Thalia geniculata	/	/	/	/	
Panicum repens		/	/	/		Thelypteris palustris					
Paspalidium geminatum						Triadenum virginicum					
*Paspalum repens						Typha sp.				/	/
Paspalum urvillei		/	/	/		Urochloa mutica (Brachiaria mutica)	/	/	/	/	
Peltandra sp.						*Utricularia gibba (U. biflora)					
Persea sp.			X			*Utricularia floridana					
Pennisetum purpureum						*Utricularia foliosa					
Phragmites australis						*Utricularia inflata					
Pinus elliotii						*Utricularia purpurea					
Pistia stratioides						*Utricularia cornuta					
Pluchea sp.			/	/		*Utricularia radiata					
*Polygonum glabrum (densiflorum)						Vallisneria americana					
*Polygonum hydropiperoides						*Websteria confervoides					
*Polygonum punctatum						Wedelia trilobata (Sphagneticola trilobata)	/			/	
*Polygonum						Wolffiella spp.					
Pontederia cordata	/	/				Woodwardia virginica					
*Potamogeton diversifolius						Xyris sp.					
*Potamogeton illinoensis						Zizania aquatica					
*Potamogeton pusillus						Zizaniopsis milacea					
*Potamogeton pectinatus (Stuckenia pectinatus)						Viana lateola	/	/	/	/	
Proserpinaca pectinata						Phyllanthus nodiflora	/	/	/	/	
*Rhexia						Rumex	/	/	/	/	
*Rhynchospora corniculata						Ptilimnium capillaceum	/	/	/	/	
*Rhynchospora inundata						Vitis	/	/	/	/	
Rhynchospora tracyi						Iris (sp)	/	/	/	/	
Ricciocarpus natans											
Sabal palmetto	/	/	/	/							
Sacciolepis striata											
*Sagittaria filiformis											
*Sagittaria graminea											
*Sagittaria isoetiformis											
Sagittaria lancifolia	/	/	/	/							
Sagittaria latifolia											

LVI Map for LITTLE LAKE HOWELL, WBID 2994X



WBID Run 49
Aerial Imagery 2011

DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: _____ MACROPHYTE ID: _____ LATITUDE: 28.66792
 COUNTY: Seminole STORET #: G2CE0275 LONGITUDE: -81.28078
 DATE: 8/1/23 TIME: 1241 SAMPLING AGENCY: CERC
 SITE NAME: Little Lake Howell WBID: 2994X
 FIELD ID/NAME: Little Lake Howell at Center of Lake LAKE SIZE: 93 ac RQ: 2023-07-31-09

WATERSHED / LAKESIDE FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category - from GIS):						LANDSCAPE DEVELOPMENT INTENSITY (100 m buffer)															
Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)	LDI: _____													
<u>5</u>		<u>5</u>		<u>87</u>	<u>3</u>			Land Use Source & Year: _____													
Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy						Artificially Impounded ☐ Yes ☒ No															
Local Watershed NPS Pollution: ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy																					
STORMWATER INPUTS		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													
<u>12</u>		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
LAKESIDE ALTERATIONS		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)													
<u>5</u>		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
BUFFER ZONE		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													
<u>5</u>		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 ☐ No 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>31.6</u> <u>6.93</u> <u>6.76</u> <u>91.9</u> <u>117.7</u> <u>0.05</u> Mid-Depth: <u>2.0</u> <u>30.3</u> <u>6.99</u> <u>6.43</u> <u>86.1</u> <u>117.4</u> <u>0.05</u> Bottom: <u>3.3</u> <u>30.1</u> <u>6.92</u> <u>6.13</u> <u>81.5</u> <u>117.0</u> <u>0.05</u>						Water Surface Oils: ☒ None ☐ Sheen/Slick ☐ Glob ☐ Other _____					
Meter ID: <u>Shrimp Trap</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>1.1</u> Total Station Depth (M) <u>3.8</u> VOB ☐					
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 ☐ Don't Know Active Vegetation Mgmt? ☐ Yes ☐ No ☒ Don't Know						Sediment Odors: ☒ Normal ☐ Other (Specify): _____ ☐ Anaerobic					
Abundance: Absent Rare Common Abundant Periphyton ☐ ☐ ☒ ☐ Nuisance Plants ☐ ☐ ☒ ☐ Submersed Plants ☐ ☐ ☒ ☐ Exotic Apple Snails ☒ ☐ ☐ ☐						Additional Notes:					
Weather Conditions: <u>88°, overcast</u>											
SAMPLING TEAM: <u>Terry Riordan, Denver Bourassa</u>						SIGNATURE: <u>[Signature]</u>			DATE: <u>8/1/23</u>		