



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

STRATEGIC MONITORING PLAN Field Sheet

July 2022

Meter
Passed End
of Day CCV

Yes / No

WIN Station Name:	LAKE HOWELL CENTER OF LAKE				Sample Date:	6/19/2023	
WIN / Field ID:	G2CE0256	ORG ID:	21FLCEN	ENR:	-	Latitude:	28.63861
County:	SEMINOLE	WBID:	2997B	LAKE		Longitude:	-81.31028
Receiving Body of Water:	-				RQ-	2023-06-19-21	

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Denver Bourassa	x		x		
Katie March		x		x	x

Sampling Equipment			
x	Sample Container		Carboy
	Dipper		Van Dorn
	Syringe		Pole
	Syringe Lot# 2327923		Filter Lot# 17769663
	Secchi Equipment ID:	Knothead	
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:	No
Meter ID:	Craw Daddy
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	1135	4.3	0.3	9.37	121.9	29.2	8.57	0.8	202.5	0.09
	1139		2	9.3	119.5	29.1	8.32		202.5	0.09
	1142		3.8	0.28	3.7	28.5	7.25		251.8	0.12

Biological Samples Collected: None

SBIO Visit ID: 87398 HA ID: RPS ID: Macrophyte ID: 12502 LIMS Sample ID Entered Into The Macrophyte Module: 2418343

Parameter Suite	Parameter Methods (LIMS Test Codes)			Preservation			
	Type	Lot#	Expiration Date	pH Check			
Microbiology							
Chlorophyll	CHLSUITE-W						
Physical/Aggregate	ALKALINITY, TURBIDITY, W-F, W-TSS						
Nutrients	W-CL-IC, W-COLOR, W-SO4-IC, W-TDS						
Filtered Nutrients	W-PO4-F	Field Filtered 0.45 µm Filter					Syringe Lot#:2327923; Filter Lot#:17769663
Acid Preserved Nutrients	W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP						
Metals	W-ICPMS	W-ICP	W-HARD				
Organics (LC)	W-E8321-DI	W-E8321-MS					
Macroinvertebrates							
Organics (GC)	W-PSNP-TQ	W-TR-SQ-R					
Molecular							
Periphyton							
Phytoplankton							
BOD							
DOC							
Other(s)							
Field Comments:	Sunny, light breeze						
Comments on COC:							
Relinquish Date:	06/19/2023	Signature:					

LIMS EVENT ID: CEN-DIST-2023-06-20-01

WIN Import ID: 41937

Enter Field Parameters, Verify Station ID In LIMS DMT: KWM 7/26/23

QC Station ID, Field Parameters In LIMS DMT: VLS 8/2/23

Save Field Sheets on Network: KWM 8/3/23 (Initials/Date)

Migrate Data to WIN: KWM 8/3/23 (Initials/Date)

DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: _____ MACROPHYTE ID: _____ LATITUDE: _____
 COUNTY: _____ STORET #: _____ LONGITUDE: _____
 DATE: 6/19/23 TIME: _____ SAMPLING AGENCY: _____
 SITE NAME: _____ WBID: _____
 FIELD ID/NAME: Lake Howell LAKE SIZE: _____ RQ: _____

WATERSHED / LAKESIDE FEATURES

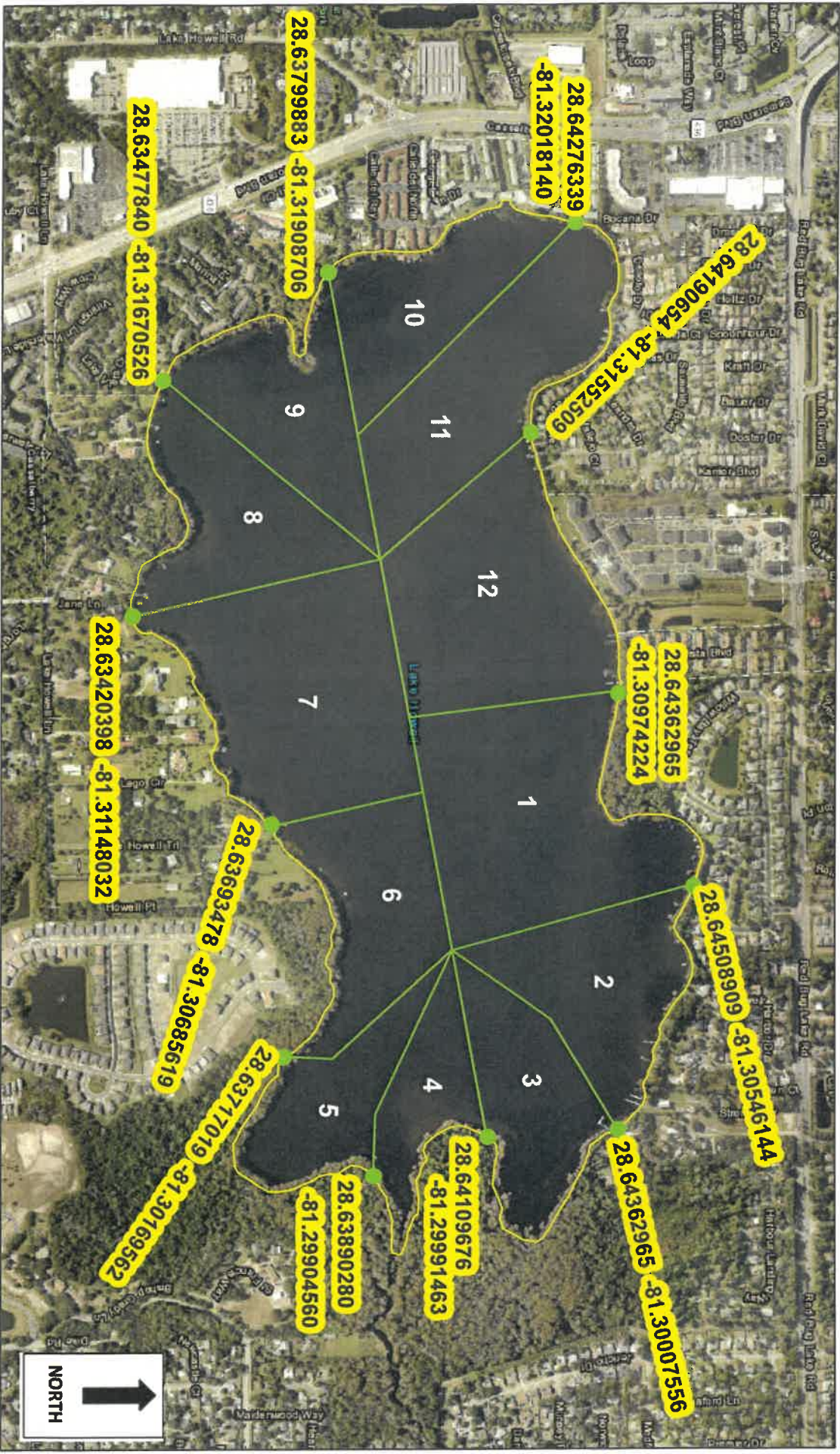
PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category – from GIS) : Forest/Natural <u>20</u> Silviculture _____ Field/Pasture _____ Agricultural _____ Residential <u>80</u> Commercial _____ Industrial _____ Other (Specify) _____								LANDSCAPE DEVELOPMENT INTENSITY (100 m buffer) LDI: _____ 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 <u>4</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 <u>4</u> 3 2 1	
LAKESIDE ALTERATIONS <u>6</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 <u>6</u>		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 <u>7</u> 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 # _____ Exp. Date: _____ Alkalinity Sample Taken? ☒ Yes ☐ No Water Level ☐ Low ☒ Normal ☐ High						Water Odors: ☒ Normal ☐ Sewage ☐ Petroleum ☐ Other _____					
Meter Readings: Depth (M) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat. (%) Cond. (UMHO/CM) Salinity (PPT) Top: _____ Mid-Depth: _____ Bottom: _____						Water Surface Oils: ☒ None ☐ Sheen/Slick ☐ Glob ☐ Other _____					
Meter ID: _____						Clarity: ☐ Clear ☒ Slightly Turbid ☐ Opaque ☐ Turbid					
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: Absent Rare Common Abundant Periphyton ☐ ☒ ☐ ☐ Nuisance Plants ☐ ☐ ☒ ☐ Submersed Plants ☐ ☐ ☐ ☒ Exotic Apple Snails ☒ ☒ ☐ ☐					
Weather Conditions: <u>hot, sunny, breezy</u>						Additional Notes: <u>Lake is towards the end of a chain of lakes w/ lots of stormwater & residential runoff</u>					
SAMPLING TEAM: <u>Katie March, Denver</u> <u>Bonassa</u>						SIGNATURE: <u>KMarch</u>					
DATE: <u>6/19/23</u>											

60

LVI Map For WBID 2997B, Lake Howell



1:12,845

0 0.07 0.15 0.3 0.6 km

0 0.07 0.15 0.3 0.6 mi

State of Florida, Maxar, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, County of Orange, Esri, HERE, IPC

DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: <u>Lake Howell</u>				County: <u>Seminole</u>				Date: <u>6/19/23</u>			
Analyst: <u>D. Burassa + K. March</u>				Signature: <u>SB</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				Collected? (✓)	SPECIES				Collected? (✓)		
				25811					25811		
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					Limnobium 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					Arctostaphylos sp. (milkweed)						
Eleocharis equisetoides					Carina sp.						
Eleocharis interstincta					Cyperus papirus						
*Eriocaulon compressum					Toxicodendron (poison ivy)						
*Eriocaulon decangulare					Thelypteris interstictus						
Eupatorium capillifolium					Rumex						
*Fuirena					Phyllanthium						
Fuirena scirpoidea											
Gordonia lasianthus											

FORM FD 9000-27: LAKE VEGETATION INDEX FIELD SHEET

Site:					Date:						
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	KM	/	/	/	
Paspalidium geminatum						Triadenum virginicum					
*Paspalum repens						Typha sp.	/	/	/	/	
Paspalum urvillei						Urochloa mutica (Brachiaria mutica)	/	/	/	/	
Peltandra sp.						*Utricularia gibba (U. biflora)					
Persea sp.						*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 (Sphagnetocola trilobata)	/	/	/	/	
*Polygonum	KM	/	/	/		Wolffiella spp.					
Pontederia cordata	/	/	/	/		Woodwardia virginica					
*Potamogeton diversifolius						Xyris sp.					
*Potamogeton illinoensis						Zizania aquatica					
*Potamogeton pusillus						Zizaniopsis milacea					
*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											