

DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: <u>Lake Eden</u>		County: <u>Martin County</u>		Date: <u>10/25/2021</u>									
Analyst: <u>Andrew Luning/Jordan Stagg</u>		Signature: _____		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.													
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 (w/ myrtle)		✓	✓	✓	✓	
Eleocharis cellulosa							pend apple		✓	✓	✓	✓	
Eleocharis equisetoides							Cyperus blythei (shiny)		✓	✓	✓	✓	
Eleocharis interstincta							Swamp mallow		✓	✓	✓	✓	
*Eriocaulon compressum													
*Eriocaulon decangulare													
Eupatorium capillifolium													
*Fuirena													
Fuirena scirpoidea													
Gordonia lasianthus													

28010595

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					
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 (Sphagnetica trilobata)					
*Polygonum						Wolffiella spp.					
Pontederia cordata						Woodwardia virginica					
*Potamogeton diversifolius						Xyris sp.					
*Potamogeton illinoensis						Zizania aquatica					
*Potamogeton pusillus						Zizaniopsis milacea					
*Potamogeton pectinatus (Stuckenia pectinatus)						Peltandra?					
Proserpinaca pectinata						Haecet grass leersia					
*Rhexia						Lygodium	✓				
*Rhynchospora corniculata											
*Rhynchospora inundata											
Rhynchospora tracyi											
Ricciocarpus natans											
Sabal palmetto											
Sacciolepis striata											
*Sagittaria filiformis											
*Sagittaria graminea											
*Sagittaria isoetiformis											
Sagittaria lancifolia	✓	✓	✓	✓							
Sagittaria latifolia	✓	✓	✓	✓							

entered/authored 11/3/2022

visit ID: 85730

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION
Lake Habitat Assessment Field Sheet

STORET STATION NUMBER:	DATE (M/D/Y) 10/25/2022	LAKE NAME Lake Eden		FIELD ID / NAME: 28010595
ECO-REGION:	COUNTY: Martin	SAMPLING LOCATION/DESCRIPTION:		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 ☐ 17	Secchi > 3 m Or VOB 20 19 18 17 16	3 2.6 2.2 1.8 1.4 15 14 13 12 11	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 ☐ 15	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 11	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 ☐ 20	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
Bottom Substrate Quality ☐ 18	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 13 12 11	Moderate layer of CPOM/mud/muck, or hardpacked sand only, or moderate algal growth (mats or Chara) on bottom 10 9 8 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 ☐ 20	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 8 7 6	Highly developed or disturbed (>70% of lakeside affected) 5 4 3 2 1
Upland Buffer Zone ☐ 19	Expected native vegetation between uplands and littoral zone, greater than 90% of shore with >18m 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
Adverse Watershed Land Use ☐ 20	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 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1			
TOTAL SCORE	123	COMMENTS:		
ANALYSIS DATE:	ANALYST:	SIGNATURE:		
10/25/2022	AL/JSS			

entered 11/3/2022 (JS)

LAKE OBSERVATION FIELD SHEET

SAMPLE ID: 2365359 MACROPHYE ID: 12306 LATITUDE: 27.2722
 COUNTY: Martin STORET #: _____ LONGITUDE: -80.2462
 DATE: 10/25/2022 TIME: _____ SAMPLING AGENCY: DEP SEROL
 SITE NAME: Lake Eden WBID: 3194C
 FIELD ID/NAME: 28010593 LAKE SIZE: _____ RQ: 2022-09-1251

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>1</u>													
<u>100</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>20</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>20</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>19</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>24.2</u> <u>6.84</u> <u>5.78</u> <u>68.7</u> <u>218.8</u> <u>0.1</u> Mid-Depth: _____ Bottom: <u>2.3</u> <u>23.6</u> <u>7.07</u> <u>4.85</u> <u>57.2</u> <u>29.7</u> <u>0.1</u> Meter ID: <u>Hodor</u>										Water Surface Oils: ☒ None ☐ Sheen/Slick ☐ Glob ☐ Other _____									
Meter Readings: Top: <u>0.3</u> <u>24.2</u> <u>6.84</u> <u>5.78</u> <u>68.7</u> <u>218.8</u> <u>0.1</u> Mid-Depth: _____ Bottom: <u>2.3</u> <u>23.6</u> <u>7.07</u> <u>4.85</u> <u>57.2</u> <u>29.7</u> <u>0.1</u> Meter ID: <u>Hodor</u>										Clarity: ☒ Clear ☐ Opaque ☐ Turbid ☐ Slightly Turbid Color: ☐ Clear ☒ Tannic ☐ Green SECCHI (M) <u>1.3</u> Total Station Depth (M) <u>2.8</u> VOB ☐									

Sediment Type: (may check more than one) ☒ Sandy ☐ Organic fibrous (peaty, CPOM) ☐ Sand/Silt ☐ Organic smooth (muck) Sample Taken? ☐ Yes ☒ No ☐ Vegetated ☐ Other (Specify): _____										Sediment Odors: ☒ Normal ☐ Anaerobic ☐ Other (Specify): _____									
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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: 									
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Weather Conditions :

SAMPLING TEAM: Andrew Luering SIGNATURE: [Signature] DATE: 10/26/2022
Jordan Skaggs