



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION STRATEGIC MONITORING PROGRAM FIELD SHEET

June 2016

PAGE 1 OF 1

Data Qualified?

Yes / No

STORET Station Name: Lake Eden

Date:

(mm/dd/yyyy)

STORET Station ID: 28010959-28010595

WBID: 3194C

Latitude: 27.2722

(Decimal Degrees)

County: St. Lucie

RQ - 2016-09-19-21

ORG ID: 21FLWPB

Longitude: -80.2462

(Decimal Degrees)

Receiving Body of Water:

Field ID: 28010959

Sampling Team Members				WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Sampling Equipment			
Matthew Sewell Ashley Horley				☒	☒	☒	☒	☒	☒ Sample Container	☐ Van Dorn	☐ Pole	
									☐ Carboy	☐ Syringe		
									☐ Dipper	☐ Other		
									Equipment ID			
									Collection Method			
									☐ Wading	☒ Via Boat		
									☐ From Shore	☒ Canoe/Kayak		
									☐ Other (note below)	☐ Electric Motor		
										☐ Gasoline Motor		
Water Level: Dry / Low / <u>Normal</u> / High / Flooded									Matrix: <u>Fresh</u> Marine / DI			
Meter ID# <u>AE3</u> Photos: <u>Yes</u> / No									Tide Falling: Yes / No / <u>NA</u>			
Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (umhos/cm)	Temp. (C°)		
EST	1150	0.3	2.8	5.2	67	6.3	0.1	0.7	141	28.2		
CEN	1145	2.3		5.6	72	6.4	0.1		141	27.8		
Biological Samples Collected: None <u>HA</u> SCI LVS RPS <u>LVI</u> Other												
Parameter Suite		Parameter Methods				Preservation		Acid Lot#	Expiration	pH Check		
Preserved Nutrients		☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP				☒ Ice ☒ H2SO4		6209100		☐ <2		
Metals		☐ W-ICPMS ☒ W-ICP				☒ Ice ☒ HNO3		5259030	9/10	☒ <2		
Filtered Nutrients		☒ W-PO4-F ☒ Field Filtered 0.45 um Filter				☐ Ice		Place Preservative Sticker(s) Here (If Available)				
Chlorophyll		☒ CHLSUITE-W				☐ Ice						
Physical/Aggregate (Fresh)		☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-Cl-IC / W-COLOR / W-SO4-IC / W-TDS				☐ Ice						
Physical/Aggregate (Marine)		☐ Alkalinity / W-F / W-TSS / TURBIDITY				☐ Ice						
Macroinvertebrates		☐ MI-FW-QLDC				☐ Formalin						
Microbiology		☐ E Coli ☐ F Coli ☐ Entero ☐ QPCR				☐ Ice						
Periphyton		☐ ALGAE-ID				☐ Ice						
Pesticides		☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLYPH				☐ Ice ☐ Other						
PKD QKC												

Notes:

Algae v.s. bke in water column

Place Label Here
(If Available)

Signature: Matthew Sewell

Date: 9/22/16

Field Parameters Entered into LIMS: JP 10/13/2016
(Initials/Date)

Field Parameters QC in LIMS: _____
(Initials/Date)

Date Migrated to STORET: _____
(Initials/Date)

Field Sheets Scanned/Saved: _____
(Initials/Date)

Waterbody: <u>Lake Eden</u>		County: <u>St. Lucie</u>		Date: <u>9/20/16</u>							
Analyst: <u>Ashley Herbert</u>		Signature: <u>Ashley Herbert</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): <u>1, 4, 7, 10</u> 2, 5, 8, 11 3, 6, 9, 12							
SPECIES	1	4	7	10	Collected? (Y)	SPECIES	1	4	7	10	Collected? (Y)
Acer rubrum						Habenaria repens					
Alternanthera philoxeroides	X		X			Hydrilla verticillata					
Andropogon sp.						Hydrocotyle sp.	X	X	X	X	
Azolla filiculoides (A. caroliniana)						Hygrophila polysperma					
Baccharis sp.		X				*Hypericum fasciculatum					
Bacopa caroliniana						*Hypericum hypericoides					
Bacopa monnieri						*Hypericum myrtifolium					
Bidens laevis						Ilex cassine <u>Holly</u>	X				
Bidens mitis	X	X	X	X	X	Ipomoea aquatica					
Blechnum serrulatum						Ipomoea sagittata					
Boehmeria cylindrica						Itea virginica					
Brasenia schreberi	X	X				Juncus effusus					
Cabomba caroliniana						*Juncus marginatus					
Casuarina equisetifolia						*Juncus megacephalus					
Centella asiatica						Juncus repens					
Cephalanthus occidentalis	X	X	X	X		*Juncus scirpoides					
Ceratophyllum demersum						Lachnanthes caroliniana					
Chara sp.						Leersia hexandra					
Cladium jamaicense	X	X		X		Landoltia punctata (Spirodela punctata)					
Cliftonia monophylla						Lemna sp.	X	X			
Colocasia esculenta						Leucothoe racemosa (Eubotrys racemosa)					
*Commelina						Limnium spongia		X	X		
Crinum americanum						Limnophila sessiliflora					
*Cyperus alternifolius (C. involucratus)						Liquidambar styraciflua					
Cyperus articulatus						*Ludwigia arcuata					
Cyperus haspan						*Ludwigia leptocarpa	X	X	X	X	
*Cyperus lecontei	X	X	X	X		*Ludwigia linearis					
*Cyperus polystachyos	X		X			*Ludwigia octovalvis					
*Cyperus odoratus				X		*Ludwigia peruviana	X	X		X	
*Cyperus surinamensis				X		*Ludwigia repens					
Cyrilla racemiflora						*Ludwigia					
Decodon verticillatus						Luziola fluitans (Hydrochloa carolinensis)					
Diodia virginiana						Lyonia lucida					
*Echinochloa crus-galli	X	X			(H)	Magnolia virginiana					
*Echinochloa muricatum						Mayaca fluviatilis					
Echinochloa walteri	X	X				Melaleuca quinquenervia	X	X			
Eclipta prostrata (E. alba)	X					Micranthemum glomeratum					
Egeria densa						Micranthemum umbrosum					
Eichhornia crassipes	X	X	X	X		Mikania scandens	X	X	X	X	
*Eleocharis baldwinii	X	X	X	X		Mimosa pigra	X	X	X	X	
*Eleocharis <u>vivip</u>	X					Myrica cerifera	X	X	X		
Eleocharis cellulosa						<u>Plant</u>	X	X	X	X	
Eleocharis equisetoides						<u>hibiscus coccineus</u>	X	X	X	X	
Eleocharis interstincta						<u>Quercus Sp.</u>	X	X			
*Eriocaulon compressum						<u>Smilax vine</u>		X			
*Eriocaulon decangulare						<u>Lygodium</u>	X				
Eupatorium capillifolium	X	X	X	X		<u>white mangrove</u>	X	X			
*Fuirena						<u>flour</u>					
Fuirena scirpoidea						<u>nutweed</u>	X				
Gordonia lasianthus											

FORM FD 9000-27: LAKE VEGETATION INDEX FIELD SHEET

Site: Lake Eden					Date: 9/20/16						
SPECIES	1	4	7	10	Collected? (Y)	SPECIES	1	4	7	10	Collected? (Y)
Myriophyllum aquaticum						Salix caroliniana	X			X	
*Myriophyllum heterophyllum						Salvinia minima	X				
*Myriophyllum laxum						Sambucus canadensis					
*Myriophyllum pinnatum						Sapium sebiferum					
Myriophyllum spicatum						Saururus cernuus					
*Najas filifolia						Schinus terebinthifolius	X	X			
*Najas guadalupensis						*Schoenoplectus californicus					
*Najas minor						*Schoenoplectus pungens					
Nelumbo lutea						*Schoenoplectus tabernaemontani (Scirpus validus)					
Nitella spp.						Scirpus cubensis (Oxycaryon cubense)	X	X	X	X	X
Nuphar sp.	X	X	X	X		Scirpus cyperinus	X	X	X	X	X
Nymphaea odorata	X					*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	X	X	X	X		Thalia geniculata					
Panicum repens	X	X	X	X		Thelypteris palustris	X	X	X	X	
Paspalidium geminatum						Triadenum virginicum					
*Paspalum repens						Typha sp.	X	X	X	X	
Paspalum urvillei						Urochloa mutica (Brachiaria mutica)					
Peltandra sp. arrowhead	X	X		X		*Utricularia gibba (U. biflora)					
Persea sp.						*Utricularia floridana ? fan				X	
Pennisetum purpureum						*Utricularia foliosa				X	X
Phragmites australis						*Utricularia inflata					
Pinus elliotii	X	X				*Utricularia purpurea					
Pistia stratioides						*Utricularia cornuta					
Pluchea sp.	X	X	X			*Utricularia radiata					
*Polygonum glabrum (densiflorum)	X	X	X	X		Vallisneria americana					
*Polygonum hydropiperoides	X		X			*Websteria confervoides					
*Polygonum punctatum						Wedelia trilobata (Sphagneticola trilobata)					
*Polygonum						Wolffiella spp.					
Pontederia cordata	X	X		X		Woodwardia virginica					
*Potamogeton diversifolius						Xyris sp.					
*Potamogeton illinoensis						Zizania aquatica					
*Potamogeton pusillus						Zizaniopsis milacea					
*Potamogeton pectinatus (Stuckenia pectinatus)						fern	X	X	X	X	X
Proserpinaca pectinata						anona glabra	X	X	X	X	
*Rhexia						bamboo	X				
*Rhynchospora corniculata											
*Rhynchospora inundata nitens	X	X									
Rhynchospora tracyi											
Ricciocarpus natans											
Sabal palmetto	X	X									
Sacciolepis striata	X	X		X							
*Sagittaria filiformis											
*Sagittaria graminea											
*Sagittaria isoetiformis											
Sagittaria lancifolia	X	X	X	X							
Sagittaria latifolia											

DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: Z6 SL10002 **MACROPHYTE ID:** _____ **LATITUDE:** _____
COUNTY: St. Lucie **STORET #:** _____ **LONGITUDE:** _____
DATE: 9/20/16 **TIME:** 1140 **SAMPLING AGENCY:** 8050
SITE NAME: Lake Eden **WBID:** _____
FIELD ID/NAME: _____ **LAKE SIZE:** Small **RQ:** _____

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)														
<u>70</u>				<u>30</u>																	
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>18</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>18</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 ☒ 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 _____ 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>0.3</u></td> <td><u>28.2</u></td> <td><u>6.3</u></td> <td><u>5.2</u></td> <td><u>67</u></td> <td><u>141</u></td> <td><u>0.1</u></td> </tr> <tr> <td>Mid-Depth:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Bottom:</td> <td><u>2.3</u></td> <td><u>27.8</u></td> <td><u>6.4</u></td> <td><u>5.6</u></td> <td><u>72</u></td> <td><u>141</u></td> <td><u>0.1</u></td> </tr> </tbody> </table>											Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat. (%)	Cond. (UMHO/CM)	Salinity (PPT)	Top:	<u>0.3</u>	<u>28.2</u>	<u>6.3</u>	<u>5.2</u>	<u>67</u>	<u>141</u>	<u>0.1</u>	Mid-Depth:								Bottom:	<u>2.3</u>	<u>27.8</u>	<u>6.4</u>	<u>5.6</u>	<u>72</u>	<u>141</u>	<u>0.1</u>	Clarity: ☐ Clear ☒ Turbid ☐ Slightly Turbid Color: ☐ Clear ☒ Tannic ☐ Green									
	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat. (%)	Cond. (UMHO/CM)	Salinity (PPT)																																												
Top:	<u>0.3</u>	<u>28.2</u>	<u>6.3</u>	<u>5.2</u>	<u>67</u>	<u>141</u>	<u>0.1</u>																																												
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Meter ID: <u>AE 3</u>										SECCHI (M) <u>0.7</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): _____																																									
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										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																																															
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Nuisance Plants	☐	☒	☐	☐																																															
Submersed Plants	☐	☒	☐	☐																																															
Exotic Apple Snails	☒	☐	☐	☐																																															

Weather Conditions :

Cloudy 80-5

SAMPLING TEAM:

Ashley Hurley / Matt Sewell

SIGNATURE:

Ashley Hurley

DATE:

9/20/16

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

STORET STATION NUMBER:	DATE (M/D/Y) <u>9/20/16</u>	LAKE NAME <u>Lake Eden</u>		FIELD ID / NAME: <u>26 SL 10002</u>
ECO-REGION:	COUNTY: <u>St. Lucie</u>	SAMPLING LOCATION/DESCRIPTION: <u>LVI / Center</u>		LAKE SIZE: <u>Small</u>
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 <u>7</u> ☒	Secchi >3 m Or VOB	Secchi(m)	3 2.6 2.2 1.8 1.4	1.0 0.9 0.8 0.7 0.6
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Vegetation Quality ☒	Diverse, expected native vegetation (emergent or submersed), less than 5% nuisance taxa	Mostly expected native plants, but moderate growths (6%-20% of lake) of nuisance macrophytes, or more than 50% of lake covered with plants	Large masses (21%- 40%) of nuisance macrophytes (e.g., Hydrilla, hyacinth, cattail, etc.) or algal mats	Lake choked (>40%) with nuisance macrophytes (duckweed, hyacinth, etc.) or algal mats, or few plants present at all (e.g., plants removed)
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
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
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Bottom Substrate Quality ☒	Diverse mixture of sand, detritus, with small amounts of CPOM/mud/muck. SAV may be present	Mixture of sand or clay and detritus with higher % CPOM/mud/muck content. SAV may be present	Moderate layer of CPOM/ mud/muck, or hardpacked sand only, or moderate algal growth (mats or Chara) on bottom	Thick deposits of CPOM, or fine detritus and anaerobic muck/mud/silt, or algal growth or nuisance plants (Hydrilla) cover bottom
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Lakeside Adverse Human Alterations ☒	Very few man-made structures, roads, or other disturbance adjacent to lake (<10%)	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)
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	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	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
	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	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	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
TOTAL SCORE <u>117</u>	COMMENTS:			

ANALYSIS DATE: <u>9/20/16</u>	ANALYST: <u>Stashley Hurley/Matt Sewell</u>	SIGNATURE: <u>[Signature]</u>
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