

LVI

Site Name Lake Hill Sample Date 10/17/2019

WBID 3004 S WIN ID GZCE0219 RQ -2019-09-16-52

	Initial/Date	QC Initial/Date
Water chemistry data to LIMS	MKL 12/2/19	HO 12/17/19
Create SBIO station visit 80509	MKL 12/2/19	n/a
Vascular Entry (add LIMS ID)	MKL 12/2/19	HO 12/18/19
Lake Observation Sheet Entry	MKL 12/2/19	HO 12/18/19
Authorize SBIO data	HO 12/18/19	n/a
Scan all sheets to 21FLCEN folder		n/a
LIMS/WIN migration		n/a
File in cabinet		n/a

Comments/notes:



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

April 2018

Data Qualified?

Yes ☐ No ☒

WIN Station Name: Lake Hill @ Center

Date: 10/17/2019

WIN/ Field ID: G2CE0219

WBID: 3004 S

Latitude: 28.638653

County: Orange

ORG ID: 21FLCEN

Longitude: -81.43783

Receiving Body of Water: _____

RQ-2018- 09-16-52

Sampling Team Members					WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Mike Linger					/	/	/	/	/
Leif Boman					/	/	/	/	/

Sampling Equipment		
☒ Sample Container	☐ Van Dorn	☐ Pole
☐ Carboy	☒ Syringe	
☐ Dipper	☐ Other	
Depth Measured with <u>Secchi / meter</u>		
Equipment ID <u>Crow / County</u>		

Collection Method		
☐ Wading	☒ Canoe/Kayak	
☐ From Shore	☒ Electric Motor	
☐ Other	☐ Gasoline Motor	

Water Level: Dry / Pooled / Low / Normal / High / Flooded

Meter ID# Crow Dade

Matrix: Fresh / Marine / DI

Photos: Yes ☐ No ☒

Flow: No Flow / Intestinal / Flowing / NA

Tide: Rising / Falling / Slack / NA

Tide Times: High Low

Time Zone	Time	Total Depth (m)	Sample Depth (m)	Secchi Disk (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (PPTH)	Sp COND (µmhos/cm)	Temp. (C°)
<u>EST</u>	<u>1055</u>	<u>4.0</u>	<u>0.3</u>	<u>1.0</u>	<u>7.65</u>	<u>97.2</u>	<u>7.43</u>	<u>0.11</u>	<u>228.1</u>	<u>27.6</u>
CEN			<u>3.5</u>		<u>6.14</u>	<u>77.9</u>	<u>7.05</u>	<u>0.11</u>	<u>227.6</u>	<u>27.3</u>

Biological Samples Collected: None HA SCI RPS Algae ID LVS LVI Other:

SBIO ID Numbers: SBIO-ID: 80509 HA-ID: RPS-ID: Macrophyte-ID: 11555 LIMS#: 2129772

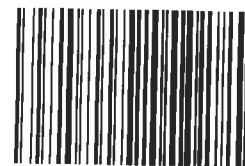
Parameter Suite	Parameter Methods	Preservation	Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H2SO4	<u>SA7163030</u>	<u>10/30/19</u>	☒ <2
Metals	☐ W-ICPMS ☐ W-ICP	☐ Ice ☐ HNO3			☐ <2
Filtered Nutrients	☒ W-PO4-F ☐ Field Filtered 0.45 µm Filter	☒ Ice	<u>16930280</u>		
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			
Periphyton	☐ ALGAE-ID	☐ Ice			
Microbiology	☐ E Coli ☐ F Coli ☐ Enterococci	☐ Ice			
Molecular	☐ PCR-FILTER ☐ PCR-HF183 ☐ PCR-BacR ☐ PCR-GULL2 ☐ PCR-GFD	☐ Ice			
Tracers	☐ W-E8321-DI ☐ W-E8321-MS	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-CT-CL-R ☐ W-E8321-DI ☐ W-PCL-SQ-R ☐ WE8321-MS ☐ W-CARB-AA	☐ Ice ☐ Other			

Notes:

LIMS EVENT ID: CEN-DIST-2019-10-18-02

WIN ID / Field ID →

Lake Hill @ Center



G2CE0219

Signature: _____

Date: 10/17/19

Enter Field Parameters, Verify Station ID in LIMS DMT: _____

MKL 12/2/19

QC Station ID, Field Parameters in LIMS DMT: _____

46 12/17/19

Scan/Save Field Sheets _____

Migrate Data to WIN: _____

Verify Data in WIN: _____

(Initials/Date)

(Initials/Date)

(Initials/Date)

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

STORET STATION NUMBER: 62CE0219	DATE (M/D/Y) 10/17/2019	LAKE NAME Lake Hill		FIELD ID / NAME:	
ECO-REGION:	COUNTY: Orange	SAMPLING LOCATION/DESCRIPTION: @ Center		LAKE SIZE: Medium	
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 ☒
HYDROLOGY					Impounded, hydrology of system artificially controlled ☐
Color	Very clear, uncolored water (benthic sampling appropriate) ☐		Water somewhat tannin stained (benthic sampling appropriate) ☒		Dark, discolored water (water color 20 PCU or higher) ☐
	Optimal		Suboptimal		Marginal
Secchi	Secchi > 3 m Or VOB		Secchi(m)		
10	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 8 AKC ☒		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
	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 3		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
	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 12		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
	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%) 4		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
	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 4		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
	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 10				
	20	19	18	17	16
	15	14	13	12	11
	10	9	8	7	6
	5	4	3	2	1
TOTAL SCORE	51		COMMENTS:		

ANALYSIS DATE: 10/17/19	ANALYST: Mike Linger	SIGNATURE: [Signature]
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DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: <u>LAKE HILL</u>				County: <u>Orange</u>				Date: <u>10/17/19</u>			
Analyst: <u>Leif Boman, Mike Linger</u>				Signature: <u>[Signature]</u>				STORET: <u>G2CE0219</u>			
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	/					Fraxinus					
Alternanthera philoxeroides	/	/	/			Fuirena scirpoides					
Amaranthus australis						Gordonia lasianthus	/				
Andropogon sp.						Habenaria repens					
Azolla filiculoides (A. caroliniana)						Hibiscus coccineus					
Baccharis sp.	/					Hibiscus grandiflora					
Bacopa caroliniana						Hydrilla verticillata					
Bacopa monnieri						Hydrocotyle sp.	/	/	/	/	
Bidens alba	/	/	/			Hygrophila polysperma					
Bidens laevis						Hymenocallis sp.					
Bidens mitis						*Hypericum fasciculatum					
Blechnum serrulatum						*Hypericum hypericoides					
Boehmeria cylindrica						*Hypericum myrtifolium					
Brasenia schreberi						Ilex cassine					
Cabomba caroliniana						Ipomoea aquatica					
Canna						Ipomoea sagittata					
Centella asiatica						Itea virginica					
Cephalanthus occidentalis				/		Juncus effusus					
Ceratophyllum demersum						*Juncus marginatus					
Chara sp.						*Juncus megacephalus					
Cicuta maculata						Juncus repens					
Cinnamomum camphora						*Juncus scirpoides					
Cladium jamaicense						Lachnanthes caroliniana					
Colocasia esculenta	/	/	/	/		Leersia hexandra					
*Commelina						Landoltia punctata (Spirodela punctata)					
Crinum americanum						Lemna sp.	/				
*Cyperus alternifolius (C. involucratus)	/	/				Leucothoe racemosa (Eubotrys racemosa)					
Cyperus articulatus	/					Limnobia spongia					
Cyperus haspan						Limnophila sessiliflora					
*Cyperus lecontei	/					Liquidambar styraciflua					
*Cyperus polystachyos						*Ludwigia arcuata					
*Cyperus odoratus						*Ludwigia grandiflora					
*Cyperus surinamensis						*Ludwigia hexapetala					
Cyrtia racemiflora	/					*Ludwigia leptocarpa			/		
Decodon verticillatus						Ludwigia (native)					
Diodia virginiana			/	/		*Ludwigia octovalvis		/			
*Echinochloa crus-galli			/	/		*Ludwigia peruviana	/	/	/		
*Echinochloa muricatum						*Ludwigia repens					
Echinochloa walteri						Ludwigia suffruticosa					
Eclipta prostrata (E. alba)						Luziola fluitans (Hydrochloa carolinensis)					
Eichhornia crassipes						Magnolia virginiana					
*Eleocharis <u>balderianii</u>			/	/		Mayaca fluviatilis					
Eleocharis cellulosa						Melaleuca quinquenervia					
*Eleocharis elongata						Micranthemum glomeratum					
Eleocharis equisetoides						Micranthemum umbrosum					
Eleocharis interstincta						Mikania scandens	/	/	/	/	
Eleocharis submersed viviparus	/	/	/	/		Mimosa pigra					
*Eriocaulon compressum						Myrica cerifera	/	/			
*Eriocaulon decangulare											
Eupatorium capillifolium											

FORM FD 9000-27: LAKE VEGETATION INDEX FIELD SHEET

Site: <u>Lake Hill</u>					Date: <u>10/17/19</u>						
SPECIES	3	6	9	12	Collected? (✓)	SPECIES	3	6	9	12	Collected? (✓)
Myriophyllum aquaticum						<i>Salix caroliniana</i>					
* <i>Myriophyllum heterophyllum</i>						<i>Salvinia minima</i>					
* <i>Myriophyllum laxum</i>						<i>Sambucus canadensis</i>					
* <i>Myriophyllum pinnatum</i>						<i>Sapium sebiferum</i>					
<i>Myriophyllum spicatum</i>						<i>Saururus cernuus</i>					
* <i>Najas filifolia</i>						<i>Schinus terebinthifolius</i>					
* <i>Najas guadalupensis</i>						* <i>Schoenoplectus californicus</i>					
* <i>Najas minor</i>						* <i>Schoenoplectus pungens</i>					
<i>Nelumbo lutea</i>						* <i>Schoenoplectus tabernaemontani</i> (<i>Scirpus validus</i>)					
<i>Nitella</i> spp.						<i>Scirpus cubensis</i> (<i>Oxycaryon cubense</i>)					
<i>Nuphar</i> sp.						<i>Scirpus cyperinus</i>					
<i>Nymphaea mexicana</i>						* <i>Sesbania</i>					
<i>Nymphaea odorata</i>						<i>Solidago</i> sp.					
<i>Nymphoides aquatica</i>						<i>Sparganium americanum</i>					
<i>Nyssa sylvatica</i> var. <i>biflora</i>						<i>Spartina bakeri</i>					
<i>Orontium aquaticum</i>						<i>Spirodela polyrhiza</i>					
<i>Osmunda cinnamomea</i>						<i>Taxodium</i> sp.					
<i>Osmunda regalis</i>						<i>Thalia geniculata</i>					
<i>Panicum hemitomon</i>						<i>Thelypteris interrupta</i>					
<i>Panicum repens</i>						<i>Thelypteris palustris</i>					
<i>Paspalidium geminatum</i>						<i>Triadenum virginicum</i>					
* <i>Paspalum repens</i>						<i>Typha</i> sp.					
<i>Paspalum urvillei</i>						<i>Urochloa mutica</i> (<i>Brachiaria mutica</i>)					
<i>Peltandra</i> sp.						* <i>Utricularia gibba</i> (<i>U. biflora</i>)					
<i>Persea</i> sp.						* <i>Utricularia foliosa</i>					
<i>Pennisetum purpureum</i>						* <i>Utricularia inflata</i>					
<i>Phragmites australis</i>						* <i>Utricularia purpurea</i>					
<i>Pinus elliotii</i>						* <i>Utricularia radiata</i>					
<i>Pistia stratioides</i>						* <i>Utricularia resupinata</i>					
<i>Pluchea</i> sp.						<i>Vallisneria americana</i>					
* <i>Polygonum glabrum</i> (<i>densiflorum</i>)						<i>Vitis</i> sp.					
<i>Polygonum hirsutum</i>						* <i>Websteria confervoides</i>					
* <i>Polygonum hydropiperoides</i>						<i>Wedelia trilobata</i> (<i>Sphagneticola trilobata</i>)					
* <i>Polygonum punctatum</i>						<i>Wolffiella</i> spp.					
* <i>Polygonum</i>						<i>Woodwardia virginica</i>					
<i>Pontederia cordata</i>						<i>Xyris</i> sp.					
* <i>Potamogeton diversifolius</i>						<i>Zizania aquatica</i>					
* <i>Potamogeton illinoensis</i>						<i>Zizaniopsis milacea</i>					
* <i>Potamogeton pusillus</i>											
* <i>Potamogeton pectinatus</i> (<i>Stuckenia pectinatus</i>)											
<i>Proserpinaca pectinata</i>											
* <i>Rhexia</i>											
* <i>Rhynchospora corniculata</i>											
* <i>Rhynchospora inundata</i>											
<i>Rhynchospora nitens</i>											
<i>Ricciocarpus natans</i>											
<i>Sabal palmetto</i>											
<i>Sacciolepis striata</i>											
* <i>Sagittaria filiformis</i>											
* <i>Sagittaria graminea</i>											
* <i>Sagittaria isoetiformis</i>											
<i>Sagittaria lancifolia</i>											
<i>Sagittaria latifolia</i>											

DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: _____ MACROPHYTE ID: _____ LATITUDE: 28.63653
COUNTY: Orange STORET #: G2CE0219 LONGITUDE: -81.43783
DATE: 10/17/19 TIME: 1055 SAMPLING AGENCY: FDEP CE.Roc
SITE NAME: Lake Hill @ Center WBID: 3004 S
FIELD ID/NAME: _____ LAKE SIZE: Med RQ: 2019-D9-16-SZ

WATERSHED / LAKESIDE FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category – from GIS) : <u>Road</u> Forest/Natural ☐ Silviculture ☐ Field/Pasture ☐ Agricultural ☐ Residential <u>85</u> Commercial ☐ Industrial ☐ Other (Specify) <u>15</u>					LANDSCAPE DEVELOPMENT INTENSITY (100 m buffer) LDI: ☐																
Local Watershed Erosion (select one) : ☒ None ☐ Slight ☐ Moderate ☐ Heavy					Artificially Impounded ☐ Yes ☒ No					Land Use Source & Year:											
Local Watershed NPS Pollution : ☐ No evidence ☐ Slight ☒ Moderate ☐ Heavy																					
STORMWATER INPUTS <u>3</u>		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
LAKESIDE ALTERATIONS <u>4</u>		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)										
		20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
BUFFER ZONE <u>4</u>		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

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: <u>0.3</u> <u>27.6</u> <u>7.43</u> <u>7.65</u> <u>97.2</u> <u>228.1</u> <u>0.11</u> Mid-Depth: _____ Bottom: <u>3.5</u> <u>27.3</u> <u>7.05</u> <u>6.14</u> <u>77.9</u> <u>227.6</u> <u>0.11</u>								Water Surface Oils: ☒ None ☐ Sheen/Slick ☐ Glob ☐ Other _____															
Meter ID: <u>Craw Daddy</u>								Clarity: ☒ Clear ☐ Opaque ☐ 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>1.0</u> Total Station Depth (M) <u>4.0</u> VOB ☐															
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 ☒ ☐ ☐ ☐							
Additional Notes:																							
Weather Conditions : <u>80's clear</u>																							
SAMPLING TEAM: <u>Mike Linger / Leif Bomen</u>								SIGNATURE: <u>[Signature]</u>				DATE: <u>10/17/19</u>											

LVI Map for LAKE HILL, WBID 3004S (Z3-SL-12018)

