Reference lake

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

February 2016

PAGE ____ OF ____

Data Qualified? Yes / No

STORET Station Name: Lake Crosby SW center Date: 9/6/16 (mm/dd/yyyy)

STORET Station ID: 21030062 FLA Latitude: 29 56 28.2 (Decimal Degrees)

WBID: 3593A RQ-2016-09-05-18 ORG ID: ____ Longitude: 82 09 36.4 (Decimal Degrees)

Receiving Body of Water: ____ Field ID: ____ County: ____

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check	Duplicate Collection	Blank Collection
Parrish	✓		✓	✓			
Plonner		✓		✓			

Sampling Equipment

- [x] Sample Container
- [ ] Van Dorn
- [ ] Pole
- [ ] Carboy
- [ ] Syringe
- [ ] Dipper
- [ ] Other ____

Equipment ID ____

Collection Method

- [ ] Wading
- [ ] From Shore
- [ ] Other (note below)

Via Boat
- [ ] Canoe/Kayak
- [x] Electric Motor
- [ ] Gasoline Motor

Water Level: Dry / Low / Normal / (High) / Flooded

Matrix: (Fresh) / Marine / DI

Meter ID# Quanta Photos: Yes / No

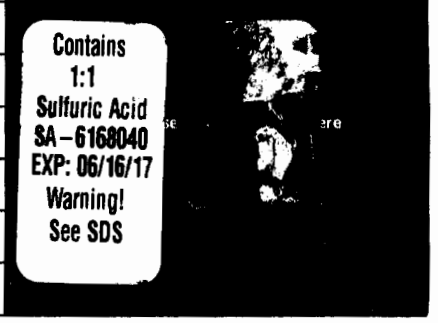
Tide Falling: Yes / No / NA

Field Sample *High WATER Level Post HURRICANE "Hermine"

Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (µmhos/cm)	Temp. (C°)
EST	1200	0.3	2.2	6.6	86.1	7.4	0.05	0.8	95	28.7
CEN										

Biological Samples Collected: None / HA / SCI / LVS / RPS / (LVI) / Other ____

Parameter Suite	Parameter Methods	Preservation	Acid Lot#	Expiration	pH Check
Preserved Nutrients	[x] TKN / TP / Nox / NH3 / TOC [ ] Other ____	[x] Ice [x] H_2SO_4			[x] <2
Metals	[x] W-ICPMS [ ] W-ICP	[x] Ice [x] HNO_3			[x] <2
Filtered Nutrients	[x] oP [x] Field Filtered 0.45 µm Filter	[ ] Ice			
Chlorophyll	[x] CHLSUITE-W	[x] Ice			
BOD	[ ] BOD-INHB [ ] BOD-UNIN	[ ] Ice			
Physical/Aggregate	[x] TSS / Turbidity / Alkalinity / Color [ ] Other ____	[x] Ice			
Macroinvertebrates	[ ] MI-FW-BLDC	[ ] Formalin			
Microbiology	[ ] E Coli [ ] F Coli [ ] Entero [ ] QPCR	[ ] Ice			
Periphyton	[x] ALGAE-ID DIATOM	[x] Ice			
Pesticides	[ ] W-PSNP-TQ [ ] W-AHERB-AA [ ] W-PYR-AA-B [ ] W-PC-AA-SF [ ] W-UHERB-AA [ ] W-GLYPH	[ ] Ice [ ] Other ____			



See Calibration 9/6/2016 used Quanta meter

76822

DEP FORM FD 9000-31: LAKE OBSERVATION FIELD SHEET

SAMPLE ID: _____ **MACROPHYTE ID:** _____ LATITUDE: _____

COUNTY: 9/6/16 STORET #: 21FL006Z LONGITUDE: _____

DATE: 9/6/2016 TIME: 1200 SAMPLING AGENCY: _____

SITE NAME: Lake Crosby SW WBID: _____

FIELD ID/NAME: _____ LAKE SIZE: _____ RQ: _____

WATERSHED / LAKESIDE FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category – from GIS):

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industrial	Other (Specify)

LANDSCAPE DEVELOPMENT INTENSITY (100 m buffer) **LDI:** _____ Land Use Source & Year:

Local Watershed Erosion (select one) : ☒ None ☐ Slight ☐ Moderate ☐ Heavy

Local Watershed NPS Pollution : ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy

Artificially Impounded ☐ Yes ☒ No

STORMWATER INPUTS 18	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 14	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 13	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 ☐ 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:	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat. (%)	Cond. (UMHO/CM)	Salinity (PPT)
Top:	0.3	28.7	7.4	6.6	86.1	95	0.05
Mid-Depth:							
Bottom :	2.2						

Meter ID: _____

Clarity: ☐ Clear ☐ Opaque ☒ Turbid ☐ Slightly Turbid

Color: ☒ Clear ☒ Tannic ☐ Green

SECCHI (M) 0.8 VOB ☐

Total Station Depth (M) 2.2

Sediment Type: (may check more than one) ☒ Sandy ☐ Sand/Silt ☐ Organic fibrous (peaty, CPOM) ☐ Organic smooth (muck) ☐ Vegetated ☐ Other (Specify): _____

Sample Taken? ☒ Yes ☒ No

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: Reference LVI

Weather Conditions :

SAMPLING TEAM: Hamby/Parmer **SIGNATURE:** J Parmer **DATE:** 9/6/16

62-160.800, F.A.C.

Revision Date: March 1, 2014

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

STORET STATION NUMBER: 21030062FLA	DATE (M/D/Y): 9/6/2016	LAKE NAME: Lake Crosby SW cente	FIELD ID / NAME:
ECO-REGION:	COUNTY: Bradford	SAMPLING LOCATION/DESCRIPTION:	LAKE SIZE:

PARAMETER				
HYDROLOGY	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 ☐
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 8	Secchi >3 m		Secchi(m)			3	2.6	2.2	1.8	1.4	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1
	Or VOB	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Vegetation Quality 14	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 (duck-weed, 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 16	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 17	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 Alternations 14	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 13	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 14	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	90/100	COMMENTS:	Reference Lake

ANALYSIS DATE:	ANALYST:	SIGNATURE:
9/6/16	J Lamb / Pocono	J Lamb

76822

DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: LAKE Crosb	County: Bradford	Date: 09/06/16
Analyst: J PARRISH, P. O'Connor	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.

Lake units sampled (circle one group): 1, 4, 7, 10 — 2, 5, 8, 11 — (3, 6, 9, 12)

SPECIES	3	6	9	12	Collected? (√)
Acer rubrum	✓	✓	✓	✓	
Alternanthera philoxeroides					
Andropogon sp.	✓				
Azolla filiculoides (A. caroliniana)					
Baccharis sp.					
Bacopa caroliniana					
Bacopa monnieri					
Bidens laevis					
Bidens mitis					
Blechnum serrulatum					
Boehmeria cylindrica					
Brasenia schreberi					
Cabomba caroliniana					
Casuarina equisitifolia					
Centella asiatica		✓			
Cephalanthus occidentalis	✓	✓	✓	✓	
Ceratophyllum demersum					
Chara sp.					
Cladium jamaicense	✓	✓	✓	✓	
Cliftonia monophylla					
Colocasia esculenta					
*Commelina					
Crinum americanum					
***Cyperus alternifolius** (C. involucratus)					
Cyperus articulatus					
Cyperus haspan					
*Cyperus leconteí					
*Cyperus polystachyos					
*Cyperus odoratus		✓			
*Cyperus surinamensis					
Cyrilla racemiflora	✓	✓	✓	✓	
Decodon verticillatus					
Diodia virginiana					
*Echinochloa crus-galli					
*Echinochloa muricatum					
Echinochloa walteri					
Eclipta prostrata (E. alba)					
Egeria densa					
Eichhornia crassipes					
*Eleocharis baldwinii	✓	✓	✓	✓	
*Eleocharis ELONGATA	✓	✓	✓		
Eleocharis cellulosa					
Eleocharis equisetoides					
Eleocharis interstincta					
*Eriocaulon compressum					
*Eriocaulon decangulare					
Eupatorium capillifolium		✓			
~~*Fuirena~~ NITELLA	✓				
Fuirena ~~scirpoidea~~ SQUAROSA		✓			
Gordonia lasianthus					

SPECIES	3	6			Collected? (√)
Habenaria repens					
Hydrilla verticillata					
Hydrocotyle sp.					
Hygrophila polysperma					
*Hypericum fasciculatum	✓	✓	✓		
*Hypericum hypericoides					
*Hypericum myrtifolium					
Ilex cassine	✓	✓	✓	✓	
Ipomoea aquatica					
Ipomoea sagittata					
Itea virginica					
Juncus effusus					
*Juncus marginatus					
*Juncus megacephalus					
Juncus repens					
*Juncus scirpoides		✓			
Lachnanthes caroliniana		✓			
Leersia hexandra					
Landoltia punctata (Spirodela punctata)					
Lemna sp.					
Leucothoe racemosa (Eubotrys racemosa)					
Limnobium spongia					
Limnophila sessiliflora					
Liquidamber styraciflua					
*Ludwigia arcuata					
*Ludwigia leptocarpa					
*Ludwigia linearis					
*Ludwigia octovalvis		✓			
***Ludwigia peruviana**					
*Ludwigia repens					
*Ludwigia ALATA	✓		✓	✓	
Luziola fluitans (Hydrochloa carolinensis)	✓	✓	✓	✓	
Lyonia lucida					
Magnolia virginiana	✓	✓	✓		
Mayaca fluviatilis					
~~**Melaleuca quinquenervia**~~ NAJAS FL	✓	✓	✓		
Micranthemum glomeratum					
Micranthemum umbrosum					
Mikania scandens		✓			
Mimosa pigra					
Myrica cerifera	✓	✓	✓	✓	
AJUGA	D	C	✓	D	
PANICUM HEMITOMON	✓	D	D	✓	
PONTEDERIA CORDATA	✓	✓	✓	✓	
TAXODIUM	✓	✓	✓	✓	
XYRIS	✓	✓			
NYSSA BIFLORA	✓	✓	✓	✓	
PINUS ELLIOTII	✓	✓	✓	✓	
NYMPHOIDES AQUATICA	✓	✓			
UTRICULARIA SP purpurea	✓	✓	✓	✓	✓
utricularia radiata		✓	✓	✓	

FORM FD 9000-27: LAKE VEGETATION INDEX FIELD SHEET

Site: Lake Crosby | Date: 09/06/16

SPECIES		6	9	12	Collected? (√)	SPECIES		6			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 elliottii						*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)											
Proserpinaca pectinata						SAPIUM		✓			
*Rhexia VIR		✓									
*Rhynchospora corniculata						Rhus COPALINA		✓			
*Rhynchospora inundata											
Rhynochospora tracyi						PLUchea		✓			
Ricciocarpus natans											
Sabal palmetto						PSYLLOCHARIS NUTRUSH		✓			
Sacciolepis striata		✓	✓	✓							
*Sagittaria filiformis						Hydrocotyl		✓			
*Sagittaria graminea											
*Sagittaria isoetiformis						NAJAS FILIFORMIS	✓	✓	✓		
Sagittaria lancifolia											
Sagittaria latifolia		✓				LUDWIGIA ~~GRANDIFLORA~~ peploides grandiflora			✓	✓	✓
RYN NITENS		✓				PANICUM DICHON.		✓			

CALIBRATION AND VERIFICATION LOG (FDEP SOP FT 1000-FT 1500, FD 1000-FD 4000)

Boldly "X" this box if there is qualified data on this page.

Meter DEP1493734 RQ- 2016-09-05-18 2016-09-05-20 Project Red Lake LVI & Lake Sample

Notes: (1) Numbers ≤4, are rounded down; numbers ≥ 5 are rounded up (e.g., 5.15 becomes 5.2).
(2) Always wait for meter to stabilize before recording any readings.
(3) For Calibrations, record calibrated meter reading. Do not record initial meter reading before calibration.

Circle/Fill In: Lab Calibration or Calibration/Verification on Site LAB

Temperature (Quarterly) FT 1400 Date of Last Temperature Verification ~~03/04/2016~~ 07/2016

DO DEP SOP FT 1500	Name	Date	Time CT-ET	Temp	D.O. Chart mg/L	Meter D.O. mg/L	% DO	Probe Charge	Probe Gain	Pass / Fail	Lab / Field
Calibr.	PO'Connor	09/06/16	0715	23.0	8.57	8.56	100.0	—	—	Pass	LAB
ICV	↓	↓	0720	23.1	8.56	8.54	99.9	—	—	Pass	LAB
~~CCV~~	~~PO'Con~~	~~09/06/16~~	~~1555~~	~~25.6~~	~~8.17~~	~~no~~					
CCV	PO'Con	09/06/16	1610	25.8	8.14	8.03	98.9	—	—	Pass	LAB

Report DO mg/L with one decimal figure and DO % saturation as a whole number with no decimals.
DO Acceptance criteria from Table ±0.3 mg/L. **Rapid-Pulse Sensors:** DO Gain Range 0.7 to 1.4; DO Charge Range 25-75.
Optical: DO gain range 0.85 to 1.15; DO charge N/A. **Steady-state & Galvanic Sensors:** DO Gain & Charge N/A.

Spec. Cond. FT 1200	Name	Date	Time CT-ET	Lot #	Expir. Date	Standard µmhos/cm	Meter Reading µmhos/cm	Pass / Fail	Lab / Field
Calibr.	PO'Conn	09/06/16	0722	160616A	06/2017	1000	1000	Pass	LAB
ICV	↓	↓	0724	151151A	11/2016	100	99	Pass	LAB
CCV	PO'Con	09/06/16	1610	160616A	06/2017	1000	997	Pass	LAB
CCV									

Report specific conductance as a whole number with no decimal figure. Conductivity Acceptance criteria ± 5%

pH DEP SOP FT 1100	Name	Date	Time CT-ET	Lot #	Expir. Date	pH Buffer SU	Meter reading SU	mV	Pass / Fail	Lab / Field
Calibr.	PO'Connor	09/06/16	0725	~~2106E04~~ 2606E04	06/2018	7.0	7.00	—	Pass	LAB
Calibr.	↓	↓	0730	2402556	01/2018	4.0	4.00	—	Pass	LAB
~~Calibr.~~ ICV	↓	↓	0735	2510A88	04/2017	10.0	9.85	=	Pass	LAB
~~ICV~~ CCV	PO'Con	09/06/16	1615	2606E04	06/2018	7.00	7.06	—	Pass	LAB
CCV										
CCV										

Report pH with one decimal place; pH Acceptance criteria ±0.2 SU; mV pH7 Range 0±50; mV pH 4 Range +180±50;
mV pH 10 Range -180±50; Slope from 7 to 10 and 4 to 7 must be between 165 and 180 mV

Depth (Quarterly) Date of Last Depth Verification W/A

Depth Sensor (Daily)	Name	Date	Time CT-ET	Zero the Sensor	ICV Value	Pass / Fail	Lab / Field
Pressure mode ~~in air~~				0.000			

ICV acceptance criteria ±5 % or ±0.05m, whichever is greater

Scanned 9/15/16