

DEP FORM FD 9000-31: LAKE OBSE

Campbell Lake
Topsail Hill Preserve St. Park
RQ-2016-08-15-59. WBID 959A.

CAMPBELREF

Field ID ↑
STORET ↓
2010049

SAMPLE ID: 76771

MACROPHYTE ID: _____

COUNTY: WaltonSTORET #: 32010049DATE: 2016-08-25

TIME: _____

Date: 08-25-2016Time: CSTSITE NAME: Campbell Lake (WBID 959A)LAKE SIZE: 106 RQ: 2016-08-15-59FIELD ID/NAME: CAMPBELREFWATERSHED / LAKESIDE FEATURES HAZ 13939

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>State Parks</u>	LDI:													
Local Watershed Erosion (select one) : ☐ None ☒ Slight ☐ Moderate ☐ Heavy					Artificially Impounded ☐ Yes ☐ No																
Local Watershed NPS Pollution : ☐ No evidence ☒ Slight ☐ Moderate ☐ Heavy					Land Use Source & Year:																
STORMWATER INPUTS <u>24</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>19</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>24</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 ☐ pH<2 ☐ No Color Sample Taken? ☒ Yes ☐ No Lot # <u>SA-6209120</u> Exp. Date: <u>07-27-2017</u> Alkalinity Sample Taken? ☒ Yes ☐ No Lot # <u>NA-5259030</u> Exp. Date: <u>09-16-2016</u> Water Level ☐ Low ☒ Normal ☐ High								Water Odors: ☒ Normal ☐ Sewage ☐ Petroleum ☐ 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>0.2</u></td> <td><u>31.7</u></td> <td><u>5.1</u></td> <td><u>7.2</u></td> <td><u>98</u></td> <td><u>64</u></td> <td><u>0.0</u></td> </tr> <tr> <td>Mid-Depth:</td> <td><u>2.3</u></td> <td><u>30.9</u></td> <td><u>5.0</u></td> <td><u>6.8</u></td> <td><u>92</u></td> <td><u>64</u></td> <td><u>0.0</u></td> </tr> <tr> <td>Bottom:</td> <td><u>4.3</u></td> <td><u>28.4</u></td> <td><u>4.8</u></td> <td><u>1.4</u></td> <td><u>18</u></td> <td><u>65</u></td> <td><u>0.0</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>0.2</u>	<u>31.7</u>	<u>5.1</u>	<u>7.2</u>	<u>98</u>	<u>64</u>	<u>0.0</u>	Mid-Depth:	<u>2.3</u>	<u>30.9</u>	<u>5.0</u>	<u>6.8</u>	<u>92</u>	<u>64</u>	<u>0.0</u>	Bottom:	<u>4.3</u>	<u>28.4</u>	<u>4.8</u>	<u>1.4</u>	<u>18</u>	<u>65</u>	<u>0.0</u>	Water Surface Oils: ☒ None ☐ Sheen/Slick ☐ Glob ☐ Other _____			
	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat. (%)	Cond. (UMHO/CM)	Salinity (PPT)																																				
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Meter ID: <u>113529</u>								Clarity: ☒ Clear ☐ Opaque ☐ Turbid ☒ Tannic ☐ Green ☐ Slightly Turbid																																			
Sediment Type: (may check more than one) ☒ Sandy ☐ Organic fibrous (peaty, CPOM) ☐ Vegetated ☐ Sand/Silt ☐ Organic smooth (muck) ☐ Other (Specify): _____								Sediment Odors: ☒ Normal ☐ Other (Specify): _____ ☐ Anaerobic																																			
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: <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	☒	☐	☐	☐							
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Periphyton	☐	☐	☒	☐																																							
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Weather Conditions: Storet 30.366094 x -86.291389.								Additional Notes: Project: Reference Lakes. <u>sects 465 MHA</u> <u>overgrown vegetation</u> <u>P-Chen S&D</u>																																			

SAMPLING TEAM: Frank Butera, Nathan Mulkey

SIGNATURE: [Signature]

DATE: _____

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

STORET STATION NUMBER: 32010049	DATE (M/D/Y) 8/25/2016	LAKE NAME CAMPBELL LAKE		FIELD ID / NAME CAMPBELREF	
WBID: 959A HA ID 13989	COUNTY: WALTON	SAMPLING LOCATION/DESCRIPTION: * TOPSAIL HILL PRESERVE S.P., SANTA ROSA BEACH		LAKE SIZE: 106	
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	☒	☐		☐	
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	Secchi(m)		Poor	
☐	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6	
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	
☒	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6	
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	
☒	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6	
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	
☒	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6	
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	
☒	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6	
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	
☒	20 19 18 17 16	15 14 13 12 11		10 9 8 7 6	
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	

TOTAL SCORE: 118 COMMENTS: Choking vegetation in (l. 11, 12 & 13) covers entire sections.

ANALYSIS DATE: 8/25/2016 ANALYST: F. BUTERA SIGNATURE: [Signature]

SBIO Sample ID: 76771

VPDB MacroID: _____

QC✓: _____

DEP FORM FD 9000-27 LAKE VEGETATION INDEX FIELD SHEET

Waterbody: Campbell Lake . (CAMPBELREF)				County: Walton				Date: <u>8/25/2016</u>			
Analyst: F. Butera, N. Mulkey				Signature: <u>[Signature]</u>				STORET: 32010049			
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 <u>3, 6, 9, 12</u>			
SBIO ID _____ SPECIES	3	6	9	12	Col (✓)	Macro ID _____ SPECIES					Coll (✓)
Acer rubrum						Habenaria repens					
Alternanthera philoxeroides						Hydrilla verticillata					
Andropogon sp.						Hydrocotyle sp.		1		1	
Azolla filiculoides (A. caroliniana)						Hygrophila polysperma					
Baccharis sp.						*Hypericum fasciculatum	1	1	1	1	
Bacopa caroliniana	1	1	1	1		*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	1	1	1	1		*Juncus scirpoides					
Ceratophyllum demersum						Lachnanthes caroliniana	1	1	1	1	
Chara sp.						Leersia hexandra	1	1	1	1	
Cladium jamaicense						Landoltia punctata (Spiro. punctata)	1	1	1	1	
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	1	1	1	1		*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 brigodeana						Myrica cerifera					
Eleocharis cellulosa						<i>Eleocharis lineare</i>	1				✓
Eleocharis equisetoides	1					<i>Eleocharis pycnostachya</i>					
Eleocharis interstincta						<i>Eleocharis pycnostachya</i>					
*Eleocharis compressum											
*Eleocharis decangulare											
Eupatorium capillifolium											
*Fuirena											
Fuirena scirpoidea	1	1	1	1							
Gordonia lasianthus											

FORM FD 9000-27: LAKE VEGETATION INDEX FIELD SHEET

Site: Campbell Lake. (CAMPBELREF). Storet 32010049.				Date: 7/25/2016	SBIO ID	Macro ID
SPECIES			Collected? (✓)	SPECIES		Collected? (✓)
Myriophyllum aquaticum				Salix caroliniana		
*Myriophyllum heterophyllum	C	C	C	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	C	C
Pennisetum purpureum				*Utricularia foliosa	C	C
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 (Sphag. trilobata)		
*Polygonum				Wolffiella spp.		
Pontederia cordata	✓	✓	✓	Woodwardia virginica		
*Potamogeton diversifolius				Xyris sp.		
*Potamogeton illinoensis				Zizania aquatica	✓	✓
*Potamogeton pusillus				Zizaniopsis milacea		
*Potamogeton pectinatus (Stuck. 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						
Sagittaria sp.						
Sagittaria sp. (not latifolia or latifolia)						

DEP-SOP-001/01
FS 7000 General Biological Community Sampling

Form FD 9000-2: COMPOSITE LAKE SAMPLING SHEET (< 1000 ACRES)

Date: 8/25/2016	Name of Lake: Campbell Lake	Gear used: PONAR	EKMAN	OTHER	
Comments:					
Drop #	Depth (m)	Sediment Type (circle all that apply)	Drop #	Depth (m)	Sediment Type (circle all that apply)
1		sand, silt/clay, CPOM, muck, SAV	7		sand, silt/clay, CPOM, muck, SAV
2		sand, silt/clay, CPOM, muck, SAV	8		sand, silt/clay, CPOM, muck, SAV
12	2.1	sand, silt/clay, CPOM, muck, SAV	9		sand, silt/clay, CPOM, muck, SAV
4		sand, silt/clay, CPOM, muck, SAV	10		sand, silt/clay, CPOM, muck, SAV
5		sand, silt/clay, CPOM, muck, SAV	11		sand, silt/clay, CPOM, muck, SAV
6	2.6	sand, silt/clay, CPOM, muck, SAV	13	1.7	sand, silt/clay, CPOM, muck, SAV

CPOM = coarse particulate organic matter; SAV = submerged aquatic vegetation

Storet 32010049

Field ID CAMPBELREF

Project. Reference Lakes.

SBIO ID:

WBID 959A

Paste map here and show location of each dredge drop and where water chemistry parameters were collected.

Revision Date: February 1, 2004

Photo Log

Storet 32010046

Station Name: Campbell Lake. CAMPBELREF

Date:

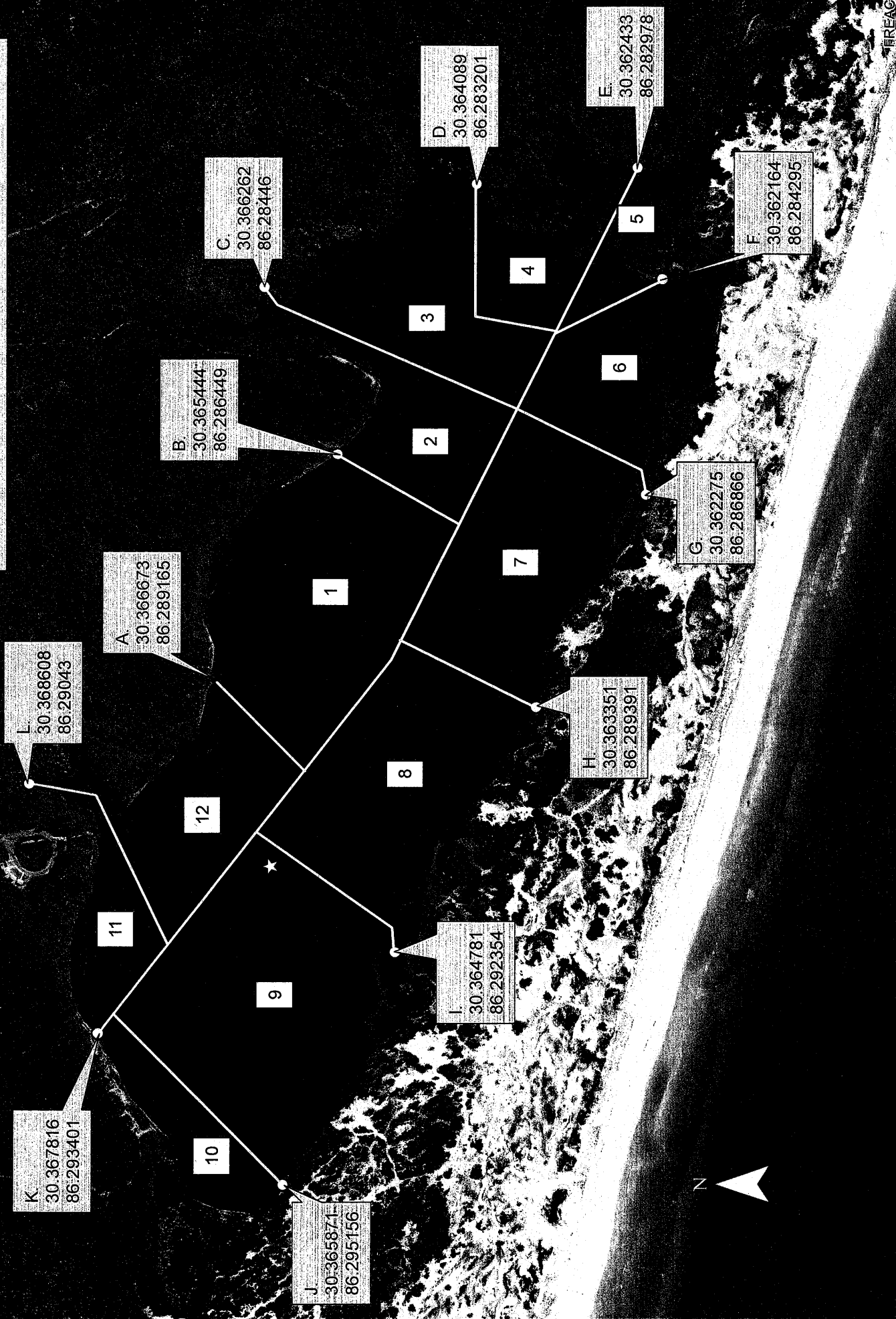
Samplers. F. Butera, N. Mulkey

RQ-2016-08-15-59

- 1 ~~12~~ Doherty
- 2 12 looking West
- 3 12 looking SE SW
- 4 12 looking SE
- 5 12 looking East
- 6 12 North into Cove
- 7 12 North into Cove
- 8 3 North into Cove
- 9 3 South EAST shore
- 10 3 North EAST Cove
- 11 4 to 5 W - overgrown Veg
- 12 4 to 5 W - overgrown Veg
- 13
- 14
- 15
- 16
- 17

Notes. Reference Lakes LVI

Campbell Lake. 32010049
30.366094 x -86.291389 WBID 959A
Topsail Hill State Park, Santa Rosa Beach, Walton Co.



Campbell Lake @ Topsail Hill State Park

Ambient Storet 32010049
 Receiving Water Gulf of Mexico
 Basin Gulf of Mexico
 City, County Santa Rosa Beach. Walton Co.
 Lake Acreage 106
 Circumference (M) approx. 4,054
 Seg. Length (M) 338

Location	Dec Deg.	DMS
32010049	30.366094 x -86.291389	N30°21' 57.94" x W86°17' 29.00"
A	30.366673 x -86.289165	N30°22' 00.023" x W86°17' 20.994"
B	30.365444 x -86.286449	N30°21' 55.6" x W86°17' 11.218"
C	30.366262 x -86.28446	N30°21' 58.544" x W86°17' 04.056"
D	30.364089 x -86.283201	N30°21' 50.72" x W86°16' 59.523"
E	30.362433 x -86.282978	N30°21' 44.758" x W86°16' 58.721"
F	30.362164 x -86.284295	N30°21' 43.789" x W86°17' 03.463"
G	30.362275 x -86.286866	N30°21' 44.19" x W86°17' 12.717"
H	30.363351 x -86.289391	N30°21' 48.062" x W86°17' 21.809"
I	30.364781 x -86.292354	N30°21' 53.212" x W86°17' 32.475"
J	30.365871 x -86.295156	N30°21' 57.136" x W86°17' 42.56"
K	30.367816 x -86.293401	N30°22' 04.139" x W86°17' 36.242"
L	30.368608 x -86.29043	N30°22' 06.989" x W86°17' 25.549"