



Collier County™
POLLUTION CONTROL
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FY19 COLLIER COUNTY SURFACE WATER REPORT



Prepared by Collier County Pollution Control

JULY 2020

1 **INTRODUCTION**

Collier County Pollution Control monitors a network of fixed surface water sites throughout Collier County for the purpose of assessing long-term trends and determining if surface waters are meeting water quality standards. This report provides a summary of the surface water quality monitoring efforts and brief assessment of results for monitoring during the fiscal year (FY) 2019 (October 2018 – September 2019). This report includes monitoring done within the Cocohatchee estuary as funded by Collier County Coastal Zone Management.

2 **METHODS**

2.1 **Sampling**

During FY19, three water quality monitoring programs that include sixty-six (66) surface water stations ([Appendix A](#)) were sampled monthly for the laboratory analytes listed in [Appendix B](#). [Figure 1](#) shows the location of the sites monitored during FY19 as well as the waterbody identification (WBID) used to define the watershed boundaries ([FDEP, 2019](#)). For an interactive map, please visit <https://www.arcgis.com/home/webmap/viewer.html?webmap=62538b4691d64ff594e56f63791b98fd&extent=-81.9537,26.0644,-81.5794,26.3481>

All sample collection and in-situ meter readings followed the Collier County Pollution Control (CCPC) Field Sampling Quality Manual and the Florida Department of Environmental Protection's (FDEP's) Standard Operating Procedures (SOPs). The Collier County Pollution Control field sampling program is accredited under The NELAC (National Environmental Laboratory Accreditation Conference) Institute's (TNI's) National Environmental Field Activities Program A2LA certificate #4262.01.

Physical measurements of pH, dissolved oxygen (DO), salinity, specific conductance and temperature were obtained in the field one foot (0.3 meters) below the water surface using a Yellow Springs Instrument (YSI) ProDSS multi-probe. These field measurements were also taken from one foot (0.3 meters) above bottom when total water depth exceeded 1.5 meters. Secchi depth and total water depth were also recorded at each station. All samples were collected in the appropriate containers with the proper preservation and immediately placed in wet ice for transport to the laboratory.

Where tidal sites were sampled, collection was performed on an outgoing tide.

2.2 Laboratory Analysis

All chemical parameters were analyzed by the Collier County Pollution Control Laboratory (CCPCL) or PACE, Inc. laboratories. Both laboratories are accredited by TNI under Chapter 64E-1, Florida Administrative Code (FAC).

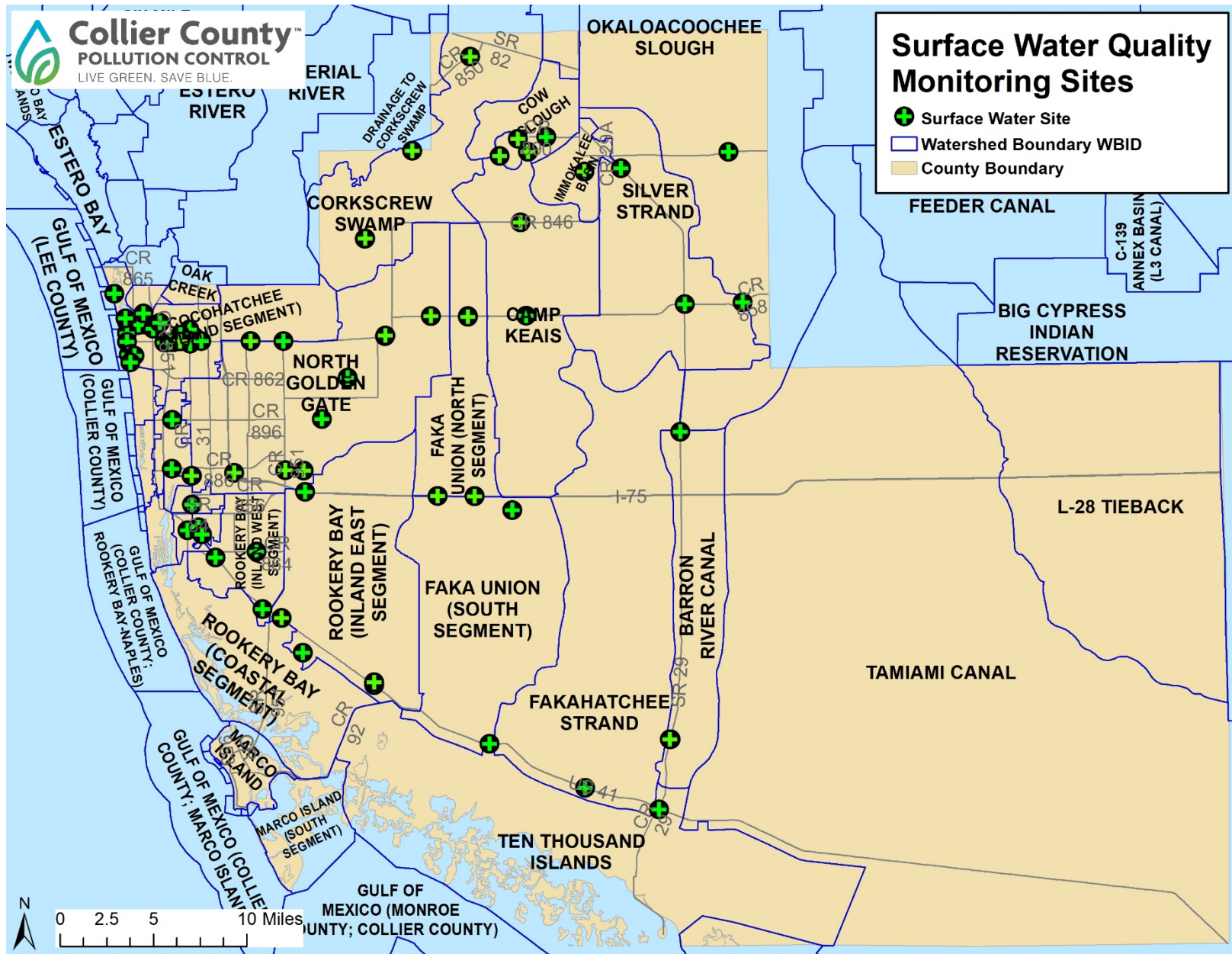


Figure 1. FY19 Surface Water Sampling Site Locations

3 DATA QUALITY AND REDUCTION

3.1 Validity

The data used in this report have been checked for accuracy and completeness and the Collier County Pollution Control attests to the validity of these results. All data qualifiers follow FAC 62-160 Table 1. Quality control and quality assurance (QA/QC) reports are available upon request.

3.2 Quality Control Issues

During FY19, metals and total phosphorus samples were analyzed using Environmental Protection Agency (EPA) Method 200.8. For a portion of the year, samples analyzed by this method were analyzed from bottles prior to appropriate preservation. Based on this, these results were qualified with a “Y” indicating that samples were not properly preserved.

For metals analysis, nitric acid preservative is required to be added to the sample container in the laboratory a minimum of 24 hours prior to analysis to dissolve metals in the sample that may have adsorbed to the sample container during storage. Lack of preservation in the sample container would add a low bias, meaning results may have been higher if preservative had been added.

Regarding total phosphorus, EPA Method 200.8 does not require sulfuric acid or thermal preservation prior to analysis; however, 40 Code of Federal Regulations (CFR) Part 136 indicates sulfuric acid and thermal preservation is a required for this analyte. Therefore, total phosphorus results were “Y” qualified. There is no known impact to the total phosphorus result by analysis using EPA 200.8 without preservation.

Given the likelihood that metals results were underestimated, total phosphorus results may not have been impacted, and to avoid data gaps, “Y” qualified data were used in this assessment. However, it should be noted that these “Y” qualified data would be excluded from any Impaired Waters Rule Assessment (FAC 62-303) conducted by the FDEP.

3.3 Data Reduction

Before data were assessed, the dataset was examined for outliers and for data that may not be of acceptable quality for the purposes of this report. Specifically, any samples that were analyzed outside of the acceptable holding times; samples that were questionable due to sample collection or laboratory errors; or samples that may have possible contamination as indicated by the results of quality control samples were removed from the dataset. Therefore, samples that have been qualified with G, Q, V, ?, or L were excluded from the assessment.

Results for some parameters are routinely below the level of detection, method detection limit (MDL), used by the laboratory. There are many different ways to assess results that are reported below the MDL. For this report, results that were reported below the laboratory MDL were assessed using one-half of the reported method detection limit. For example, a result reported as 0.10 mg/L with a “U” qualifier indicating the value reported was below the MDL was transformed to 0.05 mg/L for use in summary statistics. This simple substitution method follows FDEP’s current methodology for assessing surface waters (FAC 62-303).

4 DATA ASSESSMENT

4.1 Summary Statistics

Basic summary statistics (minimum, maximum, average, and standard deviation) are provided in [Appendix C](#). These statistics are shown by WBID which represent the watershed boundaries used by FDEP in their assessments of water quality under the Impaired Waters Assessment Rule (FAC 62-303). Each WBID has a varying number of water quality stations.

4.2 Basin Information & Status

[Figures 2 through 23](#) provide a “snapshot” of each WBID showing its location, the location of sampling sites, size, land use (South Florida Water Management District 2014-2016 Land Use Land Cover), drainage, impairments, short and long-term water quality trends and number of FY 2019 exceedances of water quality standards or thresholds. Long-term trends were taken from [Janicki 2015](#)—Surface Water Quality Annual Assessment and Trend Report for Collier County Pollution Control Department. Short-term trends are defined by years 2009-2014 and long-term trends are years 1999-2014. Trend data is included in this report to give historical perspective as to the water quality conditions in each WBID.

4.3 Exceedances of Water Quality Standards

Results were compared to Florida Administrative Code (FAC) Chapter 62-302 to determine if they are meeting the state water quality criteria. A complete list of the state standards can be found in [FAC 62-302.530](#). Some of the criteria are based on other parameters measured at the time the sample was collected. This makes determining an exceedance of water quality criteria more challenging than just determining if a result is above or below a specific number. For example, ammonia criteria are based on an equation using the temperature and pH of the water at the time the sample was collected. This makes the criterion vary every time the temperature and pH change.

Lake Trafford is the only freshwater body in Collier County that has numeric nutrient criteria provided in FAC 62-302. Gordon River Extension WBID has numeric nutrient (nitrogen and phosphorus) criteria that were established in as part of the Total Maximum Daily Load (TMDL) adopted in 2008. Cocohatchee estuary, a Class II Marine waterbody, has numeric nutrient criteria for chlorophyll-a, total nitrogen, and total phosphorus. So only values in these three WBIDs that exceed those established standards are true exceedances of nutrient water quality standards.

The remaining freshwater canals in Collier County do not have numeric nutrient water quality standard. The current nutrient standard for most canals in Collier County is narrative and states *"In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora or fauna."* In an attempt to provide some assessment and comparison of the nutrient levels in our freshwater canals in Collier County, this report uses the nearest numeric total nitrogen and total phosphorus standard for freshwater streams and canals. Numeric nutrient criteria from the Peninsular Nutrient Watershed Region (FAC 62-302), which includes most of Lee County, were used here to assess exceedances. The standard used for total nitrogen is 1.54 mg/L and total phosphorus is 0.12 mg/L. In addition, FDEP uses chlorophyll-a as a nutrient response variable (i.e.—an indicator of algae growth caused by nutrients). FDEP considers chlorophyll-a values above 20 µg/L representative of an algae bloom in fresh water. For this report, results above 20 µg/L were included as exceedances.

[Table 1](#) provides a program wide summary of the water quality parameters in FY19 that were in exceedance of state standards or screening threshold. The majority of the exceedances occurred during the dry season. It should be noted again, that any listed chlorophyll-a, total nitrogen, or total phosphorus exceedances outside Gordon River Extension, Lake Trafford, or Cocohatchee River WBIDs are not actual exceedances.

[Table 2](#) provides the percent of samples in each WBID that exceeded a standard or screening threshold. These exceedances are further broken down by WBID and by station with links to [Appendix D](#).

It should be noted that relevant to the State Water Quality Standards, enterococci is only analyzed in marine waters and E. Coli is only analyzed in predominately fresh waters.

4.4 Top Ten Station Ranking

For comparative purposes, [Table 3](#) ranks the top ten station averages

for each of the parameters that were found to have exceedances in FY19. pH was not included as Lake Trafford was the only waterbody that had pH exceedances.

Table 1. FY19 Surface Water Quality Exceedances

Parameter	# of Exceedances		% of Samples that Exceeded
	Season		
	Dry	Wet	
Ammonia (N)	0	1	0.11%
Chlorophyll a	84	52	15.0%
Copper	6	4	1.43%
Dissolved Oxygen Saturation	187	97	29.2%
E. coli	58	22	13.6%
Enterococci	46	15	18.4%
Iron	42	23	9.29%
Total Nitrogen	167	70	26.1%
pH	20	11	3.19%
Total Phosphorus	155	86	26.5%
Turbidity	5	2	0.77%

Table 2. Percent Exceedances by WBID

WBID	Total % of Sample Exceedances	Percent of Samples that Exceeded a Standard or Screening Threshold										
		Ammonia	Chlorophyll a-corrected	Copper	DO Saturation	E. coli	Enterococci	Iron	Total Nitrogen	pH	Total Phosphorus	Turbidity
Barron River Canal	5%				95%				8%			
Camp Keais	6%		9%		92%				35%		65%	
Cocohatchee (Inland Segment)	3%		15%		35%	21%		5%	9%		15%	
Cocohatchee River	5%		16%	1%	4%		12%	5%	44%		32%	
Corkscrew Swamp	3%	3%	6%		64%	11%		17%	11%		6%	3%
Cow Slough	7%		8%		38%	54%		17%	42%		100%	
Faka Union (North Segment)	1%		3%		12%			14%	6%			
Faka Union (South Segment)	1%				23%							
Fakahatchee Strand	7%		42%		77%	38%			50%		17%	
Gordon River Extension	7%		4%		64%	19%		4%	74%		61%	
Haldeman Creek (Lower)	5%		25%		12%		88%		8%			
Haldeman Creek (Upper)	4%		15%	4%	7%	62%			19%		46%	
Immokalee Basin	6%				100%	13%					100%	
Lake Trafford	12%		83%		0%				65%	65%	100%	
North Golden Gate	1%		1%		18%	2%		6%	5%			
Okaloacoochee Slough	4%		13%		59%	29%			19%		6%	
Rock Creek	6%				100%		100%				17%	
Rookery Bay (Inland East Segment)	3%		22%	15%	18%			12%	15%		20%	11%
Rookery Bay (Inland West Segment)	2%		14%	3%	19%	11%			11%		3%	
Silver Strand	9%		8%		96%	8%		73%	62%		73%	4%
Ten Thousand Islands	3%				67%		15%		8%			
Wiggins Bay Outlet	4%				46%	15%		75%				

No exceedances

Table 3. Station Rankings for Parameters with Exceedances

Rank	Ammonia (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		E. Coli (MPN/100ml)		Enterococci (MPN/ml)	
	Station	Value	Station	Value	Station	Value	Station	Value	Station	Value
1	IMKBRN	1.60	WINPARK	0.602	IMKBRN	4.28	BC19	1018	ROCKCRK	888
2	KEAISS	0.862	TAMTOM	0.452	LKTRAF4	2.71	IMKFSHCK	979	COCOR2	623
3	CORKS	0.859	IMKBRN	0.442	LKTRAF8	2.51	WINPARK	969	BC5	551
4	GORDONRIV	0.413	KEAISS	0.323	KEAISS	2.38	WCOCORIV	897	COCORVW	472
5	TAMTOM	0.387	WCOCORIV	0.267	CORKS	2.37	CORKN	657	COCAT41	250
6	WIGGINSBY	0.338	IMKFSHCK	0.244	LKTRAF1	2.32	OKALA846	541	COCOR1	173
7	KEAISN	0.334	IMKSLGH	0.229	TAMTOM	2.25	HALDUP	487	BARRIVN	120
8	WCOCORIV	0.287	BRN	0.172	KEAISN	1.72	ECOCORIV	422	BLUE	78
9	RATTLESN	0.265	LKTRAF8	0.138	BC19	1.71	GORDONRIV	340	VBILTCAN	53
10	ROCKCRK	0.259	KEAISN	0.136	OKALA858	1.59	COCPALM	328	VBILTB	53

Rank	Copper (ug/L)		Chlorophyll-a (mg/m3)		Dissolved Oxygen Saturation (%)		Iron (ug/L)		Turbidity (NTU)	
	Station	Value	Station	Value	Station	Value	Station	Value	Station	Value
1	TAMTOM	70.67	LKTRAF8	61.2	CORKS	8	TAMTOM	1590	TAMTOM	35
2	HALDUP	7.60	LKTRAF1	56.1	OKALA858	9	IMKBRN	1430	LKTRAF4	27
3	EAGLECRK	6.37	LKTRAF4	55.0	KEAISS	9	CORKSCRD	1332	LKTRAF1	24
4	WINPARK	5.86	TAMTOM	30.1	IMKSLGH	11	BRN	1331	LKTRAF8	20
5	BC5	4.39	NNAPLES	28.1	CORKN	12	WIGGINSBY	1317	CORKSCRD	15
6	NNAPLES	4.38	KEAISN	26.9	RATTLESN	13	COC@IBIS	1006	BRN	11
7	IMKBRN	3.11	COCPALM	26.3	ROCKCRK	13	IMKFSHCK	967	TURKBAY	11
8	LELY	2.89	WINPARK	17.5	IMKBRN	18	GGC@858	774	IMKBRN	10
9	SANDPIPE	2.51	BC19	17.5	ECOCORIV	18	BC9	608	WIGGINSBY	9
10	COCORVW	2.12	GORDONRIV	16.7	KEAISN	19	CYPR13NW	563	COC@IBIS	8

5 CONCLUSIONS

- 5.1 Dissolved Oxygen (DO) levels were the most common exceedance of state standards in FY19. All WBIDs sampled, except for Lake Trafford, exceeded the DO standard at least once.
- 5.2 Dry season saw more exceedances than wet season for all parameters.
- 5.3 Lake Trafford had the highest percentage of exceedances during FY19. This lake is currently impaired for nutrients and experiences consistent algae blooms. Consistent algal blooms also keep the DO levels elevated which accounts for the lack of DO exceedances in Lake Trafford. These consistent algal blooms also elevate the pH causing exceedances in pH.
- 5.4 [Silver Strand](#) WBID had the second highest percentage of samples that exceeded water quality standards or screening thresholds. Land use in this basin is predominantly agriculture. Site [IMKBRN](#) has the highest total nitrogen average of any station sampled in FY19. There was a large spike in ammonia and nitrate-nitrite in May 2019. Further investigation by Pollution Control staff found a liquid fertilizer company actively discharging from their secondary containment to the ground just upstream of the site. FDEP was notified of the illicit discharge and enforcement/mitigation was conducted under their administration.
- 5.5 Corkscrew Swamp WBID had the highest number of parameters that had at least one exceedance. It is believed that these exceedances reflect the location of site CORKS as this is a borrow ditch which was dug out to create logging tram roads. This site is frequently cut off from other flows and tends to stagnate. Extreme amounts of fish and wildlife concentrate at the site during low water levels. Pollution Control staff try to avoid collecting samples when flow is cut off, but in a slow-moving slough this is difficult to determine.
- 5.6 Site [TAMTOM](#) exceeded copper standards in 78% of the samples collected in FY19. The average copper levels at this site were 10 times higher than the next highest average ([Table 3](#)). It is unknown if the source of copper in this canal is from historic or existing sources. This canal is currently owned and managed by Florida Department of Transportation (FDOT) and they have not used any copper herbicide treatments to maintain this canal (personal communication with, Franklin Wagoner, FDOT contractor). Clearing of dense aquatic vegetation in the canal and surrounding canals was noted by staff during 2018, but this clearing was not performed by FDOT or Collier County. Therefore, method of removal or treatment is unknown. However, it appears that the increases in copper followed this canal clearing.
- 5.7 Some sites had consistent bacteria exceedances in FY19. Some of these sites were already investigated as part of FDEP's source tracking program. Specifically, sites in the Cocohatchee River and Cocohatchee (Inland Segment) WBIDs have been investigated multiple times using multiple source tracking methods. No conclusive source was found.

However, one particular site in Cocohatchee (Inland Segment), [WCOCORIV](#), has had a change in 2019 with 94% of the samples collected in exceedance of the E. Coli criterion.

Sites [WINPARK](#), [BC5](#), and [ROCKCRK](#) also frequently exceeded the bacteria criterion. [WINPARK](#) and [BC5](#) are known to have homeless camps along the canal. [ROCKCRK](#) drains an area of septic tanks.

While [BC19](#) has the highest E. Coli average in 2019, these are likely to be of natural sources given its location in Fakahatchee Strand.

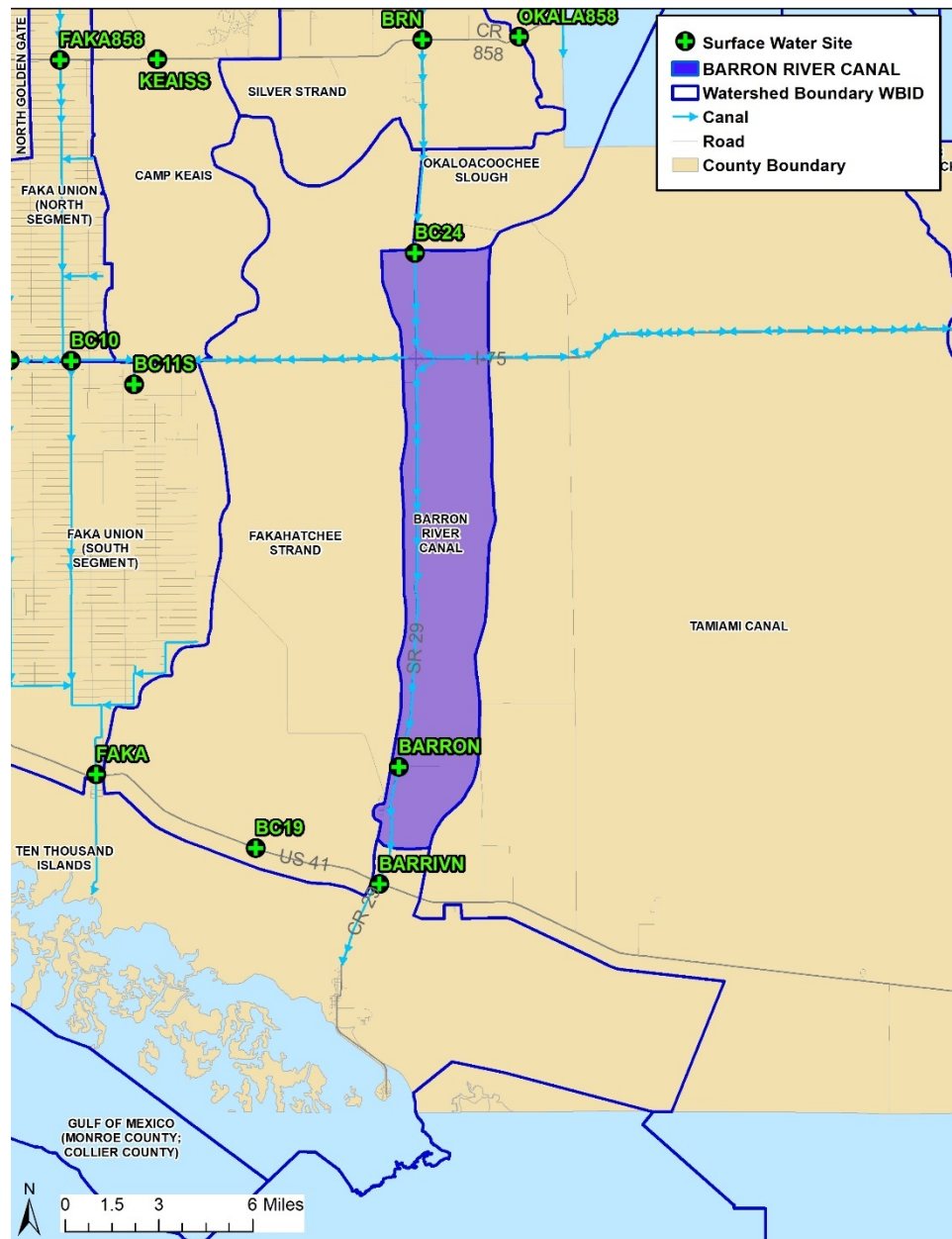
- 5.11 Iron exceedances in surface water are common and typically caused by baseflow (inflow) or pumping of naturally iron rich groundwater into the canals ([CCPC, 2016](#)).

6 Recommendations

- 6.1 Sites [WCOCORIV](#), [BC5](#), [WINPARK](#), and [ROCKCRK](#) consistently exceed bacteria standards. Source tracking at these sites has already begun and will be a priority in 2020.
- 6.2 Lake Trafford sites have some of the highest percent exceedances, mostly for nutrients and chlorophyll-a. A nutrient source study was conducted for this lake ([Thomas, et. al, 2017](#)) and sources include nitrogen from groundwater inflows and phosphorus from surface flows from the slough on the eastern side of the lake. Further source tracking for isotopes in groundwater is recommended to determine if the groundwater source is localized or from outside the watershed.
- Collier County Pollution Control will continue to work with permitting agencies and stakeholders upstream of the lake on reduction of phosphorus loads coming from the slough.
- 6.3 Some source tracking has begun at [TAMTOM](#) due to the frequent number of exceedances, elevated nutrient levels, and sensitivity of the receiving waters. This site discharges to the Outstanding Florida Waters of Collier Seminole State Park and Rookery Bay National Estuarine Research Reserve.
- 6.4 A trend analysis ([Janicki 2015](#)) was performed in 2015 for 15 years of data (1999-2014). This trend analysis should be repeated every five years to capture changing trends in water quality and land use.

7 References

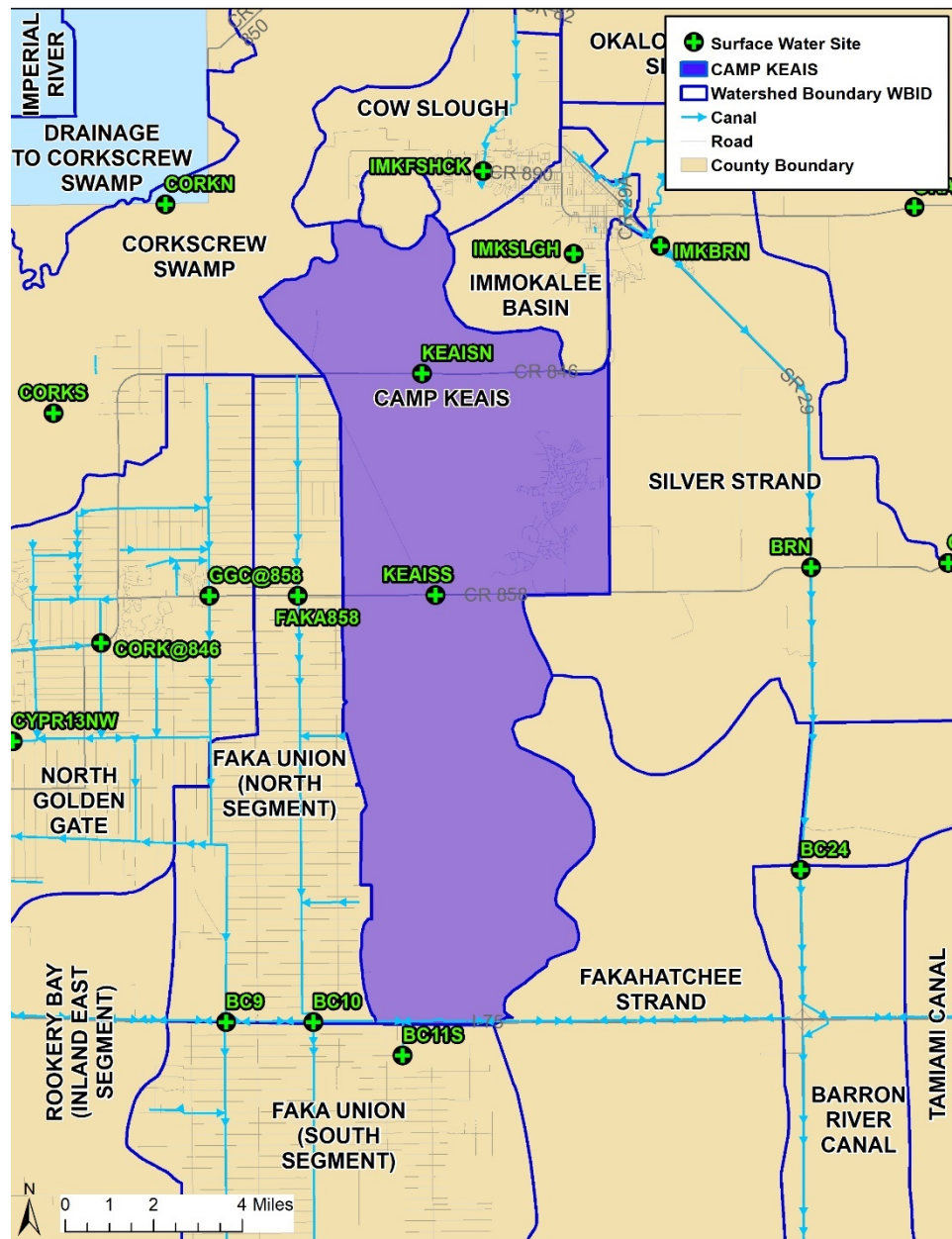
- 7.1 Collier County Pollution Control (CCPC), December 2016. *Surface Water Iron Impacts from Groundwater*. White Paper prepared for the Florida Department of Environmental Protection.
- 7.2 Florida Department of Environmental Protection, 2019. *Basin 411-WBIDs_Run56*. Retrieved from http://publicfiles.dep.state.fl.us/DEAR/DEARweb/WAS/Basin_411/WBIDs_Run56.zip
- 7.3 Janicki Environmental, November 2015. *Surface Water Quality Assessment and Trend Report for Collier County Engineering and Natural Resources Division*. Prepared for Collier County Pollution Control. <https://www.colliercountyfl.gov/home/showdocument?id=62700>
- 7.4 Thomas, S., Kim, J-Y, Lucius, M., March 2017. *Developing a water and nutrient budget for Lake Trafford, Florida, U.S.A*, Final Report to Florida Department of Environmental Protection. <http://publicfiles.dep.state.fl.us/DEAR/BMAP/LakeTrafford/>. Southwest Florida Aquatic Ecology Group/Inland Ecology Research Group, Florida Gulf Coast University. Fort Myers, FL.



BARRON RIVER CANAL

- Size: 33,368 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Okaloacoochee Slough, Fakahatchee Strand, Silver Strand
 - Drains to: Ten Thousand Islands
- Major Land Use(s):
 - Wetlands 95%
- FDEP Impairments 2019: None
- Water Quality Trends
 - Short-term Improving: Nitrate-Nitrite
 - Short-term Degrading: None
 - Long-term Improving: Nitrate-Nitrite, pH
 - Long-term Degrading: Total Kjeldahl Nitrogen, Total Suspended Solids, Salinity, Turbidity
- Total # of Exceedances in FY19: [22](#)
- Summary Statistics: [Appendix C](#)

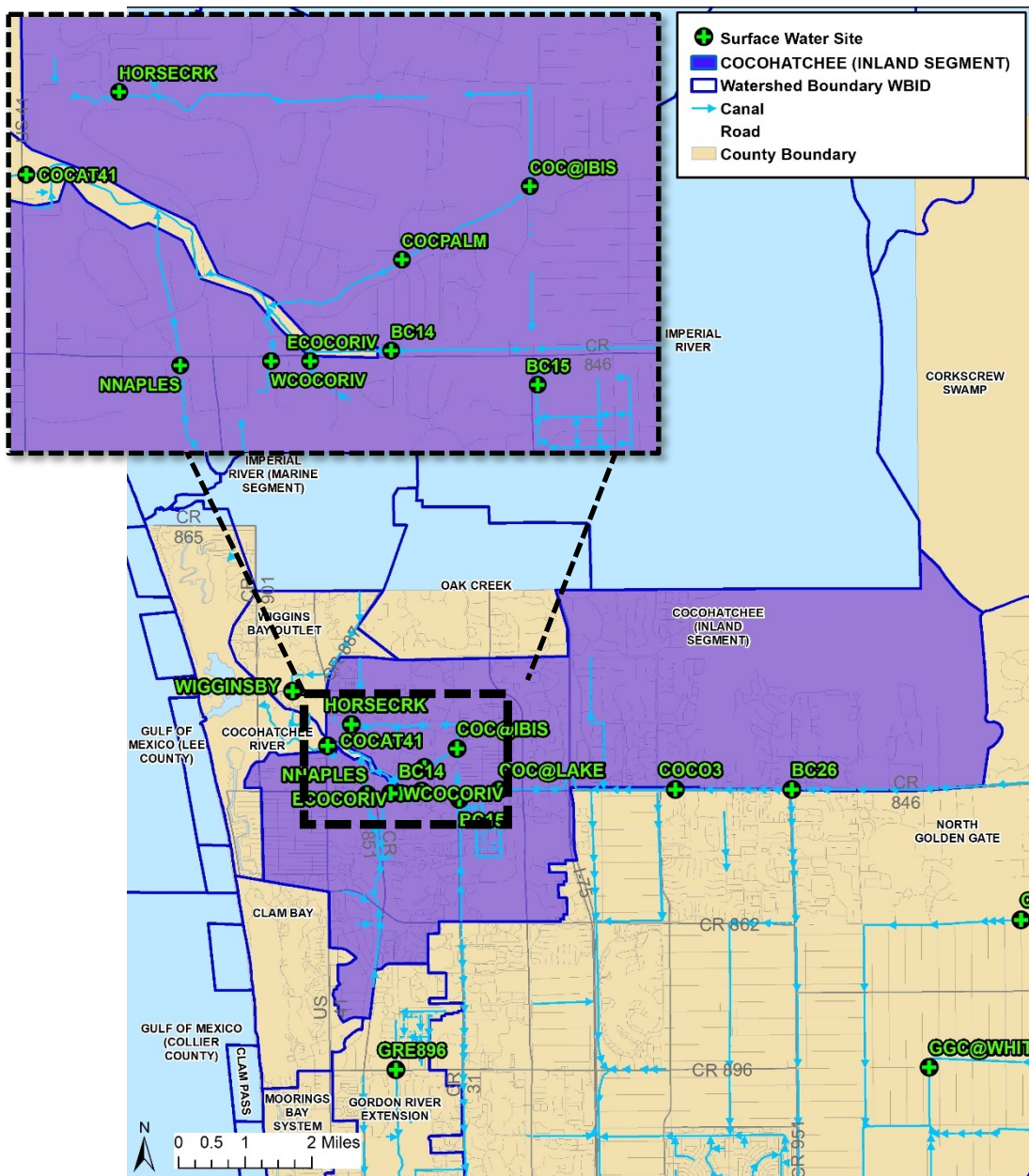
Figure 2. Barron River Snapshot



CAMP KEAIS

- Size: 55,646 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Immokalee Basin, Lake Trafford, Cow Slough, Corkscrew Swamp
 - Drains to: Faka Union (North Segment), Faka Union (South Segment), Fakahatchee Strand
- Major Land Use(s):
 - Wetlands 47%
 - Agriculture 36%
 - Upland Forests 9%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Dissolved Oxygen, pH
 - Short-term Degrading: None
 - Long-term Improving: Dissolved Oxygen, pH
 - Long-term Degrading: Total Kjeldahl Nitrogen, Total Nitrogen, Salinity, Turbidity
- Total # of FY19 Exceedances: [47](#)
- Summary Statistics: [Appendix C](#)

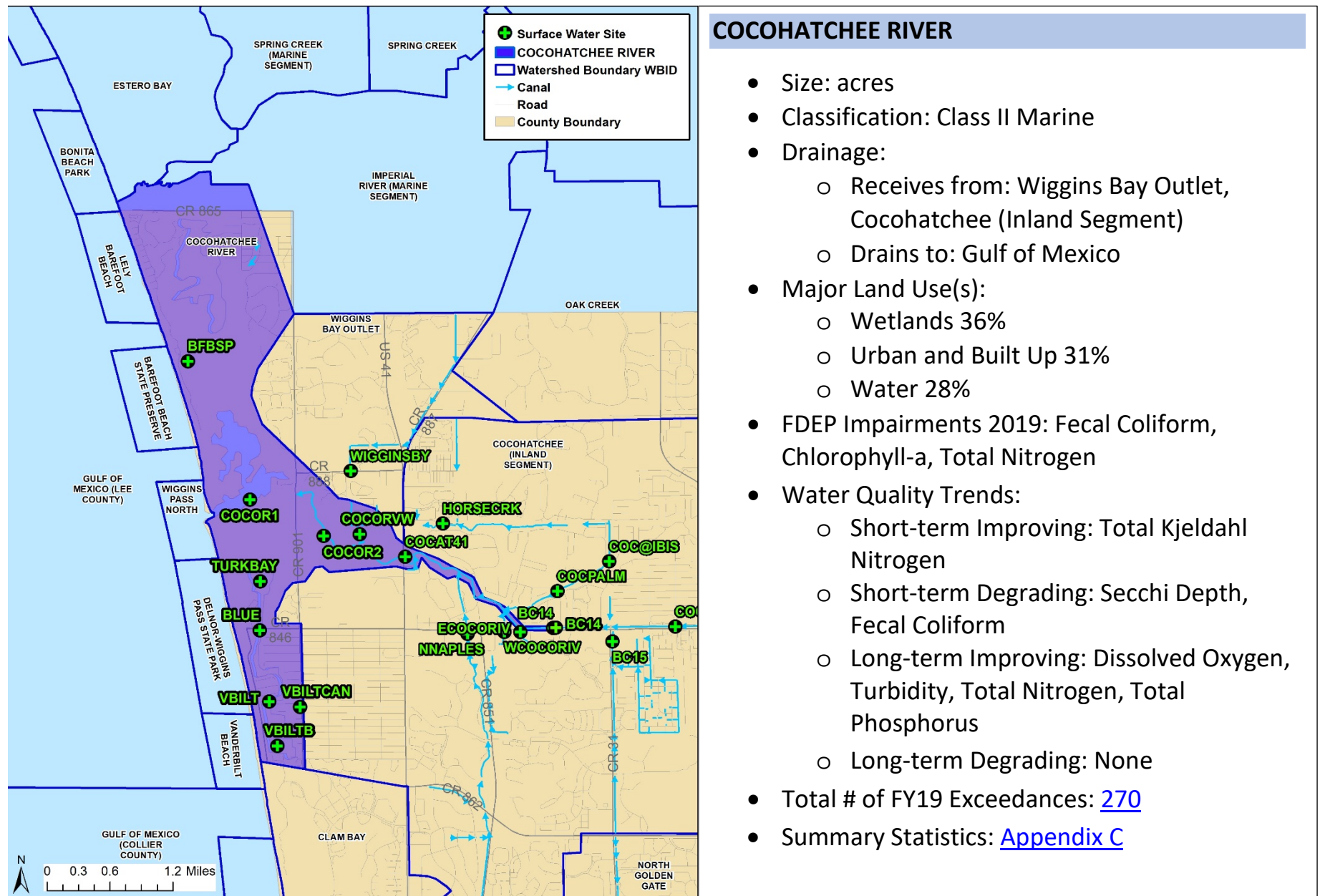
Figure 3. Camp Keais Snapshot



COCOHATCHEE (INLAND SEGMENT)

- Size: 23,505 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Corkscrew Swamp, Wiggins Bay Outlet, North Golden Gate, Oak Creek
 - Drains to: Cocohatchee River, North Golden Gate
- Major Land Use(s):
 - Urban and Built Up 56%
 - Wetlands 29%
 - Water 10%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Total Nitrogen, pH, secchi depth
 - Short-term Degrading: Fecal Coliform, Chlorophyll-a, Turbidity
 - Long-term Improving: Total Nitrogen
 - Long-term Degrading: Nitrate-nitrite, Chlorophyll-s, Fecal Coliform, Iron,
- Total # of FY19 Exceedances: [127](#)
- Summary Statistics: [Appendix C](#)

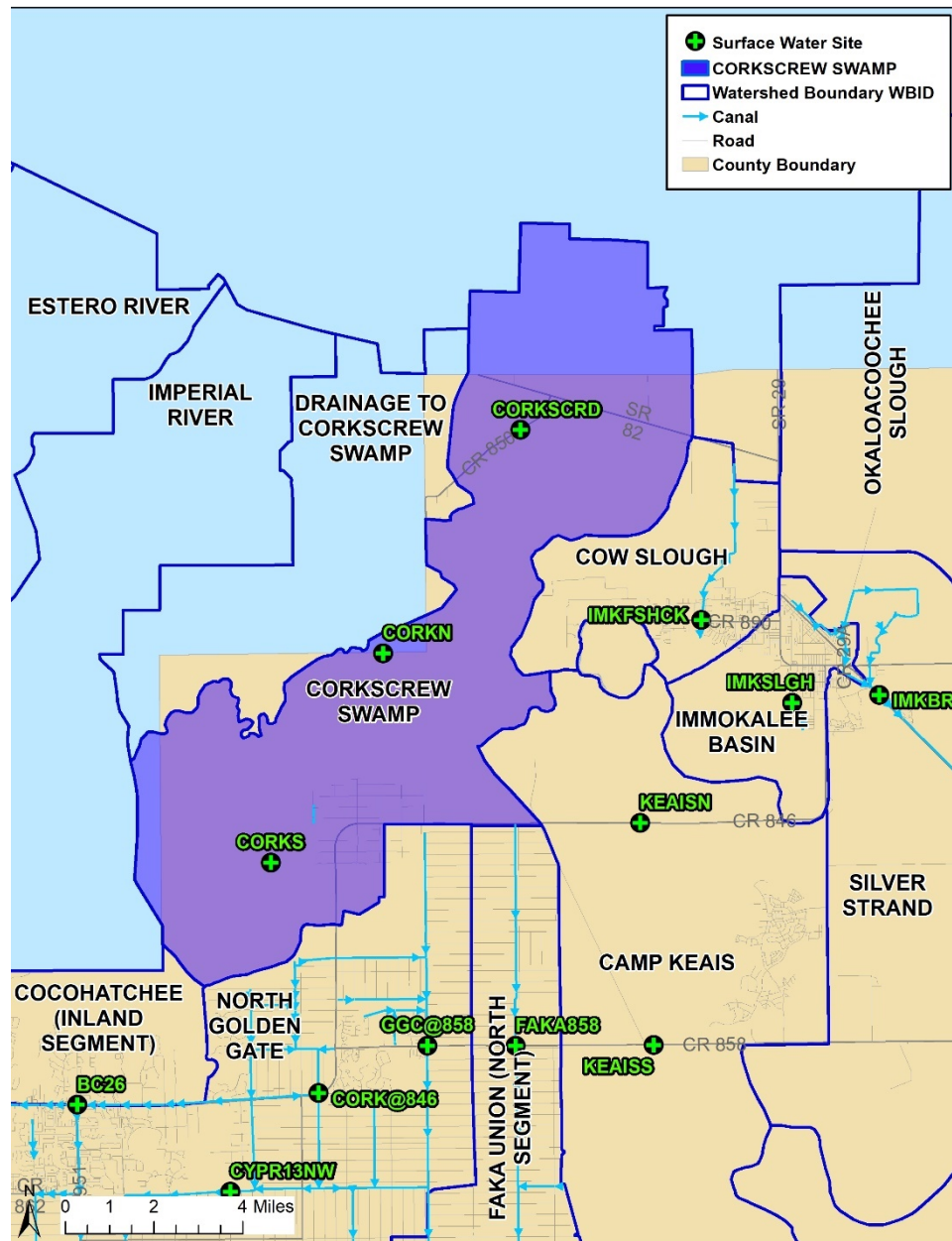
Figure 4. Cocohatchee (Inland Segment) Snapshot



COCOCHATCHEE RIVER

- Size: acres
- Classification: Class II Marine
- Drainage:
 - Receives from: Wiggins Bay Outlet, Cocohatchee (Inland Segment)
 - Drains to: Gulf of Mexico
- Major Land Use(s):
 - Wetlands 36%
 - Urban and Built Up 31%
 - Water 28%
- FDEP Impairments 2019: Fecal Coliform, Chlorophyll-a, Total Nitrogen
- Water Quality Trends:
 - Short-term Improving: Total Kjeldahl Nitrogen
 - Short-term Degrading: Secchi Depth, Fecal Coliform
 - Long-term Improving: Dissolved Oxygen, Turbidity, Total Nitrogen, Total Phosphorus
 - Long-term Degrading: None
- Total # of FY19 Exceedances: [270](#)
- Summary Statistics: [Appendix C](#)

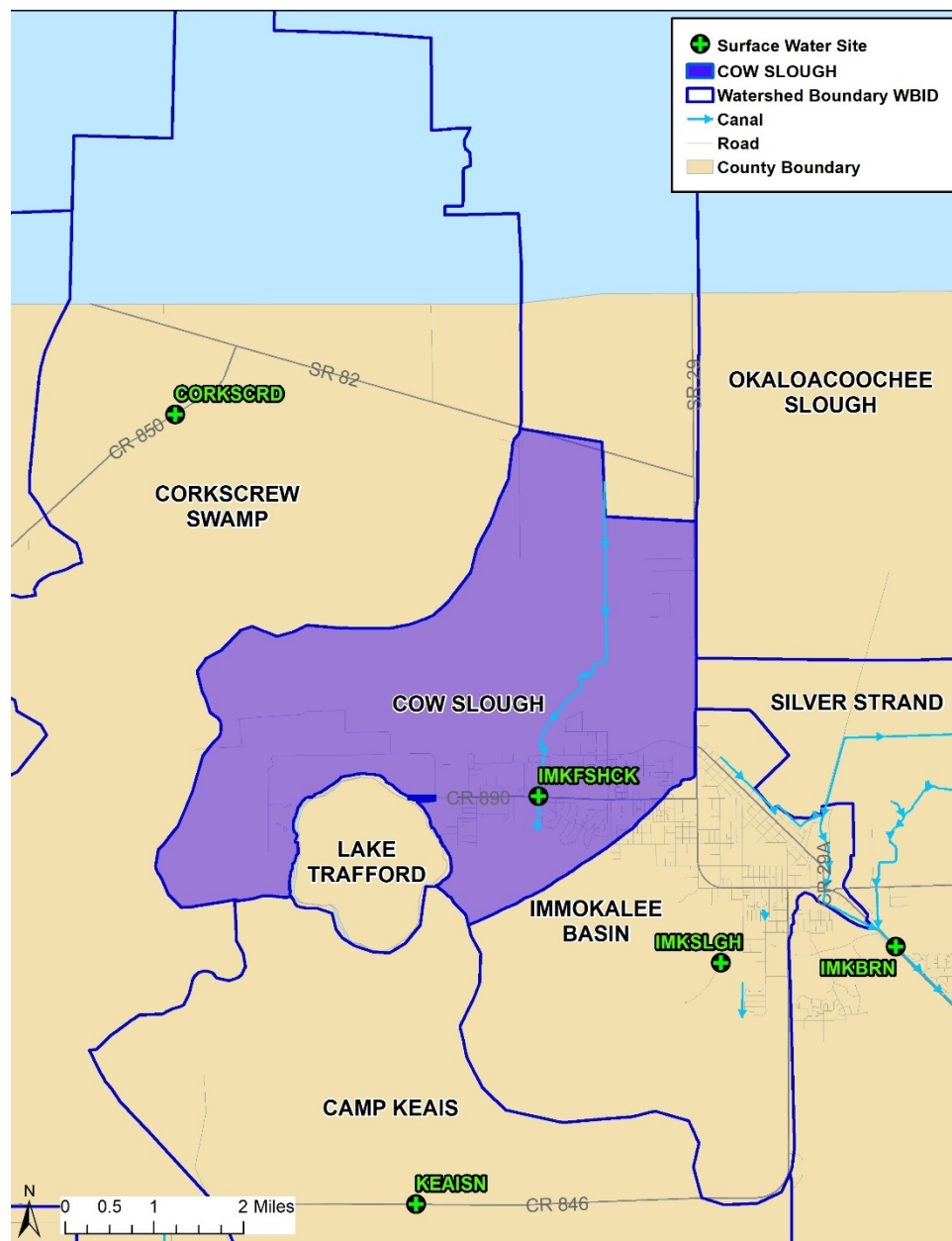
Figure 5. Cocohatchee River Snapshot



CORKSCREW SWAMP

- Size: 52,474 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Drainage to Corkscrew Swamp, Cow Slough, Camp Keais
 - Drains to: North Golden Gate, Cocohatchee (Inland Segment), Camp Keais
- Major Land Use(s):
 - Wetlands 60%
 - Agriculture 30%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: None
 - Short-term Degrading: Nitrate-nitrite
 - Long-term Improving: None
 - Long-term Degrading: Salinity, Conductivity
- Total # of FY19 Exceedances: [43](#)
- Summary Statistics: [Appendix C](#)

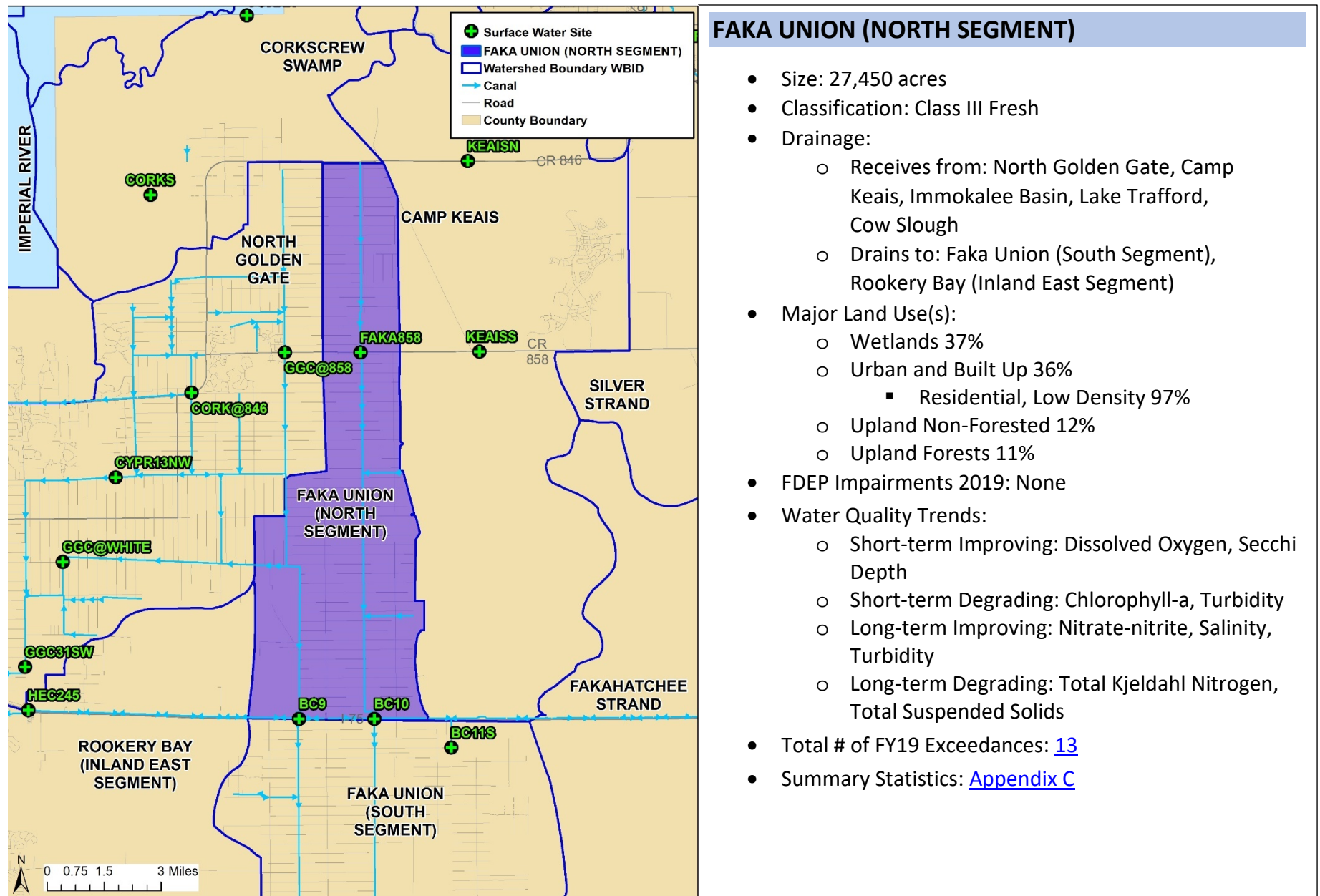
Figure 6. Corkscrew Swamp Snapshot



COW SLOUGH

- Size: 11,694 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Corkscrew Swamp, Immokalee Basin, Camp Keais, Townsend Canal
 - Drains to: Camp Keais, Corkscrew Swamp, Lake Trafford
- Major Land Use(s):
 - Agriculture 48%
 - Wetlands 25%
 - Urban and Built Up 13%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Insufficient Data
 - Short-term Degrading: Insufficient None
 - Long-term Improving: Dissolved Oxygen, pH
 - Long-term Degrading: None
- Total # of FY19 Exceedances: [32](#)
- Summary Statistics: [Appendix C](#)

Figure 7. Cow Slough Snapshot



FAKA UNION (NORTH SEGMENT)

- Size: 27,450 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: North Golden Gate, Camp Keais, Immokalee Basin, Lake Trafford, Cow Slough
 - Drains to: Faka Union (South Segment), Rookery Bay (Inland East Segment)
- Major Land Use(s):
 - Wetlands 37%
 - Urban and Built Up 36%
 - Residential, Low Density 97%
 - Upland Non-Forested 12%
 - Upland Forests 11%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Dissolved Oxygen, Secchi Depth
 - Short-term Degrading: Chlorophyll-a, Turbidity
 - Long-term Improving: Nitrate-nitrite, Salinity, Turbidity
 - Long-term Degrading: Total Kjeldahl Nitrogen, Total Suspended Solids
- Total # of FY19 Exceedances: [13](#)
- Summary Statistics: [Appendix C](#)

Figure 8. Faka Union (North Segment) Snapshot

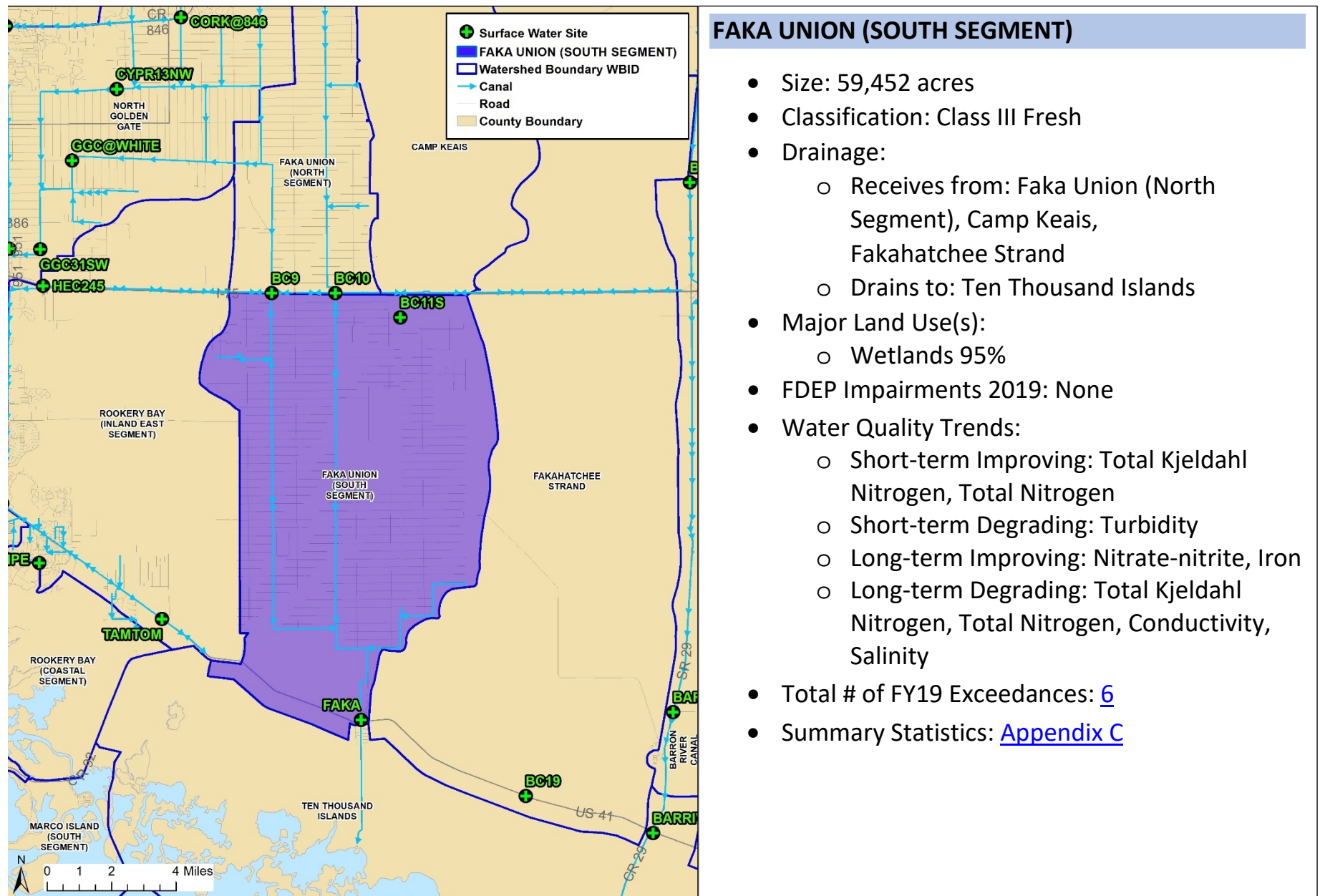
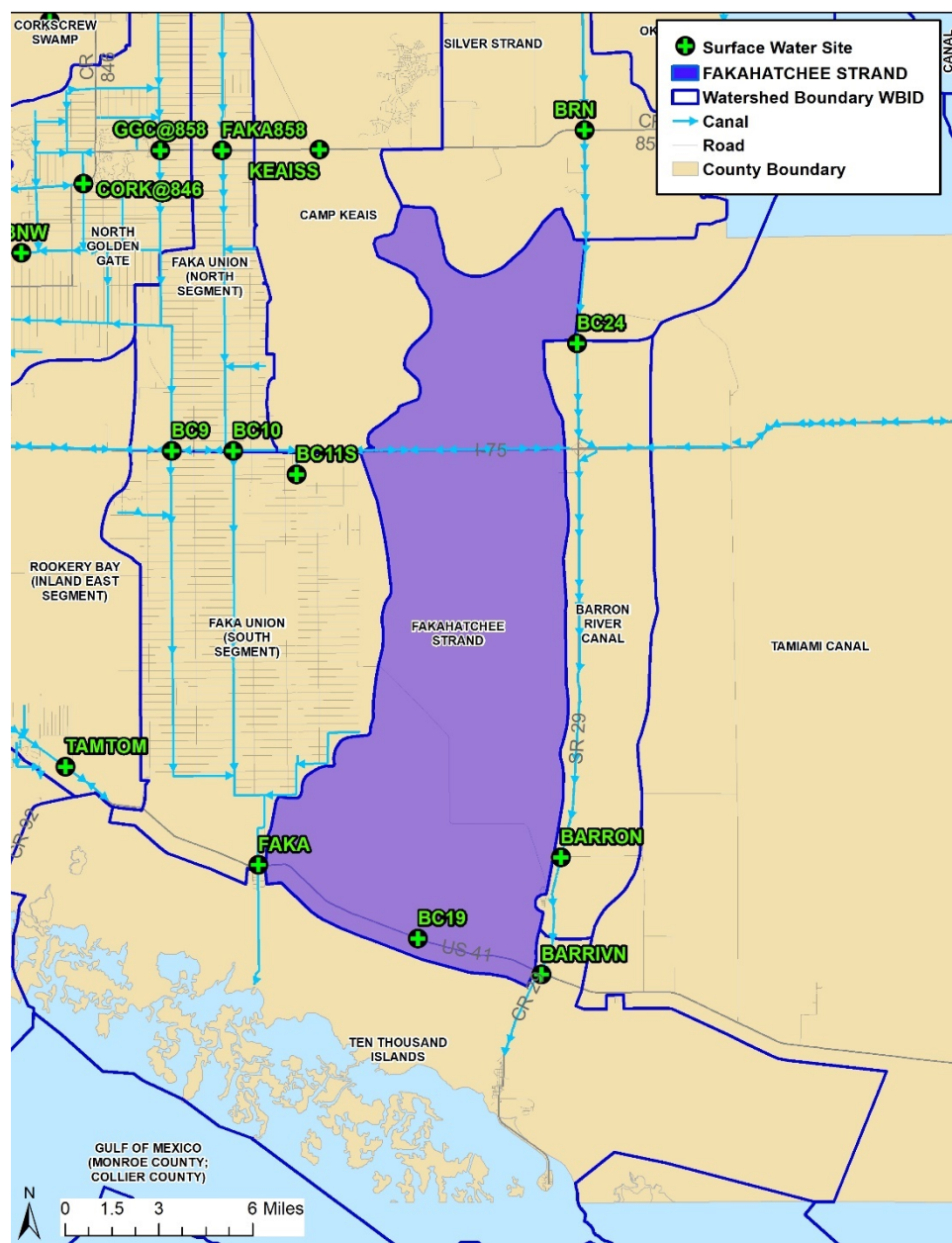


Figure 9. Faka Union (South Segment) Snapshot



FAKAHATCHEE STRAND

- Size: 94,502 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Silver Strand, Okaloacoochee Slough, Camp Keais
 - Drains to: Ten Thousand Islands
- Major Land Use(s):
 - Wetlands 98%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Dissolved Oxygen, pH
 - Short-term Degrading: None
 - Long-term Improving: None
 - Long-term Degrading: Total Kjeldahl Nitrogen, Total Nitrogen, Conductivity, Salinity, Turbidity, Secchi Depth, Fecal Coliform
- Total # of FY19 Exceedances: [28](#)
- Summary Statistics: [Appendix C](#)

Figure 10. Fakahatchee Strand Snapshot

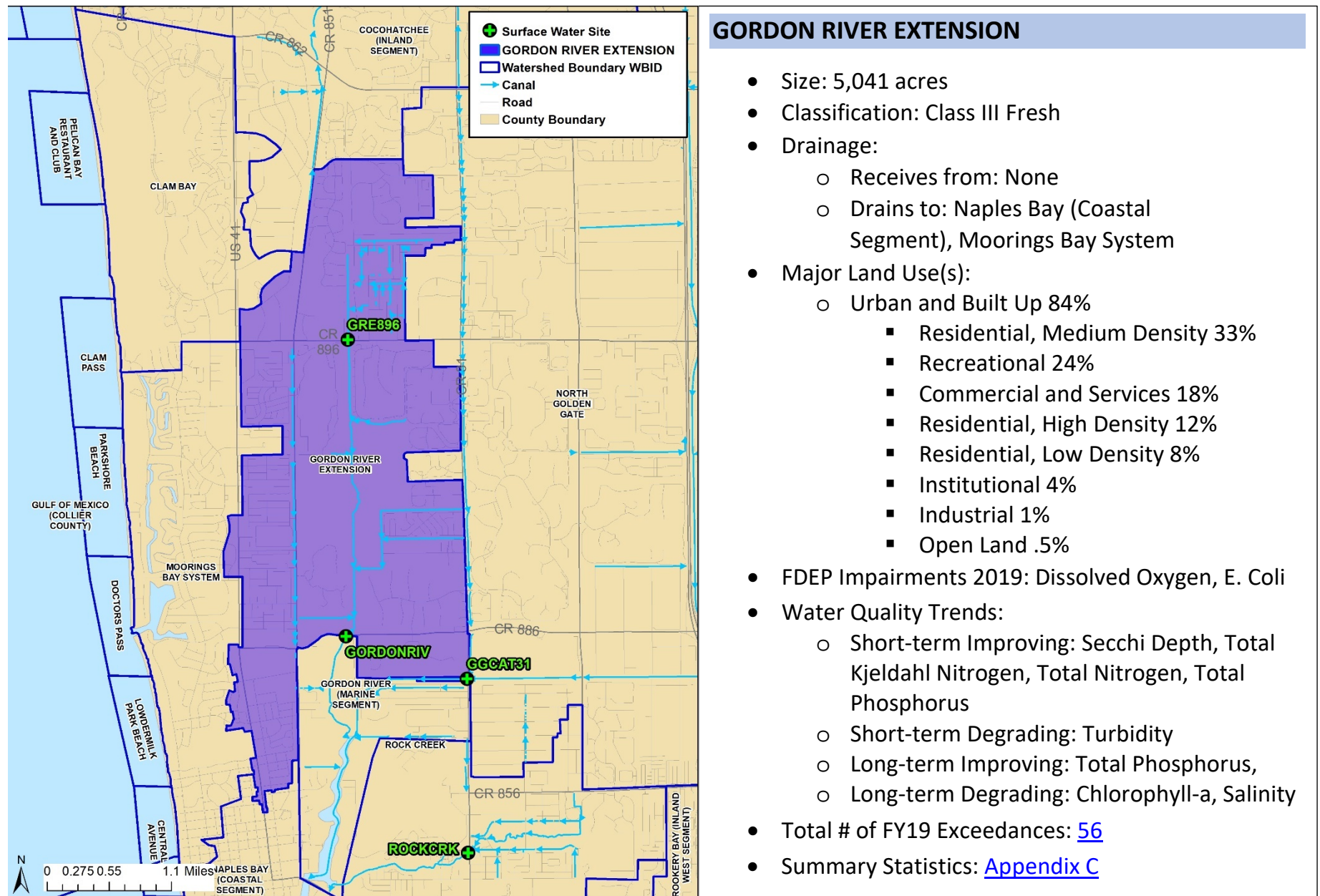
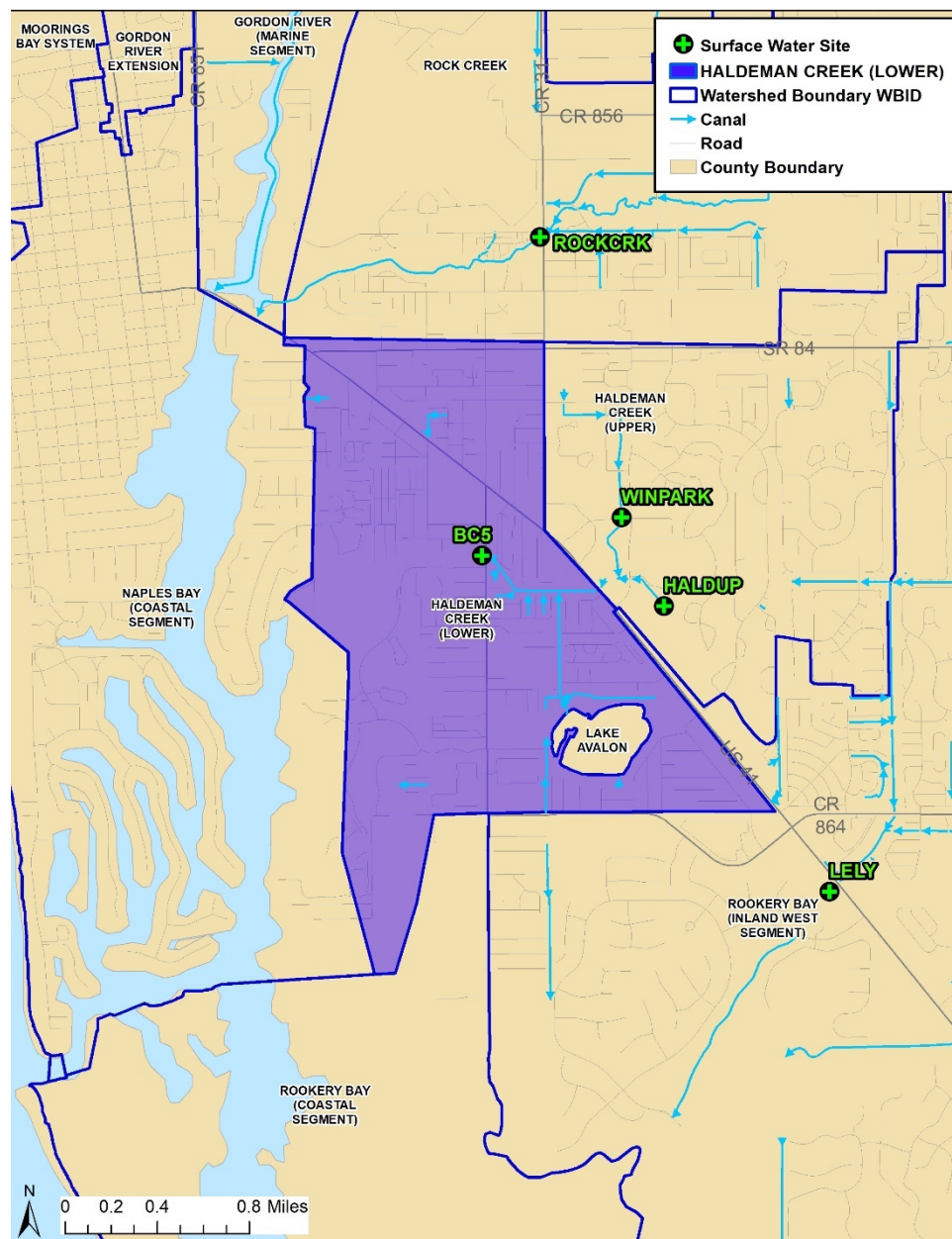


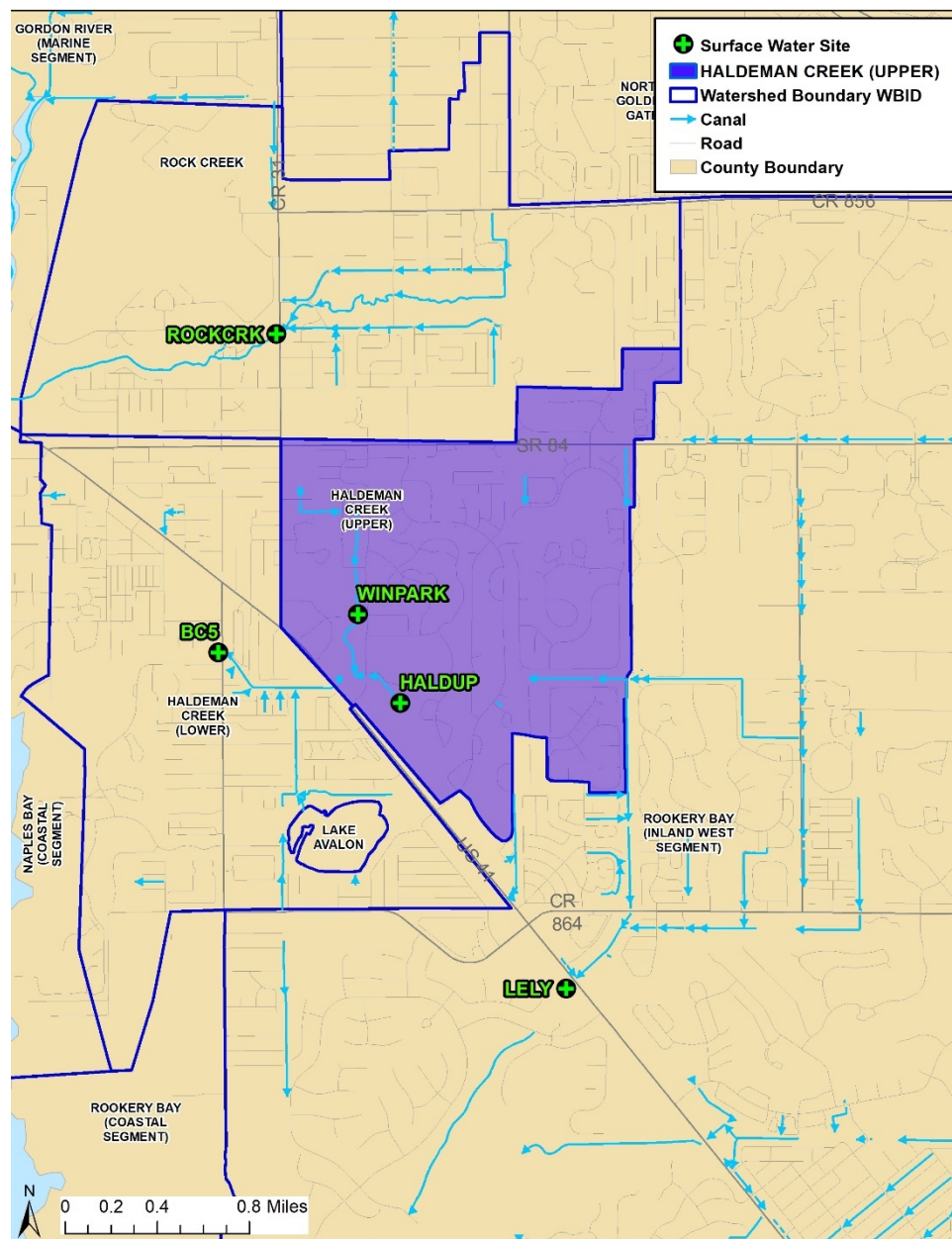
Figure 11. Gordon River Extension Snapshot



HALDEMAN CREEK (LOWER)

- Size: 1,729 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Haldeman Creek (Upper), Rookery Bay (Inland West Segment)
 - Drains to: Naples Bay Coastal, Rookery Bay (Coastal Segment)
- Major Land Use(s):
 - Urban and Built Up 79%
 - Residential, Medium Density 41%
 - Residential, High Density 26%
 - Commercial and Services 19%
 - Recreational 10%
 - Open Land 2%
 - Institutional 2%
 - Wetlands 7%
 - Water 7%
- FDEP Impairments 2019: Copper, Enterococci
- Water Quality Trends:
 - Short-term Improving: None
 - Short-term Degrading: Chlorophyll-a, Turbidity
 - Long-term Improving: Nitrate-Nitrite, Total Kjeldahl Nitrogen, Total Nitrogen, iron, arsenic
 - Long-term Degrading: Chlorophyll-a, Conductivity, Salinity, pH
- Total # of FY19 Exceedances: [21](#)
- Summary Statistics: [Appendix C](#)

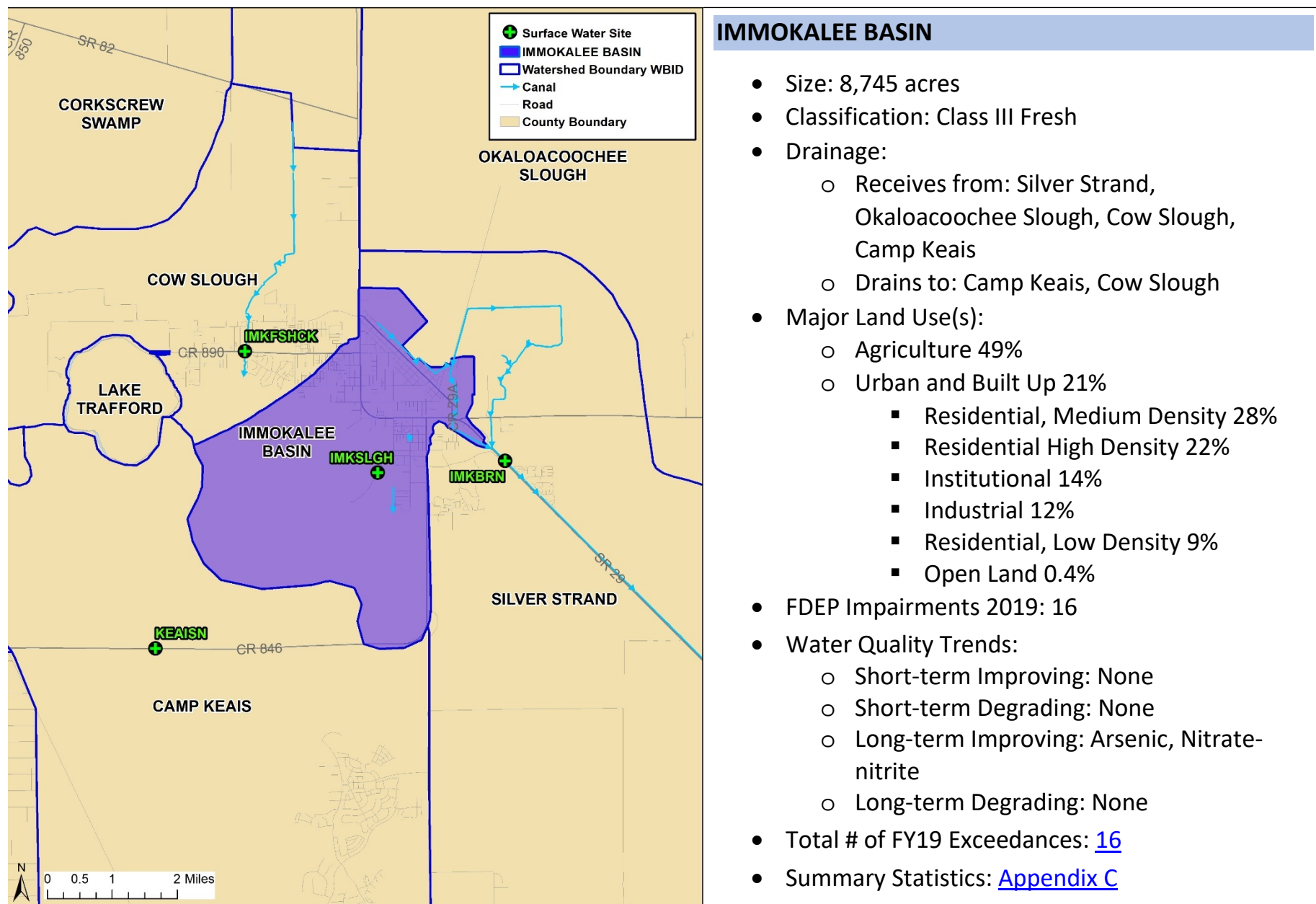
Figure 12. Haldeman Creek (Lower) Snapshot



HALDEMAN CREEK (UPPER)

- Size: 1,435 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Rookery Bay (Inland West Segment),
 - Drains to: Rookery Bay (Inland West Segment), Haldeman Creek (Lower)
- Major Land Use(s):
 - Urban and Built Up 88%
 - Residential High Density 38%
 - Residential, Medium Density 36%
 - Commercial and Services 13%
 - Recreational 13%
 - Institutional 0.3%
 - Open Land 0.3%
 - Water 7.6%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Dissolved Oxygen, Total Kjeldahl Nitrogen
 - Short-term Degrading: Turbidity, Chlorophyll-a
 - Long-term Improving: Dissolved Oxygen, Arsenic, Iron
 - Long-term Degrading: Conductivity, Salinity, Total Phosphorus, Chlorophyll-a
- Total # of FY19 Exceedances: [42](#)
- Summary Statistics: [Appendix C](#)

Figure 13. Haldeman Creek (Upper) Snapshot



IMMOKALEE BASIN

- Size: 8,745 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Silver Strand, Okaloacoochee Slough, Cow Slough, Camp Keais
 - Drains to: Camp Keais, Cow Slough
- Major Land Use(s):
 - Agriculture 49%
 - Urban and Built Up 21%
 - Residential, Medium Density 28%
 - Residential High Density 22%
 - Institutional 14%
 - Industrial 12%
 - Residential, Low Density 9%
 - Open Land 0.4%
- FDEP Impairments 2019: 16
- Water Quality Trends:
 - Short-term Improving: None
 - Short-term Degrading: None
 - Long-term Improving: Arsenic, Nitrate-nitrite
 - Long-term Degrading: None
- Total # of FY19 Exceedances: [16](#)
- Summary Statistics: [Appendix C](#)

Figure 14. Immokalee Basin Snapshot

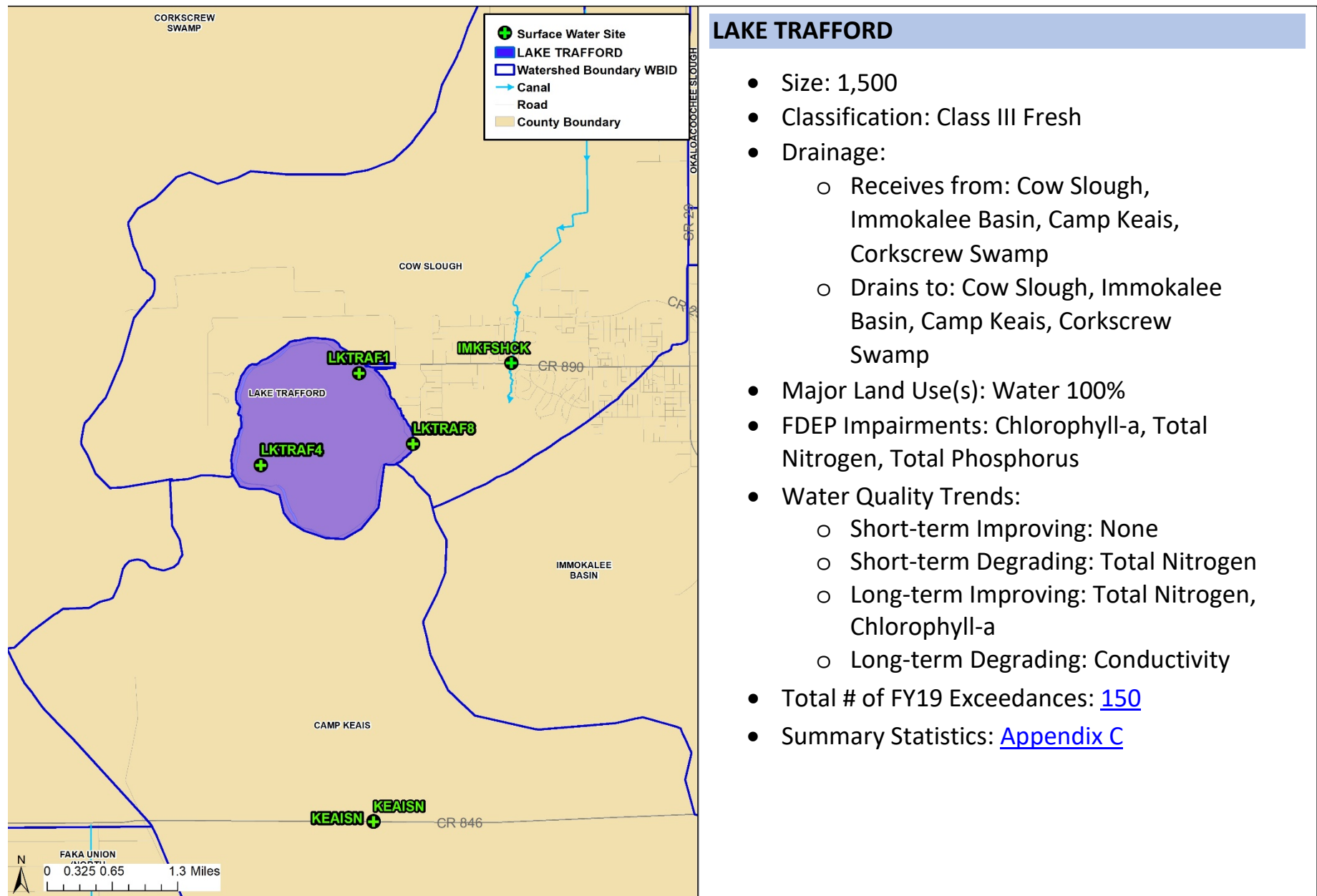
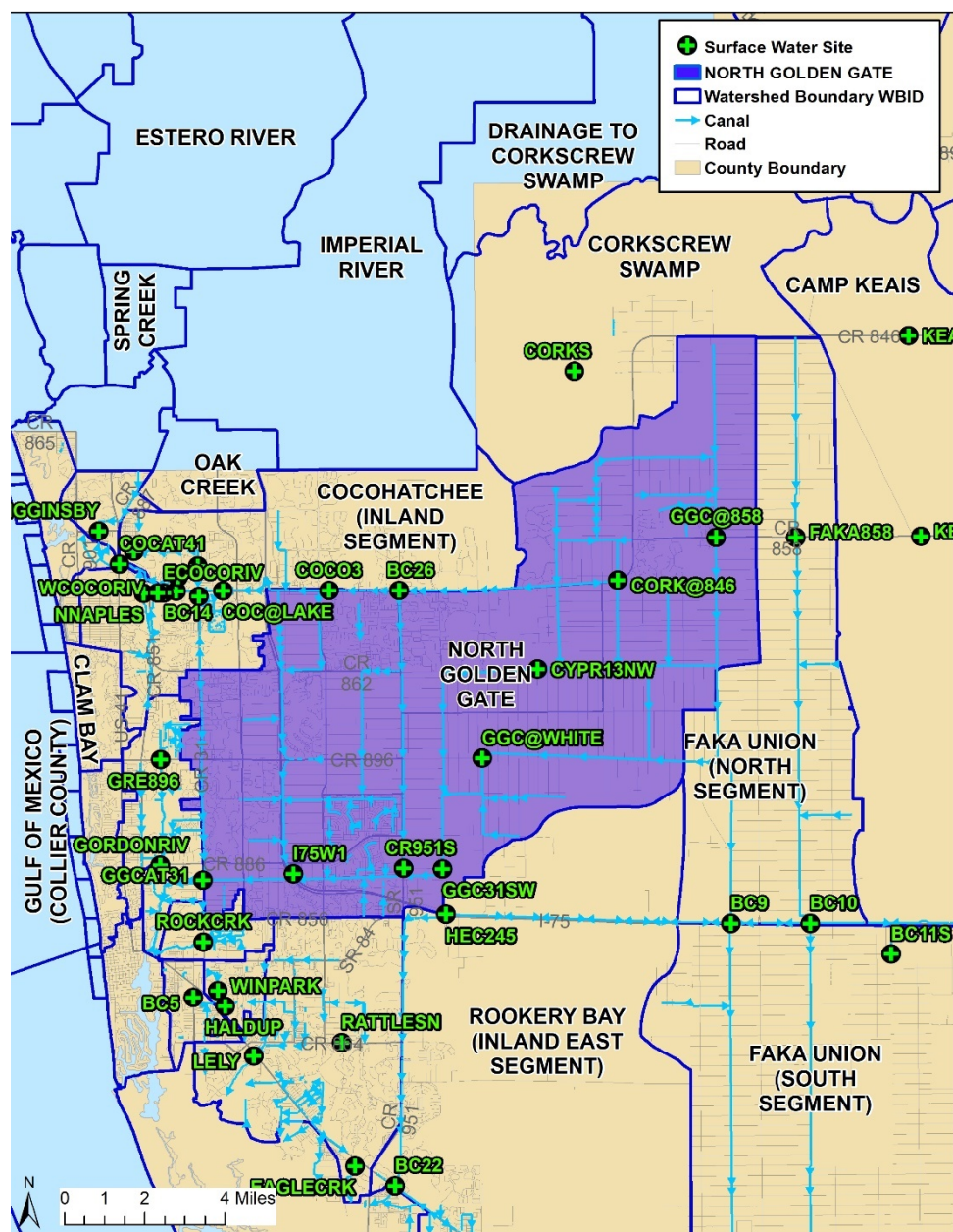


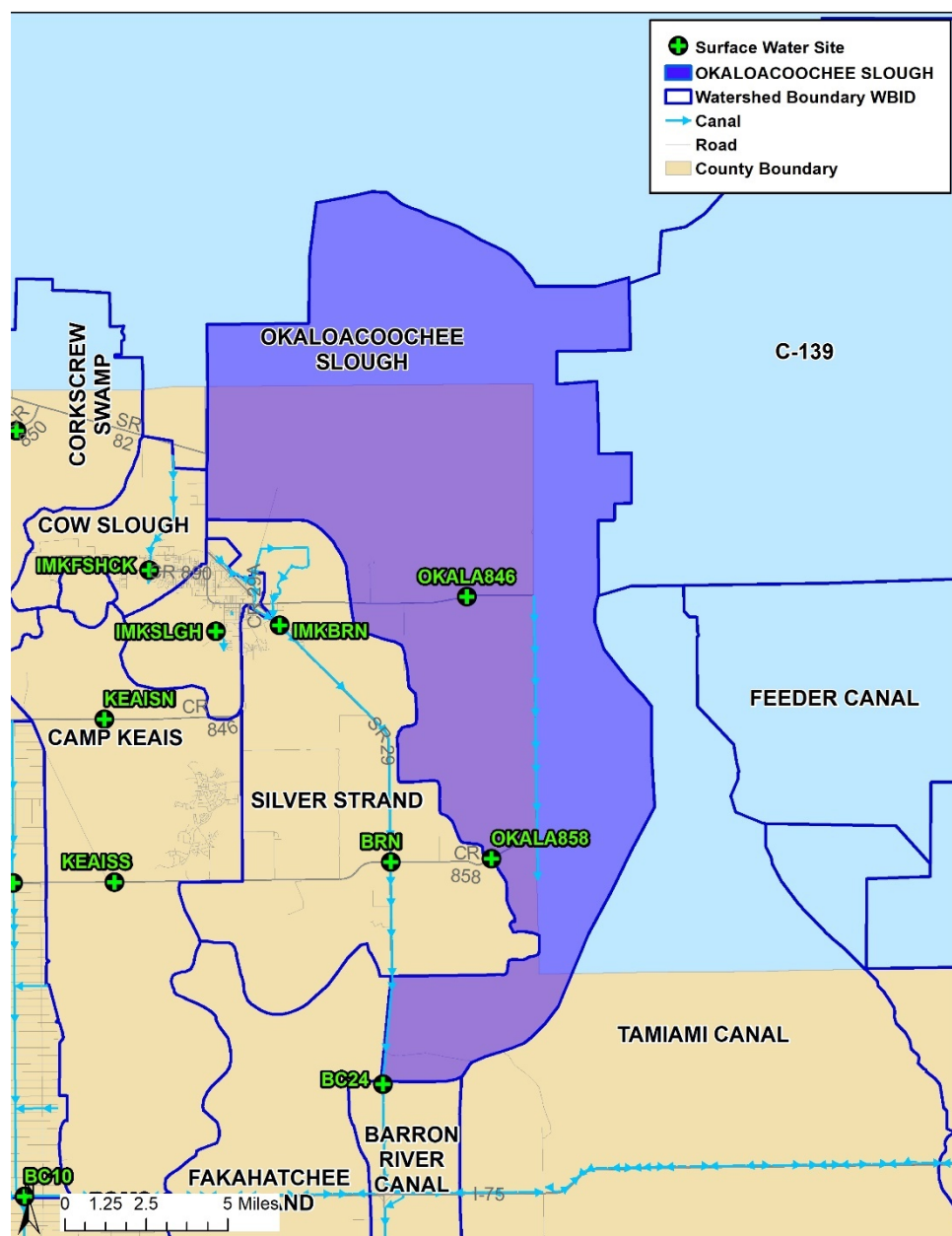
Figure 15. Lake Trafford Snapshot



NORTH GOLDEN GATE

- Size: 72,785 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Corkscrew Swamp, Cocohatchee (Inland Segment), Faka Union (North Segment)
 - Drains to: Cocohatchee (Inland Segment), Naples Bay (Coastal Segment), Faka Union (North Segment), Rookery Bay (Inland East Segment)
- Major Land Use(s):
 - Urban and Built Up 60%
 - Residential Low Density 60%
 - Residential Medium Density 15%
 - Residential High Density 7%
 - Recreational 7%
 - Institutional 3%
 - Commercial and Services 3%
 - Extractive 2.5%
 - Open Land 2%
 - Industrial 0.7%
 - Wetlands 21%
- FDEP Impairments 2019: 37
- Water Quality Trends:
 - Short-term Improving: Iron, Total Nitrogen
 - Short-term Degrading: Copper
 - Long-term Improving: Nitrate-nitrite, Total Phosphorus
 - Long-term Degrading: Salinity
- Total # of FY19 Exceedances: [40](#)
- Summary Statistics: [Appendix C](#)

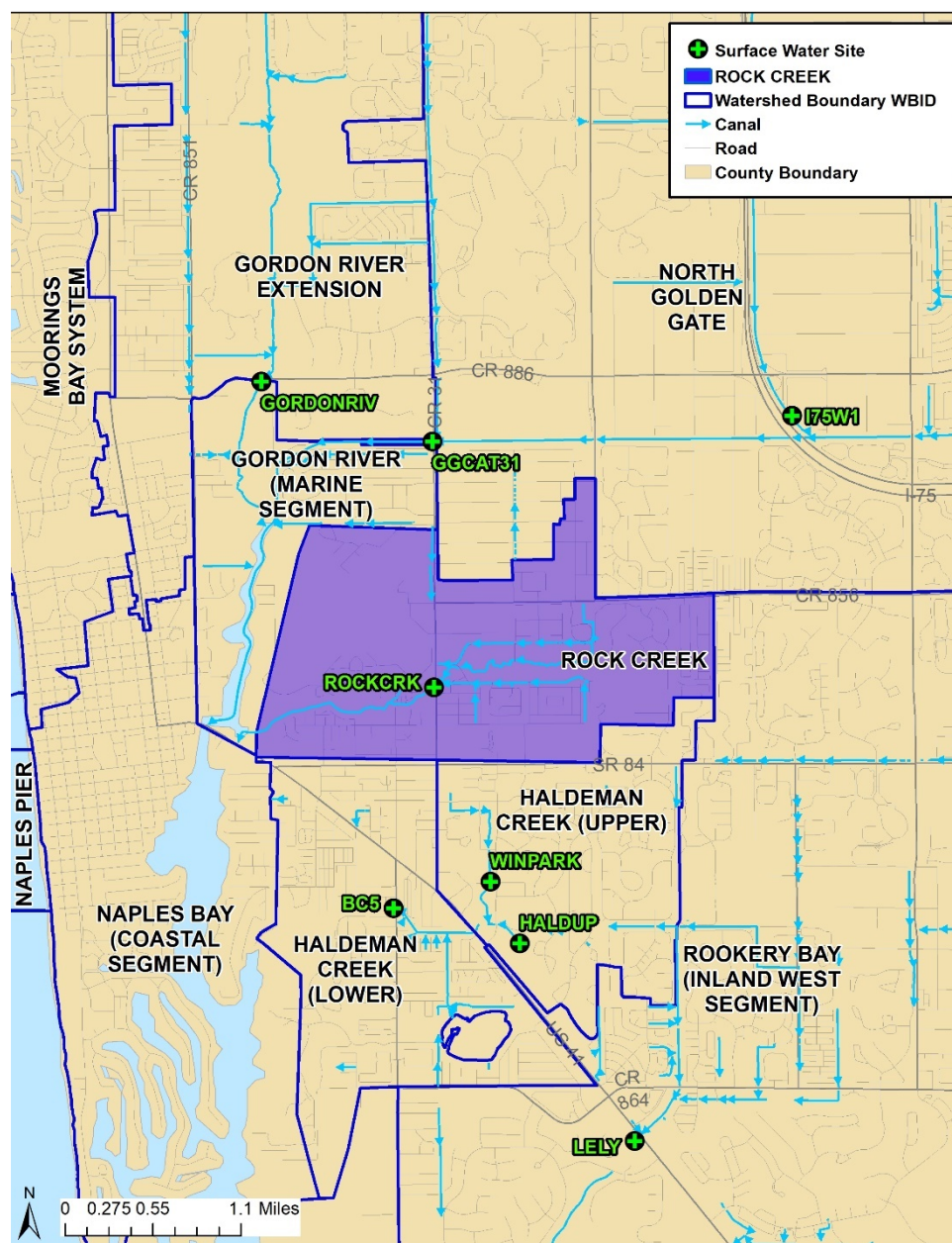
Figure 16. North Golden Gate Snapshot



OKALOACOOCHEE SLOUGH

- Size: 125,992 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: C-139
 - Drains to: Barron River Canal, Fakahatchee Strand, Silver Strand, Tamiami Canal
- Major Land Use(s):
 - Wetlands 45%
 - Agriculture 41%
 - Upland Forests 9%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Dissolved Oxygen, pH
 - Short-term Degrading: None
 - Long-term Improving: pH
 - Long-term Degrading: Fecal Coliform, Dissolved Oxygen
- Total # of FY19 Exceedances: [21](#)
- Summary Statistics: [Appendix C](#)

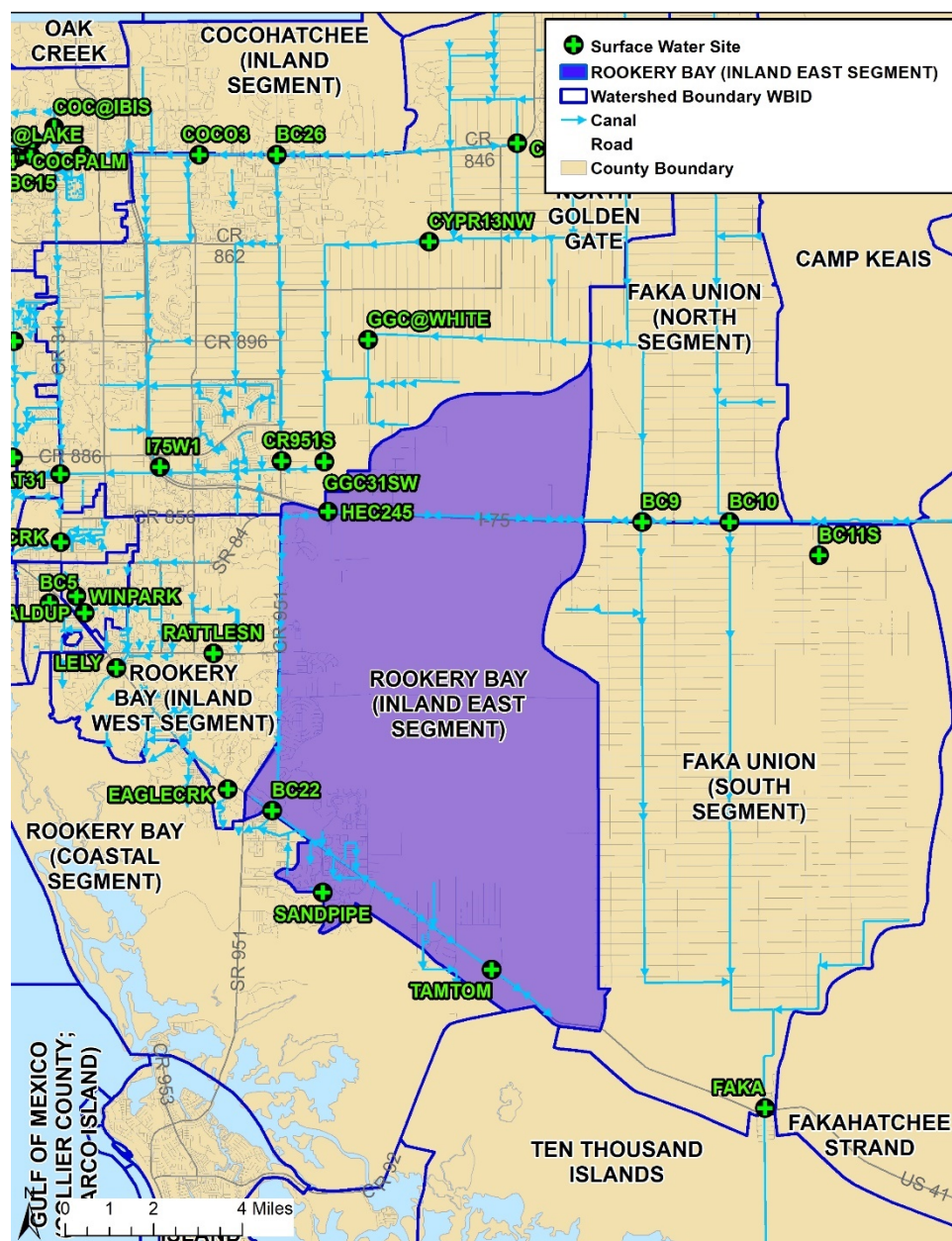
Figure 17. Okaloacoochee Slough Snapshot



ROCK CREEK

- Size: 2,119 acres
- Classification: Class III Marine
- Drainage:
 - Receives from: North Golden Gate
 - Drains to: Naples Bay (Coastal Segment)
- Major Land Use (s):
 - Urban and Built Up 62%
 - Residential, Medium Density 38%
 - Commercial and Services 22%
 - Residential, High Density 15%
 - Residential, Low Density 14%
 - Recreational 12%
 - Industrial 6%
 - Institutional 4%
 - Transportation, Communication & Utilities 28%
- FDEP Impairments 2019: Copper, Enterococci, Iron
- Water Quality Trends: This WBID did not exist at time of last trend analysis
- Total # of FY19 Exceedances: [26](#)
- Summary Statistics: [Appendix C](#)

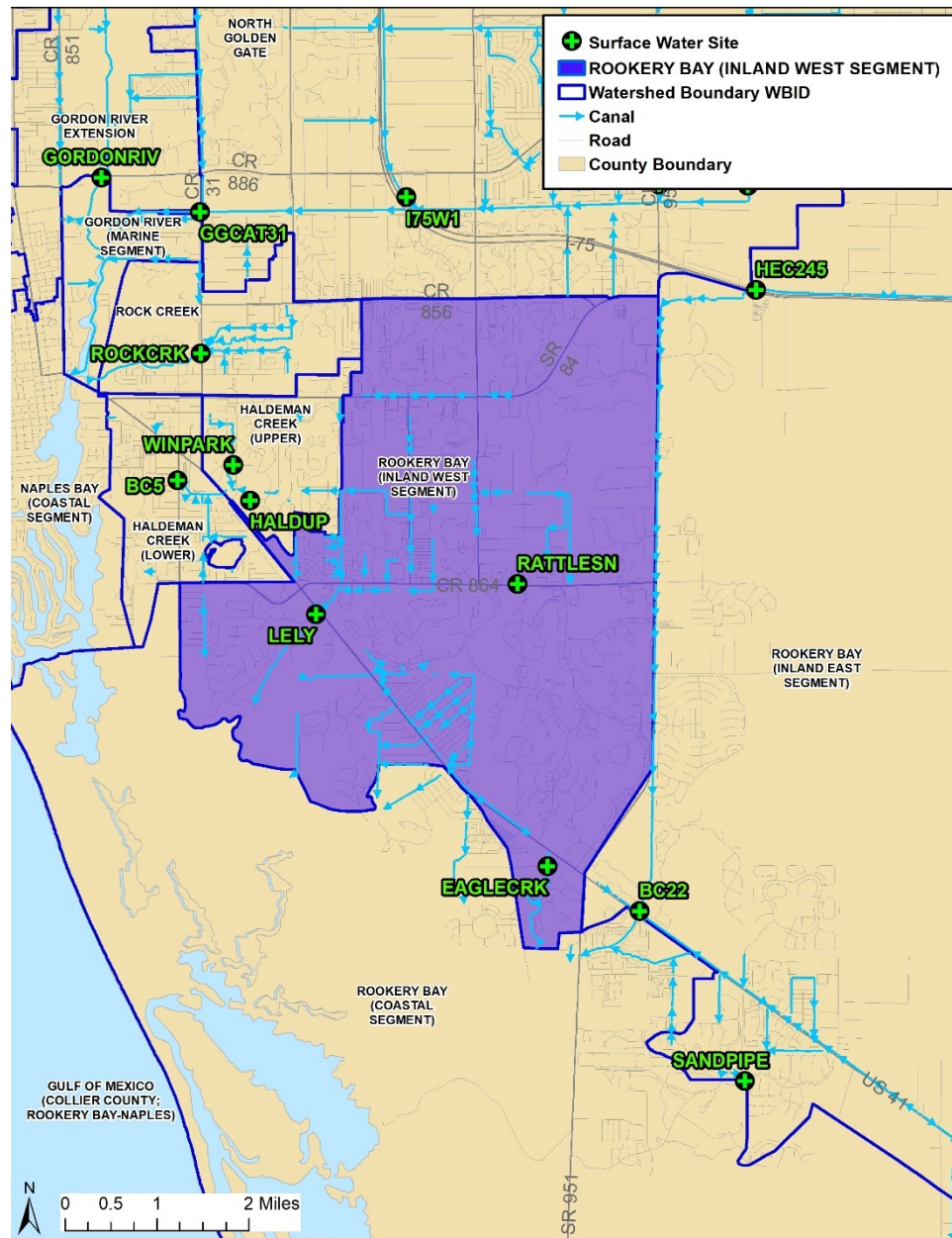
Figure 18. Rock Creek Snapshot



ROOKERY BAY (INLAND EAST SEGMENT)

- Size: 53,992 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Faka Union (North Segment)
 - Drains to: Rookery Bay (Coastal Segment)
- Major Land Use(s):
 - Wetlands 55%
 - Agriculture 14%
 - Upland Forests 14%
 - Urban and Built Up 9%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Total Nitrogen, Total Phosphorus
 - Short-term Degrading: Dissolved Oxygen, pH
 - Long-term Improving: Nitrate-nitrite, Total Kjeldahl Nitrogen, Total Nitrogen, Total Phosphorus, Fecal Coliform
 - Long-term Degrading: Dissolved Oxygen, pH, Secchi Depth
- Total # of FY19 Exceedances: [53](#)
- Summary Statistics: [Appendix C](#)

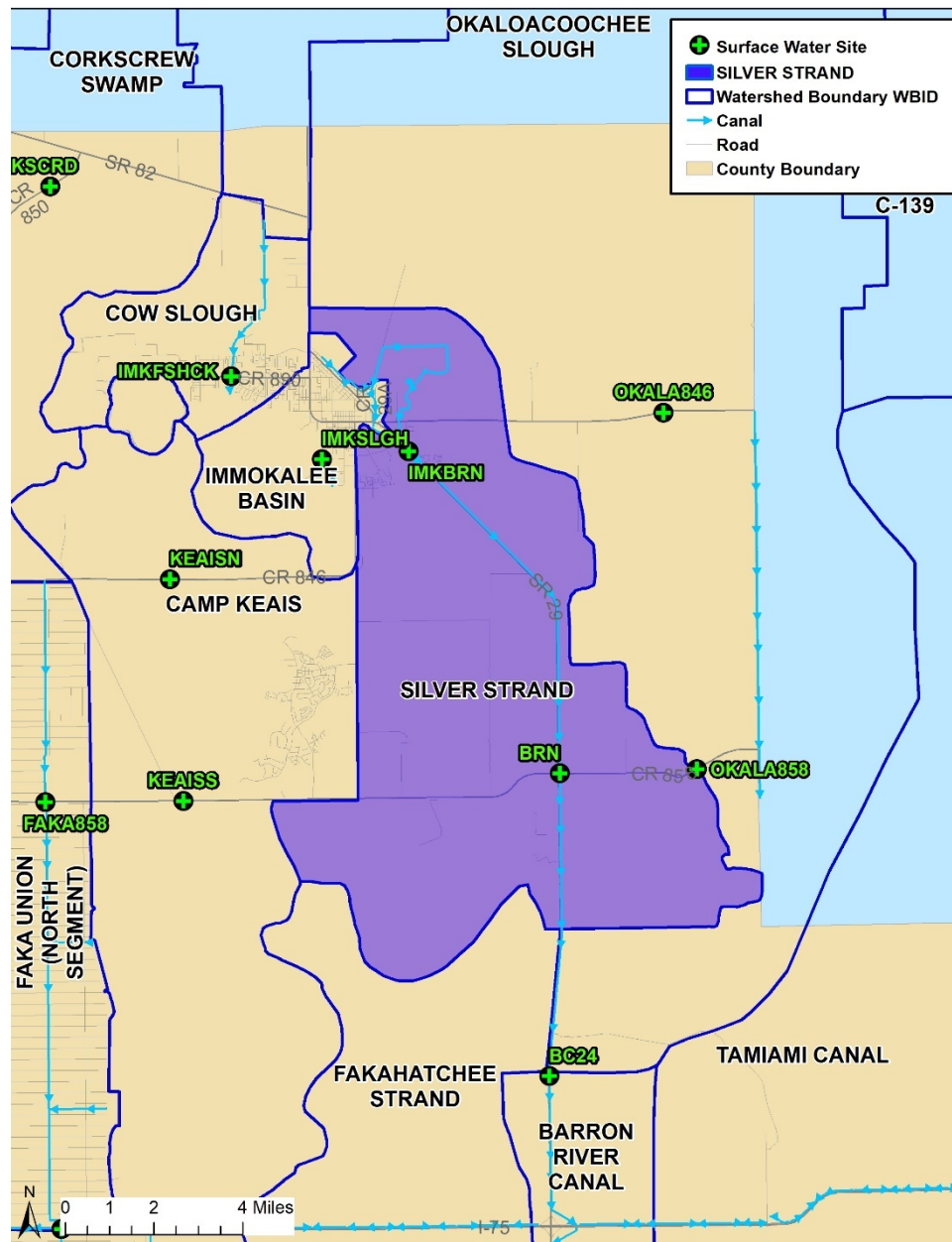
Figure 19. Rookery Bay (Inland East Segment) Snapshot



ROOKERY BAY (INLAND WEST SEGMENT)

- Size: 15,054 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Haldeman Creek (Upper)
 - Drains to: Haldeman Creek (Upper), Rookery Bay (Coastal Segment)
- Major Land Use(s):
 - Urban and Built up 60%
 - Residential, Medium Density 35%
 - Residential, High Density 25%
 - Recreational 22%
 - Residential, Low Density 8%
 - Commercial and Services 5%
 - Institutional 4%
 - Open Land 0.6%
 - Wetlands 15%
 - Upland Forests 11%
 - Water 9%
- FDEP Impairments 2019: None
- Water Quality Trends:
 - Short-term Improving: Total Kjeldahl Nitrogen, Total Nitrogen, Dissolved Oxygen
 - Short-term Degrading:
 - Long-term Improving: Fecal Coliform, Total Kjeldahl Nitrogen, Total Nitrogen, Total Phosphorus, Turbidity
 - Long-term Degrading: salinity, Secchi Depth
- Total # of FY19 Exceedances: [22](#)
- Summary Statistics: [Appendix C](#)

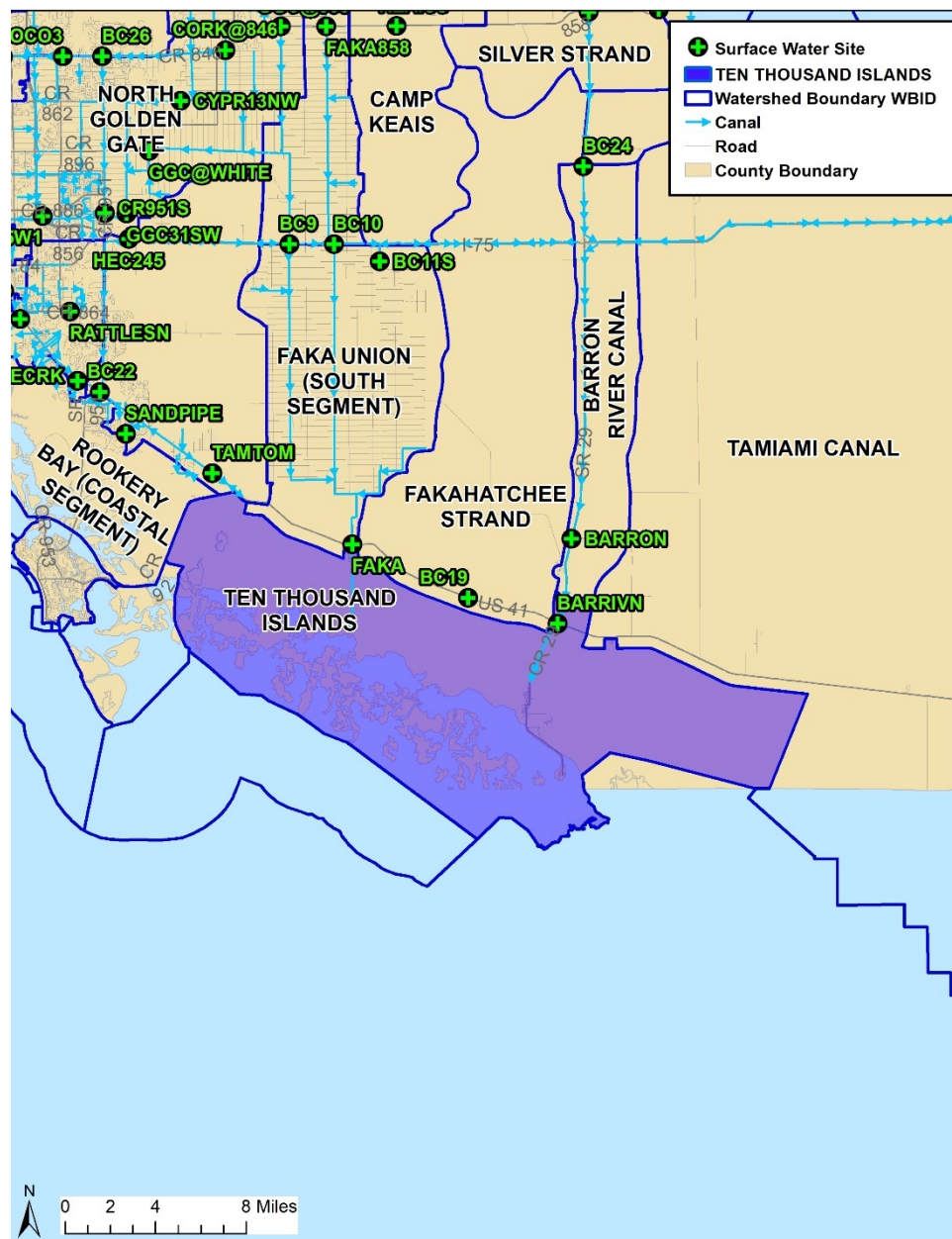
Figure 20. Rookery Bay (Inland West Segment) Snapshot



SILVER STRAND

- Size: 53,835 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Immokalee Basin, Okaloacoochee Slough
 - Drains to: Okaloacoochee Slough, Fakahatchee Strand
- Major Land Use(s):
 - Agriculture 65%
 - Wetlands 24%
 - Upland Forests 4%
- FDEP Impairments 2019: Iron
- Water Quality Trends:
 - Short-term Improving: pH
 - Short-term Degrading: Total Kjeldahl Nitrogen, Total Nitrogen, Biochemical Oxygen Demand
 - Long-term Improving: None
 - Long-term Degrading: Salinity, Total Kjeldahl Nitrogen, Total Nitrogen, Biochemical Oxygen Demand, Total Suspended Solids
- Total # of FY19 Exceedances: [85](#)
- Summary Statistics: [Appendix C](#)

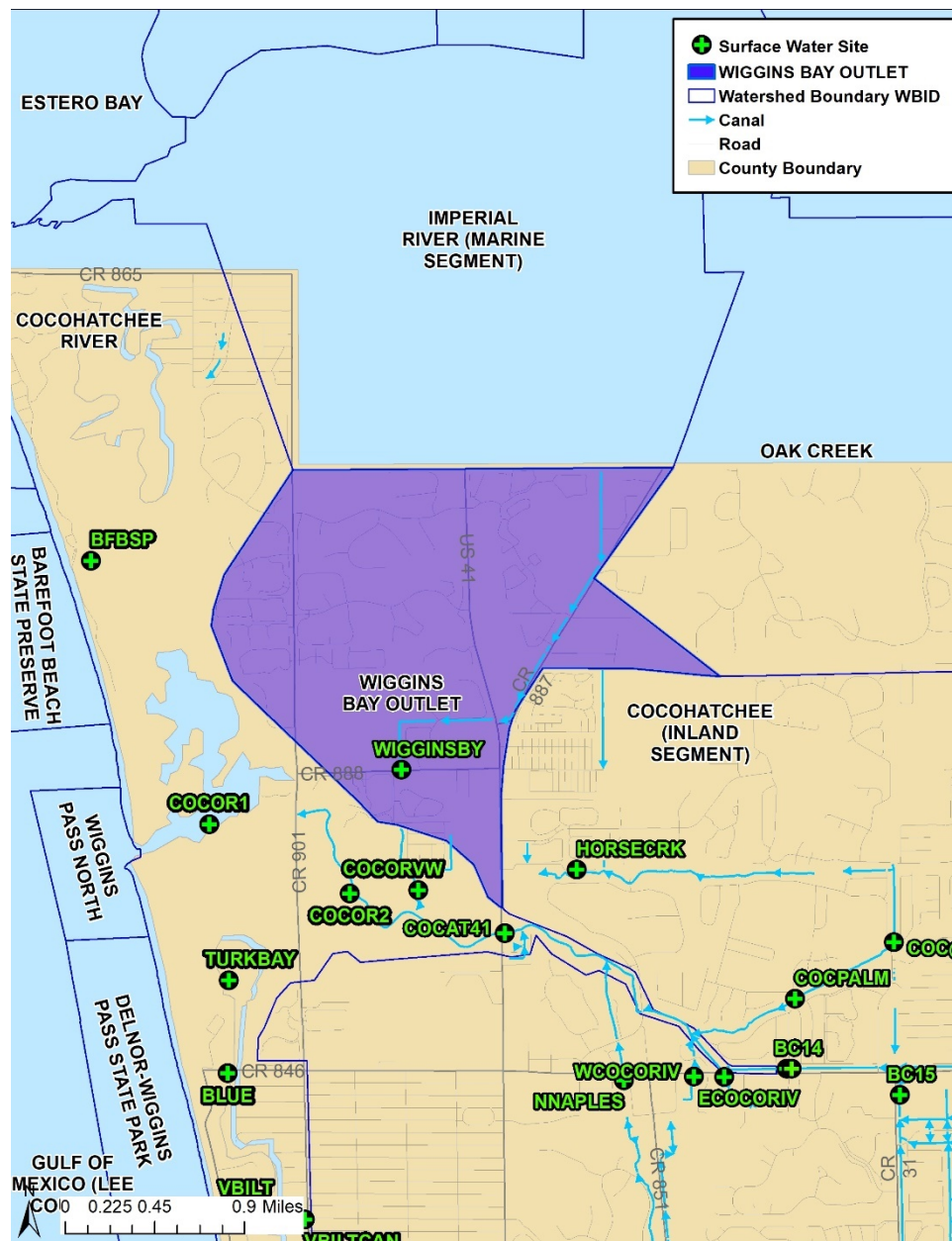
Figure 21. Silver Strand Snapshot



TEN THOUSAND ISLANDS

- Size: 127,836 acres
- Classification: Class II
- Drainage:
 - Receives from: Faka Union (South Segment), Fakahatchee Strand, Barron River Canal, Tamiami Canal
 - Drains to: Gulf of Mexico
- Major Land Use(s):
 - Wetlands 69%
 - Water 30%
- FDEP Impairments 2019: Dissolved Oxygen, Fecal Coliform, Chlorophyll-a, Total Nitrogen
- Water Quality Trends:
 - Short-term Improving: Total Nitrogen
 - Short-term Degrading: Turbidity
 - Long-term Improving: Dissolved Oxygen, pH, Iron, Nitrate-nitrite,
 - Long-term Degrading: Fecal, Total Kjeldahl Nitrogen, Total Nitrogen
- Total # of FY19 Exceedances: [13](#)
- Summary Statistics: [Appendix C](#)

Figure 22. Ten Thousand Islands Snapshot



WIGGINS BAY OUTLET

- Size: 1,877 acres
- Classification: Class III Fresh
- Drainage:
 - Receives from: Oak Creek, Cocohatchee (Inland Segment)
 - Drains to: Cocohatchee River
- Major Land Use(s):
 - Urban and Built Up 57%
 - Residential, High Density 41%
 - Residential, Medium Density 22%
 - Commercial and Services 17%
 - Recreational 13%
 - Residential, Low Density 3%
 - Institutional 3%
 - Industrial 2%
 - Wetlands 27%
 - Water 6%
- FDEP Impairments 2019: Iron
- Water Quality Trends: This WBID did not exist at time of last trend analysis
- Total # of FY19 Exceedances: [17](#)
- Summary Statistics: [Appendix C](#)

Figure 23. Wiggins Bay Outlet Snapshot

APPENDIX A

Station List

Site	Latitude	Longitude	Location Description	Project
BARRIVN	25.90977	-81.36348	Bridge at intersection of US41 E and Barron River Canal	CCWQ
BARRON	25.96445	-81.35361	Bridge at intersection of CR837 and Barron River near SR 29	CCWQ
BC10	26.15330	-81.52323	Faka Union Canal at intersection of I-75	CCWQ
BC11S	26.14243	-81.49066	Merritt Canal just above pump station at end of 52nd Ave SE	CCWQ
BC14	26.27269	-81.77871	Immokalee Rd. Canal at intersection of Palm River Blvd.	CCWQ
BC15	26.27083	-81.76955	Airport Rd. Canal at entrance to Sam's Club	CCWQ
BC19	25.92638	-81.42709	Bridge #69 on US 41E	CCWQ
BC22	26.05760	-81.68938	Gauging Station North of intersection of US41 and Henderson Creek	CCWQ
BC24	26.20398	-81.34598	Bridge #30211 on SR 29, approx. 3.1 miles north of I-75	CCWQ
BC26	26.27340	-81.68899	Intersection of 951 Canal and Immokalee Rd. Canal ("COCAT951")	CCWQ
BC5	26.12543	-81.77085	Bridge at intersection of Haldeman Creek and Bayshore Dr.	CCWQ
BC9	26.15320	-81.55505	Miller Canal at intersection of I-75	CCWQ
BFBSP	26.30944	-81.83528	Near red PATON #10	COCORIVESTWQ
BLUE	26.27210	-81.82393	50' South of Bluebill Ave Bridge	COCORIVESTWQ
BRN	26.30338	-81.34246	Bridge at intersection of CR858 & SR29 N near Sunniland	CCWQ
COC@IBIS	26.28197	-81.77011	Bridge at intersection of Palm River and Ibis Way	CCWQ
COC@LAKE	26.27297	-81.75989	Bridge at intersection of Lakeland Ave. and Cocohatchee River Canal	CCWQ
COCAT41	26.28245	-81.80158	Cocohatchee River at US 41	COCORIVESTWQ
COCO3	26.27332	-81.71719	Upstream of Cocohatchee Weir #3 on Immokalee Rd.	CCWQ
COCOR1	26.29028	-81.82556	South of Pelican Isle Yacht Club between Marker 13 and old pole to the north.	COCORIVESTWQ
COCOR2	26.28528	-81.81417	Cocohatchee River in channel between Vanderbilt Dr and US41	COCORIVESTWQ
COCORVW	26.28556	-81.80861	Cocohatchee River in channel leading from Venetian Way	COCORIVESTWQ

Site	Latitude	Longitude	Location Description	Project
COCPALM	26.27780	-81.77807	Bridge at intersection of Palm River Drive and Coconut Palm River	CCWQ
CORK@846	26.27766	-81.60124	Bridge at intersection of Corkscrew Canal and CR846	CCWQ
CORKN	26.42202	-81.57849	Bridge just south of County line and USGS gauging station on tram road to Little Corkscrew Island in Corkscrew Swamp Sanctuary	CCWQ
CORKS	26.35321	-81.61899	Southern most bridge on tram road in Corkscrew Swamp Sanctuary	CCWQ
CORKSCRD	26.49548	-81.52877	Bridge at intersection of Corkscrew Rd. and canal northeast of Corkscrew Marsh Trailhead	CCWQ
CR951S	26.17269	-81.68664	CR951 Canal upstream of weir #1 just north of 31st Ave. SW	CCWQ
CYPR13NW	26.24514	-81.63320	East side of bridge at end of 13 St NW and Cypress Canal	CCWQ
EAGLECRK	26.06465	-81.70555	Upstream of bridge at intersection of Eagle Creek Canal and Price St.	CCWQ
ECOCORIV	26.27207	-81.78376	Upstream side of second amil gate on south side of Immokalee Rd east of Goodlette Rd.	CCWQ
FAKA	25.96050	-81.50951	Gauging station north of weir at the intersection of US41 and Faka Union Canal	CCWQ
FAKA858	26.29341	-81.52964	South side of bridge at Faka Union Canal and CR858	CCWQ
GGC@858	26.29331	-81.56175	Bridge at intersection of Golden Gate Canal and CR858	CCWQ
GGC@WHITE	26.21279	-81.65533	Bridge at intersection of Golden Gate Canal and White Blvd.	CCWQ
GGC31SW	26.17257	-81.67106	Main Golden Gate Canal at the east end of 31st Ave. SW	CCWQ
GGCAT31	26.16797	-81.76720	Bridge at intersection of Airport Rd and Golden Gate Canal	CCWQ
GORDONRIV	26.17334	-81.78451	Upstream of weir at intersection of Golden Gate Pkwy and Gordon River Extension.	CCWQ
GRE896	26.21156	-81.78450	Gordon River Extension at Pine Ridge Rd.	CCWQ
HALDUP	26.12230	-81.75810	1000' upstream from Palm Dr. on Haldeman Creek	CCWQ
HEC245	26.15609	-81.66956	Henderson Creek Canal as it passes under I-75 near White Lake Blvd.	CCWQ
HORSECRK	26.28713	-81.79581	Horse Creek along Encore Way	CCWQ

Collier County Surface Water Report 2019

Site	Latitude	Longitude	Location Description	Project
I75W1	26.17050	-81.73096	I-75 Canal upstream of weir #1	CCWQ
IMKBRN	26.40900	-81.39777	First bridge over canal on US29 south of the convergence of northwest drainage canal and north drainage canal on southeast end of Immokalee	CCWQ
IMKFSHCK	26.43337	-81.46260	On Lake Trafford Rd. just west of elementary school at sidewalk bridge	CCWQ
IMKSLGH	26.40624	-81.42945	On Sanitation Rd. leading to Eustis Landfill on east side of road approximately half way between entrance gate at Immokalee Water & Sewer District Office and Eustis Landfill gate.	CCWQ/LKTRAFF
KEAISN	26.36667	-81.48457	Bridge on CR846, 3.5 miles east of Everglades Blvd.	CCWQ/LKTRAFF
KEAISS	26.29391	-81.47935	Bridge on CR858, 3.5 miles east of Everglades Blvd.	CCWQ
LELY	26.10434	-81.74639	Bridge at intersection of US41 and Lely Main Canal	CCWQ
LKTRAF1	26.43180	-81.48719	Northeast corner of Lake Trafford near fishing pier	LKTRAFF
LKTRAF4	26.41836	-81.50297	Southwest corner of Lake Trafford	LKTRAFF
LKTRAF8	26.42156	-81.47843	Mouth of slough on the east side of Lake Trafford	LKTRAFF
NNAPLES	26.27178	-81.79189	South side of amil gate at junction of North Naples Canal and Immokalee Rd.	CCWQ
OKALA846	26.42193	-81.30501	South side of amil gate at junction of North Naples Canal and Immokalee Rd.	CCWQ
OKALA858	26.30495	-81.29252	Okaloacoochee Slough crossing on CR858	CCWQ
RATTLESN	26.10932	-81.71111	Slough passing under Rattlesnake Hammock Rd at culvert approximately 0.4 miles East of Santa Barbara Blvd	CCWQ
ROCKCRK	26.14557	-81.76691	Rock Creek west of Airport Rd.	CCWQ
SANDPIPE	26.03073	-81.67079	Canal S1S-00 as it passes under Sandpiper Dr. in Fiddler's Creek	CCWQ
TAMTOM	26.00571	-81.60919	Gauging station near intersection of US41E and Tomato Rd.	CCWQ
TURKBAY	26.27889	-81.82389	Water Turkey Bay Marker 11	COCORIVESTWQ
VBILT	26.26218	-81.82242	Mid-channel, opposite Tradewinds Avenue	COCORIVESTWQ
VBILTB	26.25603	-81.82112	300' due West of Palm Ct	COCORIVESTWQ

Site	Latitude	Longitude	Location Description	Project
VBILTCAN	26.26147	-81.81763	End of canal between Tradewinds and Lagoon Avenues	COCORIVESTWQ
WCOCORIV	26.27207	-81.78622	Upstream side of first amil gate on south side of Immokalee Rd east of Goodlette Rd	CCWQ
WIGGINSBY	26.29436	-81.81004	In canal WBB-00-C0015 (Tarpon Bay Canal) on north side of Wiggins Pass Rd.	CCWQ
WINPARK	26.12790	-81.76110	Winter Park outfall at Harrison Rd.	CCWQ

APPENDIX B
PARAMETER LIST

Parameter	PROJECT		
	CCWQ	LKTRAFF	COCORIVESTWQ
Alkalinity		X	
Ammonia (N)	X	X	X
Arsenic	X		analyzed quarterly
BOD	X	X	X
Cadmium	X		analyzed quarterly
Calcium	X		
Carbon- Organic	X	X	X
Chloride	X		
Chlorophyll a- corrected	X	X	X
Chromium	X		analyzed quarterly
Color- True	X	X	X
Copper	X		analyzed quarterly
E. coli Or Enterococci	X		X
Hardness- Calculated	X		
Iron	X		analyzed quarterly
Lead	X		analyzed quarterly
Magnesium	X		
Nitrate (N)	X	X	X
Nitrate-Nitrite (N)	X	X	X
Nitrite (N)	X	X	X
Total Nitrogen	X	X	X
Total Nitrogen Kjeldahl	X	X	X
Orthophosphate (P)	X	X	X
Pheophytin a	X	X	X
Total Phosphorus	X	X	X
Total Suspended Solids	X	X	X
Silica		X	
Sulfate	X	X	X
Turbidity	X	X	X
Zinc	X		analyzed quarterly
Dissolved Oxygen (DO)	X	X	X
DO Saturation	X	X	X
pH	X	X	X
Salinity	X	X	X
Specific Conductance	X	X	X
Secchi Disk Depth	X	X	X
Temperature, Water	X	X	X

APPENDIX C

Summary Statistics

WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Barron River Canal						
Ammonia (N)	mg/L	12	0.022	0.241	0.078	0.070
Arsenic	µg/L	12	0.915	1.32	1.07	0.13
BOD	mg/L	12	2	2.7	1.5	0.7
Cadmium	µg/L	12	0.02	0.02	0.01	0.00
Calcium	mg/L	12	63.4	109	92	17
Carbon- Organic	mg/L	12	9.77	14.2	12.5	1.34
Chloride	mg/L	12	10.8	34.2	26.6	7.41
Chlorophyll a- corrected	mg/m3	12	1	9.1	2.4	2.3
Chromium	µg/L	12	0.211	0.513	0.36	0.10
Color- True	PCU	12	36	91	54	20
Copper	µg/L	12	0.2	0.251	0.12	0.05
E. coli	MPN/100 mL	12	20	85	43	22
Hardness- Calculated	mg/L	12	172	302	253	46
Iron	µg/L	12	85.7	380	213	96
Lead	µg/L	12	0.03	0.065	0.04	0.01
Magnesium	mg/L	12	3.28	7.33	6	1
Nitrate (N)	mg/L	12	0.011	0.04	0.008	0.010
Nitrate-Nitrite (N)	mg/L	12	0.011	0.04	0.009	0.010
Nitrite (N)	mg/L	12	0.002	0.003	0.002	0.001
Total Nitrogen	mg/L	12	0.495	1.64	0.847	0.319
Total Nitrogen Kjeldahl	mg/L	12	0.495	1.64	0.842	0.314
Orthophosphate (P)	mg/L	12	0.004	0.025	0.012	0.007
Pheophytin a	mg/m3	12	1	1.6	0.7	0.4
Total Phosphorus	mg/L	12	0.016	0.052	0.027	0.011
Total Suspended Solids	mg/L	12	2	2.9	1.5	0.7
Sulfate	mg/L	12	0.25	2.64	1.3	0.7
Turbidity	NTU	12	0.7	2.9	1.5	0.5
Zinc	µg/L	12	1	2.33	0.87	0.55
Secchi Disk Depth	meters	12	1.3	2.3	1.9	0.3
Dissolved Oxygen (DO)	mg/L	22	0.63	3.24	1.68	0.75
DO Saturation	%	22	7.50	40.30	20.18	9.70
pH	SU	22	7.05	7.46	7.25	0.13
Salinity	ppth	22	0.16	0.29	0.25	0.05
Specific Conductance	umho/cm	22	347.4	608.7	521	93

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Temperature, Water	deg C	22	20.10	27.80	24.08	2.54
Camp Keais						
Ammonia (N)	mg/L	23	0.028	3.449	0.586	1.086
Arsenic	µg/L	23	0.383	3.17	1.08	0.81
BOD	mg/L	23	2	5.9	2.2	1.3
Cadmium	µg/L	23	0.02	0.021	0.01	0.00
Calcium	mg/L	23	42.9	85.9	65	12
Carbon- Organic	mg/L	23	17.3	35	25.3	5.11
Chloride	mg/L	23	14.8	46.2	30.7	9.40
Chlorophyll a- corrected	mg/m3	23	1.2	179	16	42
Chromium	µg/L	23	0.2	1.59	0.30	0.32
Color- True	PCU	23	70	330	127	53
Copper	µg/L	23	0.2	3.19	0.49	0.78
E. coli	MPN/100 mL	23	5	249	56	54
Hardness- Calculated	mg/L	23	128	262	196	38
Iron	µg/L	23	53	656	246	184
Lead	µg/L	23	0.03	2.17	0.14	0.46
Magnesium	mg/L	23	4.57	11.5	8	2
Nitrate (N)	mg/L	23	0.002	0.089	0.016	0.022
Nitrate-Nitrite (N)	mg/L	22	0.011	0.115	0.022	0.029
Nitrite (N)	mg/L	23	0.002	0.026	0.005	0.008
Total Nitrogen	mg/L	23	0.768	7.75	2.037	1.799
Total Nitrogen Kjeldahl	mg/L	23	0.752	7.73	2.019	1.782
Orthophosphate (P)	mg/L	23	0.003	0.867	0.149	0.195
Pheophytin a	mg/m3	23	1	60.6	4.6	13.0
Total Phosphorus	mg/L	23	0.018	0.989	0.225	0.231
Total Suspended Solids	mg/L	23	2	33.1	3.9	7.7
Sulfate	mg/L	23	1.13	41.3	11.0	11.2
Turbidity	NTU	23	0.35	23	3.3	5.2
Zinc	µg/L	23	1	68.5	4.90	14.41
Secchi Disk Depth	meters	23	0.3	1.3	0.8	0.2
Dissolved Oxygen (DO)	mg/L	24	0.41	4.92	1.22	1.06
DO Saturation	%	24	5.10	64.30	14.45	13.90
pH	SU	24	6.66	7.46	7.08	0.20
Salinity	ppth	24	0.14	0.30	0.22	0.05
Specific Conductance	umho/cm	24	294.5	628.2	467	94
Temperature, Water	deg C	24	15.60	29.40	23.31	4.01
Cocohatchee (Inland Segment)						
Ammonia (N)	mg/L	119	0.022	0.864	0.16	0.147

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Arsenic	µg/L	123	1	10.8	2.63	1.477
BOD	mg/L	122	2	5.6	1.85	1.089
Cadmium	µg/L	123	0.02	0.2	0.02	0.015
Calcium	mg/L	123	50.6	352	106.76	50.918
Carbon- Organic	mg/L	123	4.69	26	13.60	3.013
Chloride	mg/L	123	20.5	31200	1464.28	5112.243
Chlorophyll a- corrected	mg/m3	118	1	69.8	10.13	11.383
Chromium	µg/L	123	0.2	1.6	0.53	0.212
Color- True	PCU	122	7	150	55.94	26.321
Copper	µg/L	122	0.24	10.2	1.36	1.340
E. coli	MPN/100 mL	120	3	1733	258.67	360.672
Hardness- Calculated	mg/L	123	145	6440	582.12	1135.939
Iron	µg/L	123	32.2	1510	377.57	336.130
Lead	µg/L	121	0.03	0.24	0.04	0.034
Magnesium	mg/L	123	4.16	1380	76.62	248.331
Nitrate (N)	mg/L	114	0.011	0.419	0.11	0.099
Nitrate-Nitrite (N)	mg/L	116	0.011	0.56	0.12	0.114
Nitrite (N)	mg/L	122	0.002	0.141	0.01	0.021
Total Nitrogen	mg/L	112	0.49	2.01	1.14	0.282
Total Nitrogen Kjeldahl	mg/L	117	0.23	1.75	1.01	0.267
Orthophosphate (P)	mg/L	116	0.003	0.373	0.04	0.074
Pheophytin a	mg/m3	120	1	98.2	5.25	10.206
Total Phosphorus	mg/L	121	0.013	0.389	0.07	0.073
Total Suspended Solids	mg/L	123	2	17.5	3.31	2.775
Sulfate	mg/L	122	2.65	5040	234.45	753.271
Turbidity	NTU	123	0.8	17	4.60	3.200
Zinc	µg/L	105	1	23.5	1.66	2.635
Secchi Disk Depth	meters	108	0.2	1.9	0.87	0.43
Dissolved Oxygen (DO)	mg/L	127	0.97	11.2	4.44	2.22
DO Saturation	%	127	12.3	135.6	54.3	27.0
pH	SU	127	6.98	8.05	7.48	0.23
Salinity	ppth	127	0.16	0.72	0.40	0.16
Specific Conductance	umho/cm	127	340.4	1444	814	308
Temperature, Water	deg C	127	15.2	32.5	25.7	3.5
Cocohatchee River						
Ammonia (N)	mg/L	240	0.022	0.363	0.15	0.082
Arsenic	µg/L	88	1.36	4.49	2.60	0.748
BOD	mg/L	248	2	5.6	1.90	1.064
Cadmium	µg/L	88	0.02	0.2	0.06	0.032

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Carbon- Organic	mg/L	248	1.67	20.1	7.01	4.132
Chlorophyll a- corrected	mg/m3	238	1	61.6	5.99	6.577
Chromium	µg/L	88	0.431	1.6	0.65	0.110
Color- True	PCU	248	3	150	24.09	30.926
Copper	µg/L	88	1	3.86	1.21	0.710
Enterococci	MPN/100 mL	276	10	3255	192.15	477.495
Iron	mg/L	88	42	388	149.95	101.433
Lead	µg/L	88	0.03	0.24	0.09	0.030
Nitrate-Nitrite (N)	µg/L	248	0.011	0.151	0.03	0.036
Total Nitrogen	mg/L	248	0.23	3.01	0.89	0.373
Total Nitrogen Kjeldahl	mg/L	248	0.23	3.01	0.87	0.367
Orthophosphate (P)	mg/L	228	0.003	0.045	0.01	0.008
Pheophytin a	mg/m3	236	1	23.8	1.53	2.792
Total Phosphorus	mg/L	248	0.02	0.163	0.07	0.020
Total Suspended Solids	mg/L	248	2	21	4.42	3.368
Turbidity	NTU	248	1.7	23	5.38	3.772
Zinc	µg/L	88	1.5	28.4	5.94	5.558
Secchi Disk Depth	meters	164	0.05	2.00	1.03	0.34
Dissolved Oxygen (DO)	mg/L	213	0.88	8.08	4.97	1.58
DO Saturation	%	213	10.50	112.80	69.04	22.11
pH	SU	213	6.94	8.12	7.66	0.24
Salinity	ppth	213	0.24	34.76	23.63	11.71
Specific Conductance	umho/cm	213	494	52832	36661	17610
Temperature, Water	deg C	213	14.6	32.8	25.4	5.0
Corkscrew Swamp						
Ammonia (N)	mg/L	35	0.022	6.926	0.331	1.178
Arsenic	µg/L	35	0.43	1.65	0.74	0.31
BOD	mg/L	35	2	4.5	1.6	0.9
Cadmium	µg/L	35	0.02	0.02	0.01	0.00
Calcium	mg/L	35	31.9	121	71	27
Carbon- Organic	mg/L	35	8.41	34.4	18.1	7.38
Chloride	mg/L	35	19.3	37.5	27.8	4.67
Chlorophyll a- corrected	mg/m3	35	1	75.5	4.9	13.3
Chromium	µg/L	35	0.2	2.46	0.47	0.60
Color- True	PCU	35	20	190	83	50
Copper	µg/L	35	0.2	8.52	0.53	1.42
E. coli	MPN/100 mL	35	9	2420	314	581
Hardness- Calculated	mg/L	35	97	320	197	67

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Iron	µg/L	35	85.6	2940	582	709
Lead	µg/L	35	0.03	0.528	0.07	0.12
Magnesium	mg/L	35	3.62	7	5	1
Nitrate (N)	mg/L	35	0.011	0.363	0.064	0.097
Nitrate-Nitrite (N)	mg/L	34	0.011	0.278	0.057	0.081
Nitrite (N)	mg/L	35	0.002	0.018	0.005	0.005
Total Nitrogen	mg/L	35	0.59	9.74	1.380	1.563
Total Nitrogen Kjeldahl	mg/L	35	0.501	9.73	1.317	1.584
Orthophosphate (P)	mg/L	35	0.003	0.238	0.021	0.051
Pheophytin a	mg/m3	35	1	16.4	1.4	2.8
Total Phosphorus	mg/L	35	0.008	0.34	0.045	0.076
Total Suspended Solids	mg/L	35	2	20.6	4.2	5.1
Sulfate	mg/L	35	0.25	23.4	7.7	8.4
Turbidity	NTU	35	0.3	36	6.4	8.9
Zinc	µg/L	35	1	67.3	3.16	11.26
Secchi Disk Depth	meters	35	0.2	1.4	0.8	0.3
Dissolved Oxygen (DO)	mg/L	36	0.39	6.58	2.23	1.90
DO Saturation	%	36	4.40	65.60	25.54	21.21
pH	SU	36	6.65	7.55	7.11	0.21
Salinity	ppth	36	0.12	0.28	0.21	0.05
Specific Conductance	umho/cm	36	253.4	579.3	432	100
Temperature, Water	deg C	36	13.20	29.50	22.99	4.41
Cow Slough						
Ammonia (N)	mg/L	12	0.059	0.347	0.203	0.098
Arsenic	µg/L	12	1.14	2.37	1.52	0.38
BOD	mg/L	12	2	4.1	1.9	1.1
Cadmium	µg/L	12	0.02	0.02	0.01	0.00
Calcium	mg/L	12	13.3	116	51	32
Carbon- Organic	mg/L	12	14.9	33.4	23.4	5.63
Chloride	mg/L	12	8.12	51.8	28.7	13.04
Chlorophyll a- corrected	mg/m3	12	1.9	33.8	8.2	8.9
Chromium	µg/L	12	0.562	1.71	1.15	0.36
Color- True	PCU	12	38	360	180	114
Copper	µg/L	12	0.661	3.77	1.84	0.89
E. coli	MPN/100 mL	13	63	2420	979	929
Hardness- Calculated	mg/L	12	46	332	163	89
Iron	µg/L	12	228	2730	967	909
Lead	µg/L	12	0.073	0.422	0.22	0.12
Magnesium	mg/L	12	3.01	12.6	9	3

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Nitrate (N)	mg/L	12	0.011	0.749	0.130	0.203
Nitrate-Nitrite (N)	mg/L	11	0.017	0.78	0.152	0.217
Nitrite (N)	mg/L	12	0.002	0.031	0.012	0.009
Total Nitrogen	mg/L	12	1.05	2.37	1.549	0.372
Total Nitrogen Kjeldahl	mg/L	12	1.02	1.85	1.408	0.257
Orthophosphate (P)	mg/L	12	0.034	0.274	0.117	0.073
Pheophytin a	mg/m3	12	1	8.4	2.8	2.6
Total Phosphorus	mg/L	12	0.124	0.45	0.244	0.100
Total Suspended Solids	mg/L	12	2	10.8	4.3	2.8
Sulfate	mg/L	12	3.05	46.1	19.8	15.4
Turbidity	NTU	12	2.3	17	6.2	4.8
Zinc	µg/L	12	1.5	6.86	4.36	1.87
Secchi Disk Depth	meters	13	0.15	0.6	0.3	0.1
Dissolved Oxygen (DO)	mg/L	13	1.18	6.84	3.60	1.63
DO Saturation	%	13	15.10	68.90	41.55	18.13
pH	SU	13	6.12	7.58	7.07	0.34
Salinity	ppth	13	0.05	0.30	0.19	0.08
Specific Conductance	umho/cm	13	106.6	618.1	399	170
Temperature, Water	deg C	13	14.60	29.30	22.96	4.97
Faka Union (North Segment)						
Ammonia (N)	mg/L	35	0.022	0.22	0.059	0.056
Arsenic	µg/L	35	0.668	2.22	1.45	0.47
BOD	mg/L	35	2	3.8	1.3	0.7
Cadmium	µg/L	35	0.02	0.02	0.01	0.00
Calcium	mg/L	35	44.4	124	96	22
Carbon- Organic	mg/L	35	6.12	23.4	12.1	3.98
Chloride	mg/L	35	11.2	41.9	23.9	5.13
Chlorophyll a- corrected	mg/m3	35	1.8	22	6.4	4.2
Chromium	µg/L	35	0.258	1.37	0.74	0.35
Color- True	PCU	35	14	264	61	49
Copper	µg/L	35	0.2	2.02	0.44	0.48
E. coli	MPN/100 mL	35	2	135	25	27
Hardness- Calculated	mg/L	35	127	328	263	51
Iron	µg/L	35	99.3	1470	459	358
Lead	µg/L	35	0.03	0.129	0.04	0.03
Magnesium	mg/L	35	2.85	10.2	6	2
Nitrate (N)	mg/L	35	0.011	0.031	0.011	0.009
Nitrate-Nitrite (N)	mg/L	35	0.011	0.034	0.012	0.009
Nitrite (N)	mg/L	35	0.002	0.004	0.001	0.001

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Total Nitrogen	mg/L	35	0.427	1.86	0.781	0.313
Total Nitrogen Kjeldahl	mg/L	35	0.427	1.86	0.772	0.312
Orthophosphate (P)	mg/L	35	0.003	0.023	0.003	0.004
Pheophytin a	mg/m3	35	1	4.6	1.8	1.3
Total Phosphorus	mg/L	35	0.01	0.053	0.023	0.010
Total Suspended Solids	mg/L	35	2	8.4	2.9	2.0
Sulfate	mg/L	35	0.752	16.6	8.9	6.2
Turbidity	NTU	35	1.7	13	4.5	2.0
Zinc	µg/L	35	1	5.56	1.21	1.27
Secchi Disk Depth	meters	35	0.25	1.7	0.9	0.4
Dissolved Oxygen (DO)	mg/L	42	1.48	8.84	5.48	1.93
DO Saturation	%	42	18.30	98.60	66.78	22.64
pH	SU	42	6.89	8.31	7.52	0.42
Salinity	ppth	42	0.16	0.31	0.26	0.04
Specific Conductance	umho/cm	42	333.5	643.9	550	85
Temperature, Water	deg C	42	19.80	31.10	25.83	2.94
Faka Union (South Segment)						
Ammonia (N)	mg/L	24	0.022	0.215	0.056	0.046
Arsenic	µg/L	24	0.963	2.21	1.40	0.32
BOD	mg/L	24	2	3.7	1.4	0.8
Cadmium	µg/L	24	0.02	0.02	0.01	0.00
Calcium	mg/L	24	66.9	139	106	16
Carbon- Organic	mg/L	24	7.36	21.7	10.0	3.71
Chloride	mg/L	24	25.1	2120	213	455
Chlorophyll a- corrected	mg/m3	24	1	15.8	4.7	4.5
Chromium	µg/L	24	0.235	0.86	0.49	0.15
Color- True	PCU	24	20	184	42	41
Copper	µg/L	24	0.2	2.24	0.25	0.46
E. coli	MPN/100 mL	24	2	118	29	31
Hardness- Calculated	mg/L	24	186	924	331	147
Iron	µg/L	24	41.7	536	188	147
Lead	µg/L	24	0.03	0.168	0.05	0.03
Magnesium	mg/L	24	4.37	140	16	29
Nitrate (N)	mg/L	24	0.011	0.055	0.021	0.019
Nitrate-Nitrite (N)	mg/L	24	0.011	0.068	0.022	0.020
Nitrite (N)	mg/L	24	0.002	0.013	0.002	0.002
Total Nitrogen	mg/L	24	0.316	2.098	0.692	0.371
Total Nitrogen Kjeldahl	mg/L	24	0.316	2.06	0.672	0.367
Orthophosphate (P)	mg/L	24	0.003	0.088	0.010	0.020

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Pheophytin a	mg/m3	24	1	4.7	1.7	1.6
Total Phosphorus	mg/L	24	0.009	0.109	0.027	0.021
Total Suspended Solids	mg/L	24	2	7.9	2.5	2.0
Sulfate	mg/L	24	2.69	270	32.2	58.1
Turbidity	NTU	24	1.2	7.4	3.2	1.6
Zinc	µg/L	24	1	4.57	1.37	1.11
Secchi Disk Depth	meters	24	0.5	1.55	1.0	0.3
Dissolved Oxygen (DO)	mg/L	26	1.82	8.20	4.99	2.07
DO Saturation	%	26	22.80	98.30	60.70	24.73
pH	SU	26	6.91	8.28	7.52	0.39
Salinity	ppth	26	0.20	3.92	0.58	0.76
Specific Conductance	umho/cm	26	424.2	7183	1137	1398
Temperature, Water	deg C	26	20.80	31.30	25.61	2.80
Fakahatchee Strand						
Ammonia (N)	mg/L	12	0.022	0.172	0.090	0.056
Arsenic	µg/L	12	0.844	1.93	1.29	0.38
BOD	mg/L	12	2	7.3	2.9	1.9
Cadmium	µg/L	12	0.02	0.04	0.02	0.01
Calcium	mg/L	12	78.9	363	149	85
Carbon- Organic	mg/L	12	18.7	35	27.8	5.20
Chloride	mg/L	12	61.6	9370	2191	3235
Chlorophyll a- corrected	mg/m3	12	1.7	44.4	17	16
Chromium	µg/L	12	0.2	0.465	0.35	0.10
Color- True	PCU	12	60	200	133	40
Copper	µg/L	12	0.2	0.4	0.17	0.12
E. coli	MPN/100 mL	13	14	4839	1018	1472
Hardness- Calculated	mg/L	12	223	3480	935	1034
Iron	µg/L	12	79.5	214	139	49
Lead	µg/L	12	0.034	0.234	0.11	0.06
Magnesium	mg/L	12	6.37	624	136	200
Nitrate (N)	mg/L	12	0.011	0.064	0.011	0.017
Nitrate-Nitrite (N)	mg/L	12	0.011	0.07	0.012	0.018
Nitrite (N)	mg/L	12	0.002	0.006	0.003	0.002
Total Nitrogen	mg/L	12	0.943	2.53	1.708	0.545
Total Nitrogen Kjeldahl	mg/L	12	0.943	2.53	1.700	0.551
Orthophosphate (P)	mg/L	12	0.003	0.046	0.017	0.014
Pheophytin a	mg/m3	12	1	23.7	4.9	6.4
Total Phosphorus	mg/L	12	0.017	0.195	0.072	0.053
Total Suspended Solids	mg/L	12	2	11.1	3.5	4.0

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Sulfate	mg/L	12	2.93	1430	273	470
Turbidity	NTU	12	1.1	9	3.9	2.7
Zinc	µg/L	12	1	5.2	1.48	1.30
Secchi Disk Depth	meters	13	0.4	1.1	0.7	0.2
Dissolved Oxygen (DO)	mg/L	13	0.32	5.27	2.61	1.22
DO Saturation	%	13	4.30	70.70	32.99	16.81
pH	SU	13	7.20	7.65	7.43	0.15
Salinity	ppth	13	0.27	16.65	4.24	5.22
Specific Conductance	umho/cm	13	565.9	27287	7359	8581
Temperature, Water	deg C	13	18.80	31.20	25.95	3.84
Gordon River Extension						
Ammonia (N)	mg/L	23	0.099	0.941	0.309	0.196
Arsenic	µg/L	23	0.87	4.76	2.14	1.00
BOD	mg/L	23	2	5.6	2.2	1.1
Cadmium	µg/L	23	0.02	0.02	0.01	0.00
Calcium	mg/L	23	72.4	138	98	17
Carbon- Organic	mg/L	23	7.14	17.3	11.2	2.78
Chloride	mg/L	23	32.7	923	171	218
Chlorophyll a- corrected	mg/m3	23	2.5	75.6	11	15
Chromium	µg/L	23	0.256	0.795	0.47	0.15
Color- True	PCU	23	24	80	45	16
Copper	µg/L	23	0.364	2.36	1.00	0.60
E. coli	MPN/100 mL	27	10	2420	317	476
Hardness- Calculated	mg/L	23	193	547	293	92
Iron	µg/L	23	100	1060	309	244
Lead	µg/L	23	0.036	0.175	0.08	0.04
Magnesium	mg/L	23	3.06	58.2	11	14
Nitrate (N)	mg/L	23	0.012	0.19	0.108	0.041
Nitrate-Nitrite (N)	mg/L	23	0.025	0.213	0.123	0.045
Nitrite (N)	mg/L	23	0.005	0.025	0.015	0.007
Total Nitrogen	mg/L	23	0.6	1.83	1.054	0.342
Total Nitrogen Kjeldahl	mg/L	23	0.518	1.72	0.931	0.331
Orthophosphate (P)	mg/L	23	0.003	0.054	0.019	0.018
Pheophytin a	mg/m3	23	1	13.6	2.6	2.9
Total Phosphorus	mg/L	23	0.014	0.108	0.052	0.027
Total Suspended Solids	mg/L	23	2	10.6	2.8	2.5
Sulfate	mg/L	23	12	161	39.1	38.1
Turbidity	NTU	23	1.9	8.7	3.5	1.5
Zinc	µg/L	23	1.08	15.5	3.46	3.25

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Secchi Disk Depth	meters	27	0.5	1.4	1.0	0.2
Dissolved Oxygen (DO)	mg/L	28	0.38	6.57	2.85	1.34
DO Saturation	%	28	4.70	73.00	34.35	14.95
pH	SU	28	6.87	7.61	7.26	0.18
Salinity	ppth	28	0.23	16.87	1.10	3.13
Specific Conductance	umho/cm	28	493	27601	1988	5096
Temperature, Water	deg C	28	20.00	30.20	25.64	3.09
Haldeman Creek (Lower)						
Ammonia (N)	mg/L	12	0.022	0.276	0.135	0.066
Arsenic	µg/L	12	1.88	3.33	2.56	0.42
BOD	mg/L	12	2	4.4	2.6	1.0
Cadmium	µg/L	12	0.02	0.0875	0.05	0.03
Calcium	mg/L	12	72.9	361	198	96
Carbon- Organic	mg/L	12	5.12	11.1	8.4	2.03
Chloride	mg/L	12	484	26400	11266	9920
Chlorophyll a- corrected	mg/m3	12	5.4	27.4	14	7
Chromium	µg/L	12	0.437	0.7	0.56	0.12
Color- True	PCU	12	9	56	29	17
Copper	µg/L	12	2.94	8.06	4.39	1.54
Enterococci	MPN/100 mL	17	41	1510	551	498
Hardness- Calculated	mg/L	12	337	5640	2753	1928
Iron	µg/L	12	76.2	148	106	21
Lead	µg/L	12	0.054	0.105	0.08	0.03
Magnesium	mg/L	12	33.6	1150	548	410
Nitrate (N)	mg/L	12	0.011	0.047	0.025	0.015
Nitrate-Nitrite (N)	mg/L	12	0.011	0.052	0.028	0.016
Nitrite (N)	mg/L	12	0.002	0.005	0.003	0.002
Total Nitrogen	mg/L	12	0.566	4.859	1.175	1.169
Total Nitrogen Kjeldahl	mg/L	12	0.566	4.84	1.148	1.171
Orthophosphate (P)	mg/L	12	0.003	0.061	0.027	0.019
Pheophytin a	mg/m3	12	1.1	12.9	3.7	3.3
Total Phosphorus	mg/L	12	0.06	0.111	0.091	0.017
Total Suspended Solids	mg/L	12	2	5	3.0	1.3
Sulfate	mg/L	12	67.6	4100	1632	1483
Turbidity	NTU	12	2.4	5.9	4.0	1.1
Zinc	µg/L	12	1.43	5.25	3.45	1.17
Secchi Disk Depth	meters	17	0.4	1	0.7	0.2
Dissolved Oxygen (DO)	mg/L	17	2.29	4.84	3.54	0.80
DO Saturation	%	17	30.50	66.90	49.20	10.73

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pH	SU	17	7.00	7.42	7.28	0.11
Salinity	ppth	17	1.01	30.75	19.29	10.74
Specific Conductance	umho/cm	17	2004.4	47237	30487	16351
Temperature, Water	deg C	17	21.80	31.30	27.07	3.06
Haldeman Creek (Upper)						
Ammonia (N)	mg/L	26	0.022	0.249	0.118	0.075
Arsenic	µg/L	26	2.17	20.1	9.55	6.80
BOD	mg/L	26	2	7.3	2.7	1.4
Cadmium	µg/L	26	0.02	0.02	0.01	0.00
Calcium	mg/L	26	46.3	88.1	68	14
Carbon- Organic	mg/L	26	9.58	15	11.9	1.70
Chloride	mg/L	26	50.9	234	113	43.02
Chlorophyll a- corrected	mg/m3	26	4.1	91.2	16	17
Chromium	µg/L	26	0.375	2.07	0.72	0.38
Color- True	PCU	26	33	129	65	30
Copper	µg/L	26	1.46	23.7	6.66	4.98
E. coli	MPN/100 mL	29	7	2420	736	709
Hardness- Calculated	mg/L	26	130	273	200	43
Iron	µg/L	26	33.1	518	144	123
Lead	µg/L	26	0.03	0.521	0.09	0.11
Magnesium	mg/L	26	3.49	15	7	3
Nitrate (N)	mg/L	26	0.011	0.253	0.083	0.081
Nitrate-Nitrite (N)	mg/L	26	0.011	0.291	0.093	0.094
Nitrite (N)	mg/L	26	0.002	0.042	0.010	0.014
Total Nitrogen	mg/L	26	0.531	5.79	1.414	1.020
Total Nitrogen Kjeldahl	mg/L	26	0.449	5.75	1.322	1.016
Orthophosphate (P)	mg/L	26	0.003	1.058	0.313	0.310
Pheophytin a	mg/m3	26	1	54.2	6.1	10.2
Total Phosphorus	mg/L	26	0.029	1.05	0.356	0.315
Total Suspended Solids	mg/L	26	2	18.6	3.2	3.5
Sulfate	mg/L	26	13.6	47.1	29.3	8.3
Turbidity	NTU	26	0.95	10	3.2	1.9
Zinc	µg/L	26	1	18.6	3.64	3.63
Secchi Disk Depth	meters	29	0.2	1.35	0.5	0.3
Dissolved Oxygen (DO)	mg/L	29	0.64	9.98	5.22	1.94
DO Saturation	%	29	8.00	121.70	64.65	22.87
pH	SU	29	7.10	7.91	7.57	0.26
Salinity	ppth	29	0.21	2.06	0.42	0.33
Specific Conductance	umho/cm	29	437.3	3904	860	611

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Temperature, Water	deg C	29	15.80	33.30	26.83	4.35
Immokalee Basin						
Ammonia (N)	mg/L	7	0.022	0.128	0.038	0.040
Arsenic	µg/L	7	1.08	2.4	1.48	0.48
BOD	mg/L	7	2	4.7	2.5	1.3
Cadmium	µg/L	7	0.02	0.02	0.01	0.00
Calcium	mg/L	7	58.4	77.8	66	7
Carbon- Organic	mg/L	7	13.3	20.9	17.0	2.53
Chloride	mg/L	7	15.6	26.2	20.5	4.20
Chlorophyll a- corrected	mg/m3	7	2.2	10.1	5.9	2.6
Chromium	µg/L	7	0.2	0.207	0.12	0.04
Color- True	PCU	7	70	153	108	31
Copper	µg/L	7	0.2	0.594	0.29	0.18
E. coli	MPN/100 mL	8	9	517	167	181
Hardness- Calculated	mg/L	7	161	216	183	20
Iron	µg/L	7	148	404	231	93
Lead	µg/L	7	0.03	0.062	0.03	0.02
Magnesium	mg/L	7	3.72	5.31	4	1
Nitrate (N)	mg/L	7	0.011	0.024	0.011	0.008
Nitrate-Nitrite (N)	mg/L	7	0.011	0.024	0.011	0.008
Nitrite (N)	mg/L	7	0.002	0.002	0.001	0.000
Total Nitrogen	mg/L	7	0.6	1.04	0.878	0.164
Total Nitrogen Kjeldahl	mg/L	7	0.582	1.04	0.871	0.166
Orthophosphate (P)	mg/L	7	0.142	0.266	0.187	0.045
Pheophytin a	mg/m3	7	1	1	1.0	0.0
Total Phosphorus	mg/L	7	0.145	0.354	0.229	0.082
Total Suspended Solids	mg/L	7	2	2	2.0	0.0
Sulfate	mg/L	7	0.949	23.6	5.5	8.1
Turbidity	NTU	7	0.6	2.9	1.7	0.9
Zinc	µg/L	7	1	12.5	2.77	4.34
Secchi Disk Depth	meters	8	0.3	0.6	0.4	0.1
Dissolved Oxygen (DO)	mg/L	8	0.29	1.61	0.89	0.44
DO Saturation	%	8	3.50	18.40	10.51	5.03
pH	SU	8	6.95	7.33	7.12	0.13
Salinity	ppth	8	0.17	0.22	0.19	0.02
Specific Conductance	umho/cm	8	350	468.9	398	45
Temperature, Water	deg C	8	19.40	26.50	24.24	2.33
Lake Trafford						
Alkalinity (CaCO3)	mg/L	48	98	129	113.46	9.299

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Ammonia (N)	mg/L	48	0.022	0.326	0.09	0.083
BOD	mg/L	48	2	7.2	3.99	1.317
Carbon- Organic	mg/L	48	18.6	28.7	22.56	3.045
Chlorophyll a- corrected	mg/m3	47	10.1	119	58.11	31.169
Color- True	PCU	48	36	80	51.88	13.036
Nitrate (N)	mg/L	47	0.002	0.454	0.05	0.119
Nitrate-Nitrite (N)	mg/L	4	0.011	0.011	0.01	0.000
Nitrite (N)	mg/L	48	0.002	0.048	0.00	0.010
Total Nitrogen	mg/L	45	1.58	3.43	2.64	0.484
Total Nitrogen Kjeldahl	mg/L	46	0.971	3.34	2.55	0.513
Orthophosphate (P)	mg/L	48	0.003	0.029	0.00	0.006
Pheophytin a	mg/m3	43	1	29.8	9.80	8.299
Total Phosphorus	mg/L	48	0.059	0.196	0.12	0.037
Total Suspended Solids	mg/L	48	11.2	50.1	30.41	10.178
Silica (SiO2)	mg/L	48	0.646	4.11	1.80	0.962
Turbidity	NTU	48	7.9	45	23.45	10.336
Secchi Disk Depth	meters	48	0.20	0.60	0.32	0.09
Dissolved Oxygen (DO)	mg/L	68	2.75	10.40	7.48	1.60
DO Saturation	%	68	33.40	140.10	90.40	19.64
pH	SU	68	7.53	9.26	8.40	0.40
Salinity	ppth	68	0.12	0.16	0.14	0.01
Specific Conductance	umho/cm	68	262	332	298	20
Temperature, Water	deg C	68	16.9	31.3	25.2	3.5
North Golden Gate						
Ammonia (N)	mg/L	109	0.022	0.825	0.085	0.110
Arsenic	µg/L	108	0.603	5.34	1.52	0.73
BOD	mg/L	108	2	4	1.5	0.8
Cadmium	µg/L	108	0.02	0.02	0.01	0.00
Calcium	mg/L	108	40.1	113	84	17
Carbon- Organic	mg/L	108	8.08	34.1	16.4	5.78
Chloride	mg/L	108	14.4	87.9	38.6	16.95
Chlorophyll a- corrected	mg/m3	108	1	32.2	4.9	4.0
Chromium	µg/L	108	0.224	1.88	0.66	0.37
Color- True	PCU	108	20	280	85	46
Copper	µg/L	108	0.2	2.2	0.37	0.32
E. coli	MPN/100 mL	110	1	2420	53	233
Hardness- Calculated	mg/L	108	116	301	230	44
Iron	µg/L	108	48.9	1440	419	301
Lead	µg/L	108	0.03	0.596	0.07	0.09

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Magnesium	mg/L	108	3.02	8.03	5	1
Nitrate (N)	mg/L	108	0.011	0.286	0.067	0.054
Nitrate-Nitrite (N)	mg/L	108	0.011	0.286	0.070	0.056
Nitrite (N)	mg/L	108	0.002	0.04	0.004	0.005
Total Nitrogen	mg/L	108	0.412	3.814	0.989	0.409
Total Nitrogen Kjeldahl	mg/L	109	0.412	3.7	0.920	0.401
Orthophosphate (P)	mg/L	108	0.003	0.047	0.005	0.006
Pheophytin a	mg/m3	108	1	5.2	1.2	1.0
Total Phosphorus	mg/L	108	0.008	0.076	0.019	0.009
Total Suspended Solids	mg/L	108	2	12.3	1.6	1.6
Sulfate	mg/L	108	0.602	26.7	10.5	6.6
Turbidity	NTU	108	0.7	15	3.2	2.4
Zinc	µg/L	108	1	32	1.70	3.64
Secchi Disk Depth	meters	111	0.5	1.5	0.9	0.2
Dissolved Oxygen (DO)	mg/L	136	0.36	11.14	5.51	2.31
DO Saturation	%	136	4.40	148.00	68.01	28.76
pH	SU	136	6.69	8.42	7.52	0.37
Salinity	ppth	136	0.12	0.35	0.25	0.05
Specific Conductance	umho/cm	136	262.6	725.5	527	107
Temperature, Water	deg C	136	17.10	32.60	26.32	3.21
Okaloacoochee Slough						
Ammonia (N)	mg/L	16	0.022	0.134	0.049	0.038
Arsenic	µg/L	16	0.58	4.7	1.12	1.01
BOD	mg/L	16	2	3.8	1.5	0.9
Cadmium	µg/L	16	0.02	0.02	0.01	0.00
Calcium	mg/L	16	18.7	57.6	30	14
Carbon- Organic	mg/L	16	15.2	35.8	21.6	5.30
Chloride	mg/L	16	15.4	52	27.6	9.26
Chlorophyll a- corrected	mg/m3	16	1	61.8	7.1	15.7
Chromium	µg/L	16	0.2	0.229	0.11	0.03
Color- True	PCU	16	80	186	117	37
Copper	µg/L	16	0.2	0.625	0.16	0.14
E. coli	MPN/100 mL	17	34	1961	426	544
Hardness- Calculated	mg/L	16	62	178	95	41
Iron	µg/L	16	94.1	661	194	154
Lead	µg/L	16	0.03	0.216	0.04	0.06
Magnesium	mg/L	16	3.24	8.19	5	2
Nitrate (N)	mg/L	16	0.011	0.028	0.013	0.008
Nitrate-Nitrite (N)	mg/L	15	0.011	0.028	0.012	0.008

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Nitrite (N)	mg/L	16	0.002	0.003	0.001	0.001
Total Nitrogen	mg/L	16	0.97	2.43	1.417	0.439
Total Nitrogen Kjeldahl	mg/L	16	0.97	2.43	1.407	0.442
Orthophosphate (P)	mg/L	16	0.004	0.086	0.022	0.027
Pheophytin a	mg/m3	16	1	35.9	3.1	8.8
Total Phosphorus	mg/L	16	0.009	0.39	0.060	0.095
Total Suspended Solids	mg/L	16	2	32	3.7	8.1
Sulfate	mg/L	16	0.25	11.2	1.1	2.8
Turbidity	NTU	16	0.35	15	2.3	3.6
Zinc	µg/L	16	1	3.6	1.02	0.86
Secchi Disk Depth	meters	17	0.4	1.2	0.8	0.2
Dissolved Oxygen (DO)	mg/L	17	0.32	5.64	2.92	1.85
DO Saturation	%	17	4.10	62.60	32.60	19.00
pH	SU	17	6.58	7.39	6.99	0.21
Salinity	ppth	17	0.07	0.22	0.12	0.05
Specific Conductance	umho/cm	17	158	466.3	260	94
Temperature, Water	deg C	17	13.10	29.60	22.96	5.44
Rock Creek						
Ammonia (N)	mg/L	12	0.096	0.668	0.259	0.160
Arsenic	µg/L	12	1.05	2.24	1.58	0.42
BOD	mg/L	12	2	3	1.4	0.7
Cadmium	µg/L	12	0.02	0.0625	0.03	0.02
Calcium	mg/L	12	60.9	288	157	72
Carbon- Organic	mg/L	12	9.35	12.9	10.9	1.14
Chloride	mg/L	12	151	13400	5576	4829
Chlorophyll a- corrected	mg/m3	12	1	6.6	2.6	2.0
Chromium	µg/L	12	0.505	1.1	0.64	0.19
Color- True	PCU	12	42	80	60	12
Copper	µg/L	12	0.513	2.22	0.98	0.59
Enterococci	MPN/100 mL	12	218	2755	888	780
Hardness- Calculated	mg/L	12	213	3820	1732	1258
Iron	µg/L	12	114	195	148	28
Lead	µg/L	12	0.0338	0.126	0.07	0.03
Magnesium	mg/L	12	13.4	752	325	262
Nitrate (N)	mg/L	12	0.011	0.08	0.033	0.027
Nitrate-Nitrite (N)	mg/L	12	0.011	0.091	0.038	0.029
Nitrite (N)	mg/L	12	0.002	0.011	0.005	0.003
Total Nitrogen	mg/L	12	0.536	1.45	0.937	0.255
Total Nitrogen Kjeldahl	mg/L	12	0.511	1.43	0.899	0.254

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Orthophosphate (P)	mg/L	12	0.046	0.238	0.077	0.052
Pheophytin a	mg/m3	12	1	2.3	0.8	0.6
Total Phosphorus	mg/L	12	0.077	0.132	0.098	0.018
Total Suspended Solids	mg/L	12	2	5	1.3	1.2
Sulfate	mg/L	12	24.2	2630	875	862
Turbidity	NTU	12	0.95	6.1	2.7	1.7
Zinc	µg/L	12	1.5	8.03	3.20	1.73
Secchi Disk Depth	meters	12	0.2	0.8	0.5	0.2
Dissolved Oxygen (DO)	mg/L	12	0.39	1.97	1.04	0.48
DO Saturation	%	12	5.60	23.60	13.12	5.65
pH	SU	12	6.95	7.29	7.08	0.11
Salinity	ppth	12	0.42	19.09	8.52	6.89
Specific Conductance	umho/cm	12	868.1	30860	14230	11162
Temperature, Water	deg C	12	21.10	28.60	25.58	2.90
Rookery Bay (Inland East Segment)						
Ammonia (N)	mg/L	46	0.022	0.914	0.152	0.190
Arsenic	µg/L	46	0.573	3.57	1.37	0.78
BOD	mg/L	46	2	5.9	2.5	1.1
Cadmium	µg/L	46	0.02	0.291	0.04	0.06
Calcium	mg/L	46	41.4	186	106	29
Carbon- Organic	mg/L	46	10.8	20.8	14.2	2.62
Chloride	mg/L	46	24.3	426	121	91.44
Chlorophyll a- corrected	mg/m3	46	2	57.9	15	13
Chromium	µg/L	46	0.273	10.9	1.64	2.59
Color- True	PCU	46	22	200	53	36
Copper	µg/L	46	0.2	142	16.14	35.95
E. coli	MPN/100 mL	46	1	400	51	73
Hardness- Calculated	mg/L	46	119	571	309	90
Iron	µg/L	46	39.2	2750	479	684
Lead	µg/L	46	0.03	4.11	0.54	1.04
Magnesium	mg/L	46	3.86	25.8	10	5
Nitrate (N)	mg/L	46	0.011	0.295	0.056	0.069
Nitrate-Nitrite (N)	mg/L	46	0.011	0.358	0.066	0.085
Nitrite (N)	mg/L	46	0.002	0.076	0.010	0.018
Total Nitrogen	mg/L	46	0.524	3.5	1.272	0.658
Total Nitrogen Kjeldahl	mg/L	46	0.493	3.34	1.209	0.629
Orthophosphate (P)	mg/L	46	0.003	0.308	0.022	0.057
Pheophytin a	mg/m3	46	1	54.3	6.1	10.1
Total Phosphorus	mg/L	46	0.014	0.835	0.120	0.198

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Total Suspended Solids	mg/L	46	2	81.3	11.8	18.9
Sulfate	mg/L	46	6.07	95.5	40.4	26.1
Turbidity	NTU	46	1.4	65	10.7	15.4
Zinc	µg/L	46	1	58.4	6.88	14.18
Secchi Disk Depth	meters	46	0.1	1.6	0.7	0.4
Dissolved Oxygen (DO)	mg/L	49	1.59	11.15	6.03	2.76
DO Saturation	%	49	19.60	130.40	74.99	33.99
pH	SU	49	7.13	8.30	7.69	0.38
Salinity	ppth	49	0.18	1.00	0.42	0.18
Specific Conductance	umho/cm	49	370.4	1976	867	350
Temperature, Water	deg C	49	21.30	32.40	26.74	3.16
Rookery Bay (Inland West Segment)						
Ammonia (N)	mg/L	36	0.025	0.762	0.137	0.142
Arsenic	µg/L	36	0.786	3.33	1.92	0.54
BOD	mg/L	36	2	5	1.9	1.1
Cadmium	µg/L	36	0.02	0.025	0.01	0.00
Calcium	mg/L	36	45.8	269	100	38
Carbon- Organic	mg/L	36	8.48	26.3	11.8	4.41
Chloride	mg/L	36	27.4	2590	376	613
Chlorophyll a- corrected	mg/m3	36	1.8	26.8	8.7	7.4
Chromium	µg/L	36	0.204	0.8	0.43	0.16
Color- True	PCU	36	17	160	44	36
Copper	µg/L	36	0.2	16.9	3.53	3.65
E. coli	MPN/100 mL	36	3	866	99	194
Hardness- Calculated	mg/L	36	140	2040	372	327
Iron	µg/L	36	50.2	829	217	171
Lead	µg/L	36	0.03	0.134	0.04	0.03
Magnesium	mg/L	36	3.89	332	30	60
Nitrate (N)	mg/L	36	0.011	0.17	0.065	0.045
Nitrate-Nitrite (N)	mg/L	36	0.011	0.184	0.068	0.047
Nitrite (N)	mg/L	36	0.002	0.014	0.004	0.003
Total Nitrogen	mg/L	36	0.581	2.42	1.032	0.419
Total Nitrogen Kjeldahl	mg/L	36	0.503	2.41	0.964	0.433
Orthophosphate (P)	mg/L	36	0.003	0.191	0.021	0.039
Pheophytin a	mg/m3	36	1	11.6	2.1	2.3
Total Phosphorus	mg/L	36	0.018	0.157	0.038	0.028
Total Suspended Solids	mg/L	36	2	10.6	2.8	1.8
Sulfate	mg/L	36	8.94	356	66.1	78.8
Turbidity	NTU	36	1.5	16	3.6	2.3

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Zinc	µg/L	36	1	6.24	1.24	1.13
Secchi Disk Depth	meters	36	0.7	1.4	1.1	0.1
Dissolved Oxygen (DO)	mg/L	36	0.51	8.30	4.65	2.22
DO Saturation	%	36	6.40	107.50	58.16	27.33
pH	SU	36	7.05	8.23	7.56	0.26
Salinity	ppth	36	0.20	4.47	0.81	0.95
Specific Conductance	umho/cm	36	418.8	8040	1567	1711
Temperature, Water	deg C	36	18.50	31.70	26.88	3.36
Silver Strand						
Ammonia (N)	mg/L	26	0.023	12.088	0.926	2.345
Arsenic	µg/L	26	0.587	2.17	1.08	0.40
BOD	mg/L	26	2	4.5	2.1	1.1
Cadmium	µg/L	26	0.02	0.108	0.02	0.02
Calcium	mg/L	26	28.7	114	63	29
Carbon- Organic	mg/L	26	13.9	30.3	18.7	3.79
Chloride	mg/L	26	14.9	37.2	27.1	5.62
Chlorophyll a- corrected	mg/m3	26	2.5	55.3	10.0	10.5
Chromium	µg/L	26	0.719	3.12	1.66	0.70
Color- True	PCU	26	60	370	124	75
Copper	µg/L	26	0.549	7.73	2.40	1.50
E. coli	MPN/100 mL	26	45	517	148	129
Hardness- Calculated	mg/L	26	86	313	179	77
Iron	µg/L	26	615	3630	1384	711
Lead	µg/L	26	0.073	1.38	0.37	0.27
Magnesium	mg/L	26	3.55	6.83	5	1
Nitrate (N)	mg/L	26	0.011	8.453	0.786	1.636
Nitrate-Nitrite (N)	mg/L	23	0.011	8.56	0.795	1.765
Nitrite (N)	mg/L	26	0.002	0.107	0.020	0.024
Total Nitrogen	mg/L	26	1.02	24	3.030	4.415
Total Nitrogen Kjeldahl	mg/L	26	0.911	15.4	2.222	2.800
Orthophosphate (P)	mg/L	26	0.008	0.586	0.159	0.139
Pheophytin a	mg/m3	26	1	8.4	3.4	2.3
Total Phosphorus	mg/L	26	0.06	0.776	0.317	0.198
Total Suspended Solids	mg/L	26	3.3	49.6	8.7	9.7
Sulfate	mg/L	26	0.651	21.2	10.8	6.1
Turbidity	NTU	26	3	40	10.5	7.6
Zinc	µg/L	26	1.39	74.9	9.51	15.10
Secchi Disk Depth	meters	26	0.2	0.9	0.6	0.2
Dissolved Oxygen (DO)	mg/L	27	0.31	4.44	1.71	0.86

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
DO Saturation	%	27	3.80	45.50	19.73	9.02
pH	SU	27	6.31	7.39	6.97	0.26
Salinity	ppth	27	0.10	0.30	0.20	0.07
Specific Conductance	umho/cm	27	222.7	611.2	414	133
Temperature, Water	deg C	27	16.50	29.40	23.67	3.98
Ten Thousand Islands						
Ammonia (N)	mg/L	12	0.022	0.352	0.097	0.092
Arsenic	µg/L	12	0.85	1.78	1.08	0.24
BOD	mg/L	12	2	2.5	1.3	0.6
Cadmium	µg/L	12	0.02	0.07	0.02	0.02
Calcium	mg/L	12	53	411	145	100
Carbon- Organic	mg/L	12	10.4	14	12.7	1.18
Chloride	mg/L	12	13.8	16400	3166	5023
Chlorophyll a- corrected	mg/m3	12	1	9.7	2.5	2.5
Chromium	µg/L	12	0.205	0.7	0.35	0.14
Color- True	PCU	12	37	90	58	18
Copper	µg/L	12	0.2	0.7	0.24	0.19
E. coli	MPN/100 mL	1	58	58	58	0
Enterococci	MPN/100 mL	13	10	663	120	185
Hardness- Calculated	mg/L	12	145	5560	1188	1630
Iron	µg/L	12	82.5	298	140	60
Lead	µg/L	12	0.03	0.154	0.06	0.04
Magnesium	mg/L	12	3.16	1100	200	336
Nitrate (N)	mg/L	12	0.011	0.058	0.020	0.018
Nitrate-Nitrite (N)	mg/L	12	0.011	0.061	0.022	0.019
Nitrite (N)	mg/L	12	0.002	0.006	0.002	0.002
Total Nitrogen	mg/L	12	0.58	1.7	0.884	0.307
Total Nitrogen Kjeldahl	mg/L	12	0.569	1.7	0.865	0.308
Orthophosphate (P)	mg/L	12	0.003	0.036	0.019	0.011
Pheophytin a	mg/m3	12	1	1.6	0.7	0.4
Total Phosphorus	mg/L	12	0.014	0.084	0.040	0.021
Total Suspended Solids	mg/L	12	2	5.6	1.7	1.4
Sulfate	mg/L	12	0.25	3230	503	938
Turbidity	NTU	12	0.8	3.7	1.8	0.8
Zinc	µg/L	12	1	14	2.72	3.68
Secchi Disk Depth	meters	14	0.5	1.7	1.2	0.3
Dissolved Oxygen (DO)	mg/L	15	1.41	3.48	2.49	0.65
DO Saturation	%	15	17.60	42.80	30.98	7.87

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WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
pH	SU	15	7.06	7.42	7.25	0.13
Salinity	ppth	15	0.14	29.24	4.94	8.31
Specific Conductance	umho/cm	15	288.8	45326	8158	13070
Temperature, Water	deg C	15	20.40	29.40	25.42	2.65
Wiggins Bay Outlet						
Ammonia (N)	mg/L	12	0.078	0.604	0.338	0.164
Arsenic	µg/L	12	0.541	2.61	1.00	0.59
BOD	mg/L	12	2	4.5	2.3	1.0
Cadmium	µg/L	12	0.02	0.02	0.01	0.00
Calcium	mg/L	12	79.3	136	117	18
Carbon- Organic	mg/L	12	14.8	22.5	17.2	2.20
Chloride	mg/L	12	132	172	152	10.47
Chlorophyll a- corrected	mg/m3	12	1.5	11.7	4.6	3.1
Chromium	µg/L	12	0.9	1.44	1.23	0.17
Color- True	PCU	12	60	200	95	47
Copper	µg/L	12	0.347	10.7	1.89	3.05
E. coli	MPN/100 mL	13	26	615	193	175
Hardness- Calculated	mg/L	12	236	372	325	43
Iron	µg/L	12	595	1960	1317	374
Lead	µg/L	12	0.03	0.089	0.04	0.02
Magnesium	mg/L	12	6.18	10.3	8	1
Nitrate (N)	mg/L	12	0.054	0.368	0.180	0.094
Nitrate-Nitrite (N)	mg/L	12	0.065	0.416	0.212	0.106
Nitrite (N)	mg/L	12	0.008	0.054	0.032	0.014
Total Nitrogen	mg/L	12	0.909	1.45	1.248	0.168
Total Nitrogen Kjeldahl	mg/L	12	0.806	1.26	1.036	0.130
Orthophosphate (P)	mg/L	12	0.003	0.021	0.006	0.006
Pheophytin a	mg/m3	12	1	4.6	1.6	1.5
Total Phosphorus	mg/L	12	0.017	0.04	0.030	0.007
Total Suspended Solids	mg/L	12	2	5	2.1	1.4
Sulfate	mg/L	12	8.62	31.6	14.2	8.1
Turbidity	NTU	12	1.7	15	9.0	4.3
Zinc	µg/L	12	1	2.07	1.00	0.50
Secchi Disk Depth	meters	13	0.4	0.6	0.5	0.1
Dissolved Oxygen (DO)	mg/L	13	1.23	4.79	3.12	1.05
DO Saturation	%	13	15.40	56.40	37.02	12.24
pH	SU	13	7.02	7.49	7.24	0.16
Salinity	ppth	13	0.42	0.55	0.50	0.04
Specific Conductance	umho/cm	13	863.6	1117	1020	75

WBID/Parameter	Units	Count	Minimum	Maximum	Average	Standard Deviation
Temperature, Water	deg C	13	17.00	30.40	24.25	4.29

APPENDIX D

Water Quality Exceedances by WBID and by Station

WBID/Station	Parameter	# of Exceedances	# of Samples Collected
<u>Barron River Canal</u>		22	480
BARRON		22	480
Dissolved Oxygen Saturation	21	22	95%
Nitrogen- Total	1	12	8%
<u>Camp Keais</u>		47	834
KEAISN		19	443
Chlorophyll a- corrected	2	12	17%
Dissolved Oxygen Saturation	10	12	83%
Nitrogen- Total	2	12	17%
Phosphorus- Total	5	12	42%
KEAISS		28	391
Dissolved Oxygen Saturation	12	12	100%
Nitrogen- Total	6	12	50%
Phosphorus- Total	10	12	83%
<u>Cocohatchee (Inland Segment)</u>		127	4070
BC14		1	474
Dissolved Oxygen Saturation	1	12	8%
BC15		4	438
Chlorophyll a- corrected	1	12	8%
Dissolved Oxygen Saturation	2	15	13%
Nitrogen- Total	1	12	8%
BC26		2	438
Dissolved Oxygen Saturation	2	15	13%
COC@IBIS		19	428
Chlorophyll a- corrected	1	12	8%
Dissolved Oxygen Saturation	9	13	69%
E. coli	3	13	23%
Iron	6	12	50%
COC@LAKE		4	444
Dissolved Oxygen Saturation	4	16	25%
COCPALM		17	428
Chlorophyll a- corrected	8	12	67%
Dissolved Oxygen Saturation	1	13	8%
E. coli	2	13	15%

WBID/Station	Parameter	# of Exceedances	# of Samples Collected	
	Nitrogen- Total	3	12	25%
	Phosphorus- Total	3	12	25%
ECOCORIV		17	337	5%
	Dissolved Oxygen Saturation	12	12	100%
	E. coli	4	11	36%
	Phosphorus- Total	1	9	11%
HORSECRK		8	420	2%
	Dissolved Oxygen Saturation	8	12	67%
NNAPLES		9	210	4%
	Chlorophyll a- corrected	6	6	100%
	Dissolved Oxygen Saturation	0	6	0%
	Nitrogen- Total	1	6	17%
	Phosphorus- Total	2	6	33%
WCOCORIV		46	453	10%
	Chlorophyll a- corrected	2	12	17%
	Dissolved Oxygen Saturation	10	16	63%
	E. coli	16	17	94%
	Nitrogen- Total	6	12	50%
	Phosphorus- Total	12	12	100%
Cocohatchee River		270	3307	8%
BFBSP		10	328	3%
	Nitrogen- Total	10	12	83%
BLUE		25	342	7%
	Chlorophyll a- corrected	3	12	25%
	Enterococci (MPN)	1	13	8%
	Nitrogen- Total	10	12	83%
	Phosphorus- Total	11	12	92%
COCAT41		32	304	11%
	Chlorophyll a- corrected	5	12	42%
	Dissolved Oxygen Saturation	1	15	7%
	Enterococci (MPN)	9	15	60%
	Iron	1	4	25%
	Nitrogen- Total	12	12	100%
	Phosphorus- Total	4	12	33%
COCOR1		28	302	9%
	Chlorophyll a- corrected	3	12	25%
	Dissolved Oxygen Saturation	1	15	7%

WBID/Station	Parameter	# of Exceedances	# of Samples Collected
	Enterococci (MPN)	4	14
	Nitrogen- Total	10	12
	Phosphorus- Total	10	12
COCOR2	30	331	9%
	Chlorophyll a- corrected	4	12
	Enterococci (MPN)	8	15
	Nitrogen- Total	12	12
	Phosphorus- Total	6	12
COCORVW	32	352	9%
	Chlorophyll a- corrected	4	14
	Copper	1	5
	Dissolved Oxygen Saturation	2	16
	Enterococci (MPN)	6	16
	Iron	3	5
	Nitrogen- Total	12	12
	Phosphorus- Total	4	12
TURKBAY	22	280	8%
	Chlorophyll a- corrected	1	12
	Nitrogen- Total	11	12
	Phosphorus- Total	10	12
VBILT	29	366	8%
	Chlorophyll a- corrected	6	12
	Dissolved Oxygen Saturation	1	14
	Enterococci (MPN)	1	13
	Nitrogen- Total	10	12
	Phosphorus- Total	11	12
VBILTB	29	360	8%
	Chlorophyll a- corrected	5	12
	Dissolved Oxygen Saturation	2	25
	Enterococci (MPN)	1	13
	Nitrogen- Total	10	12
	Phosphorus- Total	11	12
VBILTCAN	33	342	10%
	Chlorophyll a- corrected	8	12
	Enterococci (MPN)	2	13
	Nitrogen- Total	11	12
	Phosphorus- Total	12	12

WBID/Station	Parameter	# of Exceedances	# of Samples Collected
<u>Corkscrew Swamp</u>		43	1230
CORKN		16	420
Dissolved Oxygen Saturation	12	12	100%
E. coli	4	12	33%
CORKS		20	385
Ammonia (N)	1	11	9%
Chlorophyll a- corrected	2	11	18%
Dissolved Oxygen Saturation	11	11	100%
Nitrogen- Total	4	11	36%
Phosphorus- Total	2	11	18%
CORKSCRD		7	425
Iron	6	12	50%
Turbidity	1	12	8%
<u>Cow Slough</u>		32	427
IMKFSHCK		32	427
Chlorophyll a- corrected	1	12	8%
Dissolved Oxygen Saturation	5	13	38%
E. coli	7	13	54%
Iron	2	12	17%
Nitrogen- Total	5	12	42%
Phosphorus- Total	12	12	100%
<u>Faka Union (North Segment)</u>		13	1267
BC10		3	462
Dissolved Oxygen Saturation	2	19	11%
Nitrogen- Total	1	12	8%
BC9		6	385
Dissolved Oxygen Saturation	3	11	27%
Iron	2	11	18%
Nitrogen- Total	1	11	9%
FAKA858		4	420
Chlorophyll a- corrected	1	12	8%
Iron	3	12	25%
<u>Faka Union (South Segment)</u>		6	852
BC11S		4	420
Dissolved Oxygen Saturation	4	12	33%
FAKA		2	432
Dissolved Oxygen Saturation	2	14	14%

WBID/Station	Parameter	# of Exceedances	# of Samples Collected
<u>Fakahatchee Strand</u>		28	428
BC19		28	7%
Chlorophyll a- corrected	5	12	42%
Dissolved Oxygen Saturation	10	13	77%
E. coli	5	13	38%
Nitrogen- Total	6	12	50%
Phosphorus- Total	2	12	17%
<u>Gordon River Extension</u>		56	843
GORDONRIV		38	9%
Chlorophyll a- corrected	1	11	9%
Dissolved Oxygen Saturation	12	14	86%
E. coli	3	13	23%
Nitrogen- Total	11	11	100%
Phosphorus- Total	11	11	100%
GRE896		18	4%
Dissolved Oxygen Saturation	6	14	43%
E. coli	2	14	14%
Iron	1	12	8%
Nitrogen- Total	6	12	50%
Phosphorus- Total	3	12	25%
<u>Haldeman Creek (Lower)</u>		21	460
BC5		21	5%
Chlorophyll a- corrected	3	12	25%
Dissolved Oxygen Saturation	2	17	12%
Enterococci (MPN)	15	17	88%
Nitrogen- Total	1	12	8%
<u>Haldeman Creek (Upper)</u>		42	934
HALDUP		7	2%
Chlorophyll a- corrected	1	12	8%
E. coli	5	14	36%
Nitrogen- Total	1	12	8%
WINPARK		35	7%
Chlorophyll a- corrected	3	14	21%
Copper	1	14	7%
Dissolved Oxygen Saturation	2	15	13%
E. coli	13	15	87%
Nitrogen- Total	4	14	29%

WBID/Station	Parameter	# of Exceedances	# of Samples Collected
Phosphorus- Total	12	14	86%
Immokalee Basin	16	267	6%
IMKSLGH	16	267	6%
Dissolved Oxygen Saturation	8	8	100%
E. coli	1	8	13%
Phosphorus- Total	7	7	100%
Lake Trafford	150	1228	12%
LKTRAF1	60	505	12%
Chlorophyll a- corrected	14	18	78%
Nitrogen- Total	12	18	67%
pH	16	33	48%
Phosphorus- Total	18	18	100%
LKTRAF4	49	341	14%
Chlorophyll a- corrected	12	14	86%
Nitrogen- Total	9	14	64%
pH	14	17	82%
Phosphorus- Total	14	14	100%
LKTRAF8	41	382	11%
Chlorophyll a- corrected	14	16	88%
Nitrogen- Total	10	16	63%
pH	1	18	6%
Phosphorus- Total	16	16	100%
North Golden Gate	40	3955	1%
COCO3	0	429	0%
CORK@846	7	420	2%
Dissolved Oxygen Saturation	4	12	33%
Nitrogen- Total	3	12	25%
CR951S	3	420	1%
Dissolved Oxygen Saturation	2	12	17%
Nitrogen- Total	1	12	8%
CYPR13NW	9	446	2%
Dissolved Oxygen Saturation	5	16	31%
E. coli	1	13	8%
Iron	2	12	17%
Nitrogen- Total	1	12	8%
GGC@858	11	488	2%
Chlorophyll a- corrected	1	12	8%

WBID/Station	Parameter	# of Exceedances	# of Samples Collected	
	Dissolved Oxygen Saturation	6	23	26%
	E. coli	1	13	8%
	Iron	3	12	25%
GGC@WHITE		5	480	1%
	Dissolved Oxygen Saturation	4	22	18%
	Iron	1	12	8%
GGC31SW		2	420	0%
	Dissolved Oxygen Saturation	2	12	17%
GGCAT31		0	432	0%
I75W1		3	420	1%
	Dissolved Oxygen Saturation	2	12	17%
	Iron	1	12	8%
Okaloacoochee Slough		21	567	4%
OKALA846		16	427	4%
	Chlorophyll a- corrected	2	12	17%
	Dissolved Oxygen Saturation	6	12	50%
	E. coli	5	13	38%
	Nitrogen- Total	2	12	17%
	Phosphorus- Total	1	12	8%
OKALA858		5	140	4%
	Dissolved Oxygen Saturation	4	4	100%
	Nitrogen- Total	1	4	25%
Rock Creek		26	420	6%
ROCKCRK		26	420	6%
	Dissolved Oxygen Saturation	12	12	100%
	Enterococci (MPN)	12	12	100%
	Phosphorus- Total	2	12	17%
Rookery Bay (Inland East Segment)		53	1628	3%
BC22		3	438	1%
	Dissolved Oxygen Saturation	3	15	20%
HEC245		2	420	0%
	Chlorophyll a- corrected	2	12	17%
SANDPIPE		1	420	0%
	Chlorophyll a- corrected	1	12	8%
	Dissolved Oxygen Saturation	0	12	0%
TAMTOM		47	350	13%
	Chlorophyll a- corrected	7	10	70%

WBID/Station	Parameter	# of Exceedances	# of Samples Collected
Copper	7	10	70%
Dissolved Oxygen Saturation	6	10	60%
Iron	6	10	60%
Nitrogen- Total	7	10	70%
Phosphorus- Total	9	10	90%
Turbidity	5	10	50%
Rookery Bay (Inland West Segment)	22	1261	2%
EAGLECRK	4	420	1%
Chlorophyll a- corrected	3	12	25%
Copper	1	12	8%
LELY	2	595	0%
E. coli	1	17	6%
Nitrogen- Total	1	17	6%
RATTLESN	16	246	7%
Chlorophyll a- corrected	2	7	29%
Dissolved Oxygen Saturation	7	7	100%
E. coli	3	8	38%
Nitrogen- Total	3	7	43%
Phosphorus- Total	1	7	14%
Silver Strand	85	913	9%
BRN	34	426	8%
Dissolved Oxygen Saturation	12	13	92%
Iron	9	12	75%
Nitrogen- Total	5	12	42%
Phosphorus- Total	7	12	58%
Turbidity	1	12	8%
IMKBRN	51	487	10%
Chlorophyll a- corrected	2	14	14%
Dissolved Oxygen Saturation	14	14	100%
E. coli	2	14	14%
Iron	10	14	71%
Nitrogen- Total	11	14	79%
Phosphorus- Total	12	14	86%
Ten Thousand Islands	13	442	3%
BARRIVN	13	442	3%
Dissolved Oxygen Saturation	10	15	67%
Enterococci (MPN)	2	13	15%

WBID/Station	Parameter	# of Exceedances	# of Samples Collected
Nitrogen- Total	1	12	8%
<u>Wiggins Bay Outlet</u>	17	428	4%
WIGGINSBY	17	428	4%
Dissolved Oxygen Saturation	6	13	46%
E. coli	2	13	15%
Iron	9	12	75%