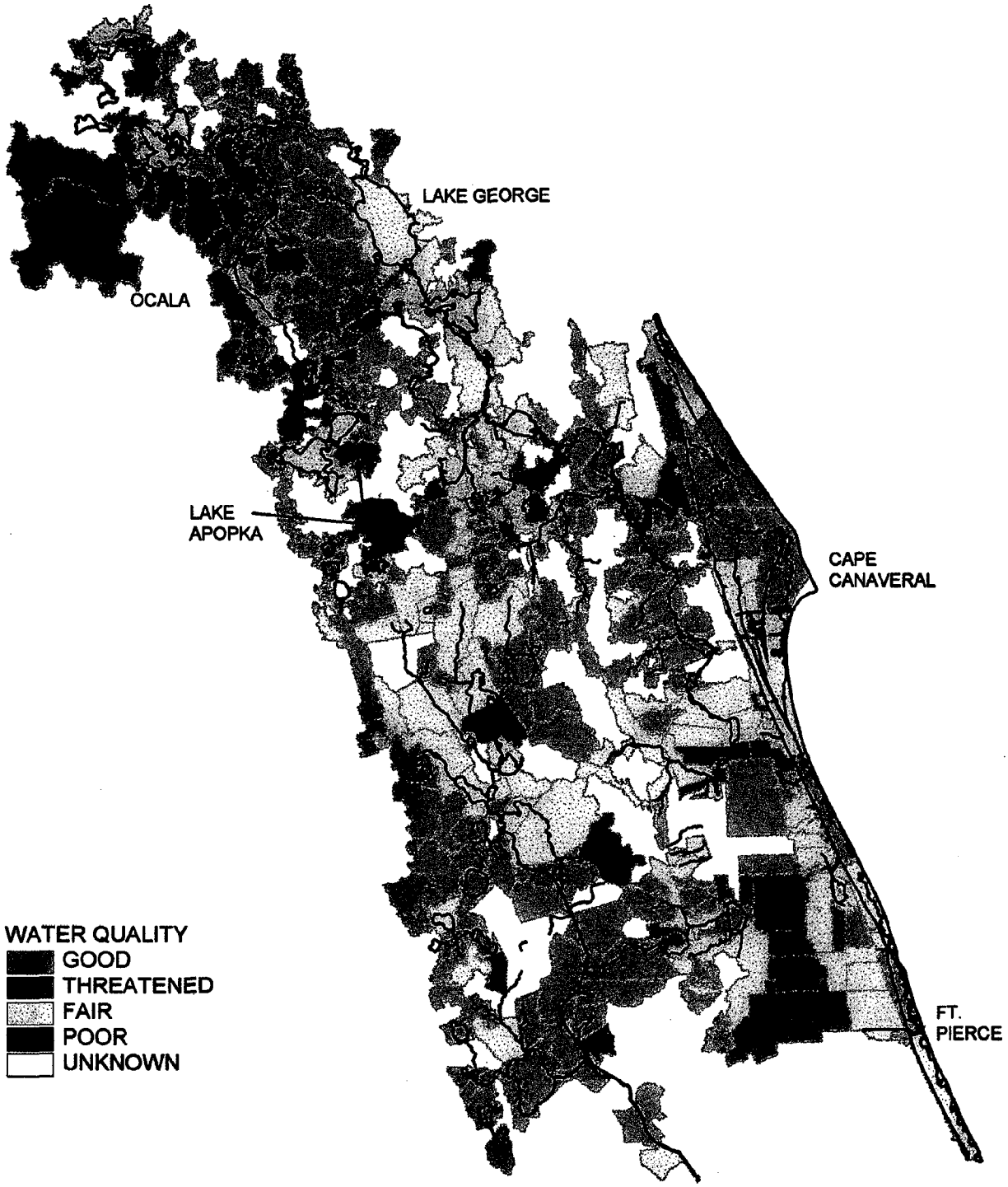
CENTRAL FLORIDA DISTRICT WATER QUALITY ASSESSMENT
305 (b) TECHNICAL APPENDIX



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TASK 4.1

1994 WATER QUALITY ASSESSMENT
FOR THE
STATE OF FLORIDA

TECHNICAL APPENDIX

Submitted in accordance with the
Federal Clean Water Act
Section 305(b)

November, 1994

Standards and Monitoring Section
Bureau of Surface Water Management
Division Of Water Facilities

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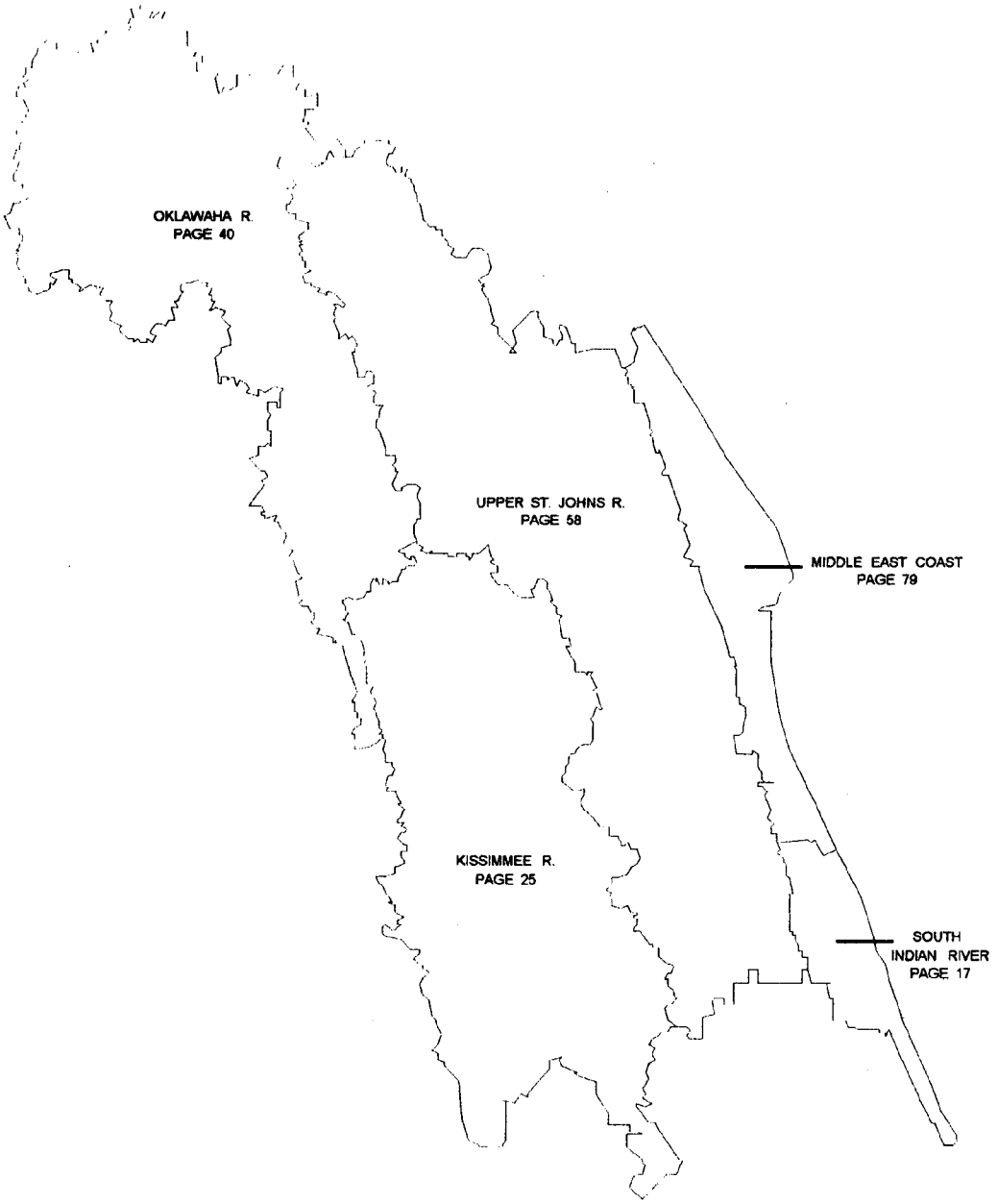
INDEX TO RIVER BASINS



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PREFACE

This report is produced to inform Floridians and the EPA about surface water quality conditions and trends in Florida. Originally produced in 1978, this report has been updated every two years since, and has gone through many changes. The items listed below identify the major format changes which distinguish this report from its predecessor.

- **Regional Reports** - The large size of the statewide report (550 pages) necessitated its subdivision into 5 regional reports which correspond roughly with Department of Environmental Protection District Office boundaries (South and Southeast District Office reports are under one cover).
- **Watersheds versus Reaches** - In 1992 the State's rivers, lakes and estuaries were subdivided into 1600 'reaches' and the assessment was based on this reach structure, however much of the State's waters were not contained within the reaches. For 1994, the assessed area has been enlarged to cover the entire State by dividing the State into 4400 watersheds. The original 1600 reaches remain pretty much intact within the new watersheds, and the terminology now includes watershed and waterbody rather than reach.
- **ARC/INFO Water Quality Color Maps** - GIS techniques were used to produce color maps depicting water quality (designated use support) in each river basin. Watersheds were color coded based on good, threatened, fair or poor water quality designations.
- **New Nonpoint Source Qualitative Survey** - A nonpoint source qualitative survey was performed in 1988 and has been updated and included in this report for 1994. The survey used the same watersheds which were used to assess the water quality data and the qualitative results were integrated into this report to both supplement the quantitative information and to provide information when no quantitative information was available.
- **Current versus Historic Data** - Water quality data were examined for two time periods: current data from 1989-1993 and historic data from 1970-1988. Historic data were used to assess waterbodies only when there was no current data available.

ACKNOWLEDGMENTS

We would like to express our gratitude to all of the professionals that supplied us with water quality data and reports, responded to surveys, and answered telephone inquiries concerning the status of waterbodies in their area. The quality of this report has been greatly enhanced by their efforts.

Many individuals in the District Offices reviewed the report on their sections of the State. These individuals include Rick Bradburn, Glenn Butts, Donald Ray, and Tone Touart-Rohlke in the Northwest District; Cathy Krestalude, Ernie Frey, Lee Banks, Angela Halfacre, and Jim Wright of the Northeast District ; Dave Herbster, Steve Kent, and Eric Pluchino of the Central District; Paul Wierzbicki, Herb Zebuth, and John Moulton of the Southeast District; Gordon Romeis of the South District, and Pat Fricano of the Southwest District . Sid Flannery of the Southwest Florida Water Management District also reviewed the report for his area.

The Nonpoint Source Stormwater Section put in a tremendous amount of work on the 1994 Nonpoint Source Assessment Survey . This team included Kent Cain, Ellen McCarron, and Mike Scheinkman. Don Foose, recently retired from the USGS , spent four years delineating and digitizing the new watersheds. Bernadette Howe, formerly with the St. Johns River Water Management District, provided much of the foundation work on GIS techniques for handling watersheds and water quality data and mapping the information.

Several of the DEP Tallahassee staff are to be thanked for their support and review of the final document including Don Axelrad, Vivian Garfein, Mark Latch and Richard Harvey, and Machelle Jarmon, who produced numerous draft copies of this text.

List of Abbreviations

AWT	advanced wastewater treatment
BAS	DEP basin water quality study
BMPs	best management practices
BOD	biochemical oxygen demand
cfs	cubic feet per second
DEP	Department of Environmental Protection
DO	dissolved oxygen
EAA	Everglades Agricultural Area
EPA	Environmental Protection Agency
FGFWFC	Florida Game and Fresh Water Fish Commission
MGD	millions of gallons per day
NPDES	National Pollutant Discharge Elimination System
NPS	nonpoint source
NWFWMD	Northwest Florida Water Management District
OFW	Outstanding Florida Waters
REACH	an EPA-designated waterbody or portion of a waterbody
SFWMD	South Florida Water Management District
SJRWMD	St. Johns River Water Management District
SRWMD	Suwannee River Water Management District
STORET	EPA's water quality data STOrage and RETrieval system
SWFWMD	Southwest Florida Water Management District
SWIM	Surface Water Improvement and Management
TKN	total Kjeldahl nitrogen (organic nitrogen and ammonia)
TSI	trophic state index
WLA	wasteload allocation
WMD	Water Management District
WQI	water quality index
WWTP	wastewater treatment plant

EXECUTIVE SUMMARY/OVERVIEW

The 305(b) Technical Report provides useful surface water quality related information in a format that is helpful to managers, planners, permit staff, and laymen, as well as water quality experts. For each of the 52 basins, a narrative summary, a map, and data tables identify the quality and trends of Florida's waterbodies, the causes of water quality problems, and the present regulatory activities conducted by DEP and EPA to improve the problem areas. It is the most widely circulated water quality assessment in the State, and also serves as the support document for the Surface Water Section of the 1994 305(b) Water Quality Assessment Main Report submitted to EPA.

The assessment required analysis of the available STORET water quality data for the 1970-1993 time period (STORET is EPA's computerized water quality database). Data from approximately 4,000 stations are assessed in this report, necessitating the extensive use of computerized assessment techniques. Water quality assessment techniques used to identify problem areas included: water quality indices, screening level exceedances, statistical trend analysis, information from special studies, and interviewing local experts. The 305(b) assessment also includes information from the 1994 DEP Nonpoint Source Assessment Survey (which is based on the responses of 50 Florida agencies).

Statewide Results From the Main Report

In the 1992 305(b) assessment report, Florida was subdivided into 1600 reaches which were based on EPA's RF2 (river reach file #2). A reach was defined as a 5 mile long section of river, or 5 square mile section of lake or estuary. Only major waterbodies were assessed in the 1992 report due to the resolution limitations imposed by the RF2 file. For 1994, Florida has been subdivided into 4400 watersheds based on EPA's RF3 and USGS watershed delineations. Many more miles of Florida waterbodies were assessed (50% more river miles, 30% more lake miles, and 20% more estuary miles) due to the increased number of watersheds available for assessment and due to efforts to collect more ambient data and store the data into STORET. Table 1 and Figure 1 show the mileages of Florida waters which were assessed in this year's report. A striking feature shown in Figure 1 is that 77% of river miles have unknown quality. This large percentage is due to the fact that EPA classified Florida's many ditches and canals as rivers, which were not assessed in this report.

A quantitative summary of the State's water quality was accomplished by determining the degree of designated use support for the different waterbody types. The vast majority of assessed Florida waterbodies meet or partially meet their designated use (92% of the river miles, 81% of the lake miles, and 96% of the estuary miles). Figure 2 shows that the river and estuary results are fairly similar, however the lake results show generally worse overall quality than the rivers and estuaries with fewer miles in the "meets use" category and more miles in the "does not meet use" category. Interestingly enough, this year's lake assessment brought in many more small lakes with good overall quality, however, Florida's largest lakes (Lake Okeechobee and Lake George) still overwhelm the State average with their large mileages of fair to poor quality.

It is very important to address both the sources of pollution and trends in water quality. In the past, the majority of identified water quality problems in the State were caused by point sources, including both domestic and industrial sources. Recently, however, nonpoint sources accounted for the majority of Florida's water quality problems. This is due to the fact that point source treatment processes have improved while there has been an increase in acreage of agricultural and urban developed land and their associated runoff.

Water quality trend analysis was performed on waterbodies which had sufficient data for analysis (467 out of 4400 waterbodies). The majority (70%) of these waterbodies (as seen in Figure 3) exhibited no significant trends. Five times as many waterbodies (24%) have improving water quality trends as have degrading trends. The improved water quality trends were generally the result of wastewater treatment plant upgrades or the additions of new regional WWTPs and nonpoint source controls in Tampa, Orlando and several other cities (as seen in Figure 4). Five percent of the waterbodies assessed for trends showed degrading trends; however, there are no regional patterns for degrading trends similar to the improving trends. The causes of degrading trends included point sources and nonpoint sources. Statewide trend detection is limited for the following reasons:

1. Only one-tenth of the waterbodies are assessed for trends.
2. The primary focus of our monitoring network is not trend assessment; most of our stations are frequently moved, and there are very few sites with long-term, monthly data.
3. Our trend assessment technique is tailored to the problem identified in #2, thus, it only identified relatively drastic changes in water quality. Subtle water quality changes due to population growth or nonpoint source treatment improvements are not picked up by this analysis.

Table 1. Mileages of Florida Waters Assessed

	Monitored 1.	Evaluated 2.	Unknown 3.	Total
River (miles)	7,025	4,855	39,978 2.	51,858
Lake (sq. miles)	1,541	400	124	2,064
Estuary (sq. miles)	2,417	1,290	347	4,054

1. Monitored data includes 1989-1993 STORET data.
2. Qualitative information or older STORET data (1970-1988)
3. This number includes 25,909 miles of ditches and canals which have not been assessed.

Table 2. Overall Designated Use Support Summary

RIVERS	(All size units in Miles)		
Degree of use support	Evaluated	Monitored	Total
Fully Supporting	1116	4378	5495
Supporting but Threatened	2259	0	2259
Partially Supporting	1139	2093	3232
Not Supporting	342	554	895
Total Size Assessed	4856	7025	11881

LAKES	(All size units in Square Miles)		
Degree of use support	Evaluated	Monitored	Total
Fully Supporting	213	494	707
Supporting but Threatened	100	0	100
Partially Supporting	53	714	766
Not Supporting	34	332	366
Total Size Assessed	400	1541	1940

ESTUARIES	(All size units in Square Miles)		
Degree of use support	Evaluated	Monitored	Total
Fully Supporting	501	1427	1928
Supporting but Threatened	402	0	402
Partially Supporting	358	851	1209
Not Supporting	28	139	167
Total Size Assessed	1290	2417	3707

Evaluated means qualitative information or older STORET data (1970-1988).
Monitored means recent STORET data (1989-1993).

FIGURE 1. MILES MONITORED, EVALUATED AND UNKNOWN

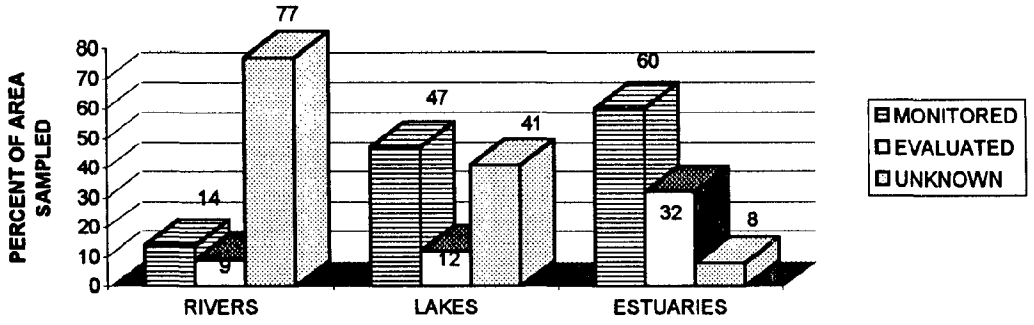


FIGURE 2. DESIGNATED USE SUPPORT IN FLORIDA WATERBODIES

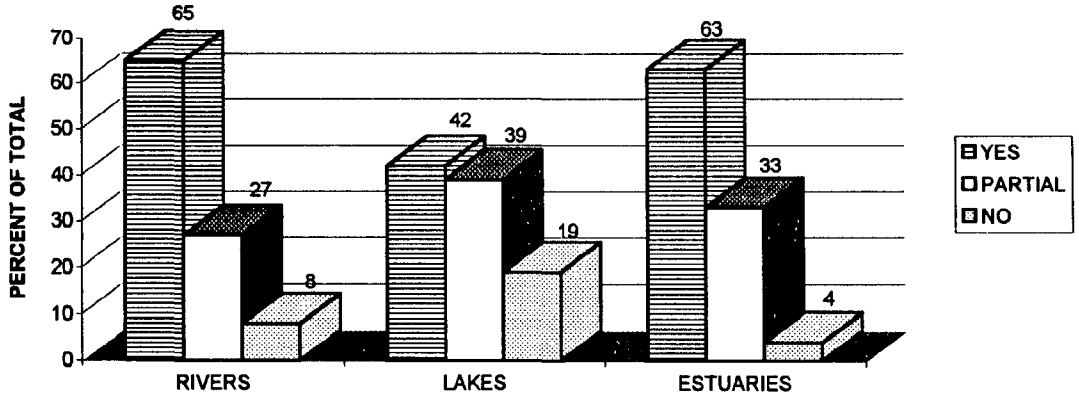
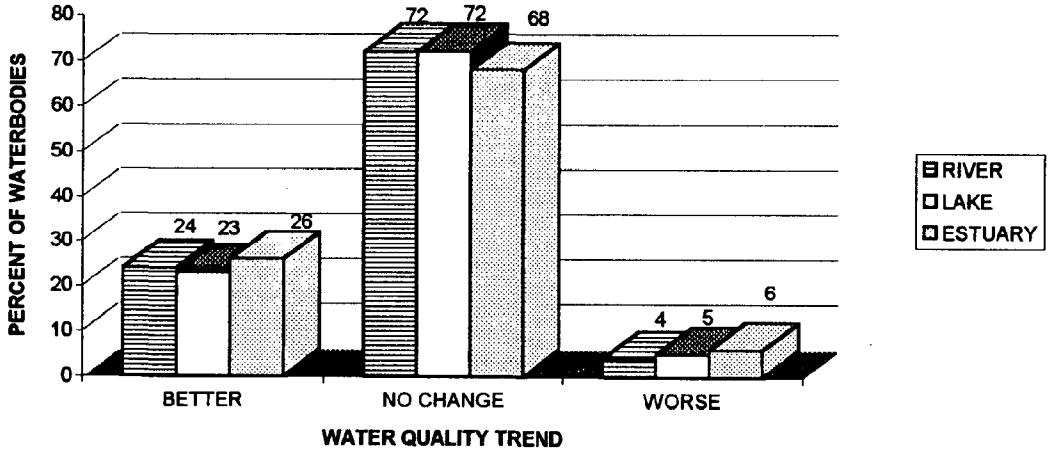
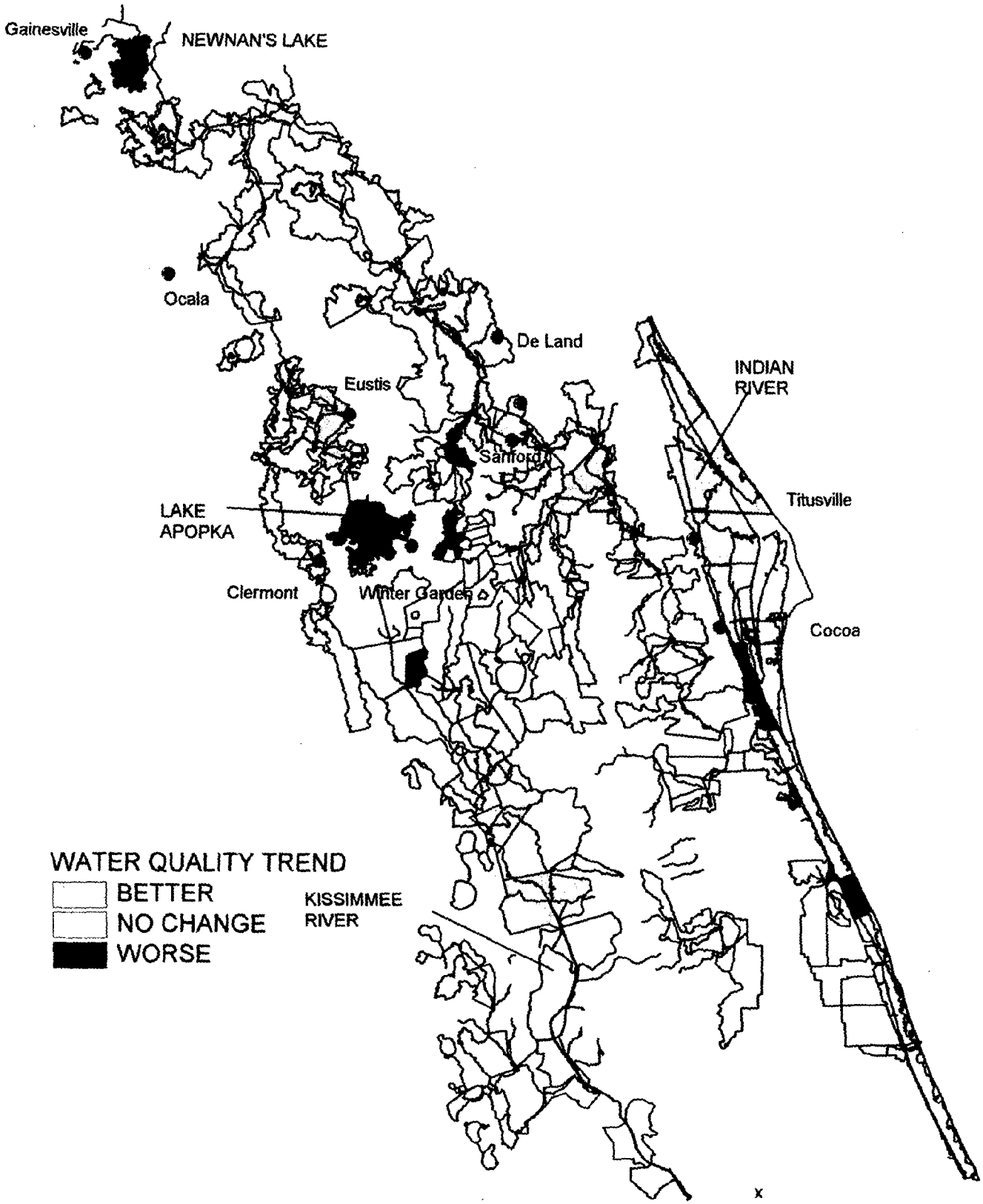


FIGURE 3. TEN YEAR WATER QUALITY TREND ANALYSIS FOR FLORIDA WATERBODIES (1984-1993)



TEN YEAR WATER QUALITY TREND



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Florida's surface water quality is displayed on the map on the cover of the main report. Two important conclusions can be drawn from this figure: first, the majority of Florida's surface water has good quality; and second, the majority of problems are found in Central and South Florida.

The sparsely populated northwest and west-central sections of the State have relatively better water quality than other areas. Water quality problem areas in the State are evident around the densely populated, major urban areas including: Jacksonville, Orlando, Tampa, Pensacola, the Cape Kennedy area and the southeastern Florida coast. Other areas of poor water quality, not associated with population, are found in basins with intense agricultural usage.

Pollution sources and problems in Florida are varied. The State does not have extensive industrialization, but rather localized concentrations of heavy industry centered mostly in urban areas. Many of the problems found in surface waters in urban areas can be attributed to industrial discharges. Silviculture, agriculture and various types of animal husbandry are a large part of Florida's current and historical economy. Furthermore, Florida has undergone rapid population growth over the past two decades and this continues. This has resulted in more pollution sources associated with residential development.

Florida's major surface water quality problems can be summarized into five general categories :

1. Urban Stormwater. Stormwater carries a wide variety of pollutants from nutrients to toxicants. Siltation and turbidity associated with construction activities can also be a major problem. Problem areas are concentrated around urban centers and mirror, quite well, the population map of the State. Current stormwater rules and growth management laws address this problem for new sources, but are difficult to monitor and enforce.

2. Agricultural Runoff. The major pollutants involved include nutrients, turbidity, BOD, bacteria and herbicides/pesticides. These pollutants generally do their worst damage in lakes and slow moving rivers and canals, and sometimes, the receiving estuary. Problems are concentrated in the central and southern portions of the State, and in several of the rivers entering the State from the north. Traditionally, agricultural operations have had far more lenient regulation than point sources; however, there is increasing recognition of the need for improved treatment of runoff water.

3. Domestic Wastewater. This is an area that has shown significant improvement in the last decade. Most of the waterbodies with improving water quality trends can be traced to wastewater treatment plant (WWTP) upgrades. Further advancements are being encouraged with design innovations such as wastewater discharge to wetlands, water reuse and advanced treatment. Still, a problem exists in the rural areas of the State where financial and technological resources are limited. Consequently, several of these poorly operating facilities are polluting some of Florida's relatively pristine natural waterbodies. Also, septic tank leachate contributes to the degradation of many of Florida's waterbodies.

4. Industrial Wastewater. Most notable among these are the pulp and paper mills. Because of the volume and nature of their discharge, all of the pulp and paper mills operating in the State seriously degrade their receiving waters. The phosphate and fertilizer industries are

major pollution sources (both point and nonpoint) in several of Florida's surface water basins. In addition, the mining of phosphate causes surface water hydrological modifications and major land use disturbances.

5. Hydrological Modifications. This can take the form of damming running waters, channelizing slow moving waters, or dredging, draining and filling wetlands. Such modifications are not strictly pollution sources. However, in most cases where the natural hydrological regime was modified (mostly for water quantity purposes) water quality problems have ensued. Rating the effect of hydrologic modification is difficult. Dredge and fill activities result in a loss of habitat. Disruption of wetlands with a resultant net loss of area reduces the buffering and filtering capacities and biological potential of wetlands. This is a particularly important problem in estuaries. The loss of seagrasses and other marine habitats can seriously affect the maintenance of a viable fishery.

The assessment of public health and aquatic life impacts uncovered several areas of concern. Many of these problems are associated with estuaries and are of a persistent nature. Fish with Ulcerative Disease Syndrome are still present in the lower St. Johns River. This problem was first identified in the early to mid-80s. Second, major fish kills (as many as 1 million fish) occurred in the Pensacola Bay system over the past two years. The more massive of these kills occurred in Bayou Chico. Bacterial contamination in the water and contaminated sediments of the Miami River threaten Biscayne Bay. Many urban estuaries throughout the State have elevated levels of metals and organic contaminants in their sediments. Examples are Tampa Bay, St. Johns River Estuary and Pensacola Bay. The continued loss of fishery habitat from dredge and fill and construction activities is a threat to the maintenance of a viable fishery. The extensive die off of mangroves and seagrasses and algal blooms in Florida Bay are an important State concern. The probable cause is the extensive channelization and hydrological modification of the bay's watershed exacerbated in recent years by a lack of flushing from hurricanes, high water temperature and high salinity.

On the positive side, seagrasses have increased in area in Tampa Bay and there has been an improvement in water quality in Hillsborough Bay.

Three other problems exist which are also of a persistent nature, but largely impact fresh water systems. First, fish consumption advisories for largemouth bass continue to be issued because of elevated mercury concentrations in their tissue. Second, a no fish consumption advisory has been issued for the Fenholloway River. Elevated levels of dioxin were found in fish from this stream. This waterbody receives effluent from a pulp mill. The third problem is the coliform bacteria contamination of the Miami River. Sources of this contamination are illegal sewer connections to the stormwater pipe system, leaking or broken sewer lines, and direct discharges of raw sewage when pump stations have exceeded their capacity. During acute contamination events (direct discharge of sewage) coliform bacteria counts in the Miami River and adjoining waters of Biscayne Bay are hundreds of times higher than State criteria. Efforts are being made by the City of Miami and Dade County to correct these problems.

Central Region Basin-by-Basin Evaluation of Water Quality

The quality of Florida waters is graphically depicted on basin maps which follow each basin description. Areas of good, fair, and poor quality are readily discernible on these maps. The following is a summary of the status of the quality of waters in central Florida:

The upper St. Johns River basin has water quality problems. The uppermost reaches have good quality although DO is naturally low. Lakes Harney, Jessup and Monroe and many of their tributaries have severe water quality problems, primarily as a result of historical loadings from Orlando area WWTPs and urban runoff. Water quality in these reaches is improving due to improved, centralized treatment of domestic wastewater; however, because of the historic loading and continued nonpoint source input, the recovery process is slow.

The Wekiva River joins the St. Johns just below Lake Monroe. A tributary, the Little Wekiva River, historically received discharge from a WWTP and had problems with low DO. The construction of a regional WWTP has improved conditions in this stream. The major threats to these two waterbodies is runoff from ranchland and urban developments. Both rivers have been designated as Outstanding Florida Waters. Water quality in the St. Johns River improves downstream of the Wekiva River to Lake George. That lake, because of its shallowness and degree of upstream loading, exhibits some eutrophication and is rated as 'fair'. The Sellars and Blue Cypress Lakes and their tributaries have good water quality.

Fish consumption advisories, because of high tissue concentrations of mercury, have been issued for the St. Johns River above Lake Monroe. This advisory includes many of the lakes in the upper St. Johns basin.

With the exception of the nearly pristine Palatlakaha Chain of Lakes, the Oklawaha River basin has poor water quality in its headwaters, particularly in Lake Apopka. Lake Apopka is highly eutrophic. Point source nutrient loads to Lake Apopka have been reduced, but the lake remains eutrophic due to nutrient release during sediment resuspension and continued runoff from intensive farming in the lake's drainage areas. Alligator reproductive rates have been reduced, presumably due to historic use of pesticides. Lake Apopka is a SWIM project and efforts are underway to improve its quality. Downstream lakes are also eutrophic, but less so than Apopka. Water quality improves considerably in the lower Oklawaha River, especially downstream of spring-fed Silver River. Hogtown Creek in Gainesville also has water quality problems from urban runoff and past drainage of wastewater ponds from the site of Cabot/Koppers wood treating operation. The ponds contained creosote, chromated copper arsenate, and pentachlorophenol. The site is now a Superfund site and undergoing clean-up; much of the original contamination has been removed from Hogtown Creek.

The Kissimmee River has its headwaters near Orlando, and its upper reaches (Shingle Creek and Reedy Creek) have water quality problems from WWTP and urban runoff pollution sources. The domestic sources have been considerably reduced, and water quality is improving. Lake Tohopekaliga is also showing improvements due to a reduction in WWTP discharge and a lake drawdown project. The lower Kissimmee River was channelized by the Army Corps of Engineers and consequently flushes much more rapidly and directly to Lake Okeechobee where it adds to the lake's eutrophication problems. Restoration efforts have begun to return portions of the river channel to its original meander pattern. Lakes Toho, Kissimmee, and Istokpoga have largemouth bass with elevated levels of mercury in their tissues. Advisories recommending limited fish consumption have been issued.

The east coast estuarine waters from Jacksonville to Ft. Pierce have localized impacts from wastewater discharges, stormwater runoff, causeways which reduce hydraulic flushing, and shoreline vegetation disruption. Areas of greatest impact are the intracoastal waterway near Palm Valley (below Jacksonville Beach), the Matanzas River at St. Augustine, the Halifax River between Ormond Beach and Port Orange, the Indian River and Banana River from Titusville to Melbourne and the Indian River at Vero Beach and Ft. Pierce. Several of the WWTPs in the middle basin have discontinued their surface water discharge. The Indian River Lagoon system has been included in the National Estuary Program.

INTRODUCTION AND METHODS

This section describes the water quality assessment procedures used by the Bureau of Surface Water Management to prepare the 1994 Florida Water Quality Inventory [305(b)]. The procedures are:

1. Divide State into Assessment Watersheds.
2. Inventory STORET data.
3. Calculate Stream Water Quality Index (WQI).
4. Calculate Lake/Estuary Trophic State Index (TSI).
5. Apply Screening Levels.
6. Conduct Trend Analysis.
7. Conduct Toxic Pollutant Assessment.
8. Conduct Nonpoint Source Assessment.

Florida's 52 major river basins were subdivided into 4400 watersheds of approximately five square miles each. The predominate waterbody within each watershed was identified and classified as a lake, stream, or estuary. Each watershed and its waterbody formed an assessment unit and all water quality stations within the watershed were aggregated as if they were from the same site (the stations were screened for unwanted sites, such as, point source discharge sites). A water quality inventory was performed on EPA's STORET database. The inventory included the years 1970 through 1993 and was classified as recent (1989-1993) or historic (1970-1988). Tables of water quality data were prepared for each of Florida's 52 basins. Three procedures were then used to assess the water quality data. A Water Quality Index was calculated to determine the overall quality of Florida streams and rivers. The Water Quality Index summarizes information from six categories including water clarity (turbidity and total suspended solids), dissolved oxygen, oxygen demanding substances (biochemical oxygen demand, chemical oxygen demand, and total organic carbon), nutrients (total nitrogen and total phosphorus), bacteria (total coliform and fecal coliform), and macroinvertebrate diversity index (based on natural substrate samples, artificial substrate samples and Beck's Biotic Index). The water quality of lakes and estuaries is described by the Trophic State Index which is a measure of the potential for algal or aquatic weed growth. The components which make up the Trophic State Index include total nitrogen, total phosphorus, chlorophyll and Secchi depth. Screening levels for 19 water quality parameters were also used to determine the quality of Florida lakes, estuaries and streams.

The water quality indices and screening levels have all been tailored to Florida's water quality by using the actual distribution of Florida data to determine the water quality criteria used by the procedures. Specific information on each of the procedures is described in the following sections.

Watershed as the Assessment Unit

In the 1992 305(b) assessment report, Florida was subdivided into 1600 reaches which were based on EPA's RF2 (river reach file #2). A reach was defined as a 5 mile long section of river, or 5 square mile section of lake or estuary. Only major waterbodies were assessed in the 1992 report due to the resolution limitations imposed by the RF2 file. For 1994, Florida has been subdivided into 4400 watersheds based on EPA's RF3 and USGS watershed delineations. The original 1600 reach delineations have been kept intact, however, many additional watersheds have been added due to the increased resolution of RF3 and the USGS watersheds which cover the entire State. USGS was contracted to develop useable, small watersheds (approximately 5 square miles) using watershed boundaries identified on USGS topological maps and ARC/INFO GIS techniques. USGS completed 75% of the State, but unfortunately they did not delineate watersheds in south Florida (USGS subregion 0309) . Watersheds for South Florida were adapted from a much coarser delineation developed by the South Florida Water Management District. The resulting watersheds in this area are about 50 square miles each, ten times larger than those for the rest of the State.

The major waterbody within each watershed was identified and named. Usually each watershed encompassed one major or one minor named waterbody (similar to the 1992 reach structure). The length of each stream waterbody and the area of lake and estuary waterbodies is essential information. The length of stream waterbodies was determined by GIS measurements of the RF3 trace (or assigned a length of 5 miles if no RF3 trace was available). The area of lake and estuary waterbodies was determined with crude GIS aerial measurement techniques (if estuary waterbodies had no RF3 traces, their area was set to 5 square miles and unknown lake waterbodies were assigned an area of 1 square mile). The water quality within each waterbody is assumed to be homogenous (if data prove this assumption to be wrong, then the waterbody was subdivided). GIS techniques were used to assign STORET sites to their respective watersheds and the location of each site was visually inspected on a GIS map. If more than one named waterbody showed up in a watershed (based on the STORET data within a watershed), then the watershed was subdivided.

Inventory of STORET Data

An inventory of data was retrieved from STORET for the 1970-1993 time period. If data within a watershed were available for the current time period (defined as 1989-1993), then historical data was not examined, except for trend analysis. If no current data were found, then historic data (defined as 1970-1988) were used for the assessment. Fifty STORET parameter codes representing 21 different water quality parameters were inventoried (Table 3). There are about 8000 Florida stations in STORET which were sampled in 1970-1993. These stations are located in 1500 of the 4400 watersheds. Annual average (median) water quality was calculated for each of these stations and the data were stored on a local IBM Personal computer. In order for an annual average to be calculated for a station, the station had to be sampled at least twice within each year. STORET remark

Table 3. Storet Water Quality Assessment Parameters.

Category	Storet Parameter	Name	Storet Parameter Code
Coliform	Fecal Coli	MPN-FCBR/100ml	31616
Coliform	Fecal Coli	MPNECMED/100ml	31615
Coliform	Total Coli	MGIMENDO/100ml	31501
Coliform	Total Coli	MPN CONG/100ml	31505
Conductivity	Conductivity	at 25c micromho	95
Conductivity	Conductivity	Field micromho	94
Dissolved Oxygen	Dissolved Oxygen	% saturation	301
Dissolved Oxygen	Dissolved Oxygen	mg/l	300
Dissolved Oxygen	Dissolved Oxygen	Probe mg/l	299
Diversity Index	Biotic Index	BI	82256
Diversity Index	Diversity Index	Artificial substrate	82251
Diversity Index	Diversity Index	Natural substrate	82246
Flow	Stream Flow	cfs	60
Flow	Stream Flow	inst.-cfs	61
Oxygen Demand	BOD 5 day	mg/l	310
Oxygen Demand	COD Hi Level	mg/l	340
Oxygen Demand	Tot Organic Carbon	C mg/l	680
pH-Alkalinity	pH SU		400
pH-Alkalinity	pH SU	lab	403
pH-Alkalinity	Total Alkalinity	CaCO3 mg/l	410
Temperature	Temperature Water	cent	10
Trophic Status	Chlorophyll A	mg/l	32230
Trophic Status	Chlorophyll A	mg/l	32217
Trophic Status	Chlorophyll A	mg/l	32210
Trophic Status	Chlorophyll A	mg/l corrected	32211
Trophic Status	Chlorophyll Total	mg/l	32234
Trophic Status	Chlorophyll	total ug/l	32216
Trophic Status	Nitrogen ammonia	Diss-NO2 mg/l	71846
Trophic Status	Nitrogen NH3+NH4-	N Diss mg/l	608
Trophic Status	Nitrogen NH3_NH4-	N total mg/l	610
Trophic Status	Nitrogen Nitrate	Diss-NO3 mg/l	71851
Trophic Status	Nitrogen Nitrate	Tot-NO3 mg/l	71850
Trophic Status	Nitrogen NO2&NO3	N-Diss mg/l	631
Trophic Status	Nitrogen NO2&NO3	N-Total mg/l	630
Trophic Status	Nitrogen NO3-N	Diss mg/l	618
Trophic Status	Nitrogen NO3-N	Total mg/l	620
Trophic Status	Nitrogen Org N	N mg/l	605
Trophic Status	Nitrogen Tot Kjel	N mg/l	625
Trophic Status	Nitrogen Total N	As NO3 mg/l	71887
Trophic Status	Nitrogen Total N	N mg/l	600
Trophic Status	Phosphorus	OrthoPO4 mg/l	660
Trophic Status	Phosphorus Total	As PO4 mg/l	71886

Table 3. Storet Water Quality Assessment Parameters (continued).

Category	Storet Parameter	Name	Storet Parameter Code
Trophic Status	Phosphorus Total	mg/l P	665
Trophic Status	Transparency	Secchi Inches	77
Trophic Status	Transparency	Secchi Meters	78
Water Clarity	Color	PT-CO Units	80
Water Clarity	Color-AP	Pt-CO Units	81
Water Clarity	Residue Tot NFLT	mg/l	530
Water Clarity	Turbidity	JKSN JTU	70
Water Clarity	Turbidity	TRBIDMTR HACH FTU	76

Table 4. Florida Stream Water Quality Index Criteria.
Percentile Distribution of STORET Data.

Parameter	Unit	Best Quality				Median Value			Worst Quality	
		10%	20%	30%	40%	50%	60%	70%	80%	90%
** Category: Water Clarity										
Turbidity	JTU	1.50	3.00	4.00	4.50	5.20	8.80	12.20	16.50	21.00
Total Suspended Soldis	mg/l	2.00	3.00	4.00	5.50	6.50	9.50	12.50	18.00	26.50
** Category: Dissolved Oxygen										
Dissolved Oxygen	mg/l	8.00	7.30	6.70	6.30	5.80	5.30	4.80	4.00	3.10
** Category: Oxygen Demand										
Biochemical Oxygen Demand	mg/l	0.80	1.00	1.10	1.30	1.50	1.90	2.30	3.30	5.10
Chemical Oxygen Demand	mg/l	16.00	24.00	32.00	38.00	46.00	58.00	72.00	102.00	146.00
Total Organic Carbon	mg/l	5.00	7.00	9.50	12.00	14.00	17.50	21.00	27.50	37.00
** Category: Nutrients										
Total Nitrogen	mg/l as N	0.55	0.75	0.90	1.00	1.20	1.40	1.60	2.00	2.70
Total Phosphorus	mg/l as P	0.02	0.03	0.05	0.07	0.09	0.16	0.24	0.46	0.89
** Category: Bacteria										
Total Coliform	#/100 ml	100.00	150.00	250.00	425.00	600.00	1100.00	1600.00	3700.00	7600.00
Fecal Coliform	#/100 ml	10.00	20.00	35.00	55.00	75.00	135.00	190.00	470.00	960.00
** Category: Biological Diversity										
Diversity Index Nat. Substrate	Index	3.50	3.10	2.80	2.60	2.40	2.15	1.95	1.50	1.20
Diversity Index Art. Substrate	Index	3.55	3.35	3.20	3.05	2.90	2.65	2.40	1.95	1.35
Beck's Biotic Index	Index	32.00	28.00	23.00	18.50	14.00	11.00	8.00	5.50	3.50

codes also present a problem in data analysis when a data value is recorded as "less than" the actual value reported. In these cases the reported value was multiplied by 0.5 to adjust for the "less than" condition. Data with STORET remark codes indicating that the reported value was "greater than" the actual value were dropped from further analysis. A Water Quality Index value was calculated for each stream/river annual median and a Trophic State Index value was calculated for each lake/estuary annual median.

Florida Stream Water Quality Index Procedure

To assess Florida stream water quality, a Florida stream Water Quality Index (WQI) was developed and first used in the 1988 305(b) report. The WQI is based on the quality of water as measured by six water quality categories (water clarity, dissolved oxygen, oxygen demanding substances, bacteria, nutrients and biological diversity). Each category may have more than one parameter as shown in Table 4. Raw (annual average) data are converted into index values which range from 0 to 99 for the six categories. Index values correspond to the percentile distribution of stream water quality data in Florida (Table 4). [The percentile distribution of STORET water quality data were determined in 1987 for 2,000 ambient, stream STORET locations in Florida.] For example, Table 4 shows the BOD concentrations ranged from 0.8 mg/l (10 percentile) to 5.1 mg/ (90 percentile) with a median value of 1.5 mg/l (50 percentile). A BOD concentration of 0 to less than 0.8 mg/l is assigned an index value of 0 to 9, etc.

The overall WQI is the arithmetic average of the six water quality index categories. The index for each category is determined by averaging its component parameter index values. Missing water quality parameters and missing water quality categories are ignored in the final calculation. Therefore, the final WQI is based on an average of anywhere from 1 to 6 water quality index categories. Table 5 shows an example calculation of the WQI. The WQI can be calculated from just one index category; however, it becomes more reliable as more categories are used in its calculation.

In order to determine the range of values of the WQI which correspond to good, fair and poor quality, the WQI was correlated with the EPA National Profiles Water Quality Index for Florida data. (The EPA WQI was used in the 1986 305(b)). Based on this correlation, the cutoff values for the WQI were determined as follows: 0 to less than 45 represents good quality, 45 to less than 60 represents fair quality, and 60 to 99 represents poor quality.

The Florida stream Water Quality Index has several advantages over indices used previously. First, the index is tailored to Florida water quality data, since it is based on the percentile distribution of Florida stream data. Second, it uses the water quality categories which are felt to be the most important measures of water quality in Florida: water clarity, dissolved oxygen, oxygen demanding substances, nutrients, bacteria and biological diversity. Third, it is simple to understand and calculate and does not require a mainframe computer or any complex data transformations or averaging schemes. Finally, the index

Table 5. An Example Calculation of the Florida Stream Water Quality Index (WQI).

Water Quality Category[1]	Water Quality Parameter[2]	Value[3]	Parameter Index Value[4]	Index Average[5]
Water Clarity	Turbidity	3.9 mg/l	29	40
Water Clarity	Total Suspended Solids	7.0 mg/l	52	
Dissolved Oxygen	Dissolved Oxygen	5.4 mg/l	58	58
Oxygen Demanding Substances	BOD	2.8 mg/l	75	
Oxygen Demanding Substances	COD	31.0 mg/l	29	52
Oxygen Demanding Substances	TOC	.	--	
Nutrients	Total Nitrogen	1.87 mg/l	77	79
Nutrients	Total Phosphorus	0.56 mg/l	82	
Bacteria	Total Coliform	1800 MPN/100 ml	71	70
Bacteria	Fecal Coliform	1900 MPN/100 ml	70	
Macroinvertebrate Diversity	Natural Substrate	1.7	76	
Macroinvertebrate Diversity	Artificial Substrate	2.3	72	69
Macroinvertebrate Diversity	Beck's Biotic Index	11.0	60	
				WQI = 61[6]

[1] - These are the 6 water quality categories.
[2] - These are the 13 water quality parameters which make up the 6 categories.
[3] - These are the actual data values ('.' indicates no measurement was taken for this parameter).
[4] - The index value is based on the percentile distribution values shown in Table 4.
[5] - The category average is based on an average of each of the water quality parameter values.
[6] - The WQI is an average of the category index values, i.e., WQI = (40+58+52+79+70+69)/6=61.

works; it nicely identifies areas of good, fair, and poor water quality that correspond to professional and public opinion.

A toxic pollutants category would be a valuable addition to the index; however, toxic pollutants were not included in the index since there is relatively little data in Florida (compared to the amount of data for conventional pollutants). Toxic pollutants were assessed separately as discussed later in this section of the report.

Trophic State Index Procedure

The Trophic State Index procedure provides an effective method of classifying lakes based on the lake's chlorophyll, Secchi depth, nitrogen and phosphorus concentrations. The index was developed in 1982 in response to the EPA Clean Lakes Program and is documented in the Classification of Florida Lakes Report by the University of Florida, Department of Environmental Engineering Sciences. This index remains unchanged from the 1988 305(b) report.

The index is based on a trophic classification scheme developed in 1977 by R.E. Carlson. It relies on three trophic indicators to describe the trophic status of a lake. The goal was to have each indicator relate to algal biomass such that a 10 unit change in the index would represent a doubling or halving of algal biomass. Carlson developed indices based on Secchi disc transparency, chlorophyll concentration and total phosphorus concentration. The Florida Trophic State Index (TSI) is based on the same rationale, but also includes total nitrogen concentration as a fourth index. Criteria were developed for Florida lakes from a regression analysis of data on 313 Florida lakes. The desirable upper limit for the index is set at 20 ug/l chlorophyll which corresponds to an index of 60. Doubling the chlorophyll concentration to 40 ug/l results in an index increase to 70 which is the cutoff for undesirable (or poor) lake quality. Index values from 60 to 69 represent 'fair' water quality. The criteria for chlorophyll, Secchi depth, total phosphorus and total nitrogen concentrations are shown in Table 6.

A nutrient index is also calculated based on phosphorus and nitrogen concentrations and the limiting nutrient concept. The limiting nutrient concept identifies a lake as phosphorus limited if the nitrogen to phosphorus concentration ratio is greater than 30, as nitrogen limited if the ratio is less than 10, and balanced (depending on both nitrogen and phosphorus) if the ratio is 10-30. Thus, the nutrient TSI is based solely on phosphorus if the ratio is greater than 30, solely on nitrogen if less than 10, or based on both nitrogen and phosphorus if the ratio is between 10 and 30. An overall index (TSI) is calculated based on the average of the chlorophyll TSI, the Secchi depth TSI and the nutrient TSI. For this index to be calculated, both nitrogen and phosphorus measurements are required for the sample. The lake trophic state index was also applied to Florida estuaries to describe estuarine water quality. The criteria for the estuary quality ratings is 10 less than the lake ratings (i.e., good estuarine water quality is a TSI value of 0-49, fair quality is 50-59, and poor quality is a value of 60-100). Table 7 shows an example TSI calculation.

Table 6. Trophic State Index (TSI) for Lakes and Estuaries.

For Lakes: 0-59 is good, 60-69 is fair, 70-100 is poor
For Estuaries: 0-49 is good, 50-59 is fair, 60-100 is poor

Trophic State Index TSI	Chlorophyll CHLA (ug/l)	Secchi Depth SD (m)	Total Phosphorus TP (mgP/l)	Total Nitrogen TN (mgN/l)
0	0.3	7.4	0.003	0.06
10	0.6	5.3	0.005	0.10
20	1.3	3.8	0.009	0.16
30	2.5	2.7	0.01	0.27
40	5.0	2.0	0.02	0.45
50	10.0	1.4	0.04	0.70
60	20.0	1.0	0.07	1.2
70	40	0.7	0.12	2.0
80	80	0.5	0.20	3.4
90	160	0.4	0.34	5.6
100	320	0.3	0.58	9.3

TSI equations which generate the above criteria:

$CHLA_{TSI} = 16.8 + [14.4 \times LN\ (CHLA)]$ (use Natural Log)

$SD_{TSI} = 60 - [30 \times LN\ (SD)]$

$TN_{TSI} = 56 + [19.8 \times LN\ (TN)]$

$TP_{TSI} = [18.6 \times LN\ (TP \times 1000)] - 18.4$

$TSI = (CHLA_{TSI} + SD_{TSI} + NUTR_{TSI*})\ /3$

* Limiting Nutrient considerations for Calculating $NUTR_{TSI}$:

If $TN/TP > 30$ then $NUTR_{TSI} = TP_{TSI}$

If $TN/TP < 10$ then $NUTR_{TSI} = TN_{TSI}$

If $10 < TN/TP < 30$ then $NUTR_{TSI} = (TP_{TSI} + TN_{TSI})\ /2$

Table 7. An Example Calculation of the Trophic State Index (TSI) (See Table 6 for Formulas).

	Annual Average	TSI Calculation	Average TSI
Chlorophyll	6.0 ug/l	42.6[1.]	42.1
Secchi Depth	1.8 meters	42.3[2.]	42.3
Phosphorus*	0.04 mg P/l	50.2[3.]	
Nitrogen*	0.67 mg N/l	48.1[4.]	49.2[5.]
			45.0[6.]

1. CHLA = 16.8 + [14.4 x LN (6.0)] = 42.1 (use Natural Log)

2. SD = 60 - [30 x LN (1.9)] = 42.3

3. TP = [18.6 x LN (0.04 x 1000)] - 18.4 = 50.2

4. TN = 56 + [19.8 x LN (0.67)] = 48.1

5. TN/TP Ratio = 0.67/0.04 = 16.7 therefore, TSI NUTR = an average of TSI Phosphorus and TSI Nitrogen = (50.2 + 48.1)/2 = 49.2

6. (42.6 + 42.3 + 49.2)/3 = 45

* Note: If either phosphorus or nitrogen sampling information are missing, then the index is not calculated. Chlorophyll and/or Secchi Depth may be missing and the index will be calculated.

Screening Levels

Screening levels were used to determine water quality problems caused by each of nineteen water quality parameters (Table 8). Screening levels were based on either Florida criteria or on criteria established by professional judgment when quantitative Florida criteria are absent. Different screening levels were developed for streams, lakes and estuaries to take into account the natural differences among these waterbodies. The criteria which were established by professional judgment were based on the percentile distribution of Florida data.

The eightieth percentile was chosen as the cutoff between acceptable and unacceptable water quality. This means that 80% of Florida's water quality data will have acceptable levels. Table 8 identifies the screening levels used, the typical values measured and the Florida criteria for streams, lakes and estuaries. Screening level exceedances are noted in the data tables for each watershed in each basin.

Trend Analysis

Water quality trend analysis was performed on 12 water quality parameters (plus the overall stream water quality index and the trophic state index) for 460 watersheds. The time frame for the analysis is from 1984-1993. The analysis was quite simple; a non-parametric correlation analysis (Spearman's Ranked Correlation) was used to analyze the ten-year trend of the annual STORET station medians for each watershed. There may have been only one station analyzed within a watershed resulting in a maximum of ten years of data, or there may have been many stations sampled within the watershed resulting in the analysis of many more yearly station medians and a more meaningful trend analysis.

A separate trend assessment technique was used to analyze stream, lake, and estuary waterbodies. Stream trend analysis utilized the trend information from eight water quality parameters (bacteria, turbidity, total suspended solids, BOD, dissolved oxygen, Secchi depth, nitrogen and phosphorus) plus the overall water quality index. Lake and estuary trend analysis focused on four trophic state parameters (chlorophyll, Secchi depth, nitrogen and phosphorus) plus the trophic state index.

The overall trend of each waterbody was determined by comparing the number of improved water quality parameters to the number of degraded water quality parameters. Some waterbodies showed quite strong trends. If a waterbody showed no trends, or just one parameter showed a trend (or the number of improved trends minus the number of degraded trends is zero or one), then the trend is classified as "no change". This trend analysis must be considered preliminary due to the simplicity of the technique.

Table 8. Water Quality Assessment Parameters For Florida Streams, Lakes and Estuaries, Screening Levels-Typical Values-Florida Criteria.

Parameter	Units	Screening Level	Typical Values 10%	(Median)	90%	Florida Criteria (17-302) Class III
** Water Body Type: Stream						
Alkalinity	$CaCO_3$ mg/l		13	(75)	150	20.0 mg/l min.
Beck's Biotic Index	Index #	<5.5	4	(14)	32	
BOD 5 Day	mg/l	>3.3	0.8	(1.5)	5.1	Not cause DO<5 mg/l
Chlorophyll	ug/l		1	(6)	30	
COD	mg/l	>102	16	(46)	146	
Coliform-Fecal	#/100 ml	>470	10	(75)	960	200/100 ml
Coliform-total	#/100 ml	>3700	100	(600)	7600	1000/100 ml
Color	Platinum-Color Units		21	(71)	235	No nuisance conditions
Conductivity	micromho	>1275	100	(335)	1300	1275 or 50% abv background
Dissolved Oxygen	mg/l	<4.0	3.1	(5.8)	8.0	5.0 mg/l
Diversity Artificial Sub	index	<1.95	1.4	(2.9)	3.6	min. 75% of DI
Diversity Natural Substr	index	<1.50	1.2	(2.4)	3.5	min. 75% of DI (marine)
DO % Saturation	%		36	(68)	90	
Fecal Strep	#/100 ml		20	(15)	1700	
Fluoride	mg/l		0.1	(0.2)	0.8	10.0 mg/l
Nitrogen-total	mg/l as N	>2.0	0.5	(1.2)	2.7	Not cause imbalance
pH	standard units		6.1	(7.1)	7.9	<6.0 >8.5
Phosphorus-total	mg/l as P	>0.46	0.02	(0.09)	0.89	Not cause imbalance
Secchi Disc Depth	meters		0.4	(0.8)	1.7	min. 90% background
Temperature	centigrade		19	(23)	28	No nuisance conditions
Total Organic Carbon	mg/l	>27.5	5	(14)	37	
Total Suspended Solids	mg/l	>18.0	2	(7)	26	
Turbidity	JTU FTU	>16.5	1.5	(5)	21	29 NTUs above background
** Waterbody Type: Lake						
Alkalinity	$CaCO_3$ mg/l	>20.	2	(28)	116	20.0 mg/l min.
Chlorophyll	ug/l	>40.	1	(12)	70	
Nitrogen-total	mg/l as N	>2.0	0.4	(1.1)	2.5	Not cause imbalance
Phosphorus-total	mg/l as P	>0.12	0.01	(0.05)	0.29	Not cause imbalance
Secchi Disc Depth	meters	<0.7	0.4	(0.9)	2.7	Min. 90% background
** Waterbody Type: Estuary						
Chlorophyll	ug/l	>40	1	(9)	36	
Nitrogen-total	mg/l as N	>2.0	0.3	(0.8)	1.6	Not cause imbalance
Phosphorus-total	mg/l as P	>0.12	0.01	(0.07)	0.20	Not cause imbalance
Secchi Disc Depth	meters	<0.7	0.6	(1.1)	3.0	Min. 90% background

Toxic Pollutant Assessment

The assessment of toxic pollutants in Florida's waters was accomplished by an inventory of 9 STORET toxic metal parameters for 1991-93 (Table 9). The Florida surface water quality standards (Chapter 17-302, Florida Administrative Code) were used to assess whether the toxic pollutant was found at an elevated level. Several standards are based on hardness levels, however, since hardness levels were not available in all cases, a hardness value of 100 mg/l as calcium carbonate was assumed. An elevated level was defined as any exceedance of the standard for any of the nine metals. Generally, each waterbody was sampled two or three times for several of the metals during the last three years.

Nonpoint Source Assessment

An extensive assessment of nonpoint source impacts on Florida's waters was conducted in 1988 through the use of a questionnaire sent to all major State agencies (Water Management Districts, Division of Forestry, Game and Fresh Water Fish Commission), city and county offices, U.S. Soil Conservation Service, U.S. Forestry Service, Regional Planning Councils, local Soil and Water Conservation Districts, citizen environmental groups (Sierra Clubs, Audubon Society and others) and professional outdoor guides. The respondents (approximately 150 agencies and 350-400 participants) to the questionnaire identified nonpoint sources of pollution, environmental pollution symptoms (fish kills, algal blooms, etc.) pollutants and miscellaneous comments. The assessment has been updated in 1994. The 1994 nonpoint source assessment was performed more efficiently than the 1988 version due largely to the use of GIS technology for compiling and displaying the data, and also advancements in the questionnaire methodology. Scannable forms were used eliminating the need to key punch data and integration with the 305b report was much improved.

Florida's 1994 nonpoint source assessment was performed using a qualitative, best professional judgment approach. Unlike point source pollution analysis and its readily available STORET ambient data, there is rarely any convenient database of water quality monitoring data that has been designed for analyzing impacts of nonpoint source pollution on surface waters. Therefore, the assessment procedure was designed to make use of the knowledge of experienced field personnel who had information about individual waterbodies. The 1994 survey was sent to essentially the same group of professionals as the 1988 report and approximately fifty respondents identified nonpoint sources of pollution, environmental symptoms of pollution (fish kills, algal blooms, etc.), degree of impairment (rating) of a waterbody and miscellaneous comments. A total of 1720 watersheds or about 40 % of the total watersheds were qualitatively assessed by the respondents. Data tables summarizing the 1994 NPS survey are presented for each basin in this report. The remainder of this section describes the information presented in these tables.

Table 9. Toxic Metals in the Water Column.

Metal	Storet Parameter Number	Number of Waterbodies Sampled	Florida Criteria (ppb)	% of Waterbodies With Exceedances
Arsenic	1002	162	50	0%
Cadmium	1027	211	1.1	17%
Chromium	1034	155	207*	0%
Copper	1042	330	12*	10%
Iron	1045	378	1000	22%
Lead	1051	240	3.2*	30%
Mercury	71900	129	0.012	47%
Nickel	1067	130	158*	0%
Zinc	1092	253	106	10%

* actual criteria is dependent on water hardness which was assumed to be 100 mg/l as calcium carbonate since hardness was not available in all waterbodies

The impairment rating of a waterbody was defined as status of waters within a watershed as determined by support or nonsupport of designated use. The status of a watershed was dependent on making a determination of designated use support that applied to all surface waters within the aerial extent of that watershed. Designated use refers to the classification or standards and criteria applied to all Florida waters.

Impairment rating categories used were as follows:

1. Good (meets designated use). All surface waters in the watershed are supporting their use classification with no evidence of nonpoint source problems.
2. Threatened (meets designated use). All surface waters in the watershed are attaining their use classification, but in the absence of any future management activities, it is suspected that within five years at least some of the surface waters in the watershed will not support their designated use.
3. Fair (partially meets designated use). Some, but not all, surface waters in the watershed are not supporting their designated use.
4. Poor (does not meet use). All surface waters in the watershed are not supporting their designated use.

Nonpoint source pollution is generally associated with land use activities which do not have a well-defined point of discharge, such as discharge from a pipe or smoke stack. Nonpoint contaminants are carried to waterbodies by direct runoff or percolation through the soil to groundwater. There are many different potential source areas. Some of the common activities and sources which were considered in the nonpoint source assessment include:

1. Construction site runoff. This type of source can provide sediment, chemicals and debris to surface waters.
2. Urban stormwater. Runoff from buildings, streets and parking lots carries with it oil, grease, metals, fertilizers and other pollutants.
3. Land disposal. Leachate from septic tanks and landfills may pollute groundwater or local surface waters. Contamination of surface waters can be by either by direct runoff or discharge from groundwater.
4. Agricultural runoff. Runoff from fields and pastures carries with it sediments, pesticides and animal wastes (which can be a source of bacteria and viruses and nutrients).
5. Silvaculture operations. Logging activities which erode forest soils add turbidity and suspended solids to local surface waters.
6. Mining. This type of activity can cause siltation in nearby waterbodies, release of radioactive materials to groundwater, discharge of acid mine drainage and depletion of water supplies in aquifers.

7. Hydrologic modification. Dams, canals, channelization and other alternations to the flow of a waterbody result in habitat destruction and in general water quality deterioration.

Abbreviations were used for the nonpoint source categories in the NPS data tables which are found in each basin write-up on the following pages. Those abbreviations correspond to the sources as described below:

AG	=	Agricultural runoff
RE	=	Resource extraction or mining
SL	=	Silvaculture or for operations
LD	=	Land disposal
UR	=	Urban runoff
CN	=	Construction site runoff
HM	=	Hydrologic Modification
OT	=	Other nonpoint source
IND	=	Industrial site runoff
STP	=	Sewage treatment plant

Data for the last two point source categories were not obtained from the 1994 NPS assessment survey, but rather they come from the 1992 305(b) Report.

Respondents were provided with 15 choices of pollutants and 9 choices of symptoms for use in characterizing the status of a watershed. Pollutant choices or categories and their descriptions are provided below:

1. Nutrients. An imbalance of nitrogen and or phosphorus which resulted in algal blooms or nuisance aquatic plant growth. Standards for Class III waterbodies are based on this criteria.
2. Bacteria. This refers to the presence of high levels of coliform, strep and enteric fecal organisms which cause the closure of waters to swimming and shellfishing.
3. Sediments. Soil erosion which results in high levels of turbidity.
4. Oil and Grease. Hydrocarbon pollution resulting from highway runoff, marina, and industrial areas. Their presence is evidenced as a sheen on the water surface.
5. Pesticides. These class of chemicals can be found in runoff from agricultural lands and some urban areas.
6. Other Chemicals. General category for other chemicals besides pesticides and oil and grease, typically associated with landfills, industrial land uses and hazardous waste sites.

7. Debris. This category includes trash ranging from Styrofoam plates and cups to yard clippings and dead animals.
8. Oxygen Depletion. Low levels of dissolved oxygen in the water column resulting in odor problems (anoxic waters) and fish kills.
9. Salinity. Changes in salinity caused by too much or too little freshwater inflows. Typical results are declines in the fishery and changes in species composition.
10. pH. Change in the acidity of surface waters with resultant declines in fisheries and other changes to flora and fauna, such as reductions in diversity or abundance.
11. Metals. Anthropogenically enriched levels of trace metals commonly associated with urbanized watersheds and marinas.
12. Habitat Alteration. Landuse activities which adversely affect the resident flora and fauna. Included with habitat alteration is habitat loss.
13. Flow Alteration. Landuse activities which influence the flow characteristics of a watershed resulting in adverse affects upon flora and fauna.
14. Thermal Pollution. Activity which changes local temperature of receiving water relative to ambient temperature.
15. Other Pollutants. General category used to describe activities and impacts not described in the other 14 categories.

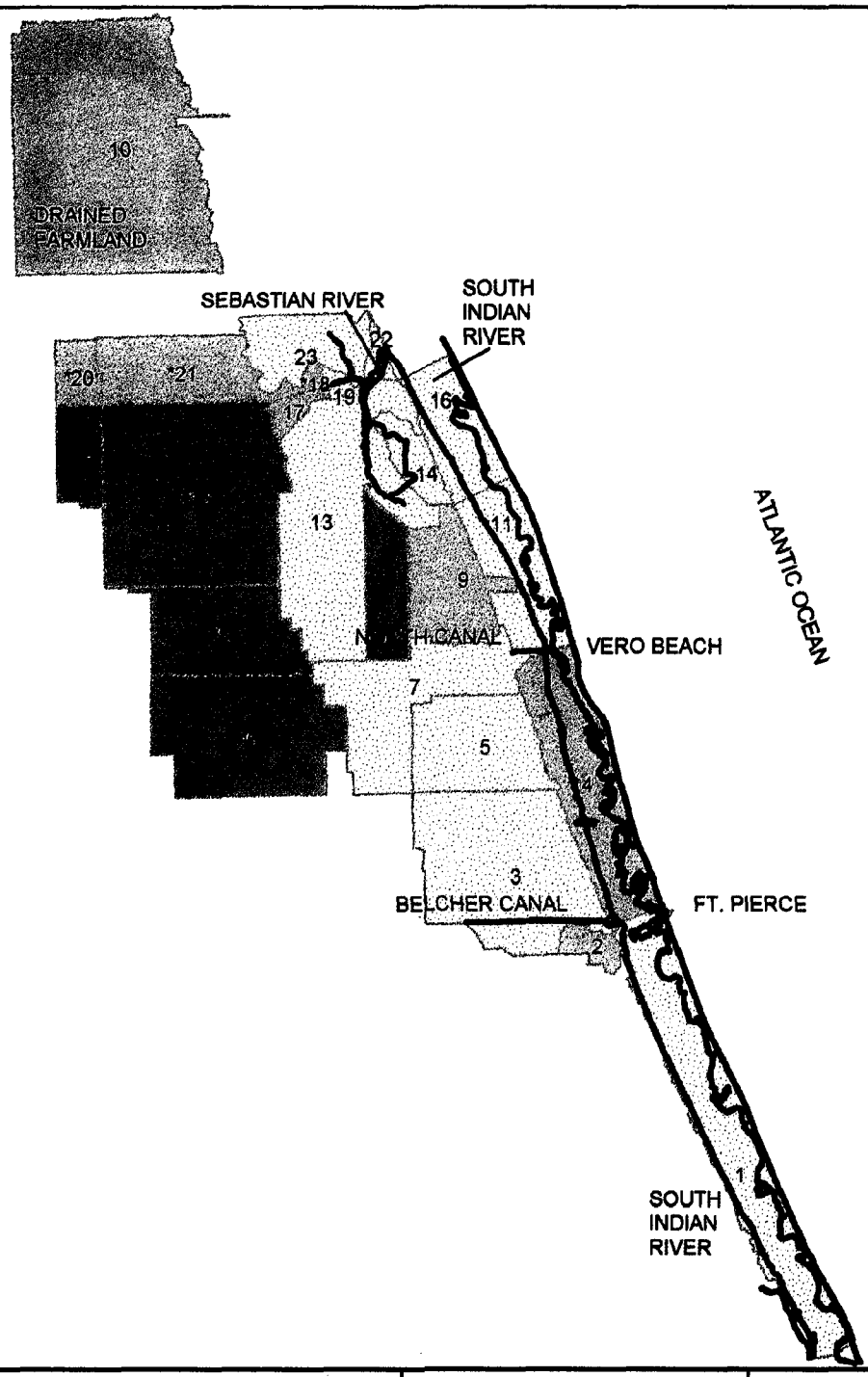
Responses of waterbodies to the above listed sources of pollutants were defined as symptoms. The nine symptoms used for categorization are defined as follows:

1. Fish Kills. Dead and dying fish caused by designated source of pollution.
2. Algal Blooms. Excessive growth of algae resulting from nutrient enrichment.
3. Aquatic Plants. Density of exotic and nuisance plants such that impairment of the waterbody occurs. Nutrient enrichment is usually the cause.
4. Turbidity. High suspended sediment loads in water column resulting from soil erosion. Effects on the waterbody include smothering of benthos and reduced light penetration with resultant loss of plant and algal productivity.
5. Odor. Unpleasant smells resulting from low dissolved oxygen conditions (anoxia) and or fish kills.
6. Declining Fisheries. Reduction in landings of or increases in catch per unit effort to catch game and commercial species indicating loss of productive fishery.
7. No Swimming. Closure of recreational swimming areas due to public health risks, usually caused by high coliform bacteria counts.
8. No Fishing. Closure of recreational or commercial fishing areas because of threats to human health from elevated bacteria counts or levels of contaminants.

9. Other Symptoms. General category used for information that cannot be placed in any other category.

Making Use Support Determinations

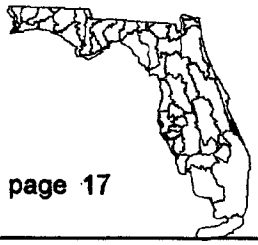
EPA has revised its criteria for determining the status of waters as documented in Appendix B of the Guidelines for the Preparation of the 1994 State Water Quality Assessments (305(b) Report). Often, a variety of assessment techniques were available for each watershed (e.g., chemical data, biological data and NPS survey results) and in this case a use decision was made based on integrating all the information. If quantitative data were available on the water quality of a waterbody (through the Trophic State Index or Water Quality Index) then the designated use of the waterbody was determined from the quantitative information, and if no quantitative data were available, then the qualitative NPS survey results were used to estimate designated use of the waterbody. Current data was available for assessment of about 1100 watersheds, historic data was used in 400 watersheds, and qualitative data was used in 1000 watersheds. The NPS survey provided all the information on sources of pollution (e.g. urban or construction runoff) and part of the information on causes and symptoms of pollution. Integrating the information from the quantitative (STORET) analysis and the qualitative NPS survey was not easy, but many additional watersheds were assessed based on the results of the integration. In the future, the two techniques should blend together much better through increased coordination of efforts.



INDIAN RIVER SOUTH BASIN
03080203

AVERAGE WATER QUALITY
1984-1993 STORET DATA
WATERSHED ID NUMBERS LINK MAP TO TABLES
* INDICATES QUALITATIVE ASSESSMENT

WATER QUALITY
- GOOD
- THREATENED
- FAIR
- POOR
- UNKNOWN



SOUTH INDIAN RIVER BASIN

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Basic Facts

Drainage Area: 670 square miles
Major Land Uses: agriculture, rangeland, urban development
Population Density: moderate (Vero Beach, Sebastian, Ft. Pierce)
Major Pollution Sources: dairy, citrus, and ranch operations, WWTP, urban runoff
Best Water Quality Areas: Indian River north of Ft. Pierce to Vero Beach
Worst Water Quality Areas: North Prong of Sebastian Creek
Water Quality Trends: stable quality at 8 sites, Sebastian River and Indian River above Wabasso shore declining quality, improving quality in North Prong of Sebastian River
OFW Waterbodies:
Indian River, Vero Beach to Ft. Pierce State Aquatic Preserve
Jensen Beach to Jupiter Inlet State Aquatic Preserve
SWIM Waterbodies: Indian River Lagoon System
Reference Reports:
Indian River Lagoon Reconnaissance Report, SJRWMD and SFWMD, 1987
Sebastian River BAS, DEP (Port St. Lucie)
Indian River Water Quality Survey, DEP (Orlando), 1985
Indian River Water Quality Survey, DEP (Port St. Lucie), 1986
Ecosummary Reports (by DEP Central District):
Indian River @ Sebastian Inlet (1993)
Indian River S. of Vero Beach (1993)
Basin Water Quality Experts:
Guy Hadley, Steve Kent DEP (Orlando), 407/894-7555
Terry Davis, Greg Graves, Doug Strom, DEP (Port St. Lucie), 407/878-3890
Joel Steward, SJRWMD, 904/328-8321

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In the News

* The Indian River Estuary was included in the National Estuary

Program.

* South Prong, Sebastian River (or Creek) has improved in water quality since removal of certain agricultural inputs.

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Ecological Characterization

The South Indian River basin extends from Sebastian Inlet about 50 miles south to Stuart and covers 670 square miles. The Indian River is actually a long, shallow, 1-2 mile wide estuarine lagoon bounded to the east by a narrow coastal ridge. The salinity is only slightly less than oceanic. Fresh water supply to the system comes from the coastal drainage and canal systems, Sebastian Creek, and several large canal systems from the west. Some of these canals divert waters from the upper St. Johns drainage.

The native shoreline vegetation is mangrove forest, and the lagoon's floor is either mudflats, seagrass beds, or shell hash. Although much of the mangrove forest has been lost to development or mosquito control, this area retains more of the natural conditions than the middle east coast basin. There are three inlets to the system (Sebastian, Ft. Pierce and St. Lucie) as well as six bridges. Land use in the coastal part of the basin is low to high density residential. Urban areas are Sebastian, Vero Beach and Ft. Pierce. The eastern portion of the basin is one of the predominant centers of Florida's citrus orchards. The water itself is used extensively for fishing, shellfishing and recreation. Manatees are common residents in the area.

Anthropogenic Impacts

Much of the Indian River is classified as shellfish harvesting waters, as Outstanding Florida Waters, as a National Estuary, and as an Aquatic Preserve. It is also part of the Indian River Lagoon SWIM priority water body. This area receives good flushing because of the number of inlets with good hydraulic properties. Although water quality has been generally good especially south of Ft. Pierce Inlet, there is growing concern over the degrading condition of the estuary. In the southern portion of the basin, the main source of pollution is urban runoff from water front developments. Also, at Ft. Pierce, the estuary receives nutrients and excess fresh water via Belcher Canal, as drainage from orange groves, rangeland and urban areas. Ft. Pierce operates a WWTP which discharges to the western edge of Ft. Pierce inlet.

Pollution problems, mainly in the form of increased nutrients, are encountered in the Vero Beach area of Indian River. Effluents from three WWTPs, urban runoff, drainage from

septic tanks along with restricted flushing (inlets are 15 miles north and south of the city), and drainage from the relief canals which drain significant amounts of runoff from orange groves, streets and residences west of the lagoon account for these higher levels.

The poorest water quality in the basin is found in Sebastian Creek. The South Prong of Sebastian Creek has a history of elevated bacteria and BOD loads from dairy farms and rangeland runoff, but has recently shown improvement in water quality due to removal of one of the dairies. The North Prong, which runs through a more urbanized area in addition to the diary farms, has high bacteria and low DO concentrations. However, conditions may improve in the North Prong, because the dairies have now been removed from the basin.

** USGS HYDROLOGIC UNIT: 03080203 INDIAN RIVER, SOUTH

SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH PH	ALKALINITY ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND	FLOW	WATER QUALITY INDICES WQI	TSI
* WATER BODY TYPE: ESTUARY																												
1	SOUTH INDIAN RIVER	2094	89	93	Current	5.5	1.0	15	19	6.6	74	.	.	.	7.7	.	0.58	0.09	6	.	.	.	.	.	41250	.	.	51
4	SOUTH INDIAN RIVER	272	89	93	Current	4.1	1.1	13	10	6.3	73	1.5	.	.	7.7	126	0.57	0.08	5	.	.	4.1	.	.	42425	.	.	47
11	SOUTH INDIAN RIVER	84	89	93	Current	5.2	1.0	20	11	6.3	73	2.2	.	.	7.7	133	0.89	0.12	5	.	.	.	.	.	40455	.	.	51
16	SOUTH INDIAN RIVER	168	89	93	Current	7.4	1.0	13	11	5.8	68	1.5	.	.	7.9	133	0.81	0.14	6	.	.	.	.	.	44950	.	.	52
* WATER BODY TYPE: STREAM																												
2	MOORE CREEK	32	89	91	Current	3.7	0.6	14	43	5.0	63	.	.	.	7.4	.	0.61	0.10	7	.	2453	.	.	.	26355	.	42	.
3	BELCHER CAN/TAYLOR CK	117	89	92	Current	2.6	1.0	65	11	4.7	55	.	.	.	7.1	.	0.96	0.08	7	.	33	.	.	.	1226	.	45	.
5	SOUTH CANAL	4	89	90	Current	4.7	0.4	60	9	5.6	63	1.1	.	.	7.3	183	1.19	0.20	6	.	.	.	.	.	1270	.	51	.
7	MAIN CANAL	11	89	90	Current	4.8	1.0	38	14	7.2	82	3.5	.	.	7.8	168	1.31	0.17	2	.	66	.	.	.	1588	24	46	.
9	NORTH CANAL	5	89	90	Current	3.6	0.4	41	5	6.4	70	1.2	.	.	7.4	168	0.93	0.16	6	.	.	.	.	.	1144	.	39	.
13	SEBASTION RIVER	231	91	93	Current	3.7	0.6	175	2	5.4	60	.	.	21	7.4	96	1.26	0.11	2	.	454	.	.	.	1107	.	57	.
14	UNNAMED CANAL	28	82	83	Historical	4.8	.	120	.	4.9	56	.	.	.	6.9	.	0.96	0.10	.	.	458	.	.	.	504	.	54	.
17	FELSMERE CANAL	7	88	88	Historical	3.8	.	.	.	.	.	.	.	.	8.1	.	.	.	.	.	.	.	.	.	1000	40	28	.
19	C-54 CANAL	86	84	88	Historical	3.3	1.0	50	5	3.5	40	2.0	.	.	7.6	139	1.28	0.12	4	.	.	.	.	.	29025	50	57	.
22	SEBASTION R. AB IND R.	249	89	93	Current	5.4	0.7	35	14	6.0	68	4.5	.	10	8.0	142	1.23	0.13	15	.	.	.	.	.	38500	.	49	.
23	NO. PRONG SEBASTION R	38	92	93	Current	4.7	0.8	70	3	4.8	54	.	.	19	7.1	139	1.19	0.08	3	.	111	.	.	.	4645	.	58	.

LEGEND:
ALK-ALKALINITY MG/L
ART-ARTIFICIAL SUBSTRATE DI
BEG YR-BEGINNING SAMPLING YEAR
BECK-BECK'S BIOTIC INDEX
BOD-BIOCHEMICAL OXYGEN DEMAND MG/L
CHLA-CHLOROPHYLL UG/L
COD-CHEMICAL OXYGEN DEMAND MG/L
COLOR-COLOR PCU
COND-CONDUCTIVITY UMHOS
DO-DISSOLVED OXYGEN MG/L
DOSAT-DO % SATURATION
END YR-ENDING YEAR
FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
MAX #OBS-MAXIMUM NUMBER OF SAMPLES
NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
TURB-TURBIDITY MG/L
WQI-WATER QUALITY INDEX

SURFACE WATER QUALITY DATA SCREENING REPORT
MEDIAN VALUES FOR EACH WATERSHED SCREENED

** USGS HYDROLOGIC UNIT: 03080203 INDIAN RIVER, SOUTH

'x'=EXCEEDS SCREENING CRITERIA
'0'=WITHIN SCREENING CRITERIA
'.'=MISSING DATA

SCREENING VARIABLES AND CRITERIA

WATERSHED ID	NAME	RANK WQI OR TSI	DATA RECORD CURRENT OR HISTORICAL	TN TN>2.0	STREAM TP TP>.46	LAKE TP TP>.12	PH PH>8.8 PH<5.2	ALK ALK<20	TURB & TSS TURB>16.5 TSS>18	COND COND>1275	OXYGEN DEMAND BOD>3.3 COD>102 TOC>27.5	DO DO<4	COLIFORM BACTI TOT>3700 FECAL>470	BIOL DIV DIART<1.95 DINAT<1.5 BECK<5.5	CHLA CHLA>40	SECCHI DISC SD<.7
* WATER BODY TYPE: ESTUARY																
1	SOUTH INDIAN RIVER	FAIR	Current	0	.	0	0	.	x	x	.	0	.	.	0	0
4	SOUTH INDIAN RIVER	GOOD	Current	0	.	0	0	0	0	x	0	0	.	0	0	0
11	SOUTH INDIAN RIVER	FAIR	Current	0	.	0	0	0	0	x	0	0	.	.	0	0
16	SOUTH INDIAN RIVER	FAIR	Current	0	.	x	0	0	0	x	0	0	.	.	0	0
* WATER BODY TYPE: STREAM																
2	MOORE CREEK	GOOD	Current	0	0	.	0	.	x	x	.	0	x	.	0	x
3	BELCHER CAN/TAYLOR CK	FAIR	Current	0	0	.	0	.	0	.	.	0	0	.	0	0
5	SOUTH CANAL	FAIR	Current	0	0	.	0	0	0	.	0	0	.	.	0	x
7	MAIN CANAL	FAIR	Current	0	0	.	0	0	0	x	x	0	0	.	0	0
9	NORTH CANAL	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	x
13	SEBASTION RIVER	FAIR	Current	0	0	.	0	0	0	0	0	0	0	.	0	x
14	UNNAMED CANAL	FAIR	Historical	0	0	.	0	.	0	.	.	0	0	.	.	.
17	FELSMERE CANAL	GOOD	Historical	.	.	.	0	.	0	0	.	.	.	.	.	.
19	C-54 CANAL	FAIR	Historical	0	0	.	0	0	0	x	0	x	.	.	0	0
22	SEBASTION R. AB IND R.	FAIR	Current	0	0	.	0	0	0	x	x	0	.	.	0	x
23	NO. PRONG SEBASTION R	FAIR	Current	0	0	.	0	0	0	x	0	0	0	.	0	0

LEGEND:
ALK-ALKALINITY
BECK-BECK'S BIOTIC INDEX
BIOL DIV-BIOLOGICAL DIVERSITY
CHLA-CHLOROPHYLL
COND-CONDUCTIVITY
DO-DISSOLVED OXYGEN
CURRENT-1989 TO 1993
DIART-ARTIFICIAL SUBSTRATE DIVERSITY
DINAT-NATURAL SUBSTRATE DIVERSITY
FECAL-FECAL COLIFORM BACTERIA
HISTORICAL-1970 TO 1988
OXYGEN DEMAND-BOD,COD,TOC
PH-PH
TN-NITROGEN
TP-PHOSPHORUS
TOT-TOTAL COLIFORM BACTERIA
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
SD-SECCHI DISC METERS
WQI OR TSI-WATER QUALITY INDEX RATING WHICH INDEX USED, WQI OR TSI, IS BASED ON WATERBODY TYPE

SURFACE WATER QUALITY ASSESSMENT REPORT
TRENDS-SOURCES-CLEANUP

** USGS HYDROLOGIC UNIT: 03080203 INDIAN RIVER, SOUTH

'x'=DEGRADING TREND
'0'=STABLE TREND
'+'=IMPROVING TREND
'.'=MISSING DATA

1984 - 1993 TRENDS

<--- PLEASE READ THESE COLUMNS VERTICALLY

WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	QUALITY RANK: WQI OR TSI	OVER-ALL TREND	WQI or TSI	TN	TP	CHLA	SD	PH	ALK	TURB	TSS	BOD	TOC	DO	DOSAT	TCOLI	FCOLI	TEMP	FLOW	DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
* WATER BODY TYPE: ESTUARY																						
1	SOUTH INDIAN RIVER	PARTIAL	FAIR	0	0	x	0	.	0	x	.	0	+	.	.	0	0	.	.	0	.	
4	SOUTH INDIAN RIVER	YES	GOOD	0	0	0	0	0	0	0	0	0	0	0	.	0	0	.	.	0	.	
11	SOUTH INDIAN RIVER	PARTIAL	FAIR	0	0	x	0	0	+	+	0	0	0	0	.	0	0	.	.	0	.	
16	SOUTH INDIAN RIVER	PARTIAL	FAIR	x	0	x	x	0	0	+	+	0	0	0	.	0	0	.	.	0	.	
* WATER BODY TYPE: STREAM																						
2	MOORE CREEK	YES	GOOD	0	0	0	0	.	.	.	.	x	.	.	.	.	.	.	.	.	.	
3	BELCHER CAN/TAYLOR CK	PARTIAL	FAIR	0	0	0	0	.	0	0	.	0	0	.	.	0	0	.	0	0	.	
5	SOUTH CANAL	PARTIAL	FAIR	0	0	x	0	.	0	0	.	0	.	.	.	0	0	.	.	0	.	
7	MAIN CANAL	PARTIAL	FAIR	0	0	0	0	.	.	+	0	0	.	.	.	0	0	.	.	0	0	
9	NORTH CANAL	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
13	SEBASTION RIVER	PARTIAL	FAIR	0	0	.	.	.	0	0	.	0	.	.	.	0	0	.	.	0	.	
14	UNNAMED CANAL	PARTIAL	FAIR																			
17	FELSMERE CANAL	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
19	C-54 CANAL	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
22	SEBASTION R. AB IND R.	PARTIAL	FAIR	x	0	x	0	0	x	0	+	0	0	x	.	0	0	.	.	0	.	
23	NO. PRONG SEBASTION R	PARTIAL	FAIR	+	0	0	+	0	0	0	0	0	0	.	.	+	+	.	.	0	.	

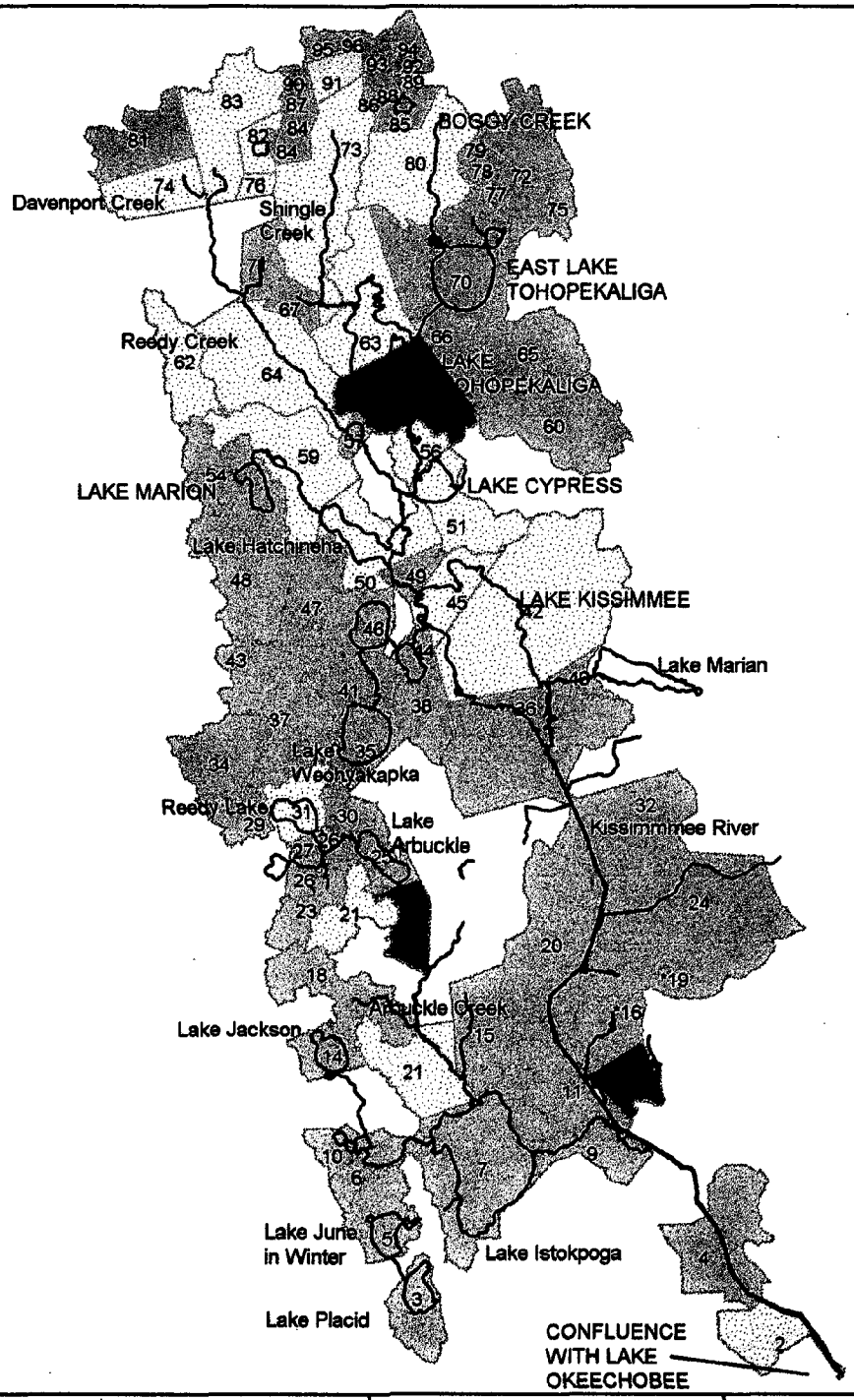
LEGEND:

ALK-ALKALINITY
BOD-BIOCHEM. OXYGEN DEMAND
CHLA-CHLOROPHYLL
DO-DISSOLVED OXYGEN
DOSAT-DO SATURATION
FCOLI-FECAL COLIFORM
FLOW-FLOW
MEETS USE-MEETS DESIGNATED USE
PH-PH
SD-SECCHI DISC METERS
TCOLI-TOTAL COLIFORM
TEMP-TEMPERATURE
TN-NITROGEN
TOC-T.ORGANIC CARBON
TP-PHOSPHORUS
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
TSI-TROPHIC STATE INDEX FOR LAKES AND ESTUARIES
WQI-WATER QULAITY INDEX FOR STREAMS AND SPRINGS

NPS QUALITATIVE SURVEY RESULTS
AN "X" INDICATES A PROBLEM WITH POLLUTANT OR SOURCE
THE * ON MAPID INDICATES NO STORET INFORMATION AVAILABLE FOR THIS WATERSHED
-SEE PAGE 11 FOR LEGEND FOR THIS TABLE-

CATNAME=INDIAN RIVER, SOUTH HUC=03080203

MAP_ID	WBID	BASIN	WQ03 05	WQNPS	NUTRIENT	BACTERIA	SEDIMENT	OIL	PESTICIDE	OTHERCHEB	DEBRIS	OXYGEN	SALINITY	PH	METAL	HABITAT	FLOW	THERMAL	OTHERPOL	FISHKILL	ALGAL	WEED	TURBIDITY	ODOR	FISHDECL	NOSWIM	NOFISH	OTHERSYM	IND	STP	AG	RE	SL	LD	UR	CN	HM	OT
3	3163	BELCHER CAN/TAYLOR CK	FAIR	THREAT	X	X	X	X			X				X								X		X			X			X			X	X	X		X
5	3158	SOUTH CANAL	FAIR	THREAT	X	X	X	X			X				X								X		X			X			X			X	X	X		X
6*	3155	DRAINED FARMLAND		THREAT	X																										X							
7	3153	MAIN CANAL	FAIR	THREAT	X	X	X	X			X				X								X		X			X			X			X	X	X		X
8*	3150	DRAINED FARMLAND		THREAT	X		X																								X					X		
9	3147	NORTH CANAL	GOOD	THREAT	X	X	X	X			X				X								X		X			X			X			X	X			X
10*	3146	UNNAMED DITCHES		THREAT	X		X																X		X			X			X				X			
12*	3138	DRAINED FARMLAND		THREAT	X		X																								X				X	X		
13	3129B	SEBASTION RIVER	FAIR	FAIR	X		X	X							X	X					X		X		X			X			X	X		X	X	X	X	X
14	3142	UNNAMED CANAL	FAIR	THREAT	X	X	X	X															X		X							X		X	X	X		
15*	3139	DRAINED FARMLAND		THREAT	X																										X							
17	3136	FELSMERE CANAL	GOOD	GOOD																																		
18*	3134	C-54 CANAL AB CONTROL		GOOD																																		
19	3135	C-54 CANAL	FAIR	FAIR	X		X									X	X		X				X					X								X	X	
20*	3132	DRAINED FARMLAND		GOOD																																		
21*	3131	DRAINED FARMLAND		GOOD																																		
22	3129A	SEBASTION R. AB IND R.	FAIR	FAIR	X		X	X							X	X					X		X		X			X	X	X	X	X		X	X	X	X	X
23	3128	NO. PRONG SEBASTION R	FAIR	THREAT	X	X	X	X															X		X			X	X	X				X	X	X		



KISSIMMEE RIVER BASIN
03090101

AVERAGE WATER QUALITY
1984-1993 STORET DATA
WATERSHED ID NUMBERS LINK MAP TO TABLES
* INDICATES QUALITATIVE ASSESSMENT

WATER QUALITY
- GOOD
- THREATENED
- FAIR
- POOR
- UNKNOWN

KISSIMMEE RIVER BASIN

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Basic Facts

Drainage Area: 3,054 square miles
Major Land Uses: agriculture, rangeland, urban development, stormwater runoff
Population Density: moderate to high (Orlando, Kissimmee, St. Cloud, Sebring)
Major Pollution Sources: hydrologic modification, dairies and ranching
Best Water Quality Areas: isolated lakes (Conway and Crooked), Butler Chain-of-Lakes
Worst Water Quality Areas: Reedy Creek, Lake Marion, Lake Center South Lake Tohopekaliga (Lake Toho)
Water Quality Areas: stable quality at 24 sites, improving quality in Istokpoga Canal, Lake Toho and Lake Kissimmee and Kissimmee River, declining quality in Bonnet Creek, Boggy Creek
OFW Waterbodies:
Crooked Lake, Butler Chain of Lakes
SWIM Waterbodies: Lake Okeechobee/Kissimee River
Reference Reports:
Polk County Lakes Water Quality Report, Polk County, 1990
Kissimmee River Post-Construction Monitoring, DEP (Punta Gorda), 1988
Highlands County Lakes BAS, DEP (Punta Gorda), 1986-87
Ecosummary Report (by DEP Central District):
Livingston Cr. @ Rud's Dairy Road (1993)
Tiger Cr. @ Walk-in-the Water road (1993)
There are many reports available from the SFWMD.
Basin Water Quality Experts:
Russell Forrest, Michele Medani, Polk County, 813/533-2151
Rick Baird, Orange County, 407/244-7400
Guy Hadley, Jim Hulbert, Eric Pluchino DER (Orlando), 407/894-7555
Wayne Magley, DEP (Tallahassee), 904/488-0780
Ford Walton, DEP (Punta Gorda), 813/639-7800
Patricia Sculley, SFWMD, 407/686-8800

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In the News

* Multi-million dollar plans for the restoration of the Kissimmee River

have been approved and begun though funding sources are not fully established. President Bush signed legislation that allocates $5 million in 1992 for river restoration work.

* Health advisories recommending limited consumption of largemouth bass due to mercury content have been issued for Lake Kissimmee, Lake Tohopekaliga, East Lake Tohopekaliga and Lake Istokpoga.

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Ecological Characterization

The Kissimmee River has its origin in the southern outskirts of the highly urbanized Orlando area. Shingle, Boggy, and Reedy Creeks are the principal streams making up the headwaters. Shingle Creek flows sluggishly through urban and swampy land and eventually empties into Lake Tohopekaliga. Reedy Creek flows from the Disney World complex through swamps into a slough between Cypress Lake and Lake Hatchineha. From here, the river flows southward into Lake Kissimmee. This upper basin is flat and has hundreds of small lakes, as well as the large ones mentioned. After leaving Lake Kissimmee, the river used to meander 99 river miles through an extensive floodplain to Lake Okeechobee. Between 1965-1971 the Army Corps of Engineers converted the river into a 56 mile long canal, C-38. The advantage of the canal was flood control (with its six gates); navigation (it is 30 feet deep and 300 feet wide); and to reclaim land for farming and grazing. Unfortunately, a significant price was paid in aesthetics, biological diversity, and downstream water quality. This stretch of the river corridor is sparsely populated, and the land is used mostly for grazing.

The Arbuckle Creek drainage area which forms the western portion of the Kissimmee River basin begins near Reedy Lake in Polk County. This lake drains via Reedy Creek and Livingston Creek to Lake Arbuckle and from Lake Arbuckle to Lake Istokpoga. The Istokpoga Canal connects Lake Istokpoga to the Kissimmee River 35 miles above Lake Okeechobee. There are other flood control/drainage canal networks that run between Lakes Istokpoga and Okeechobee. Land use in this drainage includes orchards, rangeland and wetlands. The City of Avon Park is near the headwaters of Carter Creek.

Anthropogenic Impacts

The two most notable water quality problem areas in the Kissimmee River basin are Lake Tohopekaliga (Toho) and the lower Kissimmee River. Lake Toho has eutrophication problems due to excessive nutrient loads, while the lower Kissimmee River's problems are due to channelization.

Lake Toho and Shingle Creek's water quality degraded significantly in the 1970s due to an overload of nutrients originating primarily from WWTP discharge and nonpoint source urban and agricultural runoff. Two lake drawdown projects by the Florida Game and

Fresh Water Fish Commission in the 1970s temporarily improved fishing in the lake; however, the continued excessive nutrient loading quickly negated the benefits of the lake drawdowns. In 1980, a governmental task force identified the sources of Lake Toho's water quality problems. Reduction of nutrient loads from point and nonpoint sources was advised. Since then, all of the direct surface water discharges into the Toho drainage have been removed, although there are a few that have land application or holding ponds that may seep into the system. In the last few years, Lake Toho has shown improvements in chlorophyll and phosphorus concentrations. The Lake Toho project continues to be a noteworthy news item as an example of a success story. Shingle Creek's flow was significantly reduced after the removal of WWTP discharge, but water quality has improved.

An offshoot of the Lake Toho problem was the location of a new discharge point for the City of Kissimmee WWTP, which had been going to the lake. An alternative discharge site is the Reedy Creek-Lake Russell watershed which is located west of Lake Toho. The Department has performed several studies on the adequacy of this system to assimilate treated wastewater. In 1985 the Department signed a Consent Order with five parties who need the continued use of Reedy Creek as a discharge system. A number of the point sources have now been removed from the creek. Reedy Creek Improvement District (Disney World) is permitted to discharge to the creek, however, they are using spray irrigation to treat their waste instead of direct discharges to the creek. It, too, is investigating several other methods of treatment and disposal. The City of Kissimmee is now using land spreading of the effluent rather than discharge to Reedy Creek. Lake Russell, downstream of Reedy Creek, has shown an increase in phosphorus over the last several years, a trend which may be reversed due to the more stringent wasteload allocations.

Water quality suffers downstream of Lake Toho (Cypress Lake, Lake Hatchineha and, to some degree, Lake Kissimmee) due to the large nutrient loads leaving Lake Toho. These lakes are showing improving trends in some water quality parameters in recent years.

The other lakes and reaches in the upper basin not affected by Reedy Creek, Shingle Creek or Lake Tohopekaliga generally have good water quality. Reedy Lake in the southwest portion of the basin suffers from algae blooms and Lake Weohyakapka has had recent bouts with invasive and prolific Hydrilla.

From Lake Kissimmee to Lake Okeechobee, the Kissimmee River is a deep channel with little or no floodplain as a result of a channelization project by the Army Corps of Engineers in the late 1960s. Water quality in the channel varies from north to south. From Lake Kissimmee to near Lake Okeechobee, water quality is fairly good. The channel flows mostly through unimproved rangeland. However, as it nears Lake Okeechobee, cattle become more concentrated and dairies more numerous. Nutrient and BOD rich runoff from all along the channel flows quickly through the river to Lake Okeechobee and exacerbates eutrophication problems there. Perhaps more significant

than the water quality problems in the river is the habitat modification and consequent loss of biological diversity and functional wetlands. Recently, efforts have been made to restore parts of the river to its natural, meandering course by strategically placing weirs in the channel. In those sections the river has returned to its original floodplain, effectively re-creating the buffering wetlands. Land purchases, design plans and monitoring are being continued toward the restoration goal of 32,000 acres. The governor has supported a multi-million dollar plan to return the river to its natural state, but funding has not yet been fully established. Included in the restoration plans are proposals for backfilling about 29 miles of C-38, new excavation of 11.6 miles of river channel, a Headwaters Revitalization Project that will raise the upper basin lakes' regulated levels to allow a more natural flow of water, and construction of containment levees and bridge crossings at U.S. Highway 98.

** USGS HYDROLOGIC UNIT: 03090101 KISSIMMEE RIVER

SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH ALKALINITY PH	ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND COND	FLOW FLOW	WATER QUALITY INDICES WQI	TSI
* WATER BODY TYPE: LAKE																												
1	LAKE SPRING	15	89	91	Current	0.6	4.5	15	2	8.2	92	1.4	.	.	7.6	41	0.53	0.01	3	6	.	.	.	.	237	.	.	23
3	Lake Placid	2	92	92	Current	.	.	6	.	5.8	73	.	.	.	6.3	.	0.59	0.03	.	.	.	.	.	.	117	.	.	45
5	Lake June in Winter	176	70	85	Historical	2.7	2.7	12	.	8.1	97	0.6	.	7	6.8	7	0.59	0.02	11	37	1	3.1	.	6	123	.	.	34
7	Lake Istokpoga	675	89	93	Current	14.5	0.8	74	7	8.4	100	3.4	.	.	7.3	22	0.97	0.05	13	151	93	.	.	.	149	.	.	57
10	Lake Josphine	72	70	86	Historical	4.1	0.8	83	10	7.3	91	1.0	.	17	6.2	2	0.76	0.06	13	2	1	.	.	1	73	.	.	56
14	Lake Jackson	220	70	85	Historical	1.6	2.8	6	.	7.5	90	0.9	.	5	6.7	5	0.44	0.03	3	20	1	.	.	0	92	.	.	37
17	LAKE SEBRING	7	74	86	Historical	9.5	0.3	120	12	8.1	87	0.9	.	13	6.1	2	0.85	0.10	.	28	4	.	.	1	60	.	.	72
23	LAKE DAMON	29	74	86	Historical	1.4	1.9	10	.	9.3	97	0.8	.	6	6.5	2	0.43	0.03	4	2	2	.	.	1	230	.	.	40
25	Lake Arbuckle	135	70	81	Historical	5.0	0.8	68	.	8.8	93	.	.	20	6.8	17	1.01	0.03	19	.	.	.	.	.	120	.	.	46
29	LAKE CLINCH	91	80	81	Historical	1.0	2.6	10	.	.	.	.	.	.	6.9	4	0.34	0.01	7	.	.	.	.	.	95	.	.	30
31	Reedy Lake	212	73	81	Historical	9.0	0.9	15	12	8.5	94	3.7	39	10	8.2	47	1.57	0.04	29	180	18	1.5	2.0	2	200	.	.	60
34	CROOKED LAKE OUTLET	129	70	81	Historical	1.5	2.9	5	.	8.6	95	0.8	.	5	6.5	3	0.43	0.01	.	.	.	.	.	.	84	.	.	29
35	Lake Weohyakapka	3	92	93	Current	2.7	1.7	123	1	9.2	98	0.8	.	.	8.3	20	0.63	0.03	4	.	.	.	.	.	125	.	.	37
36	LAKE KISSIMMEE SOUTH	149	89	93	Current	2.7	1.2	63	4	5.0	53	2.1	.	.	6.7	28	1.12	0.04	13	.	.	.	.	.	157	.	.	49
38	Tiger Lake	3	80	80	Historical	.	0.7	75	.	.	.	.	.	.	8.9	27	0.78	0.04	4	.	.	.	.	.	84	.	.	53
39	LAKE MARIAN	2	93	93	Current	10.3	0.5	50	14	6.2	75	3.3	.	.	7.5	36	2.06	0.10	77	.	.	.	.	.	176	.	.	76
42	LAKE KISSIMMEE MID	95	89	93	Current	7.4	0.8	51	10	8.0	96	1.9	.	.	7.3	26	1.23	0.04	27	.	.	.	.	.	164	.	.	61
43	LAKE WALES	460	71	71	Historical	5.0	.	.	.	6.0	72	.	.	.	.	.	1.28	0.03	.	.	.	.	.	.	161	.	.	42
45	LAKE KISSIMMEE NORTH	19	89	93	Current	26.0	0.8	.	.	.	.	.	.	.	6.8	27	1.33	0.06	21	.	.	.	.	.	155	.	.	63
46	Lake Rosalie	130	70	80	Historical	7.0	1.1	53	.	7.7	91	.	.	20	6.8	7	0.80	0.04	4	.	.	.	.	.	95	.	.	50
48	LAKE PIERCE	167	71	83	Historical	3.5	1.2	20	12	8.5	98	2.4	.	14	8.3	37	1.01	0.03	18	.	.	.	.	.	138	.	.	52
50	Lake Hatchineha	160	89	93	Current	14.1	0.7	93	6	7.3	84	1.5	.	.	7.1	38	1.23	0.06	16	.	.	.	.	.	159	.	.	61
51	LAKE CYPRESS	72	89	93	Current	16.6	0.6	70	13	8.8	96	2.7	.	.	7.2	20	1.29	0.08	32	.	.	.	.	.	149	.	.	67
54	LAKE MARION OUTLET	174	70	83	Historical	7.0	0.8	30	10	7.5	88	1.7	.	15	7.3	36	1.56	0.03	25	.	5	.	.	.	130	65	.	54
57	Lake Russell	18	89	93	Current	83.0	0.5	.	.	.	.	.	.	.	6.4	30	2.19	0.11	1	.	.	.	.	.	133	.	.	56
58	BONNET LAKE OUTLET	4	90	90	Current	8.9	0.6	46	.	8.5	105	.	.	18	6.7	7	1.71	0.04	25	.	.	.	.	.	213	.	.	61
60	LAKE GENTRY	2	89	89	Current	1.4	1.9	40	2	7.7	88	0.3	.	.	6.3	6	0.76	0.01	2	.	.	.	.	.	160	.	.	31
61	LAKE TOHOPEKALIGA SO.	239	89	93	Current	18.9	0.6	54	16	8.7	92	3.0	.	.	7.5	25	1.43	0.09	39	.	.	.	.	.	145	.	.	70
63	LAKE TOHOPEKALIGA N.	222	89	93	Current	19.0	0.8	65	4	8.2	86	2.6	.	.	7.0	27	1.18	0.09	16	.	.	.	.	.	149	.	.	61
65	ALLIGATOR LAKE	6	89	93	Current	1.2	2.5	40	2	7.7	90	0.3	.	.	6.3	4	0.65	0.01	2	.	.	.	.	.	126	.	.	28
68	LAKE CENTER	15	89	93	Current	72.0	0.4	240	7	6.9	79	0.4	.	.	5.2	5	1.62	0.11	6	.	.	.	.	.	110	.	.	70
70	EAST LAKE TOHOPEKALIGA	170	89	93	Current	3.0	1.3	46	3	8.0	90	0.9	.	.	6.3	9	0.82	0.03	5	.	.	.	.	.	105	.	.	49
72	LAKE HART	16	89	92	Current	2.5	0.7	18	2	7.6	87	1.2	.	.	5.7	2	1.26	0.03	3	16	.	.	.	.	106	.	.	48
75	LAKE MARY JANE	17	89	91	Current	3.1	0.7	233	2	7.1	81	1.3	.	.	5.7	4	1.25	0.03	5	26	.	.	.	.	109	.	.	53
77	LAKE WHIP-POOR-WILL	12	89	91	Current	1.2	2.3	39	2	7.2	89	1.3	.	.	6.5	6	0.41	0.02	2	14	.	.	.	.	193	.	.	32
78	RED LAKE	14	89	91	Current	1.4	1.3	52	1	6.7	82	1.6	.	.	5.1	2	0.32	0.02	4	14	.	.	.	.	96	.	.	43
79	LAKE NONA	16	89	91	Current	0.9	3.8	10	1	7.3	89	1.5	.	.	5.6	2	0.21	0.02	2	6	.	.	.	.	91	.	.	26
81	LAKE HICKORYNUT	40	89	92	Current	0.8	3.7	20	1	7.4	89	1.0	.	.	6.8	15	0.62	0.01	1	14	.	.	.	.	203	.	.	22
82	LAKE SHEEN	27	80	80	Historical	6.0	0.4	.	.	9.9	70	.	.	.	.	.	0.67	0.02	.	.	.	.	.	.	175	.	.	61
84	BIG SAND LAKE	33	89	91	Current	0.6	3.0	13	2	8.3	92	1.2	.	.	6.7	15	0.54	0.01	2	15	.	.	.	.	188	.	.	21

LEGEND:
ALK-ALKALINITY MG/L
ART-ARTIFICIAL SUBSTRATE DI
BEG YR-BEGINNING SAMPLING YEAR
BECK-BECK'S BIOTIC INDEX
BOD-BIOCHEMICAL OXYGEN DEMAND MG/L
CHLA-CHLOROPHYLL UG/L
COD-CHEMICAL OXYGEN DEMAND MG/L
COLOR-COLOR PCU
COND-CONDUCTIVITY UMHOS
DO-DISSOLVED OXYGEN MG/L
DOSAT-DO % SATURATION
END YR-ENDING YEAR
FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
MAX #OBS-MAXIMUM NUMBER OF SAMPLES
NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
TURB-TURBIDITY MG/L
WQI-WATER QUALITY INDEX

** USGS HYDROLOGIC UNIT: 03090101 KISSIMMEE RIVER

SURFACE WATER QUALITY DATA FOR 1970-1993
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WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH PH	ALKALINITY ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND COND	FLOW FLOW	WATER QUALITY INDICES WQI	TSI
85	Lake Conway	119	89	91	Current	0.9	2.7	14	1	8.1	94	1.6	.	.	7.0	28	0.54	0.01	4	5	.	.	.	.	264	.	.	33
86	LAKE JESSAMINE	11	89	91	Current	1.6	2.1	25	2	8.5	91	2.1	.	.	7.5	52	0.69	0.02	13	39	.	.	.	.	260	.	.	41
87	LAKE MARSHA	41	89	91	Current	0.6	4.0	18	1	7.4	91	1.6	.	.	6.7	8	0.40	0.01	2	13	.	.	.	.	120	.	.	20
88	LAKE GATLIN	7	89	90	Current	4.2	0.9	.	5	8.1	89	3.0	.	.	7.5	54	0.89	0.03	18	35	.	.	.	.	297	.	.	54
89	LAKE ANDERSON	11	89	91	Current	1.5	2.0	30	3	7.2	82	4.2	.	.	7.0	38	1.16	0.03	11	52	.	.	.	.	307	.	.	49
90	LAKE CRANE	13	89	91	Current	1.4	2.0	10	2	7.8	92	2.0	.	.	7.2	22	0.44	0.02	4	18	.	.	.	.	177	.	.	34
91	CLEAR LAKE	16	89	91	Current	8.3	0.7	26	11	8.1	102	3.6	.	.	8.3	81	1.10	0.05	37	113	.	.	.	.	242	.	.	66
92	LAKE BASS	9	89	91	Current	4.5	1.6	15	2	8.0	87	3.5	.	.	7.2	34	1.43	0.03	25	134	.	.	.	.	312	.	.	52
93	LAKE OLIVE	10	89	91	Current	2.9	1.4	32	7	6.5	76	2.4	.	.	6.7	37	0.85	0.09	13	103	.	.	.	.	170	.	.	55
94	LAKE UNDERHILL	11	89	91	Current	4.3	1.0	17	6	9.5	107	4.9	.	.	8.2	54	0.94	0.04	24	34	.	.	.	.	201	.	.	58
95	LAKE MANN	17	89	91	Current	3.3	0.8	28	9	7.8	93	2.7	.	.	8.0	84	0.96	0.03	19	116	.	.	.	.	257	.	.	57
96	LAKE LORNA DOONE	12	89	91	Current	3.0	1.1	27	7	8.7	101	2.9	.	.	8.2	54	0.83	0.04	13	92	.	.	.	.	170	.	.	58
* WATER BODY TYPE: STREAM																												
2	Kissimmee River	634	89	93	Current	3.1	.	81	4	4.5	39	.	.	.	6.6	.	1.66	0.13	.	.	.	.	.	.	1416	.	55	.
4	Kissimmee River	571	89	93	Current	2.0	.	82	3	5.9	70	.	.	.	6.5	19	1.04	0.06	.	.	8	.	.	.	165	564	33	.
6	JOSEPHINE CREEK	58	89	92	Current	2.2	.	53	3	4.5	50	.	.	9	6.1	.	1.00	0.05	.	.	.	.	.	.	151	30	43	.
8	CHANDLER SLOUGH	21	92	93	Current	.	.	.	.	4.1	44	.	.	.	6.8	.	.	0.13	.	.	.	.	.	.	273	.	67	.
9	Istokpoga Canal	59	89	92	Current	2.6	0.7	116	3	5.8	65	1.9	.	.	6.4	.	0.92	0.05	21	.	55	.	.	.	164	.	35	.
11	Kissimmee River	691	89	93	Current	2.1	.	95	2	4.9	63	1.8	.	.	6.4	.	1.03	0.04	10	.	28	.	.	.	162	.	32	.
12	S-65D	23	92	93	Current	.	.	.	.	4.3	45	.	.	.	6.5	.	1.05	0.18	.	.	.	.	.	.	238	.	64	.
13	Oak Creek	5	89	89	Current	5.7	0.4	150	.	3.9	49	.	.	.	6.5	.	1.75	0.22	.	.	90	.	.	.	110	.	64	.
15	ARBUCKLE BRANCH	6	75	75	Historical	5.5	.	45	.	8.3	98	1.6	.	10	6.7	32	0.90	.	.	.	.	.	.	.	940	.	33	.
18	CARTER CREEK	41	74	87	Historical	1.5	1.0	80	.	7.7	81	1.0	.	13	6.4	.	0.93	0.03	0	76	61	.	3.5	39	105	.	20	.
20	Kissimmee River	63	89	90	Current	2.1	.	128	.	7.2	86	1.9	.	.	6.6	.	1.02	0.04	15	.	31	.	.	.	174	.	32	.
21	ARBUCKLE CREEK	55	89	93	Current	14.7	0.9	150	2	6.2	73	.	.	.	6.2	22	1.13	0.09	5	.	.	.	.	.	134	.	50	.
22	ARBUCKLE C. AB MORGAN	126	89	91	Current	2.8	.	112	.	2.4	29	.	.	.	6.7	.	1.03	0.07	.	.	.	.	.	.	137	.	66	.
24	PINE ISLAND SLOUGH	68	73	79	Historical	1.4	.	126	.	5.7	64	.	.	15	5.9	.	1.19	0.03	.	.	.	.	.	.	111	.	36	.
26	Livingston Creek	3	92	93	Current	2.7	0.5	59	6	5.2	61	1.1	.	.	6.6	30	1.22	0.05	5	.	.	.	.	.	231	.	40	.
27	REEDY CREEK	22	70	78	Historical	12.0	.	8	.	8.8	106	.	.	22	7.0	42	1.46	0.02	.	.	.	.	.	.	218	8	40	.
28	Eightmile Slough	14	92	92	Current	.	.	.	.	2.4	30	.	.	.	6.2	.	1.18	0.10	.	.	.	.	.	.	77	.	65	.
30	BLUE JORDAN SWAMP	106	89	91	Current	3.9	.	66	.	5.8	69	.	.	.	7.0	.	0.76	0.03	.	.	.	.	.	.	144	.	33	.
32	Kissimmee River	148	89	93	Current	2.4	.	71	3	5.2	64	1.8	.	.	6.5	.	1.06	0.04	7	.	13	.	.	.	157	.	39	.
33	Blanket Bay Slough	10	92	92	Current	.	.	.	.	4.0	48	.	.	.	6.3	.	1.20	0.18	.	.	.	.	.	.	132	.	69	.
37	TIGER CREEK	3	92	93	Current	2.0	1.0	120	5	6.3	73	0.6	.	.	6.5	21	1.43	0.08	1	.	.	.	.	.	154	.	30	.
40	JACKSON CANAL	19	73	88	Historical	1.6	0.7	105	4	5.0	51	1.1	.	.	6.7	18	1.21	0.04	4	.	.	.	.	.	109	.	43	.
41	WEOHYAKAPKA CREEK	12	73	74	Historical	.	.	.	.	.	.	.	.	.	.	.	0.72	0.05	.	.	.	.	.	.	.	.	26	.
44	Tiger Creek	45	73	85	Historical	3.9	.	101	4	4.7	.	.	.	23	5.6	.	0.87	0.04	.	.	.	.	.	.	100	.	39	.
47	CATFISH CREEK	84	81	85	Historical	3.8	0.3	38	19	7.9	78	.	.	13	7.0	35	1.67	0.05	15	.	75	.	.	.	141	10	36	.
49	Kissimmee River	15	89	93	Current	4.1	0.8	105	8	6.5	69	1.7	.	.	7.0	30	1.39	0.05	22	.	.	.	.	.	160	.	43	.
52	DEAD RIVER	28	89	93	Current	82.0	0.4	.	.	.	.	.	.	.	5.8	22	2.07	0.05	.	.	.	.	.	.	133	.	73	.

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MAX #OBS-MAXIMUM NUMBER OF SAMPLES
NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
TURB-TURBIDITY MG/L
WQI-WATER QUALITY INDEX

** USGS HYDROLOGIC UNIT: 03090101 KISSIMMEE RIVER

SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH ALKALINITY PH	ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND COND	FLOW FLOW	WATER QUALITY INDICES WQI	TSI
53	CANOE CREEK	19	89	93	Current	38.0	0.8	.	.	.	.	.	.	.	6.2	12	1.00	0.08	3	.	.	.	.	.	140	.	67	.
55	Reedy Creek	35	89	93	Current	80.0	0.5	.	.	.	.	.	.	.	6.1	25	2.22	0.10	2	.	.	.	.	.	136	.	78	.
56	South Port Canal	3	89	90	Current	6.7	0.8	45	13	7.1	78	2.0	.	.	7.1	30	1.31	0.05	33	.	.	.	.	.	174	.	49	.
59	LAKE MARION CREEK	94	73	85	Historical	2.3	0.7	93	5	6.5	77	.	.	26	7.0	35	1.64	0.04	2	.	113	.	.	.	147	11	46	.
62	HORSE CREEK	92	71	75	Historical	4.0	0.6	160	8	4.3	44	1.5	21	.	7.3	58	3.05	.	.	.	.	.	.	.	.	.	57	.
64	Reedy Creek	109	89	93	Current	39.3	0.4	300	3	2.0	19	1.0	.	29	6.0	27	2.00	0.08	0	.	.	.	.	.	135	.	67	.
66	ST CLOUD CANAL	30	89	93	Current	2.0	1.5	60	2	7.0	79	0.8	.	.	6.8	22	0.77	0.02	3	.	.	.	.	.	121	.	16	.
67	Reedy Canal	6	87	88	Historical	2.2	0.9	263	4	7.2	72	0.9	.	.	6.8	29	1.25	0.11	1	.	.	.	.	.	145	.	29	.
69	REEDY CREEK	55	89	93	Current	62.0	0.5	270	.	4.6	50	.	.	31	6.3	19	1.78	0.16	.	.	.	.	.	.	123	.	76	.
71	BONNET CREEK	24	89	93	Current	54.0	0.6	65	.	1.8	19	.	.	13	6.2	29	1.54	0.15	.	.	.	.	.	.	138	.	77	.
73	Shingle Creek	178	89	93	Current	14.9	0.8	129	6	5.4	59	3.6	.	.	6.7	45	0.83	0.14	3	333	.	.	.	.	175	.	56	.
74	REEDY Creek	160	70	81	Historical	2.2	0.7	350	15	4.9	54	3.7	256	35	5.0	5	1.48	0.07	.	1210	0	.	.	.	135	0	54	.
76	CYPRESS CREEK	14	89	92	Current	0.5	.	320	7	2.8	30	2.4	4	20	3.6	0	2.67	0.02	0	180	.	.	.	.	152	.	51	.
80	BOGGY CREEK	203	89	93	Current	7.9	1.0	92	3	4.6	47	2.9	.	.	6.3	26	0.73	0.07	3	275	.	.	.	.	139	.	53	.
83	REEDY CREEK	5	89	89	Current	1.7	.	120	.	3.5	41	.	.	33	6.4	.	1.14	0.09	.	.	.	.	.	.	172	.	58	.

LEGEND:
ALK-ALKALINITY MG/L
ART-ARTIFICIAL SUBSTRATE DI
BEG YR-BEGINNING SAMPLING YEAR
BECK-BECK'S BIOTIC INDEX
BOD-BIOCHEMICAL OXYGEN DEMAND MG/L
CHLA-CHLOROPHYLL UG/L
COD-CHEMICAL OXYGEN DEMAND MG/L
COLOR-COLOR PCU
COND-CONDUCTIVITY UMHOS
DO-DISSOLVED OXYGEN MG/L
DOSAT-DO % SATURATION
END YR-ENDING YEAR
FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
MAX #OBS-MAXIMUM NUMBER OF SAMPLES
NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
TURB-TURBIDITY MG/L
WQI-WATER QUALITY INDEX

SURFACE WATER QUALITY DATA SCREENING REPORT
MEDIAN VALUES FOR EACH WATERSHED SCREENED

** USGS HYDROLOGIC UNIT: 03090101 KISSIMMEE RIVER

'x'=EXCEEDS SCREENING CRITERIA
'0'=WITHIN SCREENING CRITERIA
'.'=MISSING DATA

SCREENING VARIABLES AND CRITERIA

WATERSHED ID	NAME	RANK WQI OR TSI	DATA RECORD CURRENT OR HISTORICAL	TN TN>2.0	STREAM TP TP>.46	LAKE TP TP>.12	PH PH>8.8 PH<5.2	ALK ALK<20	TURB & TSS TURB>16.5 TSS>18	COND COND>1275	OXYGEN DEMAND BOD>3.3 COD>102 TOC>27.5	DO DO<4	COLIFORM BACTI TOT>3700 FECAL>470	BIOL DIV DIART<1.95 DINAT<1.5 BECK<5.5	CHLA CHLA>40	SECCHI DISC SD<.7
* WATER BODY TYPE: LAKE																
1	LAKE SPRING	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
3	Lake Placid	GOOD	Current	0	.	0	0	.	.	.	.	0	.	.	.	.
5	Lake June in Winter	GOOD	Historical	0	.	0	0	x	0	.	0	0	0	0	0	0
7	Lake Istokpoga	GOOD	Current	0	.	0	0	0	0	.	x	0	0	.	0	0
10	Lake Josphine	GOOD	Historical	0	.	0	0	x	0	.	0	0	0	x	0	0
14	Lake Jackson	GOOD	Historical	0	.	0	0	x	0	.	0	0	0	x	0	0
17	LAKE SEBRING	UNKN	Historical	0	.	0	0	x	0	.	0	0	0	x	.	x
23	LAKE DAMON	GOOD	Historical	0	.	0	0	x	0	.	0	0	0	x	0	0
25	Lake Arbuckle	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	0	0
29	LAKE CLINCH	GOOD	Historical	0	.	0	0	x	0	.	.	.	.	.	0	0
31	Reedy Lake	FAIR	Historical	0	.	0	0	0	0	.	x	0	0	x	0	0
34	CROOKED LAKE OUTLET	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	.	0
35	Lake Weohyakapka	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
36	LAKE KISSIMMEE SOUTH	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
38	Tiger Lake	GOOD	Historical	0	.	0	x	0	.	.	.	.	.	.	0	0
39	LAKE MARIAN	POOR	Current	x	.	0	0	0	0	.	0	0	.	.	x	x
42	LAKE KISSIMMEE MID	FAIR	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
43	LAKE WALES	GOOD	Historical	0	.	0	.	.	0	.	.	0	.	.	.	.
45	LAKE KISSIMMEE NORTH	FAIR	Current	0	.	0	0	0	x	.	.	.	.	.	0	0
46	Lake Rosalie	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	0	0
48	LAKE PIERCE	GOOD	Historical	0	.	0	0	0	0	.	0	0	.	.	0	0
50	Lake Hatchineha	FAIR	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
51	LAKE CYPRESS	FAIR	Current	0	.	0	0	x	x	.	0	0	.	.	0	x
54	LAKE MARION OUTLET	GOOD	Historical	0	.	0	0	0	0	.	0	0	0	.	0	0
57	Lake Russell	GOOD	Current	x	.	0	0	0	x	.	.	.	.	.	0	x
58	BONNET LAKE OUTLET	FAIR	Current	0	.	0	0	x	0	.	0	0	.	.	0	x
60	LAKE GENTRY	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
61	LAKE TOHOPEKALIGA SO.	POOR	Current	0	.	0	0	0	x	.	0	0	.	.	0	x
63	LAKE TOHOPEKALIGA N.	FAIR	Current	0	.	0	0	0	x	.	0	0	.	.	0	0
65	ALLIGATOR LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
68	LAKE CENTER	UNKN	Current	0	.	0	0	x	x	.	0	0	.	.	0	x
70	EAST LAKE TOHOPEKALIGA	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
72	LAKE HART	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
75	LAKE MARY JANE	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
77	LAKE WHIP-POOR-WILL	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
78	RED LAKE	GOOD	Current	0	.	0	x	x	0	.	0	0	0	.	0	0
79	LAKE NONA	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
81	LAKE HICKORYNUT	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
82	LAKE SHEEN	FAIR	Historical	0	.	0	.	.	0	.	.	0	.	.	.	x
84	BIG SAND LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0

LEGEND:
ALK-ALKALINITY
BECK-BECK'S BIOTIC INDEX
BIOL DIV-BIOLOGICAL DIVERSITY
CHLA-CHLOROPHYLL
COND-CONDUCTIVITY
DO-DISSOLVED OXYGEN
CURRENT-1989 TO 1993
DIART-ARTIFICIAL SUBSTRATE DIVERSITY
DINAT-NATURAL SUBSTRATE DIVERSITY
FECAL-FECAL COLIFORM BACTERIA
HISTORICAL-1970 TO 1988
OXYGEN DEMAND-BOD,COD,TOC
PH-PH
TN-NITROGEN
TP-PHOSPHORUS
TOT-TOTAL COLIFORM BACTERIA
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
SD-SECCHI DISC METERS
WQI OR TSI-WATER QUALITY INDEX RATING
WHICH INDEX USED, WQI OR TSI, IS
BASED ON WATERBODY TYPE

SURFACE WATER QUALITY DATA SCREENING REPORT
MEDIAN VALUES FOR EACH WATERSHED SCREENED

** USGS HYDROLOGIC UNIT: 03090101 KISSIMMEE RIVER

'x'=EXCEEDS SCREENING CRITERIA
'0'=WITHIN SCREENING CRITERIA
'.'=MISSING DATA

WATERSHED ID	NAME	RANK (WQI OR TSI)	DATA RECORD (CURRENT OR HISTORICAL)	TN (TN>2.0)	STREAM TP (TP>.46)	LAKE TP (TP>.12)	PH (PH>8.8 PH<5.2)	ALK (ALK<20)	TURB & TSS (TURB>16.5 TSS>18)	COND (COND>1275)	OXYGEN DEMAND (BOD>3.3 COD>102 TOC>27.5)	DO (DO<4)	COLIFORM BACTI (TOT>3700 FECAL>470)	BIOL DIV (DIART<1.95 DINAT<1.5 BECK<5.5)	CHLA (CHLA>40)	SECCHI DISC (SD<.7)
85	Lake Conway	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
86	LAKE JESSAMINE	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
87	LAKE MARSHA	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
88	LAKE GATLIN	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
89	LAKE ANDERSON	GOOD	Current	0	.	0	0	0	0	.	x	0	0	.	0	0
90	LAKE CRANE	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
91	CLEAR LAKE	FAIR	Current	0	.	0	0	0	0	.	x	0	0	.	0	x
92	LAKE BASS	GOOD	Current	0	.	0	0	0	0	.	x	0	0	.	0	0
93	LAKE OLIVE	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
94	LAKE UNDERHILL	GOOD	Current	0	.	0	0	0	0	.	x	0	0	.	0	0
95	LAKE MANN	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
96	LAKE LORNA DOONE	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
* WATER BODY TYPE: STREAM																
2	Kissimmee River	FAIR	Current	0	0	.	0	.	0	x	.	0	.	.	.	.
4	Kissimmee River	GOOD	Current	0	0	.	0	x	0	.	.	0	0	.	.	.
6	JOSEPHINE CREEK	GOOD	Current	0	0	.	0	.	0	.	0	0	.	.	.	.
8	CHANDLER SLOUGH	UNKN	Current	.	0	.	0	.	.	.	.	0	.	.	.	.
9	Istokpoga Canal	GOOD	Current	0	0	.	0	.	0	.	0	0	0	.	0	0
11	Kissimmee River	GOOD	Current	0	0	.	0	.	0	.	0	0	0	.	0	.
12	S-65D	UNKN	Current	0	0	.	0	.	.	.	.	0	.	.	.	.
13	Oak Creek	POOR	Current	0	0	.	0	.	0	.	.	x	0	.	.	x
15	ARBUCKLE BRANCH	GOOD	Historical	0	0	.	0	0	0	.	0	0	.	.	.	.
18	CARTER CREEK	GOOD	Historical	0	0	.	0	.	0	.	0	0	0	0	0	0
20	Kissimmee River	GOOD	Current	0	0	.	0	.	0	.	0	0	0	.	0	.
21	ARBUCKLE CREEK	FAIR	Current	0	0	.	0	0	0	.	.	0	.	.	0	0
22	ARBUCKLE C. AB MORGAN	POOR	Current	0	0	.	0	.	0	.	.	x	.	.	.	.
24	PINE ISLAND SLOUGH	GOOD	Historical	0	0	.	0	.	0	.	0	0	.	.	.	.
26	Livingston Creek	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	x
27	REEDY CREEK	GOOD	Historical	0	0	.	0	0	0	.	0	0	.	.	.	.
28	Eightmile Slough	UNKN	Current	0	0	.	0	.	.	.	.	x	.	.	.	.
30	BLUE JORDAN SWAMP	GOOD	Current	0	0	.	0	.	0	.	.	0	.	.	.	.
32	Kissimmee River	GOOD	Current	0	0	.	0	.	0	.	0	0	0	.	0	.
33	Blanket Bay Slough	UNKN	Current	0	0	.	0	.	.	.	.	x	.	.	.	.
37	TIGER CREEK	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	0
40	JACKSON CANAL	GOOD	Historical	0	0	.	0	x	0	.	0	0	.	.	0	0
41	WEOHYAKAPKA CREEK	GOOD	Historical	0	0	.	.	.	.	.	.	.	.	.	.	.
44	Tiger Creek	GOOD	Historical	0	0	.	0	.	0	.	0	0	.	.	.	.
47	CATFISH CREEK	GOOD	Historical	0	0	.	0	0	x	.	0	0	0	.	0	x
49	Kissimmee River	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	0
52	DEAD RIVER	UNKN	Current	x	0	.	0	0	x	.	.	.	.	.	.	x

LEGEND:
ALK-ALKALINITY
BECK-BECK'S BIOTIC INDEX
BIOL DIV-BIOLOGICAL DIVERSITY
CHLA-CHLOROPHYLL
COND-CONDUCTIVITY
DO-DISSOLVED OXYGEN
CURRENT-1989 TO 1993
DIART-ARTIFICIAL SUBSTRATE DIVERSITY
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FECAL-FECAL COLIFORM BACTERIA
HISTORICAL-1970 TO 1988
OXYGEN DEMAND-BOD,COD,TOC
PH-PH
TN-NITROGEN
TP-PHOSPHORUS
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TURB-TURBIDITY
SD-SECCHI DISC METERS
WQI OR TSI-WATER QUALITY INDEX RATING WHICH INDEX USED, WQI OR TSI, IS BASED ON WATERBODY TYPE

SURFACE WATER QUALITY DATA SCREENING REPORT
MEDIAN VALUES FOR EACH WATERSHED SCREENED

** USGS HYDROLOGIC UNIT: 03090101 KISSIMMEE RIVER

'x'=EXCEEDS SCREENING CRITERIA
'0'=WITHIN SCREENING CRITERIA
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SCREENING VARIABLES AND CRITERIA

WATERSHED ID	WATERSHED NAME	RANK WQI OR TSI	DATA RECORD CURRENT OR HISTORICAL	TN TN>2.0	STREAM TP TP>.46	LAKE TP TP>.12	PH PH>8.8 PH<5.2	ALK ALK<20	TURB & TSS TURB>16.5 TSS>18	COND COND>1275	OXYGEN DEMAND BOD>3.3 COD>102 TOC>27.5	DO DO<4	COLIFORM BACTI TOT>3700 FECAL>470	BIOL DIV DIART<1.95 DINAT<1.5 BECK<5.5	CHLA CHLA>40	SECCHI DISC SD<.7
53	CANOE CREEK	UNKN	Current	0	0	.	0	x	x	.	.	.	.	.	0	0
55	Reedy Creek	UNKN	Current	x	0	.	0	0	x	.	.	.	.	.	0	x
56	South Port Canal	FAIR	Current	0	0	.	0	0	0	.	0	0	.	.	0	0
59	LAKE MARION CREEK	FAIR	Historical	0	0	.	0	0	0	.	0	0	0	.	0	x
62	HORSE CREEK	FAIR	Historical	x	0	.	0	0	0	.	0	0	.	.	.	x
64	Reedy Creek	FAIR	Current	0	0	.	0	0	x	.	x	x	.	.	0	x
66	ST CLOUD CANAL	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	0
67	Reedy Canal	GOOD	Historical	0	0	.	0	0	0	.	0	0	.	.	0	0
69	REEDY CREEK	UNKN	Current	0	0	.	0	x	x	.	x	0	.	.	.	x
71	BONNET CREEK	GOOD	Current	0	0	.	0	0	x	.	0	x	.	.	.	x
73	Shingle Creek	FAIR	Current	0	0	.	0	0	0	.	x	0	0	.	0	0
74	REEDY Creek	FAIR	Historical	0	0	.	x	x	0	.	x	0	0	.	.	0
76	CYPRESS CREEK	FAIR	Current	x	0	.	x	x	0	.	0	x	0	.	0	.
80	BOGGY CREEK	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	0
83	REEDY CREEK	FAIR	Current	0	0	.	0	.	0	.	x	x	.	.	.	.

LEGEND:
ALK-ALKALINITY
BECK-BECK'S BIOTIC INDEX
BIOL DIV-BIOLOGICAL DIVERSITY
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OXYGEN DEMAND-BOD, COD, TOC
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TN-NITROGEN
TP-PHOSPHORUS
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TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
SD-SECCHI DISC METERS
WQI OR TSI-WATER QUALITY INDEX RATING WHICH INDEX USED, WQI OR TSI, IS BASED ON WATERBODY TYPE

SURFACE WATER QUALITY ASSESSMENT REPORT
TRENDS-SOURCES-CLEANUP

** USGS HYDROLOGIC UNIT: 03090101 KISSIMMEE RIVER

'x'=DEGRADING TREND
'0'=STABLE TREND
'+'=IMPROVING TREND
'.'=MISSING DATA

1984 - 1993 TRENDS

<--- PLEASE READ THESE COLUMNS VERTICALLY

WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	WQI OR TSI	OVER-ALL TREND	WQ or WI	SI	TN	TP	CHLA	SD	PH	ALK	TURB	TSI	BOD	TOC	DO	DOSAT	FCOLI	COLIFORM	TEMP	FLOW	MEETS USE	WQI	DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
* WATER BODY TYPE: LAKE																									
1	LAKE SPRING	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
3	Lake Placid	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
5	Lake June in Winter	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
7	Lake Istokpoga	YES	GOOD	0	0	0	0	0	0	0	+	0	0	.	.	+	+	0	x	0	.	.	.	.	
10	Lake Josphine	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
14	Lake Jackson	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
17	LAKE SEBRING	NO	UNKN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
23	LAKE DAMON	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
25	Lake Arbuckle	YES	GOOD																						
29	LAKE CLINCH	YES	GOOD																						
31	Reedy Lake	PARTIAL	FAIR																						
34	CROOKED LAKE OUTLET	YES	GOOD																						
35	Lake Wechyakapka	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
36	LAKE KISSIMMEE SOUTH	YES	GOOD	+	+	+	+	+	+	x	0	0	+	0	.	x	x	.	.	0	.	.	.	.	
38	Tiger Lake	YES	GOOD																						
39	LAKE MARIAN	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
42	LAKE KISSIMMEE MID	PARTIAL	FAIR	0	0	0	0	0	0	0	+	0	0	0	.	x	0	.	.	0	.	.	.	.	
43	LAKE WALES	YES	GOOD																						
45	LAKE KISSIMMEE NORTH	PARTIAL	FAIR	+	0	0	+	0	+	x	0	0	.	.	.	.	.	.	.	0	.	.	.	.	
46	Lake Rosalie	YES	GOOD																						
48	LAKE PIERCE	YES	GOOD																						
50	Lake Hatchineha	PARTIAL	FAIR	0	0	0	0	+	0	x	+	0	+	.	.	0	0	.	.	0	.	.	.	.	
51	LAKE CYPRESS	PARTIAL	FAIR	+	+	+	+	+	+	x	0	0	0	.	.	x	0	.	.	0	.	.	.	.	
54	LAKE MARION OUTLET	YES	GOOD																						
57	Lake Russell	YES	GOOD	0	x	0	0	0	x	0	0	0	.	.	.	.	.	.	.	0	.	.	.	.	
58	BONNET LAKE OUTLET	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
60	LAKE GENTRY	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
61	LAKE TOHOPEKALIGA SO.	NO	POOR	+	+	+	+	+	+	x	0	0	0	0	.	0	+	.	.	0	.	.	.	.	
63	LAKE TOHOPEKALIGA N.	PARTIAL	FAIR	+	+	+	+	+	+	x	0	x	0	0	.	0	0	.	.	0	.	.	.	.	
65	ALLIGATOR LAKE	YES	GOOD	+	0	0	0	+	0	0	0	0	.	.	.	0	0	.	.	0	.	.	.	.	
68	LAKE CENTER	NO	UNKN	0	0	0	0	0	0	0	0	x	.	.	.	0	0	.	.	0	.	.	.	.	
70	EAST LAKE TOHOPEKALIGA	YES	GOOD	0	0	0	0	0	0	0	+	0	0	0	.	0	0	.	.	0	.	.	.	.	
72	LAKE HART	YES	GOOD	0	0	0	0	0	0	0	0	0	0	0	.	0	0	.	.	0	.	.	.	.	
75	LAKE MARY JANE	YES	GOOD	0	0	+	0	0	0	0	0	+	+	0	.	0	0	.	.	0	.	.	.	.	
77	LAKE WHIP-POOR-WILL	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
78	RED LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
79	LAKE NONA	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
81	LAKE HICKORYNUT	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
82	LAKE SHEEN	PARTIAL	FAIR																						

LEGEND:

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FCOLI-FECAL COLIFORM
FLOW-FLOW
MEETS USE-MEETS DESIGNATED USE
PH-PH
SD-SECCHI DISC METERS
TCOLI-TOTAL COLIFORM
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SURFACE WATER QUALITY ASSESSMENT REPORT
TRENDS-SOURCES-CLEANUP

** USGS HYDROLOGIC UNIT: 03090101 KISSIMMEE RIVER

'x'=DEGRADING TREND
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WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	WQI OR TSI	OVER-ALL TREND	W Q or I	TSI	TN	TP	CHLA	SD	PH	ALK	TUR	TSS	BOD	DO	DO SAT	TCOLI	FCOLI	TEMP	FLOW	TOC	MEETS WQW	DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
				1984 - 1993 TRENDS																				<--- PLEASE READ THESE COLUMNS VERTICALLY
84	BIG SAND LAKE	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
85	Lake Conway	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
86	LAKE JESSAMINE	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
87	LAKE MARSHA	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
88	LAKE GATLIN	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
89	LAKE ANDERSON	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
90	LAKE CRANE	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
91	CLEAR LAKE	PARTIAL	FAIR	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
92	LAKE BASS	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
93	LAKE OLIVE	YES	GOOD	+	+		+	0	0	0	0	x	+	.	0	.	0	0	0	.	0	.	.	
94	LAKE UNDERHILL	YES	GOOD	0	0		0	0	+	0	0	0	0	.	0	.	+	+	0	.	0	.	.	
95	LAKE MANN	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
96	LAKE LORNA DOONE	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
* WATER BODY TYPE: STREAM																								
2	Kissimmee River	PARTIAL	FAIR	0	0		0	0	0	.	.	x	.	0	0	.	.	0	0	.	.	+	.	
4	Kissimmee River	YES	GOOD	0	0		0	+	0	.	.	0	0	0	0	.	.	0	0	.	.	+	0	
6	JOSEPHINE CREEK	YES	GOOD	+	+		+	0	+	.	.	0	.	0	.	.	0	0	0	.	.	0	0	
8	CHANDLER SLOUGH	NO	UNKN	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
9	Istokpoga Canal	YES	GOOD	0	0		0	0	0	.	.	0	.	0	.	.	.	0	.	.	.	.	.	
11	Kissimmee River	YES	GOOD	+	+		+	+	+	.	.	x	.	+	+	.	.	0	.	.	.	.	.	
12	S-65D	NO	UNKN	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
13	Oak Creek	NO	POOR	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
15	ARBUCKLE BRANCH	YES	GOOD																					
18	CARTER CREEK	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
20	Kissimmee River	YES	GOOD	+	+		+	+	+	+	.	0	.	0	.	0	.	+	+	.	0	0	.	
21	ARBUCKLE CREEK	PARTIAL	FAIR	0	0		0	x	x	.	0	0	.	0	.	.	.	+	+	.	.	0	.	
22	ARBUCKLE C. AB MORGAN	NO	POOR	0	0		0	0	0	.	.	0	.	.	.	.	.	0	.	.	.	.	.	
24	PINE ISLAND SLOUGH	YES	GOOD																					
26	Livingston Creek	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
27	REEDY CREEK	YES	GOOD																					
28	Eightmile Slough	NO	UNKN	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
30	BLUE JORDAN SWAMP	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
32	Kissimmee River	YES	GOOD	+	+		0	+	+	0	.	x	.	0	+	0	.	x	0	.	0	0	.	
33	Blanket Bay Slough	NO	UNKN	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
37	TIGER CREEK	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
40	JACKSON CANAL	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
41	WEOHYAKAPKA CREEK	YES	GOOD																					
44	Tiger Creek	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
47	CATFISH CREEK	YES	GOOD	.	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

LEGEND:

ALK-ALKALINITY
BOD-BIOCHEM. OXYGEN DEMAND
CHLA-CHLOROPHYLL
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1984 - 1993 TRENDS

<--- PLEASE READ THESE COLUMNS VERTICALLY

WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	QUALITY RANK: WQI OR TSI	OVER-ALL TREND	WQI or TSI	TN	TP	CHLA	SD	PH	ALK	TURB	TSS	BOD	TOC	DO	DOSAT	TCOLI	FCOLI	TEMP	FLOW	DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
49	Kissimmmee River	YES	GOOD	0	0	0	+	0	0	x	0	0	0	0	.	0	0	.	.	0	.	
52	DEAD RIVER	NO	UNKN	0	0	0	+	.	x	x	0	x	.	.	.	.	.	.	.	0	.	
53	CANOE CREEK	NO	UNKN	0	0	0	0	0	0	x	0	x	.	.	.	.	.	.	.	0	.	
55	Reedy Creek	NO	UNKN	0	x	0	+	0	0	x	0	x	.	.	.	.	.	.	.	x	.	
56	South Port Canal	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
59	LAKE MARION CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
62	HORSE CREEK	PARTIAL	FAIR																			
64	Reedy Creek	NO	FAIR	0	0	0	+	0	x	x	+	0	0	.	0	0	0	.	.	0	.	
66	ST CLOUD CANAL	YES	GOOD	+	+	0	0	+	0	0	0	0	+	0	.	+	+	.	.	0	.	
67	Reedy Canal	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
69	REEDY CREEK	NO	UNKN	0	0	+	+	.	0	x	x	x	.	.	0	0	0	.	.	0	.	
71	BONNET CREEK	NO	GOOD	x	x	0	0	.	x	x	0	x	.	.	0	x	x	.	.	0	.	
73	Shingle Creek	PARTIAL	FAIR	0	0	+	+	0	0	x	x	0	0	x	.	0	0	.	.	0	.	
74	REEDY Creek	PARTIAL	FAIR																			
76	CYPRESS CREEK	PARTIAL	FAIR	0	+	x	+	.	.	0	.	0	.	.	0	0	0	.	.	0	.	
80	BOGGY CREEK	PARTIAL	FAIR	0	0	0	+	0	0	x	+	+	0	x	.	x	0	.	.	0	.	
83	REEDY CREEK	PARTIAL	FAIR	0	0	0	0	.	.	0	.	0	.	.	0	0	0	.	.	0	.	

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ALK-ALKALINITY
BOD-BIOCHEM. OXYGEN DEMAND
CHLA-CHLOROPHYLL
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FCOLI-FECAL COLIFORM
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MEETS USE-MEETS DESIGNATED USE
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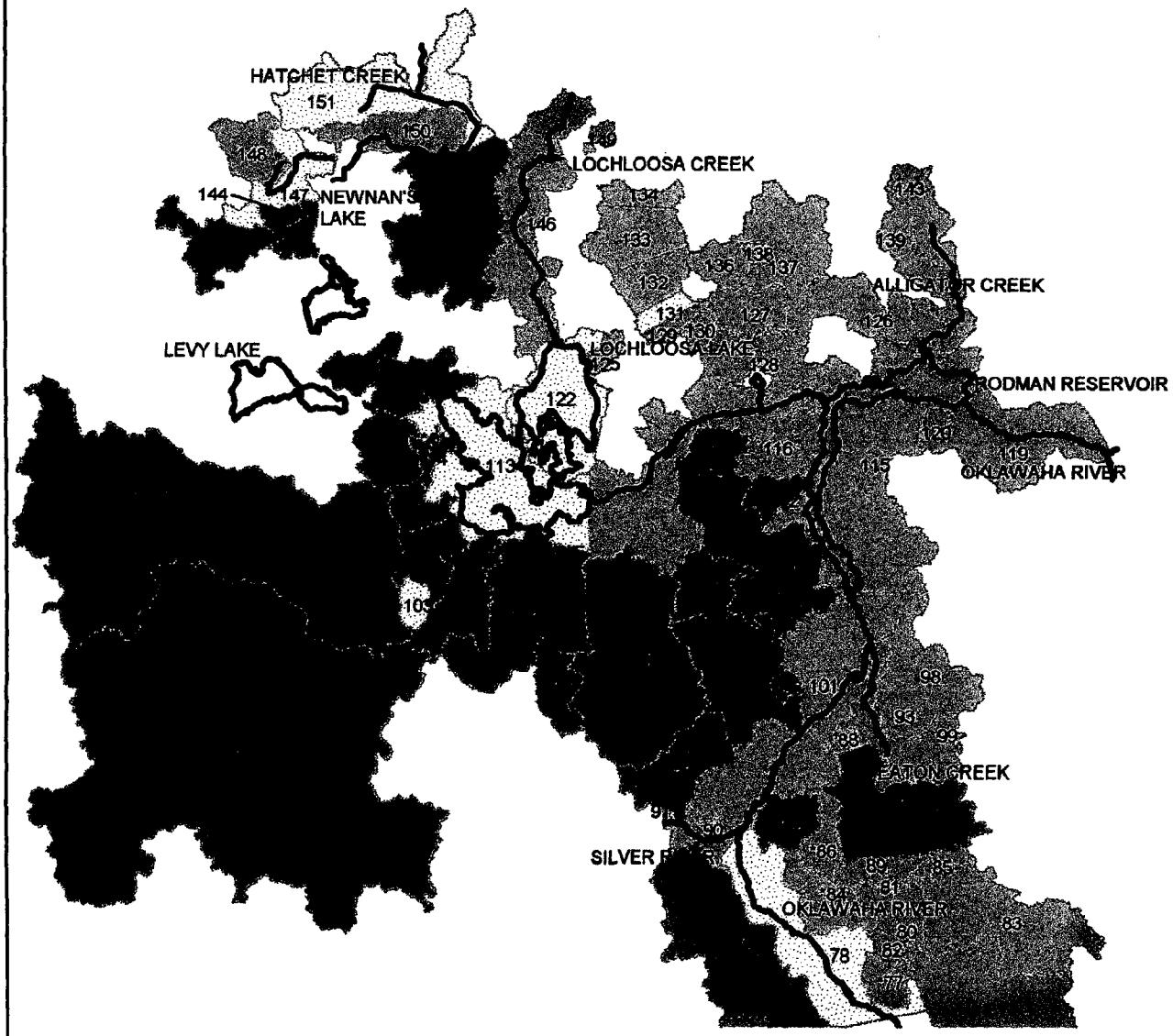
WQI-WATER QULAITY INDEX FOR STREAMS AND SPRINGS

NPS QUALITATIVE SURVEY RESULTS
AN "X" INDICATES A PROBLEM WITH POLLUTANT OR SOURCE
THE * ON MAPID INDICATES NO STORET INFORMATION AVAILABLE FOR THIS WATERSHED
-SEE PAGE 11 FOR LEGEND FOR THIS TABLE-

CATNAME=KISSIMMEE RIVER HUC=03090101

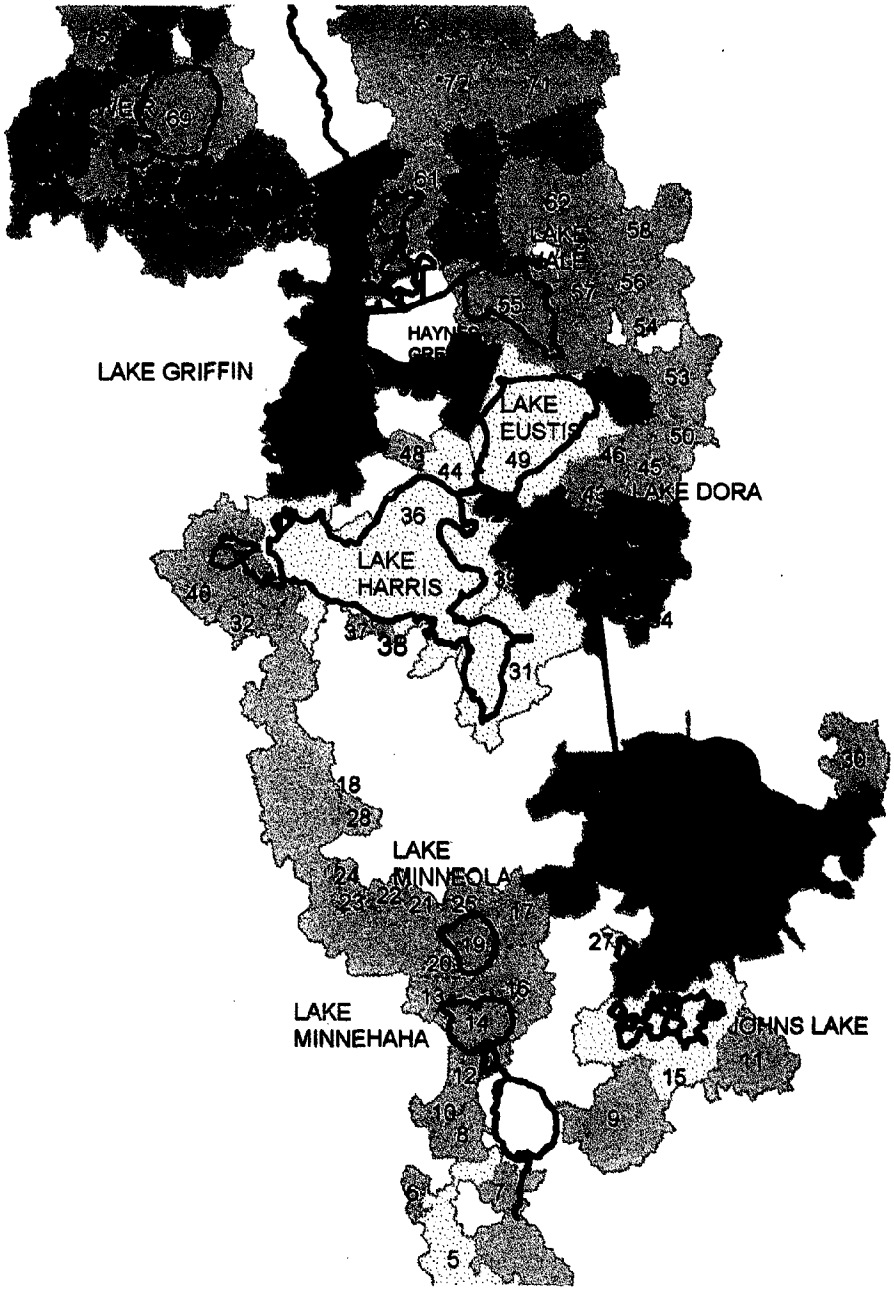
MAP ID	WBID	BASIN	WQ3 05	WQNP S	NUTRIENT	BACTERIA	SEDIMENT	OIL	PESTICIDE	OTHERCHEM	DEBRIS	OXYGEN	SALINITY	PH	METAL	HABITAT	FLOW	THERMAL	OTHERPOLL	FISHKILL	ALGAL	WED	TURBIDITY	ODOR	FISHDEC	NOSWIM	NOFISH	OTHERSYM	IND	STP	AG	RES	SLD	LDR	CN	HM	OT
4	3202	Kissimmee River	GOOD	THREAT			X	X															X													X	X	
8	3188A	CHANDLER SLOUGH	POOR	GOOD																																		
11	3192A	Kissimmee River	GOOD	GOOD																																		
12	3188	S-65D	POOR	GOOD																											X			X				
13	3192C	Oak Creek	POOR	GOOD																																		
16*	3192B	Starvation Slough		GOOD																																		
19*	3187C	Duck Slough		GOOD																																		
20	3187A	Kissimmee River	GOOD	GOOD																																		
24	3187B	PINE ISLAND SLOUGH	GOOD	GOOD																																		



OKLAWAHA RIVER BASIN
03080102

AVERAGE WATER QUALITY
1984-1993 STORET DATA
WATERSHED ID NUMBERS LINK MAP TO TABLES
* INDICATES QUALITATIVE ASSESSMENT

WATER QUALITY
- GOOD
- THREATENED
- FAIR
- POOR
- UNKNOWN



WATERSHEDS 1-4 LOCATED BELOW HERE

OKLAWAHA RIVER BASIN
03080102

AVERAGE WATER QUALITY
1984-1993 STORET DATA
WATERSHED ID NUMBERS LINK MAP TO TABLES
* INDICATES QUALITATIVE ASSESSMENT

WATER QUALITY
- GOOD
- THREATENED
- FAIR
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OKLAWAHA RIVER BASIN

Basic Facts

Drainage Area: 2,769 square miles
Major Land Uses: agriculture, residential
Population Density: moderate (Gainesville, Leesburg, Ocala, northern Orlando area)
Major Pollution Sources: muck farms, citrus cooling water
Best Water Quality Areas: Silver Run, lower Oklawaha River, Palatlakaha River
Worst Water Quality Areas: Apopka Chain of Lakes, Dora Canal, Haines Creek
Water Quality Trends: stable quality at 27 sites, declining quality in Lake Apopka and Newnan Lake, improving quality in Lakes Eustis, Dora, Cherry, Lucy and Minneola and in Silver Run
OFW Waterbodies:
Oklawaha River (Special Water Segment)
Orange Lake
Lochloosa Lake
Silver River
Clermont Chain of Lakes
Lake Griffin State Recreation Area
SWIM Waterbodies:
Lake Apopka Basin
Upper Oklawaha River Basin
Reference Reports:
Oklawaha River BAS, DEP (Orlando), 1990
Florida Rivers Assessment, DEP/FREAC/NPS, 1989
Florida Nonpoint Source Assessment, DEP (Tallahassee), 1988
Ecosystem Reports (by DEP Central District):
Oklawaha R @ Eureka (1992)
Silver Run (1992)
Orange Creek @ SR21 (1992)
Basin Water Quality Experts:
Rick Baird, Orange County, 407/244-7400
Guy Hadley, Jim Hulbert, Eric Pluchino, DEP (Orlando), 407/894-7555
Homer Royals, FGFWFC, 904/357-6631
Roland Fulton, Dr. Mike Coveney, SJRWMD, 904/329-4361

In the News

* The SJRWMD has purchased land and has constructed a treatment wetland pilot project for restoration of Lake Apopka.
* Sunny Hill Farms was purchased by SJRWMD which borders the river for several miles below the dam. It is hoped that with these purchases the historic flood plain between Highway 42 and Sharpes Ferry may one day be restored. At this time, Oklawaha Farms (the only area farm still in operation) is being leased back for farming. Sunny Hill Farms is being flooded in hopes of restoring the types of vegetation found in the historic flood plain. Water draining from the farm into the Oklawaha has had very high nutrient values.
* A drawdown/enhancement project is proposed for Lake Griffin in 1995. The project, sponsored by the Florida Game and Freshwater Fish Commission, will also dredge the Oklawaha to Highway 42.
* A compromise plan to turn the Cross Florida Barge Canal into a 40,000 acre "greenway corridor" for recreation and conservation appears to have been achieved this year
* A citizen group, Friends of Lake Apopka, has formed to work on speeding up the corrective/restoration techniques.

Ecological Characterization

The Oklawaha River flows northward for approximately 96 miles from its headwaters near Lake Apopka to the St. Johns River just south of Welaka, Florida. The upper reaches of the river consist primarily of a series of interconnecting lakes known as the Oklawaha Chain of Lakes, which is joined at Lake Harris by the Palatlakaha River, draining another chain of lakes. Natural flow patterns have been altered in some areas by the construction of manmade canals and water control structures. Agriculture is common throughout the area of the chain of lakes. Nearly all of the Palatlakaha drainage, and much of the upper Oklawaha, consisted of citrus groves until recent freezes; however, Apopka (particularly the northern half) is a concentrated row crop farming center. There are also several cities in the area historically established in association with the agriculture industry.

Downstream of Lake Griffin, the Oklawaha River becomes a recognizable channel. For about five miles, the river is channelized and diked off from more agricultural lands (see in the news for information on this area's farms). Then it begins to take its natural meandering path northward through woodlands. The crystal clear Silver River joins the blackwater Oklawaha near Ocala and approximately triples its flow to an average of 1,100 cfs. From here the river meanders through a vast hardwood swamp.

Numerous artesian wells from the Floridan Aquifer also contribute to the flow. Runoff provides little input to this system as the numerous lakes and swamps serve as recharge areas for the Floridan Aquifer. The lower Oklawaha, at the bend, was dammed as part of the Cross Florida Barge Canal project, which was stopped in the early 1970s. The major land use in the lower Oklawaha River basin is forest land, with the Ocala National Forest extending the length of the eastern drainage.

An undefined drainage area southeast of Gainesville is also assigned to this basin. It consists of a large expanse of wetland, Paynes Prairie, several lakes, and their associated streams. The southernmost and largest lake, Orange Lake, has a small creek connecting it to the Oklawaha River. Rangeland and silviculture dominate land use here.

The Oklawaha River below Lake Griffin is bordered by swampy areas on the west and the Ocala National Forest on the east, so it receives very little pollution. In addition, the inflow of high quality, Floridan Aquifer ground water from Silver Springs acts to dilute upstream pollution. The confluence of the clear blue waters of Silver River with the blackwater of the Oklawaha amidst a backdrop of the cypress floodplain is an impressive sight.

Anthropogenic Impacts

This basin has the distinction of having some of the most pristine and beautiful river and lake reaches in the state as well as some of the most polluted. Of the good water quality reaches, there are the Palatlakaha Chain of Lakes, Silver Springs Run, Orange and Lochloosa Lakes and the Oklawaha River itself downstream of Silver Springs.

The majority of water quality problems are in the southern portion of this basin, with the exception of Hogtown Creek which runs through Gainesville in the northern-most portion of the basin. An industrial toxic waste site (from wood preserving) is located on the upper portion of Hogtown Creek and is being cleaned up with State and Superfund monies. Additionally, Hogtown Creek receives urban runoff from the City of Gainesville.

In the southern region of the basin, the worst pollution problem is found in Lake Apopka which historically received effluent from citrus processing plants, a WWTP and large quantities of agricultural runoff. The point sources have either been eliminated or considerably reduced. Two citrus plants - Citrus Central and Winter Garden Citrus discharge cooling water to the lake, and Anderson Peat, a peat mining operation, discharges water drained from their peat. The City of Winter Garden discharges to the lake via underdrains. Excessive BOD and nutrient loading still occurs from back-pumping and intensive, heavily fertilized row crop agriculture on the organically rich floodplain soils which surround the lake. Of the 19,000 acres once muck farmed around the lake, about 6,000 to 7,000 acres are now out of production. Recently, there has been a great deal of controversy between the owners of the muck farms and environmental groups intent on restoring the lake. To date the SJRWMD has converted nearly 900 acres of previously farmed land near the downstream end of the lake to treatment wetlands. Construction was completed in September, 1991. Later, the area proposed to be involved in wetland treatment will be 5,000 acres. This area should turn over the entire lake volume twice a year. Additionally, two of the major muck farms have signed a consent order requiring greatly reduced nutrient loading from their runoff.

Most of the other lakes downstream of Lake Apopka (Lakes Dora, Eustis, and Griffin) are also hypereutrophic from excessive nutrient loading from historical WWTP discharge, upstream sources and citrus and muck farming in their own drainage areas. Lake County has initiated a new policy which has eliminated WWTP discharge to these lakes. They are monitoring these lakes to determine the extent of water quality improvement. SJRWMD has acquired several muck farms along the Chain of Lakes and the Oklawaha River. The cessation of agricultural discharges and restoration of floodplain wetlands combined with the enforcement of adequate Best Management Practices for remaining agricultural operations are expected to improve these lakes' water quality.

Lake Weir has had a persistent problem with diseased fish populations. Black crappie disappeared from the lake in the early to mid 80s. A restocking effort by FGFWFC has had some success. Limited reproduction of the species was documented in 1990 and 1991. Periodic die-offs of largemouth bass during summer months have plagued the lake

for years. The probable cause is "no blood disease" characterized by low blood counts, pale gills, and listless behavior.

** USGS HYDROLOGIC UNIT: 03080102 OKLAWAHA RIVER

SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH PH	ALKALINITY ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND COND	FLOW FLOW	WATER QUALITY INDICES WQI	TSI
* WATER BODY TYPE: LAKE																												
2	LAKE LOWERY OUTLET	3	89	89	Current	4.2	0.7	20	11	8.3	102	2.1	.	14	7.3	14	1.54	0.02	9	.	.	.	.	.	195	.	.	52
4	CRYSTAL LAKE	2	90	90	Current	2.3	1.8	13	.	7.0	88	.	.	4	5.5	5	0.44	0.01	2	.	.	.	.	.	165	.	.	29
6	KIRKLAND LAKE OUTLET	5	90	92	Current	1.4	2.5	6	1	7.8	94	.	.	4	6.0	2	0.40	0.01	2	.	1	.	.	.	170	.	.	26
7	BEAR LAKE OUTLET	24	89	92	Current	1.8	1.1	.	.	5.7	67	1.1	.	.	5.7	.	0.71	0.02	4	.	.	.	.	.	77	.	.	42
8	LAKE NELLIE OUTLET	2	90	90	Current	1.1	2.8	10	.	7.2	90	.	.	8	6.3	4	0.66	0.00	2	.	.	.	.	.	110	.	.	22
9	FLAT LAKE OUTLET	2	90	90	Current	1.0	.	13	.	8.2	103	.	.	15	6.1	7	1.30	0.00	3	.	.	.	.	.	110	.	.	15
10	LAKE GLONA OUTLET	2	90	90	Current	2.0	1.5	48	.	7.0	86	.	.	15	6.3	7	0.90	0.01	4	.	.	.	.	.	110	.	.	32
11	BLACK LAKE OUTLET	2	70	70	Historical	7.4	.	.	13	7.8	74	1.0	.	.	7.0	30	2.30	0.53	3	.	.	.	.	.	165	.	.	53
12	CRESCENT LAKE OUTLET	6	80	80	Historical	.	2.5	15	.	.	.	.	.	.	6.5	4	0.43	0.01	3	.	.	.	.	.	83	.	.	32
13	Lake Minnehaha	65	89	92	Current	2.1	2.1	.	.	7.2	84	0.5	.	.	6.0	.	0.62	0.02	4	.	.	.	.	.	109	.	.	36
14	LAKE LOUISA	65	89	92	Current	3.1	1.0	.	.	7.4	87	0.7	.	.	5.8	.	1.01	0.02	4	.	.	.	.	.	104	.	.	46
15	JOHNS LAKE OUTLET	112	71	80	Historical	11.5	0.7	20	.	10.0	70	.	.	.	6.5	5	1.22	0.06	8	.	.	.	.	.	202	.	.	62
16	JACKS LAKE	2	90	90	Current	1.8	1.5	15	2	7.3	90	.	.	7	7.2	41	0.51	0.01	2	.	.	.	.	.	120	.	.	30
17	GRASSY LAKE	5	90	92	Current	2.5	1.4	6	1	7.5	92	.	.	5	5.7	3	0.53	0.01	2	.	2	.	.	.	250	.	.	32
19	Lake Minneola	90	89	93	Current	1.1	2.7	13	1	6.9	82	0.5	.	.	6.8	10	0.63	0.01	2	.	.	.	.	.	121	.	.	25
20	LAKE HIWATHA	32	89	92	Current	2.6	1.7	.	.	6.9	78	1.3	.	.	6.6	.	0.76	0.04	8	.	.	.	.	.	117	.	.	47
21	LAKE WILSON	32	89	91	Current	1.5	2.2	.	.	6.3	77	0.5	.	.	6.4	.	0.66	0.01	4	.	.	.	.	.	109	.	.	34
22	LAKE CHERRY	55	89	91	Current	1.1	2.2	.	.	7.0	80	0.5	.	.	6.2	.	0.62	0.01	2	.	.	.	.	.	102	.	.	29
23	LAKE LUCY	21	89	90	Current	1.3	2.7	.	.	7.1	88	0.5	.	.	7.0	.	0.63	0.01	1	.	.	.	.	.	107	.	.	23
24	LAKE EMMA	21	89	90	Current	1.1	3.1	.	.	7.2	85	0.5	.	.	6.8	.	0.60	0.01	2	.	.	.	.	.	107	.	.	23
25	APSHAWA LAKE OUTLET	75	70	71	Historical	7.5	.	10	.	7.8	95	.	.	.	6.6	7	0.84	0.02	.	.	.	.	.	.	237	.	.	37
26	Lake Apopka	387	89	91	Current	32.0	0.2	25	78	8.2	101	7.3	.	26	9.2	113	4.46	0.17	78	.	.	.	.	.	385	.	.	86
28	CHURCH LAKE	5	90	92	Current	1.7	2.3	6	1	7.7	94	.	.	4	5.5	2	0.37	0.01	2	.	1	.	.	.	195	.	.	29
30	LAKE FRANCIS	92	70	70	Historical	2.5	.	30	.	6.5	80	.	.	.	0.6	5	0.69	0.01	.	.	.	.	.	.	60	.	.	29
31	LITTLE LAKE HARRIS	66	89	92	Current	11.5	0.6	20	13	8.7	100	2.9	.	.	8.5	97	2.02	0.03	31	.	.	.	.	.	282	.	.	61
34	LAKE CARLTON OUTLET	6	89	89	Current	15.1	0.3	60	33	6.6	73	8.4	.	.	8.5	114	3.90	0.11	173	.	.	.	.	.	411	.	.	85
35	LAKE BEAUCLAIR OUTLET	93	89	92	Current	13.9	0.3	60	35	8.5	104	11.6	.	27	9.0	128	4.34	0.19	162	.	.	.	.	.	400	.	.	89
36	Lake Harris	112	89	93	Current	11.5	0.5	15	18	8.8	100	3.0	.	15	8.4	104	1.92	0.04	39	.	.	.	.	.	299	.	.	66
39	IDAMERE LAKE	5	90	92	Current	2.0	1.8	6	1	8.0	92	.	.	3	6.1	3	0.60	0.01	2	.	2	.	.	.	243	.	.	33
41	LAKE DORA	87	89	93	Current	14.8	0.3	45	30	9.8	109	8.4	.	26	8.6	124	3.91	0.08	134	.	.	.	.	.	418	.	.	81
43	LAKE SANDERS OUTLET	2	90	90	Current	0.7	2.9	8	.	7.7	94	.	.	7	6.2	13	0.55	0.02	2	.	.	.	.	.	210	.	.	30
45	LAKE GERTRUDE	2	90	90	Current	0.7	4.5	5	.	8.1	98	.	.	5	7.2	32	0.47	0.01	2	.	.	.	.	.	270	.	.	22
46	WEST CROOKED LAKE	80	72	76	Historical	4.0	.	5	.	8.7	106	0.9	.	.	7.4	29	0.72	0.01	.	63	.	.	.	.	293	.	.	26
47	LAKE GRIFFIN	276	89	93	Current	23.1	0.4	28	24	9.5	104	5.2	.	23	8.5	113	2.84	0.08	71	.	43	.	.	.	355	.	.	76
48	SILVER LAKE OUTLET	2	90	90	Current	2.2	.	8	.	7.5	93	.	.	23	7.9	115	2.00	0.02	4	.	.	.	.	.	635	.	.	34
49	Lake Bustis	82	89	93	Current	9.7	0.6	18	14	8.5	97	3.3	.	19	8.3	119	2.40	0.04	35	.	3	.	.	.	356	.	.	66
50	LAKE JOANNA OUTLET	2	90	90	Current	0.9	.	5	.	8.1	98	.	.	4	6.0	3	0.48	0.01	3	.	.	.	.	.	190	.	.	30
51	TROUT LAKE OUTLET	2	90	90	Current	11.0	0.4	88	.	8.8	107	.	.	30	8.4	66	2.41	0.14	108	.	.	.	.	.	260	.	.	81
53	ELDORADO LAKE	2	90	90	Current	1.3	.	8	.	7.5	91	.	.	7	7.8	45	0.78	0.00	2	.	.	.	.	.	480	.	.	12
54	BLANCHESTER LAKE	2	90	90	Current	1.8	2.5	8	.	7.3	88	.	.	7	6.9	26	0.98	0.01	5	.	.	.	.	.	395	.	.	29

LEGEND:
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BECK-BECK'S BIOTIC INDEX
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DOSAT-DO % SATURATION
END YR-ENDING YEAR
FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
MAX #OBS-MAXIMUM NUMBER OF SAMPLES
NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
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55	LAKE YALE CANAL	102	89	93	Current	2.4	2.2	8	5	8.5	93	1.0	.	11	8.2	105	0.98	0.01	7	.	.	.	.	.	333	.	.	35
56	LAKE UMATILLA OUTLET	77	70	76	Historical	4.0	.	10	.	9.7	111	2.2	.	10	8.1	30	0.90	0.02	.	50	.	.	.	.	260	.	.	37
57	LAKE TUTUOLA	27	79	79	Historical	3.0	2.1	.	.	6.9	82	.	.	.	.	.	0.53	0.04	.	.	.	.	.	.	200	.	.	42
58	ISLAND LAKE	2	90	90	Current	0.8	.	5	1	7.7	96	.	.	7	7.6	59	0.67	0.01	1	.	.	.	.	.	390	.	.	22
61	BIG BASS LAKE	30	71	72	Historical	5.0	0.7	13	.	7.1	82	1.0	.	9	4.9	1	1.52	0.02	.	1645	.	.	.	.	45	.	.	42
62	ELLA LAKE DRAIN	2	90	90	Current	1.4	1.8	10	2	7.8	99	.	.	10	6.5	10	0.93	0.02	6	.	.	.	.	.	185	.	.	41
69	LAKE WEIR	22	89	93	Current	2.2	1.8	5	5	8.5	97	1.3	.	7	7.2	17	0.98	0.01	10	.	.	.	.	.	175	.	.	41
71	DOE POND	2	90	90	Current	1.1	3.1	5	2	7.9	97	.	.	2	6.2	6	0.78	0.01	3	.	.	.	.	.	60	.	.	25
75	SMITH LAKE	102	80	80	Historical	.	2.5	10	.	.	.	.	.	.	5.5	2	0.44	0.01	2	.	.	.	.	.	62	.	.	30
76	DINNERS POND	2	90	90	Current	1.6	.	10	9	7.7	96	.	.	9	4.5	1	0.78	0.02	14	.	.	.	.	.	40	.	.	44
80	LAKE BRYANT	131	80	80	Historical	3.0	1.0	.	.	8.7	97	.	.	.	.	.	0.80	0.03	.	.	.	.	.	.	74	.	.	55
81	NORTH LAKE	5	90	92	Current	2.4	1.8	14	2	7.8	92	.	.	6	6.2	6	0.63	0.04	4	.	1	.	.	.	75	.	.	42
82	UNNAMED LAKE	2	90	90	Current	2.3	1.3	23	2	2.1	24	.	.	16	4.1	2	0.75	0.02	9	.	.	.	.	.	30	.	.	46
83	HALFMOON LAKE	2	89	89	Current	1.3	2.7	25	2	7.7	86	0.7	.	.	6.7	8	0.56	0.01	6	.	.	.	.	.	58	.	.	33
85	MILL DAM LAKE	49	89	89	Current	1.1	3.7	13	2	7.7	87	0.2	.	.	6.7	5	0.45	0.01	3	.	.	.	.	.	51	.	.	27
88	JOES LAKE	2	90	90	Current	1.0	3.3	8	2	7.5	91	.	.	7	6.2	10	0.41	0.01	2	.	.	.	.	.	55	.	.	23
89	CLEAR LAKE	2	90	90	Current	1.1	.	5	1	6.3	78	.	.	6	5.4	5	0.49	0.01	2	.	.	.	.	.	50	.	.	24
98	MUD LAKE	2	90	90	Current	3.3	.	38	10	6.7	82	.	.	16	8.2	56	1.78	0.04	6	.	.	.	.	.	410	.	.	46
99	FORE LAKE	130	86	86	Historical	4.7	.	12	.	.	.	.	.	.	6.7	3	0.57	0.01	.	.	.	.	.	.	45	.	.	24
113	ORANGE LAKE REACH	127	89	93	Current	13.0	0.6	50	4	8.1	92	3.2	.	18	7.0	22	1.18	0.05	21	435	550	.	.	.	98	.	.	60
115	Lake Ocklawaha	50	89	90	Current	1.1	3.0	37	2	6.3	73	0.8	.	5	7.0	141	0.72	0.04	2	.	.	.	.	.	457	.	.	47
116	ISLAND LAKE DRAIN	2	90	90	Current	1.6	2.3	5	1	7.7	95	.	.	2	6.0	5	0.18	0.01	2	.	.	.	.	.	70	.	.	30
120	PENNER PONDS	25	90	91	Current	1.3	.	30	2	8.3	91	1.0	.	16	4.2	1	1.10	0.01	7	.	.	.	.	.	32	.	.	20
122	LOCHLOOSA LAKE	122	89	93	Current	14.0	0.7	63	10	8.6	100	2.3	.	18	7.9	41	1.38	0.06	15	70	300	.	.	.	110	.	.	61
124	WALBERG LAKE OUTLET	6	70	80	Historical	.	0.6	15	.	6.3	.	.	.	.	7.8	17	1.95	0.13	74	.	.	.	.	.	69	.	.	75
125	LAKE JEFFORDS OUTLET	6	90	92	Current	4.3	1.2	31	1	7.5	89	.	.	5	4.2	2	0.31	0.02	3	.	1	.	.	.	84	.	.	40
127	HIGGINBOTHAM LAKE	2	90	90	Current	1.2	2.9	5	.	7.7	93	.	.	5	5.5	4	0.44	0.01	3	.	.	.	.	.	55	.	.	29
129	STAR LAKE	6	90	92	Current	3.9	1.7	24	2	7.7	91	.	.	3	5.4	1	0.38	0.03	8	.	2	.	.	.	55	.	.	44
130	REDWATER LAKE	2	90	90	Current	3.0	0.9	110	.	8.3	101	.	.	18	6.3	12	1.16	0.04	18	.	.	.	.	.	60	.	.	59
131	HOLDEN POND	2	90	90	Current	5.2	0.7	40	.	8.3	99	.	.	22	6.7	4	1.74	0.06	20	.	.	.	.	.	58	.	.	64
132	LITTLE ORANGE LAKE	5	90	92	Current	2.6	1.2	56	3	7.0	82	.	.	13	6.0	6	0.99	0.03	33	.	1	.	.	.	68	.	.	55
133	SOUTH BULL LAKE	2	90	90	Current	3.3	2.1	13	.	8.5	102	.	.	6	4.5	5	0.77	0.09	6	.	.	.	.	.	50	.	.	43
134	WINNOT LAKE	2	90	90	Current	1.0	2.7	5	.	7.8	94	.	.	5	5.5	6	1.01	0.06	3	.	.	.	.	.	55	.	.	40
136	COWPEN LAKE OUTLET	30	70	80	Historical	1.6	3.1	2	.	8.5	88	.	.	.	5.5	0	0.13	0.01	3	.	.	.	.	.	56	.	.	22
137	GALILEE LAKE	5	90	92	Current	1.5	2.1	5	1	7.8	93	.	.	1	4.0	1	0.14	0.01	2	.	1	.	.	.	93	.	.	26
138	MORRIS LAKE	2	90	90	Current	1.3	2.9	5	.	7.7	94	.	.	2	5.4	1	0.19	0.01	2	.	.	.	.	.	40	.	.	27
139	LAKE IDA	2	91	91	Current	1.8	2.4	8	3	7.3	88	.	.	5	4.2	4	0.33	0.01	3	.	.	.	.	.	64	.	.	33
140	KANAPAHA LAKE	2	90	90	Current	7.2	0.4	88	.	9.8	121	.	.	25	7.8	37	1.40	0.07	100	.	.	.	.	.	215	.	.	78
141	BEVENS ARM	3	92	92	Current	11.4	0.3	15	25	11.6	124	.	.	11	8.7	62	2.11	0.13	52	.	18	.	.	.	210	.	.	80
142	NEWNANS LAKE	106	89	93	Current	30.5	0.4	225	14	9.5	114	4.5	.	21	7.4	21	1.96	0.08	47	135	.	1.4	.	0	74	.	.	75
144	LAKE ALICE	2	90	90	Current	8.4	0.6	33	.	19.2	254	.	.	8	8.9	83	1.37	1.18	76	.	.	.	.	.	463	.	.	73

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149	LAKE ELIZABETH OUTLET	2	70	70	Historical	2.5	0.6	261	.	7.2	.	.	.	.	6.0	3	1.02	0.04	5	.	.	.	.	.	40	.	.	56
* WATER BODY TYPE: SPRING																												
* 27	GOURD NECK SPRING	24	89	90	Current	3.0	1.7	15	7	3.5	36	1.1	.	4	8.5	70	5.10	0.05	8	.	.	.	.	.	241	.	48	.
32	BUGG SPRING RUN	3	91	91	Current	2.0	0.7	5	14	4.1	47	.	.	1	7.7	123	0.73	0.11	9	.	.	.	.	.	293	.	40	.
37	BLUE SPRINGS	2	91	91	Current	0.1	.	8	1	2.1	24	.	.	2	7.6	103	3.83	0.03	2	.	.	.	.	.	278	1	39	.
38	HOLIDAY SPRINGS	3	91	91	Current	0.2	.	5	1	1.4	16	.	.	3	7.3	107	3.31	0.02	0	.	.	.	.	.	281	2	38	.
91	SILVER SPRINGS	2	89	89	Current	.	.	3	.	4.0	45	.	.	0	7.2	.	1.03	0.04	.	.	.	.	.	.	463	.	38	.
* WATER BODY TYPE: STREAM																												
1	SUNNYHILL FARM MARSH	96	89	93	Current	12.1	0.4	60	19	6.9	77	3.7	.	36	7.5	110	2.73	0.07	45	.	417	.	.	.	337	.	66	.
3	BIG CREEK REACH	18	89	92	Current	1.0	0.6	.	.	4.5	47	1.4	.	.	5.7	.	1.30	0.03	2	.	.	.	.	.	104	.	39	.
5	LITTLE CREEK	22	89	92	Current	0.8	0.7	.	.	2.5	28	1.4	.	.	4.7	.	1.63	0.04	2	.	.	.	.	.	130	.	46	.
18	PALATKALAHA RIVER	149	89	92	Current	1.9	1.5	31	2	5.2	63	1.1	.	12	6.5	25	0.77	0.02	3	.	.	.	.	.	117	.	31	.
29	APOPKA MARSH	9	93	93	Current	46.0	1.0	.	.	5.2	64	.	.	.	7.7	132	5.32	0.22	92	.	.	.	.	.	370	.	77	.
33	LAKE APOPKA OUTLET	182	89	92	Current	11.6	0.4	60	62	6.4	71	4.9	.	25	8.0	116	3.90	0.21	44	.	.	.	.	.	429	46	69	.
40	HELENA RUN	12	90	91	Current	7.4	.	17	13	.	.	.	.	7	.	123	1.62	0.13	26	.	.	.	.	.	.	.	44	.
42	DORA CANAL	4	93	93	Current	12.2	0.3	40	35	6.7	84	.	.	28	8.3	113	4.01	.	84	.	174	.	.	.	410	.	70	.
44	Dead River	7	90	93	Current	6.1	0.6	15	11	6.3	75	6.2	.	12	8.0	118	2.50	0.10	58	.	137	.	.	.	311	.	58	.
52	HAYNES CREEK REACH	158	89	92	Current	6.2	0.8	.	9	5.6	63	3.1	.	.	7.5	.	2.31	0.07	29	.	.	.	.	.	379	.	61	.
78	OCKLAWAHA RIV AB DAISY	68	89	93	Current	4.7	1.0	58	4	4.5	51	2.0	.	16	7.3	112	1.61	0.03	10	.	131	.	.	.	357	417	53	.
90	SILVER RIVER	12	89	93	Current	0.7	3.5	3	2	6.0	69	0.3	.	.	7.6	152	0.97	0.03	1	.	.	.	2.8	.	430	.	22	.
93	EATON CREEK	3	92	92	Current	1.2	0.3	200	1	3.6	42	.	.	25	6.2	51	1.13	0.03	1	.	10	.	.	.	250	.	42	.
100	DAISY CREEK	4	92	92	Current	5.5	0.2	200	4	2.3	26	.	.	32	6.2	55	1.16	0.13	2	.	42	.	.	.	150	.	60	.
101	OCKLAWAHA RIV AB LK OK	35	89	93	Current	2.2	2.0	18	5	6.7	76	0.8	.	3	7.4	149	1.12	0.04	1	.	47	.	.	.	430	.	30	.
103	FAIRFIELD SINK	17	70	72	Historical	.	.	.	.	5.7	71	.	.	.	.	.	.	.	.	.	.	.	.	.	137	0	51	.
109	ORANGE CREEK	19	89	93	Current	0.9	0.5	86	3	7.0	78	0.4	.	7	6.7	44	0.62	0.06	2	.	79	.	.	.	153	.	23	.
119	OCKLAWAHA RIV AB STJR	31	89	93	Current	1.3	1.9	34	3	6.8	77	0.8	.	6	7.4	128	0.63	0.02	3	.	67	.	.	.	447	.	25	.
121	CROSS CREEK	5	89	89	Current	2.0	0.9	65	1	5.2	53	3.6	.	.	7.2	27	0.95	0.03	19	510	1300	.	.	.	91	.	49	.
126	DEEP CREEK RODMAN RES	9	89	90	Current	4.3	1.3	80	2	5.1	57	1.0	.	6	6.6	59	0.32	0.04	0	.	.	.	.	.	151	.	30	.
128	LITTLE ORANGE CREEK	3	92	93	Current	1.0	0.5	135	1	7.9	86	1.3	.	.	7.2	60	1.29	0.07	1	.	.	.	.	.	152	.	26	.
135	EXTENSION DITCH	12	73	74	Historical	.	.	.	.	.	.	.	.	.	.	.	1.11	3.12	.	.	.	.	.	.	.	.	67	.
143	SWEETWATER CREEK	17	89	93	Current	1.1	0.2	375	4	4.9	56	1.0	.	26	3.7	1	0.80	0.13	7	.	72	.	.	.	80	.	42	.
145	SWEETWATER BRANCH	25	73	82	Historical	.	.	30	.	.	.	2.5	.	.	6.9	89	10.67	4.80	.	5	1	.	.	.	418	18	90	.
146	LOCHLOOSA CREEK	3	92	92	Current	1.1	0.2	600	1	5.3	53	.	.	47	4.7	6	1.62	0.02	2	.	13	.	.	.	70	.	42	.
147	HOGTOWN CREEK	5	92	92	Current	3.0	0.2	40	3	9.0	93	.	.	8	7.3	100	0.66	0.47	0	.	455	.	.	.	270	.	36	.
148	POSSUM CREEK	25	80	81	Historical	.	.	.	5	9.8	86	25.0	25	.	7.3	.	.	0.08	.	.	.	.	.	.	.	.	26	.
150	GUMROOT SWAMP	21	80	81	Historical	.	.	.	3	8.0	75	.	29	.	7.5	.	.	0.40	.	.	.	.	.	.	.	.	33	.
151	HATCHET CREEK	4	93	93	Current	5.9	0.2	300	8	5.5	64	.	.	16	5.8	26	1.22	.	16	.	58	.	.	.	89	.	51	.

LEGEND:
ALK-ALKALINITY MG/L
ART-ARTIFICIAL SUBSTRATE DI
BEG YR-BEGINNING SAMPLING YEAR
BECK-BECK'S BIOTIC INDEX
BOD-BIOCHEMICAL OXYGEN DEMAND MG/L
CHLA-CHLOROPHYLL UG/L
COD-CHEMICAL OXYGEN DEMAND MG/L
COLOR-COLOR PCU
COND-CONDUCTIVITY UMHOS
DO-DISSOLVED OXYGEN MG/L
DOSAT-DO % SATURATION
END YR-ENDING YEAR
FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
MAX #OBS-MAXIMUM NUMBER OF SAMPLES
NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
TURB-TURBIDITY MG/L
WQI-WATER QUALITY INDEX

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SCREENING VARIABLES AND CRITERIA

WATERSHED ID	NAME	RANK WQI OR TSI	DATA RECORD CURRENT OR HISTORICAL	TN TN>2.0	STREAM TP TP>.46	LAKE TP TP>.12	PH PH>8.8 PH<5.2	ALK ALK<20	TURB & TSS TURB>16.5 TSS>18	COND COND>1275	OXYGEN DEMAND BOD>3.3 COD>102 TOC>27.5	DO DO<4	COLIFORM BACTI TOT>3700 FECAL>470	BIOL DIV DIART<1.95 DINAT<1.5 BECK<5.5	CHLA CHLA>40	SECCHI DISC SD<.7
* WATER BODY TYPE: LAKE																
2	LAKE LOWERY OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
4	CRYSTAL LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
6	KIRKLAND LAKE OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
7	BEAR LAKE OUTLET	GOOD	Current	0	.	0	0	.	0	.	0	0	.	.	0	0
8	LAKE NELLIE OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
9	FLAT LAKE OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	.
10	LAKE GLONA OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
11	BLACK LAKE OUTLET	GOOD	Historical	x	.	x	0	0	0	.	0	0	.	.	0	.
12	CRESCENT LAKE OUTLET	GOOD	Historical	0	.	0	0	x	.	.	.	.	.	.	0	0
13	Lake Minnehaha	GOOD	Current	0	.	0	0	.	0	.	0	0	.	.	0	0
14	LAKE LOUISA	GOOD	Current	0	.	0	0	.	0	.	0	0	.	.	0	0
15	JOHNS LAKE OUTLET	FAIR	Historical	0	.	0	0	x	0	.	.	0	.	.	0	x
16	JACKS LAKE	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
17	GRASSY LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
19	Lake Minneola	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
20	LAKE HIWATHA	GOOD	Current	0	.	0	0	.	0	.	0	0	.	.	0	0
21	LAKE WILSON	GOOD	Current	0	.	0	0	.	0	.	0	0	.	.	0	0
22	LAKE CHERRY	GOOD	Current	0	.	0	0	.	0	.	0	0	.	.	0	0
23	LAKE LUCY	GOOD	Current	0	.	0	0	.	0	.	0	0	.	.	0	0
24	LAKE EMMA	GOOD	Current	0	.	0	0	.	0	.	0	0	.	.	0	0
25	APSHAWA LAKE OUTLET	GOOD	Historical	0	.	0	0	x	0	.	.	0	.	.	.	.
26	Lake Apopka	POOR	Current	x	.	x	x	0	x	.	x	0	.	.	x	x
28	CHURCH LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
30	LAKE FRANCIS	GOOD	Historical	0	.	0	x	x	0	.	.	0	.	.	.	.
31	LITTLE LAKE HARRIS	FAIR	Current	x	.	0	0	0	0	.	0	0	.	.	0	x
34	LAKE CARLTON OUTLET	POOR	Current	x	.	0	0	0	x	.	x	0	.	.	x	x
35	LAKE BEAUCLAIR OUTLET	POOR	Current	x	.	x	x	0	x	.	x	0	.	.	x	x
36	Lake Harris	FAIR	Current	0	.	0	0	0	0	.	0	0	.	.	0	x
39	IDAMERE LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
41	LAKE DORA	POOR	Current	x	.	0	0	0	x	.	x	0	.	.	x	x
43	LAKE SANDERS OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
45	LAKE GERTRUDE	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
46	WEST CROOKED LAKE	GOOD	Historical	0	.	0	0	0	0	.	0	0	0	.	.	.
47	LAKE GRIFFIN	POOR	Current	x	.	0	0	0	x	.	x	0	0	.	x	x
48	SILVER LAKE OUTLET	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	.
49	Lake Eustis	FAIR	Current	x	.	0	0	0	0	.	x	0	0	.	0	x
50	LAKE JOANNA OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	.
51	TROUT LAKE OUTLET	POOR	Current	x	.	x	0	0	0	.	x	0	.	.	x	x
53	ELDORADO LAKE	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	.
54	BLANCHESTER LAKE	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	0

LEGEND:
ALK-ALKALINITY
BECK-BECK'S BIOTIC INDEX
BIOL DIV-BIOLOGICAL DIVERSITY
CHLA-CHLOROPHYLL
COND-CONDUCTIVITY
DO-DISSOLVED OXYGEN
CURRENT-1989 TO 1993
DIART-ARTIFICIAL SUBSTRATE DIVERSITY
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FECAL-FECAL COLIFORM BACTERIA
HISTORICAL-1970 TO 1988
OXYGEN DEMAND-BOD,COD,TOC
PH-PH
TN-NITROGEN
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WQI OR TSI-WATER QUALITY INDEX RATING WHICH INDEX USED, WQI OR TSI, IS BASED ON WATERBODY TYPE

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MEDIAN VALUES FOR EACH WATERSHED SCREENED

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SCREENING VARIABLES AND CRITERIA

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55	LAKE YALE CANAL	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
56	LAKE UMATILLA OUTLET	GOOD	Historical	0	.	0	0	0	0	.	0	0	0	.	.	.
57	LAKE TUTUOLA	GOOD	Historical	0	.	0	.	.	0	.	.	0	.	.	.	0
58	ISLAND LAKE	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	.
61	BIG BASS LAKE	GOOD	Historical	0	.	0	x	x	0	.	0	0	0	.	.	0
62	ELLA LAKE DRAIN	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
69	LAKE WEIR	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
71	DOE POND	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
75	SMITH LAKE	GOOD	Historical	0	.	0	0	x	.	.	.	.	.	.	0	0
76	DINNERS POND	GOOD	Current	0	.	0	x	x	0	.	0	0	.	.	0	.
80	LAKE BRYANT	GOOD	Historical	0	.	0	.	.	0	.	.	0	.	.	.	0
81	NORTH LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
82	UNNAMED LAKE	GOOD	Current	0	.	0	x	x	0	.	0	x	.	.	0	0
83	HALFMOON LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
85	MILL DAM LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
88	JOES LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
89	CLEAR LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	.
98	MUD LAKE	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	.
99	FORE LAKE	GOOD	Historical	0	.	0	0	x	0	.	.	.	.	.	.	.
113	ORANGE LAKE REACH	FAIR	Current	0	.	0	0	0	0	0	0	0	x	.	0	x
115	Lake Ocklawaha	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
116	ISLAND LAKE DRAIN	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
120	PENNER PONDS	GOOD	Current	0	.	0	x	x	0	.	0	0	.	.	0	.
122	LOCHLOOSA LAKE	FAIR	Current	0	.	0	0	0	0	0	0	0	0	.	0	x
124	WALBERG LAKE OUTLET	POOR	Historical	0	.	x	0	x	.	.	.	0	.	.	x	x
125	LAKE JEFFORDS OUTLET	GOOD	Current	0	.	0	x	x	0	.	0	0	0	.	0	0
127	HIGGINBOTHAM LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
129	STAR LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
130	REDWATER LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
131	HOLDEN POND	FAIR	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
132	LITTLE ORANGE LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
133	SOUTH BULL LAKE	GOOD	Current	0	.	0	x	x	0	.	0	0	.	.	0	0
134	WINNOT LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
136	COWPEN LAKE OUTLET	GOOD	Historical	0	.	0	0	x	0	.	.	0	.	.	0	0
137	GALILEE LAKE	GOOD	Current	0	.	0	x	x	0	.	0	0	0	.	0	0
138	MORRIS LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
139	LAKE IDA	GOOD	Current	0	.	0	x	x	0	.	0	0	.	.	0	0
140	KANAPAHA LAKE	POOR	Current	0	.	0	0	0	0	.	0	0	.	.	x	x
141	BEVENS ARM	POOR	Current	x	.	x	0	0	x	.	0	0	0	.	x	x
142	NEWNANS LAKE	POOR	Current	0	.	0	0	0	x	0	x	0	0	x	x	x
144	LAKE ALICE	POOR	Current	0	.	x	x	0	0	.	0	0	.	.	x	x

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				SCREENING VARIABLES AND CRITERIA												
149	LAKE ELIZABETH OUTLET	GOOD	Historical	0	.	0	0	x	0	.	.	0	.	.	0	x
* WATER BODY TYPE: SPRING																
27	GOURD NECK SPRING	FAIR	Current	x	0	.	0	0	0	.	0	x	.	.	0	0
32	BUGG SPRING RUN	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	0
37	BLUE SPRINGS	GOOD	Current	x	0	.	0	0	0	.	0	x	.	.	0	.
38	HOLIDAY SPRINGS	GOOD	Current	x	0	.	0	0	0	.	0	x	.	.	0	.
91	SILVER SPRINGS	GOOD	Current	0	0	.	0	.	.	.	0	0	.	.	.	.
* WATER BODY TYPE: STREAM																
1	SUNNYHILL FARM MARSH	POOR	Current	x	0	.	0	0	x	.	x	0	0	.	x	x
3	BIG CREEK REACH	GOOD	Current	0	0	.	0	.	0	.	0	0	.	.	0	x
5	LITTLE CREEK	FAIR	Current	0	0	.	x	.	0	.	0	x	.	.	0	x
18	PALATKALAHA RIVER	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	0
29	APOPKA MARSH	POOR	Current	x	0	.	0	0	x	.	.	0	.	.	x	0
33	LAKE APOPKA OUTLET	POOR	Current	x	0	.	0	0	x	.	x	0	.	.	x	x
40	HELENA RUN	GOOD	Current	0	0	.	.	0	0	.	0	.	.	.	0	.
42	DORA CANAL	POOR	Current	x	0	.	0	0	x	.	x	0	0	.	x	x
44	Dead River	FAIR	Current	x	0	.	0	0	0	.	x	0	0	.	x	x
52	HAYNES CREEK REACH	POOR	Current	x	0	.	0	.	0	.	0	0	.	.	0	0
78	OCKLAWAHA RIV AB DAISY	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	0
90	SILVER RIVER	GOOD	Current	0	0	.	0	0	0	.	0	0	.	0	0	0
93	EATON CREEK	GOOD	Current	0	0	.	0	0	0	.	0	x	0	.	0	x
100	DAISY CREEK	POOR	Current	0	0	.	0	0	0	.	x	x	0	.	0	x
101	OCKLAWAHA RIV AB LK OK	GOOD	Current	0	0	.	0	0	0	0	0	0	0	.	0	0
103	FAIRFIELD SINK	FAIR	Historical	.	.	.	.	.	.	.	.	0	.	.	.	.
109	ORANGE CREEK	GOOD	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
119	OCKLAWAHA RIV AB STJR	GOOD	Current	0	0	.	0	0	0	.	0	0	0	.	0	0
121	CROSS CREEK	FAIR	Current	0	0	.	0	0	0	.	x	0	x	.	0	0
126	DEEP CREEK RODMAN RES	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	0
128	LITTLE ORANGE CREEK	GOOD	Current	0	0	.	0	0	0	.	0	0	.	.	0	x
135	EXTENSION DITCH	UNKN	Historical	0	x	.	.	.	.	.	.	.	.	.	.	.
143	SWEETWATER CREEK	GOOD	Current	0	0	.	x	x	0	.	0	0	0	.	0	x
145	SWEETWATER BRANCH	UNKN	Historical	x	x	.	0	0	.	.	0	.	0	.	.	.
146	LOCHLOOSA CREEK	GOOD	Current	0	0	.	x	x	0	.	x	0	0	.	0	x
147	HOGTOWN CREEK	FAIR	Current	0	x	.	0	0	0	.	0	0	0	.	0	x
148	POSSUM CREEK	GOOD	Historical	.	0	.	0	.	0	.	x	0	.	.	.	.
150	GUMROOT SWAMP	GOOD	Historical	.	0	.	0	.	0	.	0	0	.	.	.	.
151	HATCHET CREEK	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	x

LEGEND:
ALK-ALKALINITY
BECK-BECK'S BIOTIC INDEX
BIOL DIV-BIOLOGICAL DIVERSITY
CHLA-CHLOROPHYLL
COND-CONDUCTIVITY
DO-DISSOLVED OXYGEN
CURRENT-1989 TO 1993
DIART-ARTIFICIAL SUBSTRATE DIVERSITY
DINAT-NATURAL SUBSTRATE DIVERSITY
FECAL-FECAL COLIFORM BACTERIA
HISTORICAL-1970 TO 1988
OXYGEN DEMAND-BOD,COD,TOC
PH-PH
TN-NITROGEN
TP-PHOSPHORUS
TOT-TOTAL COLIFORM BACTERIA
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
SD-SECCHI DISC METERS
WQI OR TSI-WATER QUALITY INDEX RATING WHICH INDEX USED, WQI OR TSI, IS BASED ON WATERBODY TYPE

SURFACE WATER QUALITY ASSESSMENT REPORT
TRENDS-SOURCES-CLEANUP

** USGS HYDROLOGIC UNIT: 03080102 OKLAWAHA RIVER

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1984 - 1993 TRENDS

<--- PLEASE READ THESE COLUMNS VERTICALLY

WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	WQI OR TSI	OVER-ALL TREND	WQI or TSI	TN	TP	CHLA	SD	PH	ALK	TURB	TSS	BOD	DO	DOSAT	FCOLI	TCOLI	FLOW	TEMP	MEETS USE	DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
* WATER BODY TYPE: LAKE																						
2	LAKE LOWERY OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
4	CRYSTAL LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
6	KIRKLAND LAKE OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
7	BEAR LAKE OUTLET	YES	GOOD	0	0	0	0	0	+	0	.	x	.	0	.	0	0	.	.	0	.	
8	LAKE NELLIE OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
9	FLAT LAKE OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
10	LAKE GLONA OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
11	BLACK LAKE OUTLET	YES	GOOD																			
12	CRESCENT LAKE OUTLET	YES	GOOD																			
13	Lake Minnehaha	YES	GOOD	0	0	+	x	0	+	0	.	x	.	0	.	0	x	.	.	0	.	
14	LAKE LOUISA	YES	GOOD	0	0	0	0	0	+	+	.	x	.	0	.	0	x	.	.	0	.	
15	JOHNS LAKE OUTLET	PARTIAL	FAIR																			
16	JACKS LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
17	GRASSY LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
19	Lake Minnecla	YES	GOOD	+	+	0	0	+	+	+	0	+	0	0	.	0	x	.	.	0	.	
20	LAKE HIWATHA	YES	GOOD	0	0	0	0	0	0	0	.	0	.	0	.	0	0	.	.	0	.	
21	LAKE WILSON	YES	GOOD	0	0	0	0	0	0	0	.	0	.	0	.	0	0	.	.	0	.	
22	LAKE CHERRY	YES	GOOD	+	+	0	0	+	+	0	.	0	.	0	.	0	0	.	.	0	.	
23	LAKE LUCY	YES	GOOD	+	+	0	0	+	+	0	.	0	.	0	.	0	0	.	.	0	.	
24	LAKE EMMA	YES	GOOD	0	0	0	0	0	+	0	.	0	.	0	.	0	0	.	.	0	.	
25	APSHAWA LAKE OUTLET	YES	GOOD																			
26	Lake Apopka	NO	POOR	x	0	x	0	0	x	0	0	0	0	0	+	x	0	.	.	x	.	
28	CHURCH LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
30	LAKE FRANCIS	YES	GOOD																			
31	LITTLE LAKE HARRIS	PARTIAL	FAIR	0	+	0	0	0	0	+	.	0	+	0	.	0	0	.	.	0	.	
34	LAKE CARLTON OUTLET	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
35	LAKE BEAUCLAIR OUTLET	NO	POOR	0	0	0	+	x	0	0	0	+	+	0	.	0	0	.	.	0	.	
36	Lake Harris	PARTIAL	FAIR	0	0	x	0	0	0	0	+	0	0	x	.	0	0	.	.	x	.	
39	IDAMERE LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
41	LAKE DORA	NO	POOR	+	+	0	+	0	0	0	0	0	0	x	0	0	0	.	.	0	.	
43	LAKE SANDERS OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
45	LAKE GERTRUDE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
46	WEST CROOKED LAKE	YES	GOOD																			
47	LAKE GRIFFIN	NO	POOR	0	0	0	+	0	0	0	+	0	0	0	0	0	0	.	.	0	.	
48	SILVER LAKE OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
49	Lake Eustis	PARTIAL	FAIR	+	+	0	+	0	0	0	0	+	+	0	.	0	0	.	.	0	.	
50	LAKE JOANNA OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
51	TROUT LAKE OUTLET	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
53	ELDORADO LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

LEGEND:

ALK-ALKALINITY
BOD-BIOCHEM. OXYGEN DEMAND
CHLA-CHLOROPHYLL
DO-DISSOLVED OXYGEN
DOSAT-DO SATURATION
FCOLI-FECAL COLIFORM
FLOW-FLOW
MEETS USE-MEETS DESIGNATED USE
PH-PH
SD-SECCHI DISC METERS
TCOLI-TOTAL COLIFORM
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TP-PHOSPHORUS
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TURB-TURBIDITY
TSI-TROPHIC STATE INDEX FOR LAKES AND ESTUARIES
WQI-WATER QULAITY INDEX FOR STREAMS AND SPRINGS

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WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	WQI OR TSI	1984 - 1993 TRENDS: OVER-ALL TREND	WQ or SI	TN	TP	CHLA	DO	PH	ALK	TURB	TSS	BOD	TOC	DOSAT	DOSI	TCOLI	FCOLI	TEMP	FLOW	TN	TP	<--- PLEASE READ THESE COLUMNS VERTICALLY: DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
54	BLANCHESTER LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
55	LAKE YALE CANAL	YES	GOOD	+	+	0	0	0	+	0	0	0	0	0	0	0	x	.	.	.	+	.		
56	LAKE UMATILLA OUTLET	YES	GOOD																					
57	LAKE TUTUOLA	YES	GOOD																					
58	ISLAND LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
61	BIG BASS LAKE	YES	GOOD																					
62	ELLA LAKE DRAIN	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
69	LAKE WEIR	YES	GOOD	0	0	0	+	0	0	0	+	0	0	0	0	0	0	.	.	.	0	.		
71	DOE POND	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
75	SMITH LAKE	YES	GOOD																					
76	DINNERS POND	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
80	LAKE BRYANT	YES	GOOD																					
81	NORTH LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
82	UNNAMED LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
83	HALFMOON LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
85	MILL DAM LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
88	JOES LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
89	CLEAR LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
98	MUD LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
99	FORE LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
113	ORANGE LAKE REACH	PARTIAL	FAIR	0	0	x	0	0	0	0	+	x	0	0	x	0	0	.	.	.	0	.		
115	Lake Ocklawaha	YES	GOOD	0	0	0	0	0	0	0	+	0	0	+	+	0	0	.	.	.	x	.		
116	ISLAND LAKE DRAIN	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
120	PENNER PONDS	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
122	LOCHLOOSA LAKE	PARTIAL	FAIR	0	0	x	0	0	0	0	+	0	0	0	.	+	+	.	.	.	x	.		
124	WALBERG LAKE OUTLET	NO	POOR																					
125	LAKE JEFFORDS OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
127	HIGGINBOTHAM LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
129	STAR LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
130	REDWATER LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
131	HOLDEN POND	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
132	LITTLE ORANGE LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
133	SOUTH BULL LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
134	WINNOT LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
136	COWPEN LAKE OUTLET	YES	GOOD																					
137	GALILEE LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
138	MORRIS LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
139	LAKE IDA	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
140	KANAPAHA LAKE	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
141	BEVENS ARM	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

LEGEND:

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142	NEWNANS LAKE	NO	POOR	x	x	x	0	x	0	x	+	x	.	.	.	+	+	.	.	0	.
144	LAKE ALICE	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
149	LAKE ELIZABETH OUTLET	YES	GOOD																		
* WATER BODY TYPE: SPRING																					
27	GOURD NECK SPRING	PARTIAL	FAIR	0	0	x	0	0	0	+	0	0	0	.	0	0	0	.	.	0	.
32	BUGG SPRING RUN	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
37	BLUE SPRINGS	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
38	HOLIDAY SPRINGS	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
91	SILVER SPRINGS	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
* WATER BODY TYPE: STREAM																					
1	SUNNYHILL FARM MARSH	NO	POOR	0	0	0	0	0	0	0	0	0	0	0	.	0	0	.	.	0	.
3	BIG CREEK REACH	YES	GOOD	0	0	0	0	0	0	+	.	0	.	0	.	0	x	.	.	0	.
5	LITTLE CREEK	PARTIAL	FAIR	0	x	0	0	0	0	+	.	0	.	0	.	0	0	.	.	0	.
18	PALATKALAHA RIVER	YES	GOOD	0	0	0	0	0	0	0	0	0	0	0	x	.	0	0	.	0	.
29	APOPKA MARSH	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33	LAKE APOPKA OUTLET	NO	POOR	+	0	+	+	+	+	0	0	0	0	0	+	+	0	0	.	0	.
40	HELENA RUN	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
42	DORA CANAL	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
44	Dead River	PARTIAL	FAIR	0	0	.	0	0	0	0	.	0	.	.	.	x	0	.	.	0	.
52	HAYNES CREEK REACH	NO	POOR	0	0	0	0	0	0	0	.	0	+	0	.	0	0	.	.	0	.
78	OCKLAWAHA RIV AB DAISY	PARTIAL	FAIR	0	0	+	0	0	0	0	0	0	0	0	.	0	0	.	0	0	+
90	SILVER RIVER	YES	GOOD	+	+	0	+	x	0	x	0	x	0	0	.	+	+	.	.	0	.
93	EATON CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
100	DAISY CREEK	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
101	OCKLAWAHA RIV AB LK OK	YES	GOOD	0	0	0	0	x	0	0	0	0	0	0	+	0	0	.	.	x	.
103	FAIRFIELD SINK	PARTIAL	FAIR																		
109	ORANGE CREEK	YES	GOOD	0	0	x	0	0	0	x	0	0	0	0	0	0	0	.	.	0	.
119	OCKLAWAHA RIV AB STJR	YES	GOOD	0	0	0	0	x	0	x	+	0	0	0	0	0	0	.	.	0	.
121	CROSS CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
126	DEEP CREEK RODMAN RES	YES	GOOD	0	0	0	.	.	0	0	0	0	0	0	0	0	0	.	.	0	.
128	LITTLE ORANGE CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
135	EXTENSION DITCH	NO	UNKN																		
143	SWEETWATER CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
145	SWEETWATER BRANCH	NO	UNKN																		
146	LOCHLOOSA CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
147	HOGTOWN CREEK	YES	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
148	POSSUM CREEK	YES	GOOD																		
150	GUMROOT SWAMP	YES	GOOD																		

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DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS

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'.'=MISSING DATA

WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	QUALITY RANK: WQI OR TSI	1984 - 1993 TRENDS: OVER-ALL TREND	WQI or TSI	TN	TP	CHLA	SD	PH	ALK	TURB	TSS	BOD	TOC	DO	DOSAT	TCOLI	FCOLI	TEMP	FLOW	<--- PLEASE READ THESE COLUMNS VERTICALLY: DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
151	HATCHET CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

LEGEND:

ALK-ALKALINITY
BOD-BIOCHEM. OXYGEN DEMAND
CHLA-CHLOROPHYLL
DO-DISSOLVED OXYGEN
DOSAT-DO SATURATION
FCOLI-FECAL COLIFORM
FLOW-FLOW
MEETS USE-MEETS DESIGNATED USE
PH-PH
SD-SECCHI DISC METERS
TCOLI-TOTAL COLIFORM
TEMP-TEMPERATURE
TN-NITROGEN
TOC-T.ORGANIC CARBON
TP-PHOSPHORUS
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
TSI-TROPHIC STATE INDEX FOR LAKES AND ESTUARIES
WQI-WATER QULAITY INDEX FOR STREAMS AND SPRINGS

NPS QUALITATIVE SURVEY RESULTS
AN "X" INDICATES A PROBLEM WITH POLLUTANT OR SOURCE
THE * ON MAPID INDICATES NO STORET INFORMATION AVAILABLE FOR THIS WATERSHED
-SEE PAGE 11 FOR LEGEND FOR THIS TABLE-

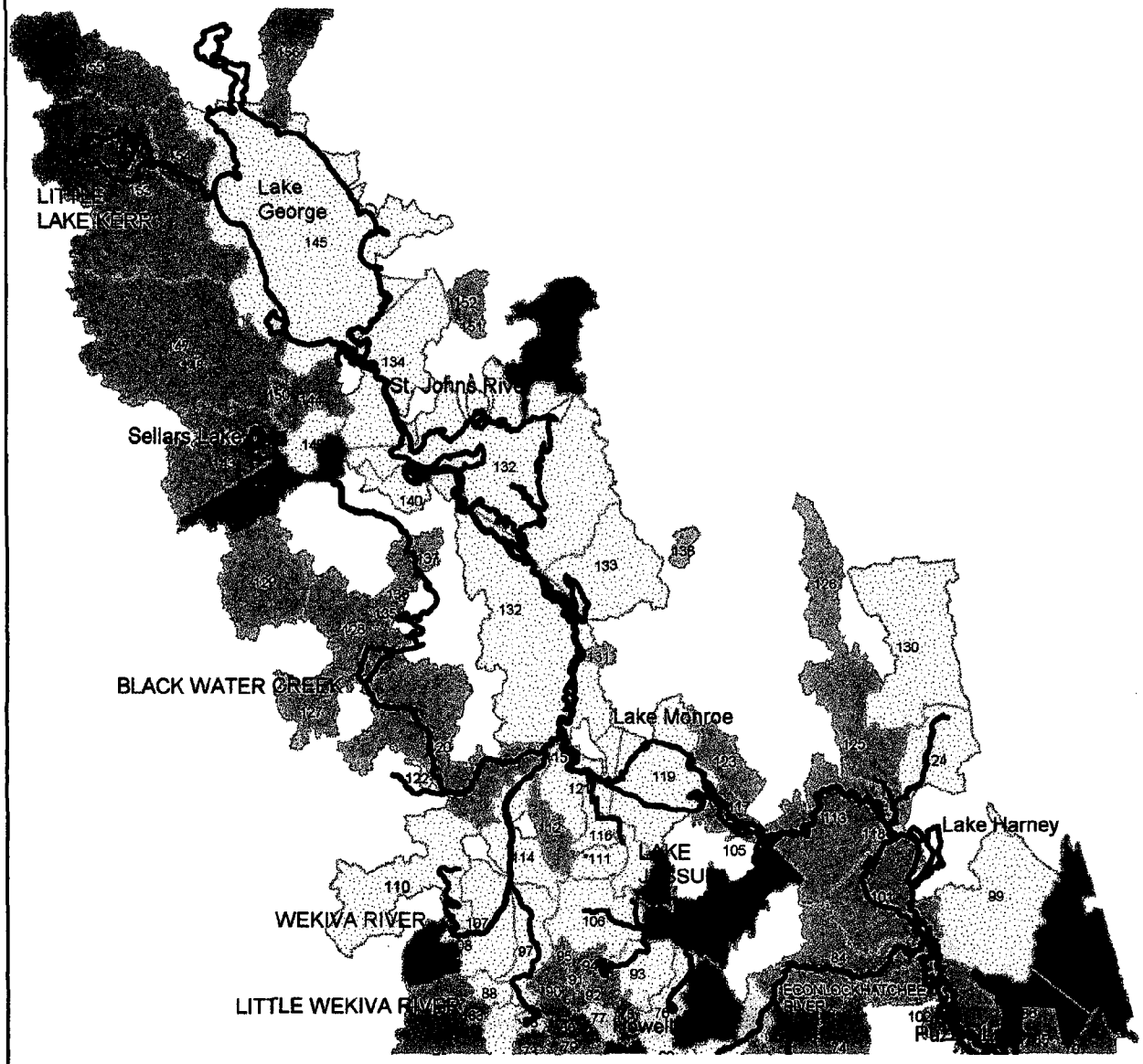
CATNAME=OKLAWAHA RIVER HUC=03080102

MAP ID	WBID	BASIN	WQ03 05	WQNPS	NUTRIENT	BACTERIA	SEDIMENT	OIL	PESTICID	OTHERCHE	DEBRIS	OXYGEN	SALINITY	PH	METAL	HABITAT	FLOW	THERMAL	OTHERPOL	FISHKILL	ALGAL	WEED	TURBIDITY	ODOR	FISHDECL	NOSWIM	NOFISH	OTHERSYM	IND	STP	AG	RE	SL	LD	UR	CN	HM	OT
59*	2802	UNNAMED DRAIN		THREAT	X	X	X		X													X	X	X							X			X				X
60*	2800	NONCONTRIBUTING AREA		THREAT	X		X																X								X			X				
61	2795	BIG BASS LAKE	GOOD	THREAT	X		X		X													X	X	X					X	X	X			X				X
62	2797	ELLA LAKE DRAIN	GOOD	THREAT	X		X		X													X	X								X			X				
63*	2799	UNNAMED SLOUGH		THREAT	X		X																X								X			X				
64*	2796	WEIRSDALE SLOUGH		THREAT	X		X		X													X	X								X			X				
65*	2793	TURKEY LAKE DRAIN		THREAT	X		X																X								X			X				
66*	2794	TIGERHEAD LAKE OUTLET		THREAT	X		X		X													X	X								X			X				
67*	2798	UNNAMED SLOUGH		THREAT	X		X																X								X			X				
68*	2792	TIGER LAKE OUTLET		THREAT	X		X		X													X	X								X			X				
69	2790	LAKE WEIR	GOOD	THREAT	X	X	X		X													X	X	X							X			X				X
70*	2789	NICOTOON LAKE		THREAT	X		X		X													X	X								X		X	X				X
71	2789A	DOE POND	GOOD	THREAT	X		X		X													X	X								X		X	X				X
72*	2791	ISLAND LAKE OVERFLOW		GOOD																																		
73*	2788	BOWERS LAKE		THREAT	X		X	X														X	X								X			X		X		X
74*	2786	LAKE WEIR OUTLET		THREAT	X		X	X														X	X											X		X		
75	2785	SMITH LAKE	GOOD	THREAT	X	X																X									X			X		X		
76	2783	DINNERS POND	GOOD	THREAT	X		X															X	X								X		X	X				
77*	2784	MUD PRAIRIE LK OUTLET		GOOD																																		
79*	2778	MARSHALL SWAMP DRAIN		THREAT		X	X									X						X												X	X	X		
80	2782	LAKE BRYANT	GOOD	THREAT	X		X																X								X			X	X			X
81	2782A	NORTH LAKE	GOOD	THREAT	X		X																X								X			X	X			X
82	2782B	UNNAMED LAKE	GOOD	THREAT	X		X																X								X			X	X			X
83	2781	HALFMOON LAKE	GOOD	THREAT	X		X																X								X		X	X	X			X
84*	2780	LITTLE LAKE BRYANT		GOOD																																		
85	2779	MILL DAM LAKE	GOOD	THREAT			X															X									X				X			X
86*	2777	WALDENA LAKE		GOOD																																		
87*	2775	HULLS CREEK		THREAT	X		X																X								X			X	X			X
88	2775A	JOES LAKE	GOOD	THREAT	X		X																X								X			X	X			X
89	2775B	CLEAR LAKE	GOOD	THREAT	X		X																X								X			X	X			X
90	2772	SILVER RIVER	GOOD	THREAT	X	X	X	X	X													X	X								X			X	X	X		
91	2772A	SILVER SPRINGS	GOOD	THREAT	X	X	X	X	X													X	X								X			X	X	X		
92*	2776	GRAHAMVILLE DRAIN		THREAT	X		X		X													X	X								X			X				
93	2771	EATON CREEK	GOOD	THREAT	X		X		X													X	X								X		X	X				
94*	2774	SILVER RIVER TRIBUTARY		THREAT	X		X															X	X								X			X	X	X		
95*	2765	NONCONTRIBUTING AREA		THREAT	X	X	X									X					X	X						X			X		X	X	X	X	X	X
96*	2773	OAKIE HEAD DRAIN		THREAT	X		X		X													X									X			X				
97*	2770	NON CONTRIBUTING		THREAT	X		X		X													X	X								X			X				X
98	2768	MUD LAKE	GOOD	THREAT	X		X		X													X									X		X	X				
99	2768A	FORE LAKE	GOOD	THREAT	X		X		X													X									X		X	X				
100	2769	DAISY CREEK	POOR	THREAT	X		X		X													X	X								X		X	X				
102*	2764	GOOSKI PRAIRIE		THREAT			X																X								X	X			X			
103	2766	FAIRFIELD SINK	FAIR	THREAT	X	X	X																					X			X	X	X	X				X
104*	2761	HAWTHORN PRAIRIE OUTLE		THREAT	X	X	X	X		X		X	X			X	X				X	X	X	X				X			X	X	X	X		X	X	X
105*	2762	REDDICK SLOUGH		THREAT	X	X	X	X																				X			X	X	X	X			X	X
106*	2763	UNNAMED DRAIN		THREAT	X		X		X													X									X			X				
107*	2760	IRVING SLOUGH		THREAT	X	X	X	X								X					X	X						X			X	X	X	X				X
108*	2756	MILL CREEK		THREAT	X		X		X												X	X									X		X	X				
109	2747	ORANGE CREEK	GOOD	THREAT	X		X	X	X			X	X	X						X		X	X		X						X		X	X				X

NPS QUALITATIVE SURVEY RESULTS
AN "X" INDICATES A PROBLEM WITH POLLUTANT OR SOURCE
THE * ON MAPID INDICATES NO STORET INFORMATION AVAILABLE FOR THIS WATERSHED
-SEE PAGE 11 FOR LEGEND FOR THIS TABLE-

CATNAME=OKLAWAHA RIVER HUC=03080102
(continued)

MAP_ID	WBID	BASIN	WQ3 05	WQNPS	NUTRIENT	BACTERIA	SEDIMENT	OIL	PESTICID	OTHERCHE	DEBRIS	OXYGEN	SALINITY	PH	METAL	HABITAT	FLOW	THERMAL	OTHERPOL	FISHKILL	ALGAL	WEED	TURBIDIT	ODOR	FISHDECL	NOSWIM	NOFISH	OTHERSYM	IND	STP	AG	RE	SL	LD	TR	CN	HM	OT
110*	2750	PRIEST PRAIRIE DRAIN		THREAT	X	X	X									X					X		X					X			X		X	X		X	X	
111*	2759	IRVINE DRAIN		THREAT	X	X	X	X								X												X			X			X				X
112*	2758	UNNAMED SLOUGH		THREAT	X		X		X													X			X						X			X				
113	2749	ORANGE LAKE REACH	FAIR	THREAT	X							X	X				X			X		X			X						X				X			
114*	2755	FISH PRAIRIE CREEK		THREAT	X		X																								X			X				
116	2753	ISLAND LAKE DRAIN	GOOD	THREAT	X		X		X													X									X		X	X		X		
117*	2757	EVINSTON DRAIN		THREAT	X	X						X	X				X			X	X	X		X	X						X			X	X		X	X
118*	2752	TUSCAWILLA LAKE		THREAT	X	X	X														X	X									X		X	X				X
122	2738	LOCHLOOSA LAKE	FAIR	THREAT	X							X	X								X	X											X					
123*	2744	RIVER STYX REACH		THREAT	X							X	X							X	X	X									X		X					
126	2730	DEEP CREEK ROEMAN RES	GOOD	THREAT	X							X	X							X	X	X											X					
128	2713	LITTLE ORANGE CREEK	GOOD	THREAT	X																										X		X					
129	2713A	STAR LAKE	GOOD	THREAT	X																										X		X					
130	2713B	REDWATER LAKE	GOOD	THREAT	X																										X		X					
131	2713C	HOLDEN POND	FAIR	THREAT	X																										X		X					
132	2713D	LITTLE ORANGE LAKE	GOOD	THREAT	X																										X		X					
133	2713E	SOUTH BULL LAKE	GOOD	THREAT	X																										X		X					
134	2713F	WINNOT LAKE	GOOD	THREAT	X																										X		X					
140	2717	KANAPAHA LAKE	POOR	THREAT	X							X	X								X	X												X	X			
142	2705	NEWNANS LAKE	POOR	THREAT	X							X	X								X	X									X				X			
143	2708	SWEETWATER CREEK	GOOD	THREAT	X		X		X			X	X							X	X	X															X	
144	2719	LAKE ALICE	POOR	THREAT	X							X	X								X	X		X		X									X			
145	2711	SWEETWATER BRANCH	POOR	THREAT	X																													X	X			
147	2698	HOGTOWN CREEK	GOOD	POOR	X		X	X		X									X	X						X	X							X	X	X		X
148	2696	POSSUM CREEK	GOOD	FAIR	X		X	X		X													X															
150	2695	GUMROOT SWAMP	GOOD	POOR	X																												X					X

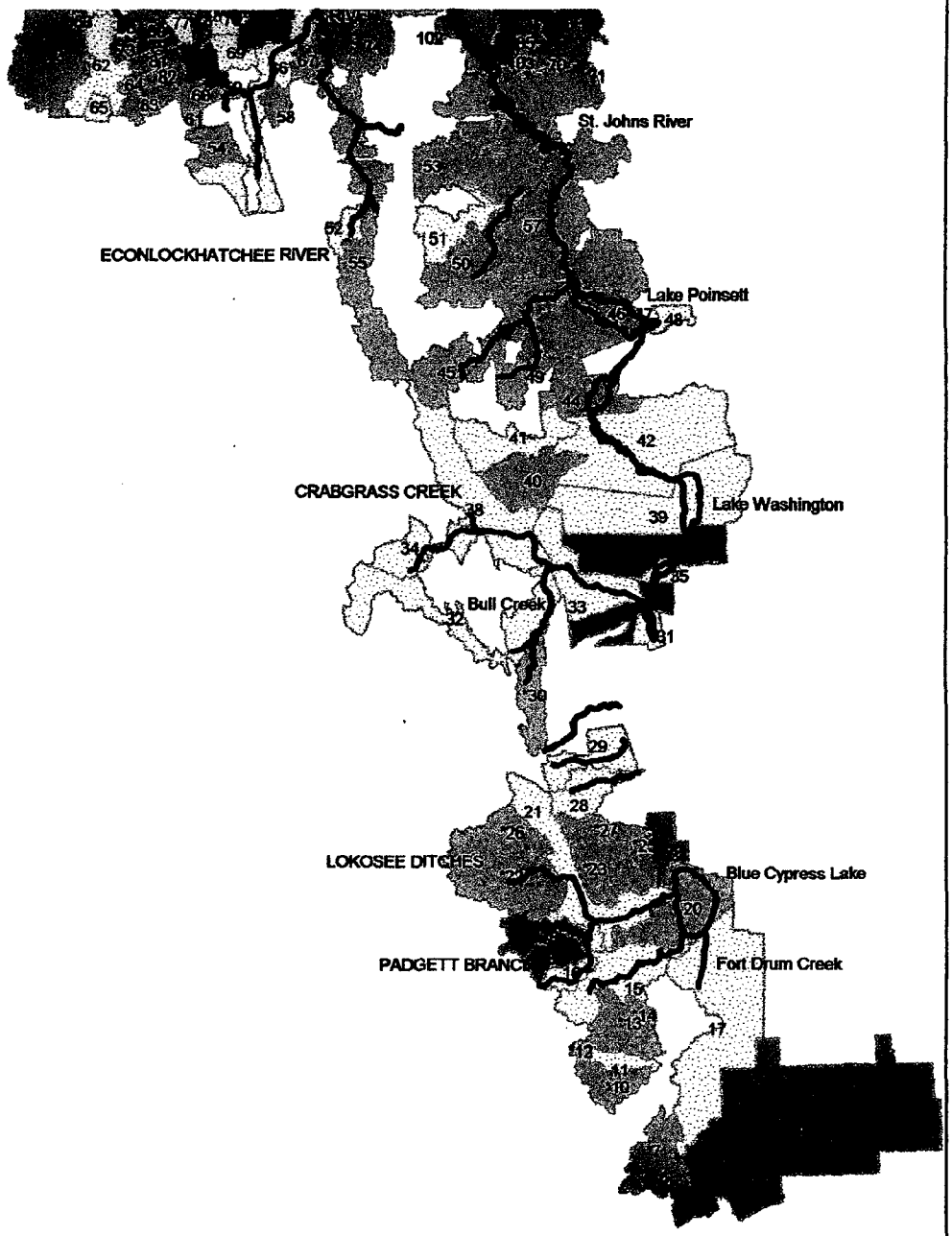


MAP CONTINUED ON NEXT PAGE

UPPER ST. JOHN'S RIVER BASIN
03080101

AVERAGE WATER QUALITY
1984-1993 STORET DATA
WATERSHED ID NUMBERS LINK MAP TO TABLES
* INDICATES QUALITATIVE ASSESSMENT

WATER QUALITY
- GOOD
- THREATENED
- FAIR
- POOR
- UNKNOWN



UPPER ST. JOHN'S RIVER BASIN
03080101

AVERAGE WATER QUALITY
1984-1993 STORET DATA
WATERSHED ID NUMBERS LINK MAP TO TABLES
* INDICATES QUALITATIVE ASSESSMENT

WATER QUALITY
- GOOD
- THREATENED
- FAIR
- POOR
- UNKNOWN

UPPER ST. JOHNS RIVER BASIN

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Basic Facts

Drainage Area: 4,017 square miles
Major Land Uses: agriculture, forestry, urban development
Population Density: low in upper St. Johns, high in Orlando area (Sanford, DeLand, Christmas), increasing in the areas adjacent to I-95 in the West Melbourne area
Major Pollution Sources: urban runoff, WWTP, rangeland and agriculture runoff
Best Water Quality Areas: numerous lakes and tributaries of St. Johns
Worst Water Quality Areas: Lake Jessup, Salt Lake
Water Quality Trends: stable quality at 38 sites, improvements in 12 watersheds some located in Orlando area (Lakes Harney and Monroe and Econ River), degradation in the Wekiva River
OFW Waterbodies:
Lake Woodruff National Wildlife Refuge
St. Johns River National Wildlife Refuge
Blue Springs State Park
Wekiva River System
Tosohatchee State Reserve
SWIM Waterbodies: Lake George Basin
Reference Reports:
Upper St. Johns River BAS, DEP (Orlando), 1988
Seminole County Water Quality Report, Seminole County, 1982
Florida Rivers Assessment, DEP/FREAC/NPS, 1989
Florida Nonpoint Source Assessment, DEP (Tallahassee), 1988
Ecosummary Reports (presented by DEP Central District):
Econ R. @ SR-420 (1992)
Wekiva R. @ Wekiva Landing (1992)
St. Johns R. @ L. Washington (1992)
St. Johns R. @ Astor (1993)
Jim Cr. @ Fish Hole Rd. (1993)
Blackwater Cr. @ SR-44A (1993)
Juniper Cr. @ SR-19 (1994)
Basin Water Quality Experts:
David Heil, DEP (Tallahassee), 904/488-5471
Guy Hadley, Jim Hulbert, Eric Pluchino DEP (Orlando), 407/894-7555
Carol Fall, SJRWMD, (Orlando) 407/328-8321
Mary Ann Lee, SJRWMD (Palatka) 904/329-4500

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In the News

* The Econlockhatchee River System has been designated as an Outstanding Florida Water.
* Health advisories recommending limited consumption of largemouth bass due to mercury content have been issued for Lake Sawgrass, Puzzle Lake, Lake Hellen Blazes, and St. Johns River at the Econlockhatchee River.
* The Governing Board of the SJRWMD developed special permitting criteria to increase protection of the Econlockhatchee River System.
* Road widening activities by DOT near Lake Howell coupled with heavy rains have moved extremely large quantities of dirt and construction debris into the lake. An extra retention pond and roadside sodding will be used to control runoff into the lake.
* A task force has been funded to study water quality improvement strategies for Lake Jessup.
* Revegetation of Lake Monroe is proceeding successfully.
* City of Deland and Sanford are shifting portions of their WWTP discharge from the St. Johns to reuse. City of Deltona has gone completely to reuse.

Ecological Characterization

The upper St. Johns River basin is defined as the area between the St. Johns River headwaters and the confluence of the Oklawaha and St. Johns Rivers. The headwaters of the St. Johns River emerge from the St. Johns Marsh in St. Lucie and Indian River Counties at an altitude of only 27 feet above the river's mouth. The St. Johns basin is actually an ancient coastal lagoon system, confined by barrier islands when sea levels were higher. As sea level dropped, those barrier islands became the Atlantic coastal ridge, preventing the eastward flow of water, and causing the water to collect in the flat valley and slowly meander northward for approximately 300 miles, entering the Atlantic Ocean near Jacksonville. Mean flow for the upper St. Johns River is 1300 cfs at Lake Poinsett outlet (209 miles from the mouth) and 3200 cfs near DeLand (142 miles from the mouth). However, reverse flows from tidal effects extend far upstream and can even be noticed, in the dry season, as far as Lake Monroe, over 160 river miles from the sea.

The upper St. Johns River near the headwaters has been extensively modified by canals and dikes. It has been estimated that some 60% of the Upper St. Johns floodplain has been drained for use -- mostly as rangeland or citrus groves. Several major canals divert waters eastward to the Indian River Lagoon. However, a restoration project by the St.

Johns River Water Management District and the Army Corps of Engineers is now underway. The project will restore significant portions of the original St. Johns River marsh and decrease the amount of water diverted to the Indian River Lagoon. Downstream from Lake Harney the river takes on a different look. It becomes wider and deeper and is lined with hardwood swamps. There are a number of large shallow lakes associated with this middle portion of the river. Additionally, the river receives inflow from several springs or spring run tributaries. Portions of this segment are in Ocala National Forest or Lake Woodruff National Wildlife Refuge.

From swampland origins, the river and associated lakes are basically blackwater type waterbodies. Land use is largely agriculture in the upper reaches of the upper St. Johns River basin with a greater percentage of forest land in the downstream reaches. There is considerable urban land use in the middle portion of the basin in the Orlando vicinity. Because of its extremely sluggish nature, the river often acts more like a lake and concentrates runoff pollutants.

Anthropogenic Impacts

Although the headwaters of the St. Johns River have been extensively altered into drainage channels, water quality in the upper reaches of the basin is borderline good to fair with localized areas of poor quality. DO values tend to be low because of the sluggish nature of the stream. Row crop, citrus and cattle operations contribute nutrients, agricultural chemicals and bacteria to portions of the river. An experimental restoration project on two canals north of Blue Cypress Lake indicated that reflooding marshes improves water quality.

Lake Washington is classified as a Class I water and provides drinking water for Melbourne, Florida. It maintains a good rating; however, a degrading trend in chlorophyll and phosphorus was detected. The Lake has recently experienced extensive growths of Hydrilla, unlike any in the past. Lake Poinsett, located downstream of Lake Washington, used to receive effluent from two small volume WWTPs which provided nutrient loading to the lake. These plants have now connected to a centralized facility. From Lake Poinsett to Puzzle Lake, the St. Johns River and its tributaries are very shallow, and DO concentrations are typically low due to the drainage from marshy floodplains. A DEP basin assessment describes this as a "recovery area" from upstream perturbations.

Downstream of Puzzle Lake, the St. Johns River and its lakes and tributaries have many water quality problems, mostly related to urban development around Orlando. The problems are chiefly a result of discharge from the numerous WWTPs and from urban runoff. Most of Orlando's runoff drains into its numerous urban lakes. After years of degrading trends, many of the lakes are benefiting from local programs to revegetate the banks, remove litter and, in some cases, provide alum treatment. Additionally, in recent years, many of the smaller, poorly-regulated WWTP facilities have been connected with one of the two major Orlando regional sewage treatment plants: Iron Bridge and Orange

County Easterly. The former plant discharges to the Little Econlockhatchee (Econ) and also to a wetland area that drains to the St. Johns River. About half of the Orange County Eastern discharge goes to the Econlockhatchee River via a wetland treatment area. The other half is used as cooling water for the local utility company. Both plants are considering expansions. The consolidation of several facilities into these two plants has resulted in significantly improved water treatment. Wetland filtration has also played a major role in improved water treatment.

The water quality in the affected reaches of the Econ system appears to be improving. Lake Harney has also shown modest improvements. Although the Little Econ is moderately impaired by these point and nonpoint pollution sources, the main stem of the Econlockhatchee River retains much of its natural character. However, it is under heavy developmental pressure and several regional concern groups are making efforts to protect and buy much of the river corridor. A task force dedicated to the Econ River was established by the Water Management District. The tributary system flowing into Lake Jessup has had WWTP impacts in the past (especially Lake Howell), however, at present the primary source of pollution is stormwater. The Lake Howell drainage basin has shown improvement in water quality due diversion of WWTP effluents from this system. Lake Howell also receives a lot of stormwater runoff. Lake Jessup is very eutrophic with an almost constant algal bloom and yearly fish kills. Although no wastewater is currently discharged into the system, recovery is likely to be slow because of very low flushing rates. Several agencies are collecting data on Lake Jessup to determine if restoration of the lake is possible, and what methods might be appropriate. Studies on the flow into and out of the river, groundwater inputs, and water-nutrient budgets are underway.

Another lake suffering from severe eutrophication is Lake Monroe which receives WWTP discharge from the Sanford and Deltona plants. The City of Sanford has proposed a reuse and land application process to remove the discharge from Lake Monroe. City of Sanford's reuse plan is under way. Most of their effluent is reused, but they are permitted to discharge to the lake. A revegetation program for this lake by DEP and the Florida Game and Fresh Water Fish Commission was completed in 1989.

Downstream of Lake Monroe, the Wekiva River adds good quality water to the St. Johns. The Wekiva and Little Wekiva Rivers and Blackwater Creek have been designated as Outstanding Florida Waters to afford them greater protection from future degradation.

The Altamonte Springs advanced wastewater treatment plant, which began operation in the mid-seventies, greatly improved the dissolved oxygen concentrations in the Little Wekiva River which had a history of poor water quality due to domestic and industrial discharge. Altamonte Springs is reusing a portion of it's effluent as well as having improved it's treatment process. However, nutrients and bacteria concentrations remain high in this reach, and developmental pressure is great. A small watershed just north of the Wekiva River (Lake Norris/Blackwater Creek system) has excellent water quality and is an OFW. Portions of this basin are proposed for state purchase to ensure preservation.

The water quality in St. Johns River improves between Lakes Monroe and George. Only one WWTP discharges (DeLand) to this section of the river. The City of Deland is reusing a portion of it's effluent instead of piping it to the St. Johns. Lake George is wide and shallow (about 46,000 acres) and exhibits a moderate degree of eutrophication. The DEP basin assessment noted improving trends in Lake George.

** USGS HYDROLOGIC UNIT: 03080101 ST JOHNS RIVER, UPPER

SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH PH	ALKALINITY ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND COND	FLOW FLOW	WATER QUALITY INDICES WQI	TSI
* WATER BODY TYPE: LAKE																												
4	Lake Woodruff	243	89	93	Current	2.6	0.7	121	9	7.1	81	2.5	.	20	7.7	66	1.36	0.07	20	80	5	.	.	.	918	.	.	63
20	BLUE CYPRESS LAKE	23	89	93	Current	3.0	0.9	103	7	7.5	91	1.1	.	21	7.2	47	1.34	0.08	4	.	.	.	.	.	340	.	.	53
31	Lake Helen Blazes	28	89	93	Current	28.0	0.8	200	2	2.0	21	1.4	.	.	6.8	94	1.59	0.07	6	.	.	.	.	.	470	.	.	62
35	SAWGRASS LAKE	9	81	84	Historical	0.9	.	201	2	4.5	49	1.7	128	31	6.8	56	2.08	0.08	.	.	.	.	.	.	490	.	.	63
39	Lake Washington	4	91	91	Current	1.2	0.0	238	2	6.0	75	.	.	24	7.2	71	2.07	0.04	2	.	.	.	.	.	452	.	.	61
44	LAKE WINDER	30	81	87	Historical	1.0	0.9	190	2	5.3	61	1.4	89	29	6.9	60	1.47	0.07	3	.	.	.	.	.	640	.	.	55
46	Lake Poinsett	25	89	91	Current	2.3	1.1	138	3	6.5	74	1.3	.	24	7.2	72	1.73	0.06	9	.	.	.	.	.	785	12	.	57
48	FLORENCE LAKE	2	90	90	Current	8.1	0.9	93	15	5.2	63	.	.	22	7.2	107	1.67	0.11	9	.	.	.	.	.	2470	.	.	60
54	LAKE FREDERICA	11	89	91	Current	0.8	3.4	14	3	8.3	93	2.0	.	.	6.9	27	0.55	0.02	4	70	.	.	.	.	219	.	.	31
58	LAKE DOWNEY	13	89	91	Current	1.4	2.8	23	5	7.5	90	1.9	1	.	6.2	6	0.59	0.02	5	73	.	.	.	.	128	.	.	33
60	LAKE BALDWIN	10	89	91	Current	2.1	1.6	23	6	8.5	95	3.7	.	.	7.5	62	0.73	0.03	14	159	.	.	.	.	210	.	.	49
61	LAKE BARTON	6	90	91	Current	1.4	2.2	18	4	7.9	94	2.6	.	.	7.5	34	0.47	0.02	8	60	.	.	.	.	146	.	.	40
63	BEAR LAKE	47	85	85	Historical	1.1	2.4	.	.	8.1	94	.	16	.	6.4	5	0.44	0.03	.	.	.	.	.	.	134	.	.	37
64	LAKE FAIRVIEW	34	89	92	Current	2.2	1.5	34	6	8.5	95	2.5	.	.	7.6	49	0.73	0.03	20	50	.	.	.	.	193	.	.	48
65	LAKE LAWNE	72	89	92	Current	5.1	0.6	88	9	7.5	85	3.6	.	.	7.7	64	1.27	0.13	28	90	.	.	.	.	232	.	.	67
67	LAKE PRICE OUTLET	5	89	91	Current	1.6	3.1	25	2	7.3	87	1.1	.	.	5.8	4	0.26	0.01	2	38	.	.	.	.	141	.	.	27
69	BEARGULLY LAKE OUTLET	12	82	85	Historical	2.5	0.7	.	.	7.5	90	2.7	41	.	7.0	20	1.18	0.05	.	.	.	.	.	.	146	.	.	64
70	SOUTH LAKE OUTLET	11	89	91	Current	2.8	1.1	20	4	8.5	93	2.6	.	17	8.1	105	1.45	0.02	9	.	.	.	.	.	855	.	.	41
71	FOX LAKE	11	89	91	Current	4.8	0.5	70	7	7.9	87	3.7	.	27	7.7	63	1.94	0.06	50	.	.	.	.	.	1288	.	.	70
72	LUCY LAKE	2	90	90	Current	3.7	0.8	70	3	6.0	75	.	.	29	6.0	29	2.45	0.06	11	.	.	.	.	.	205	.	.	59
73	LAKE LUCIEN OUTLET	32	74	79	Historical	1.8	4.1	10	.	7.9	89	.	.	8	7.2	14	0.53	0.01	.	.	.	.	.	.	142	.	.	21
74	MILLS LAKE	29	79	79	Historical	2.0	1.1	.	.	8.4	86	.	.	.	.	.	0.44	0.03	.	.	.	.	.	.	108	.	.	50
78	Howell Lake	5	92	92	Current	7.2	0.7	25	8	5.2	63	.	.	11	7.6	69	0.99	0.02	34	.	130	.	.	.	190	.	.	59
79	LAKE MAITLAND	27	89	92	Current	2.3	1.2	16	6	8.2	87	3.2	.	4	7.9	48	0.74	0.03	22	5	.	.	.	.	201	.	.	52
80	LAKE MINNEHAHA	21	89	91	Current	2.0	1.2	15	5	7.7	86	2.7	.	6	7.6	44	0.67	0.04	17	15	.	.	.	.	198	.	.	49
81	LAKE OSCEOLA	30	89	92	Current	1.9	1.0	18	6	8.3	89	3.2	.	5	8.3	49	0.86	0.03	16	17	.	.	.	.	199	.	.	52
82	LAKE MIZELL	20	89	91	Current	2.4	1.2	15	4	8.3	86	3.5	.	5	7.7	45	0.80	0.02	17	22	.	.	.	.	257	.	.	50
83	LAKE VIRGINIA	22	89	92	Current	2.3	1.1	20	6	8.4	93	2.8	.	4	8.1	54	0.81	0.03	19	17	.	.	.	.	213	.	.	54
85	CLARK LAKE OUTLET	2	90	90	Current	2.8	.	65	.	7.3	88	.	.	23	7.8	67	1.85	0.05	16	.	.	.	.	.	505	.	.	55
86	LOUGHMAN LAKE	2	90	90	Current	21.7	0.4	65	.	5.3	62	.	.	28	7.8	64	3.49	0.15	70	.	.	.	.	.	650	.	.	82
87	SALT LAKE	2	90	90	Current	38.5	0.4	45	.	9.4	113	.	.	39	8.5	84	4.98	0.18	224	.	.	.	.	.	635	.	.	90
88	LAKE PEARL	61	75	82	Historical	5.0	0.7	53	22	8.5	101	1.0	.	.	7.3	71	0.99	0.04	.	1000	10000	.	.	.	394	.	.	68
91	LAKE FLORIDA	17	82	82	Historical	1.5	1.5	.	.	6.0	63	2.0	.	.	6.8	30	1.09	0.04	.	5	.	.	.	.	150	.	.	51
92	Lake Kathryn	33	82	85	Historical	3.1	1.1	.	.	8.1	93	3.0	29	.	7.6	34	0.89	0.04	.	.	.	.	.	.	132	.	.	54
94	Fairy Lake	2	92	92	Current	2.4	1.4	10	3	8.0	100	.	.	7	7.2	49	0.56	0.02	9	.	.	.	.	.	185	.	.	45
95	ISLAND LAKE	83	86	86	Historical	1.1	.	110	.	.	.	.	.	25	6.2	.	1.02	0.03	.	.	.	.	.	.	100	.	.	43
96	LAKE PREVATT	10	89	92	Current	1.7	0.8	127	5	6.2	65	6.3	.	.	6.5	22	1.81	0.09	43	260	.	.	.	.	123	.	.	74
98	SPRING LAKE	83	73	75	Historical	22.8	5.8	53	17	6.5	71	5.7	41	.	8.6	64	1.96	2.65	.	100	0	.	.	.	258	.	.	69
99	CABBAGE SLOUGH	2	90	90	Current	16.9	0.5	80	.	7.5	92	.	.	24	7.4	56	2.03	0.05	8	.	.	.	.	.	855	.	.	60
101	LAKE HARNEY	284	89	93	Current	2.3	0.9	140	3	5.8	69	1.3	.	20	7.2	62	1.35	0.05	6	79	21	.	.	.	994	.	.	51

LEGEND:
ALK-ALKALINITY MG/L
ART-ARTIFICIAL SUBSTRATE DI
BEG YR-BEGINNING SAMPLING YEAR
BECK-BECK'S BIOTIC INDEX
BOD-BIOCHEMICAL OXYGEN DEMAND MG/L
CHLA-CHLOROPHYLL UG/L
COD-CHEMICAL OXYGEN DEMAND MG/L
COLOR-COLOR PCU
COND-CONDUCTIVITY UMHOS
DO-DISSOLVED OXYGEN MG/L
DOSAT-DO % SATURATION
END YR-ENDING YEAR
FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
MAX #OBS-MAXIMUM NUMBER OF SAMPLES
NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
TURB-TURBIDITY MG/L
WQI-WATER QUALITY INDEX

** USGS HYDROLOGIC UNIT: 03080101 ST JOHNS RIVER, UPPER

SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH ALKALINITY PH	ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND COND	FLOW FLOW	WATER QUALITY INDICES WQI	TSI
102	PUZZLE LAKE	82	89	92	Current	1.4	0.9	195	3	5.3	61	1.8	.	22	7.0	64	1.55	0.04	4	133	23	.	.	.	906	.	.	42
103	RUTH LAKE	2	90	90	Current	2.5	.	150	.	6.0	72	.	.	25	7.1	48	1.75	0.03	10	.	.	.	.	.	310	.	.	46
104	Lake Jessup	105	89	93	Current	23.0	0.3	80	55	9.0	103	13.0	.	17	8.5	73	3.01	0.22	83	55	20	.	.	.	900	.	.	83
105	LAKE JESSUP NR STJR	13	89	90	Current	31.3	0.6	100	36	7.6	86	4.9	.	.	8.0	62	2.40	0.17	56	.	.	.	.	.	1184	.	.	72
112	LAKE SYLVAN	41	82	83	Historical	2.6	0.1	.	.	8.6	97	1.3	.	.	6.4	4	0.72	0.07	.	.	.	.	.	.	123	.	.	53
119	Lake Monroe	292	89	93	Current	3.9	0.6	.	11	8.2	87	.	.	.	7.5	60	1.48	0.09	21	30	10	.	.	.	993	.	.	66
126	LAKE ASHBY	5	89	89	Current	2.8	0.5	200	2	8.1	90	0.9	.	.	6.9	18	0.91	0.05	3	.	.	.	.	.	120	.	.	55
127	LAKE DALHOUSE OUTLET	2	90	90	Current	3.0	1.7	5	2	7.9	95	.	.	5	6.8	16	0.65	0.01	9	.	.	.	.	.	190	.	.	36
128	Lake Norris	10	90	93	Current	1.5	0.5	275	2	7.5	87	.	.	36	6.7	27	1.57	0.03	1	.	3	.	.	.	250	.	.	49
129	LAKE DORR	2	89	89	Current	3.5	1.1	50	5	8.2	89	0.8	.	.	5.6	2	0.42	0.04	9	.	.	.	.	.	60	.	.	50
133	LAKE BERESFORD	82	91	93	Current	3.0	0.8	.	12	7.6	82	.	.	.	7.7	.	1.36	0.08	29	33	5	.	.	.	1007	.	.	65
135	LULU LAKE	2	90	90	Current	3.1	1.2	40	5	7.9	96	.	.	9	6.0	4	1.10	0.04	30	.	.	.	.	.	65	.	.	58
136	AKRON LAKE	5	90	92	Current	4.6	1.2	31	5	7.6	89	.	.	8	3.9	1	0.58	0.17	4	.	2	.	.	.	103	.	.	46
137	LK KATHRYN TRACY CANAL	25	79	79	Historical	1.0	2.4	.	.	7.6	89	.	.	.	.	.	0.21	0.01	.	.	.	.	.	.	80	.	.	29
138	LK WINNEMISSETT OUTLET	46	80	87	Historical	1.1	3.9	10	1	7.9	93	1.0	.	.	7.0	13	0.32	0.01	1	.	.	.	.	.	176	.	.	18
140	STAGGER MUD LAKE	2	90	90	Current	5.2	0.6	50	.	4.7	60	.	.	16	7.7	66	1.56	0.07	35	.	.	.	.	.	1495	.	.	69
143	Sellars Lake	12	89	93	Current	0.4	5.0	5	1	8.3	92	0.3	.	.	4.3	1	0.09	0.01	1	.	.	.	.	.	77	.	.	11
144	S. GRASSHOPPER LAKE	5	90	92	Current	0.9	3.4	5	1	7.3	85	.	.	1	4.0	1	0.27	0.01	1	.	1	.	.	.	75	.	.	20
145	Lake George	214	89	93	Current	6.8	0.6	60	18	7.8	92	1.7	.	19	8.1	68	1.50	0.07	28	19	4	1.3	0.6	4	1225	.	.	67
150	WILDCAT LAKE	2	89	89	Current	1.5	2.8	8	4	8.1	91	0.8	.	.	5.3	1	0.28	0.03	3	.	.	.	.	.	49	.	.	33
151	LAKE EMPORIA	2	87	87	Historical	3.7	.	18	5	8.6	96	1.3	.	.	7.8	11	0.82	0.03	6	.	.	.	.	.	238	.	.	42
152	SHAW LAKE OUTLET	2	87	87	Historical	6.3	.	238	6	8.9	100	2.3	.	.	7.3	5	1.32	0.03	30	.	.	.	.	.	175	.	.	54
153	LITTLE LAKE KERR OUTLE	17	89	92	Current	2.0	2.4	5	1	7.7	92	0.5	.	4	5.2	2	0.42	0.02	3	.	1	.	.	.	153	.	.	31
155	LAKE DELANCEY	4	90	90	Current	1.9	0.9	65	.	7.4	95	.	.	11	5.7	14	0.31	0.01	17	.	.	.	.	.	140	.	.	50
* WATER BODY TYPE: SPRING																												
108	WEKIVA SPRING	83	70	85	Historical	1.0	1.4	5	.	0.7	7	0.3	3	0	7.5	99	1.41	0.12	.	23	2	.	.	.	250	71	40	.
122	MESSANT SPRING	9	85	85	Historical	.	.	3	.	0.2	2	.	.	.	7.8	.	0.29	0.04	.	.	.	.	.	.	670	14	57	.
131	BLUE SPRING	127	70	85	Historical	1.0	.	3	2	1.3	14	0.4	22	5	7.5	118	0.41	0.08	.	32	8	.	.	.	1520	153	35	.
139	Alexander Springs	2	89	89	Current	.	.	.	.	1.7	19	.	.	.	8.2	.	.	.	.	.	.	.	.	.	1110	96	95	.
142	PONCE DE LEON SPRING	2	89	89	Current	.	.	.	.	0.8	9	.	.	.	8.0	.	.	.	.	.	.	.	.	.	721	26	97	.
148	JUNIPER SPRING	23	90	91	Current	.	.	.	.	.	.	.	.	1	8.3	46	.	.	.	.	.	.	.	.	114	8	1	.
149	SWEETWATER SPRING	8	85	86	Historical	.	.	.	.	3.7	42	.	.	.	7.1	.	.	.	.	.	.	.	.	.	2319	12	75	.
* WATER BODY TYPE: STREAM																												
9	FORT DRUM CREEK	9	91	93	Current	2.0	0.3	250	5	4.2	47	.	.	24	6.1	32	1.16	0.34	2	.	253	.	.	.	218	.	60	.
11	SWEETWATER BRANCH	3	92	92	Current	3.0	0.3	150	4	4.6	55	.	.	21	6.0	29	0.75	0.26	1	.	220	.	.	.	100	.	57	.
15	PADGETT BRANCH	3	92	92	Current	1.1	0.3	500	2	2.7	31	.	.	27	5.6	9	1.21	0.07	3	.	320	.	.	.	130	.	59	.
16	COW LOG BRANCH	8	92	92	Current	3.5	0.3	150	3	4.0	49	.	.	19	6.0	30	0.93	0.19	2	.	138	.	.	.	160	.	55	.
17	Fort Drum MARSH	30	89	91	Current	1.8	0.9	244	3	2.0	25	1.6	.	28	5.9	22	1.71	0.03	6	.	.	.	.	.	333	.	55	.
21	BLUE CYPRESS CREEK	11	89	91	Current	2.0	.	213	2	2.9	33	1.1	.	25	6.7	33	1.28	0.07	4	.	.	.	.	.	212	.	53	.

LEGEND:
ALK-ALKALINITY MG/L
ART-ARTIFICIAL SUBSTRATE DI
BEG YR-BEGINNING SAMPLING YEAR
BECK-BECK'S BIOTIC INDEX
BOD-BIOCHEMICAL OXYGEN DEMAND MG/L
CHLA-CHLOROPHYLL UG/L
COD-CHEMICAL OXYGEN DEMAND MG/L
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FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
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NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
TURB-TURBIDITY MG/L
WQI-WATER QUALITY INDEX

** USGS HYDROLOGIC UNIT: 03080101 ST JOHNS RIVER, UPPER

SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH PH	ALKALINITY ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND COND	FLOW FLOW	WATER QUALITY INDICES WQI	TSI
28	SIXMILE CREEK	4	92	92	Current	3.0	0.2	150	2	4.1	44	.	.	22	6.4	85	0.95	0.14	1	.	463	.	.	.	220	.	58	.
29	WOLF CREEK	4	92	92	Current	2.4	0.5	150	2	3.7	44	.	.	25	6.3	93	1.11	0.08	1	.	396	.	.	.	290	.	59	.
32	Bull Creek	4	93	93	Current	1.4	.	30	2	1.9	21	.	.	26	4.8	5	1.00	0.10	3	.	13	.	.	.	131	.	48	.
33	JANE GREEN CREEK	14	89	92	Current	17.6	0.6	294	2	2.1	23	.	.	32	6.2	30	1.21	0.06	0	.	10	.	.	.	165	.	63	.
34	WEST BR CRABGRASS CR	3	92	92	Current	2.0	1.0	100	2	2.4	25	.	.	14	6.3	101	0.77	0.07	0	.	54	.	.	.	280	.	45	.
36	STJ RIV AB LK WASHINGT	48	89	93	Current	26.0	1.0	160	3	4.1	48	1.2	.	25	7.0	75	1.78	0.06	5	.	.	.	.	.	387	.	66	.
37	STJ RIV AB SAWGRASS LK	33	89	91	Current	24.0	0.8	225	3	3.7	46	1.8	.	31	7.0	74	2.49	0.06	6	.	.	.	.	.	613	.	61	.
38	CRABGRASS CREEK	9	92	92	Current	3.1	0.5	300	4	4.6	54	.	.	30	6.3	61	0.91	0.21	1	.	91	.	.	.	230	.	56	.
40	PENNYWASH CREEK	3	92	92	Current	3.0	0.1	150	2	7.2	81	.	.	19	6.2	25	0.66	0.07	1	.	215	.	.	.	140	.	40	.
41	WOLF CREEK	11	89	92	Current	21.0	0.9	225	9	4.8	51	.	.	24	6.7	43	0.96	0.09	9	.	42	.	.	.	150	.	63	.
42	STJ RIV AB LK WINDER	81	89	93	Current	13.8	0.8	150	1	6.2	68	1.0	.	29	7.1	69	1.50	0.06	2	.	.	2.1	.	.	418	.	47	.
43	STJ RIV AB LK POINSETT	34	89	93	Current	26.0	0.9	150	4	5.8	71	1.5	.	.	6.9	78	1.56	0.05	7	.	.	.	.	.	555	.	63	.
45	COX CREEK	2	87	87	Historical	3.5	.	125	1	4.5	45	1.2	.	.	6.6	60	0.84	0.03	1	.	.	.	.	.	220	.	37	.
47	ROCKLEDGE CREEK	8	82	84	Historical	2.1	.	190	6	5.0	59	1.3	84	31	6.6	60	1.98	0.17	.	.	.	.	.	.	1550	.	50	.
49	TAYLOR CREEK	51	89	92	Current	1.9	0.9	125	2	5.9	61	0.8	.	15	6.2	27	0.88	0.04	1	.	114	.	.	.	109	.	32	.
50	JIM CREEK	3	92	93	Current	8.4	0.6	215	8	5.3	59	1.0	.	.	6.7	19	0.95	0.04	1	.	.	.	.	.	140	.	41	.
51	SECOND CREEK	3	92	92	Current	2.5	0.2	225	40	6.2	67	.	.	23	6.2	46	2.08	0.28	1	.	40	.	.	.	185	.	56	.
52	TURKEY CREEK	3	92	92	Current	3.1	0.5	200	1	5.5	64	.	.	27	5.9	26	1.12	0.08	1	.	130	.	.	.	170	.	50	.
53	TOOTOOSAHATCHEE CREEK	7	89	90	Current	1.9	.	213	2	3.6	38	1.3	.	26	6.4	46	0.71	0.02	2	.	.	.	.	.	186	.	41	.
55	ECONLOCKHATCHEE RIVER	189	89	93	Current	1.5	0.7	230	1	5.3	58	2.3	.	19	6.5	21	1.01	0.05	1	271	77	.	3.1	.	138	.	41	.
56	LONG BRANCH	3	92	92	Current	6.3	0.2	500	5	3.6	39	.	.	33	6.1	82	0.96	0.34	1	.	3100	.	.	.	275	.	72	.
57	STJ RIV AB PUZZLE LK	120	89	93	Current	1.4	0.8	160	3	5.4	63	1.6	.	22	7.2	66	1.45	0.05	2	144	.	.	.	.	647	.	44	.
59	CRANE STRAND	30	89	92	Current	3.3	0.5	50	4	7.2	83	2.7	.	9	6.8	50	0.95	0.09	13	270	173	.	.	.	194	.	42	.
62	LITTLE WEKIVA CANAL	33	89	92	Current	3.8	.	89	5	4.6	53	4.5	.	.	7.0	60	1.43	0.13	11	698	.	.	.	.	225	.	56	.
66	LITTLE ECONLOCKHATCHEE	108	89	92	Current	3.3	1.6	159	2	5.9	65	2.5	.	.	6.7	35	1.08	0.12	1	303	.	.	.	.	161	.	45	.
68	CRANE STRAND DRAIN	39	72	84	Historical	8.5	.	.	.	2.1	22	4.3	58	.	6.5	44	1.47	0.54	.	7000	.	.	.	.	206	.	75	.
76	HOWELL CK BL LK HOWELL	8	89	92	Current	8.0	0.5	78	14	6.7	74	1.1	.	10	7.0	48	1.13	0.15	9	.	136	.	.	.	203	.	45	.
77	HOWELL CREEK	22	89	92	Current	1.8	0.6	64	2	4.9	54	2.5	.	9	6.6	47	0.91	0.06	7	569	222	.	.	.	206	.	46	.
84	ECONLOCKHATCHEE RIVER	215	89	93	Current	3.6	0.7	140	3	6.1	70	1.8	.	14	6.9	40	1.11	0.09	1	159	.	.	.	.	380	.	42	.
89	SWEETWATER CREEK	12	73	74	Historical	.	.	.	.	.	.	.	.	.	.	.	7.02	0.82	.	.	.	.	.	.	.	.	89	.
93	GEE CREEK	7	89	92	Current	3.7	0.5	70	5	6.4	70	1.7	.	13	7.1	61	1.06	0.16	3	.	1318	.	.	.	204	.	47	.
97	LITTLE WEKIVA RIVER	14	89	93	Current	3.0	0.4	40	9	6.4	72	1.3	.	.	7.2	71	1.33	0.42	1	.	.	.	.	.	275	.	49	.
100	SALT CREEK	12	73	74	Historical	.	.	.	.	.	.	.	.	.	.	.	2.17	0.41	.	.	.	.	.	.	.	.	80	.
106	SOLDIER CREEK REACH	12	89	92	Current	10.1	0.5	195	4	6.0	67	1.8	.	21	7.0	56	1.38	0.19	1	.	227	.	.	.	206	.	58	.
107	WEKIVA RIVER	18	89	92	Current	0.9	1.8	35	2	4.7	53	3.3	.	.	7.5	97	1.81	0.11	1	670	.	.	3.4	.	286	.	52	.
110	ROCK SPRINGS RUN	21	89	92	Current	0.8	0.5	13	2	5.7	63	2.3	.	5	7.5	87	1.63	0.09	1	1493	1149	.	.	.	269	54	52	.
113	STJ RIV AB LK JESSUP	76	89	93	Current	2.1	0.8	131	6	6.2	73	1.5	.	.	7.4	51	1.48	0.06	3	218	28	.	.	.	1041	.	37	.
114	WEKIVA RIVER	18	89	92	Current	1.8	.	60	3	4.8	54	2.8	.	.	7.4	95	1.35	0.17	2	465	.	.	.	.	319	.	51	.
115	WEKIVA RIVER LOWER	189	89	93	Current	7.2	1.4	60	6	5.3	62	0.5	.	.	7.2	96	1.01	0.12	1	475	35	.	.	.	695	.	47	.
116	RAVENNA PARK DITCHES	4	92	92	Current	9.8	0.3	400	4	6.8	67	.	.	30	6.4	64	1.13	0.34	1	.	340	.	.	.	320	.	59	.
117	STJ RIV AB LK MONROE	114	89	93	Current	2.8	0.8	110	8	5.9	68	1.7	.	.	7.3	42	1.57	0.07	9	275	43	.	.	.	1034	.	43	.

LEGEND:
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FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
MAX #OBS-MAXIMUM NUMBER OF SAMPLES
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NITRO-TOTAL NITROGEN MG/L
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PHOS-TOTAL PHOSPHORUS MG/L
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SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH ALKALINITY PH	ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND	FLOW	WATER QUALITY INDICES WQI	TSI
118	UNDERHILL SLOUGH	141	89	93	Current	18.0	0.8	.	6	7.4	87	.	.	.	7.5	62	1.20	0.05	6	45	15	.	.	.	953	.	47	.
120	BLACK WATER CREEK	16	92	93	Current	1.9	0.6	169	2	5.2	58	0.6	.	22	6.6	51	1.12	0.03	1	.	109	.	.	.	383	.	34	.
121	STJ RIV AB WEKIVA R.	266	89	93	Current	6.0	0.6	108	14	6.9	80	2.6	.	.	7.7	61	1.57	0.10	29	159	18	.	.	.	1055	.	46	.
123	BETHEL CREEK	2	90	90	Current	3.2	.	10	6	6.5	81	.	.	8	8.4	28	1.11	0.03	10	.	.	.	.	.	1385	.	31	.
124	COW CREEK	17	86	87	Historical	2.9	.	650	3	3.2	33	1.5	.	.	5.9	20	2.00	0.18	2	.	.	.	.	.	150	.	53	.
125	DEEP CR-LK ASHBY CA	44	84	88	Historical	1.4	0.6	350	3	5.5	69	1.1	47	.	6.5	36	1.18	0.11	2	.	166	.	.	.	345	.	38	.
130	SAMSULA CANAL-SANDY DR	3	92	92	Current	1.0	0.2	600	1	4.2	46	.	.	65	3.7	1	2.01	0.01	0	.	7	.	.	.	100	.	45	.
132	STJ RIV AB LK WOODRUFF	856	89	93	Current	4.3	0.7	68	10	5.9	62	1.6	.	.	7.2	69	1.41	0.09	16	218	30	.	.	.	1000	459	45	.
134	STJ RIV AB LAKE GEORGE	384	89	93	Current	4.2	0.8	90	10	5.4	65	1.8	.	16	7.4	72	1.37	0.09	22	163	20	.	2.6	.	976	.	46	.
146	DEEP CREEK	57	70	71	Historical	4.0	.	.	.	2.1	24	.	.	.	.	.	1.23	0.05	.	.	.	.	.	.	295	0	73	.
147	JUNIPER CREEK	8	92	93	Current	1.6	0.5	99	3	7.2	81	1.3	.	0	7.4	79	0.21	0.02	1	.	66	.	.	.	1666	.	19	.
154	SALT SPRINGS RUN	40	81	87	Historical	.	1.9	.	.	4.3	49	.	.	.	7.8	.	.	.	.	.	3	.	.	.	4524	75	6	.
156	GEORGETOWN SLOUGH	3	80	80	Historical	.	0.7	73	.	.	.	.	.	.	4.5	0	0.85	0.02	5	.	.	.	.	.	59	.	18	.

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MEDIAN VALUES FOR EACH WATERSHED SCREENED

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SCREENING VARIABLES AND CRITERIA

WATERSHED ID	NAME	RANK WQI OR TSI	DATA RECORD CURRENT OR HISTORICAL	TN TN>2.0	STREAM TP TP>.46	LAKE TP TP>.12	PH PH>8.8 PH<5.2	ALK ALK<20	TURB & TSS TURB>16.5 TSS>18	COND COND>1275	OXYGEN DEMAND BOD>3.3 COD>102 TOC>27.5	DO DO<4	COLIFORM BACTI TOT>3700 FECAL>470	BIOL DIV DIART<1.95 DINAT<1.5 BECK<5.5	CHLA CHLA>40	SECCHI DISC SD<.7
* WATER BODY TYPE: LAKE																
4	Lake Woodruff	FAIR	Current	0	.	0	0	0	0	0	0	0	0	.	0	0
20	BLUE CYPRESS LAKE	GOOD	Current	0	.	0	0	0	0	0	0	0	.	.	0	0
31	Lake Helen Blazes	FAIR	Current	0	.	0	0	0	x	.	0	x	.	.	0	0
35	SAWGRASS LAKE	FAIR	Historical	x	.	0	0	0	0	.	x	0	.	.	.	.
39	Lake Washington	FAIR	Current	x	.	0	0	0	0	.	0	0	.	.	0	x
44	LAKE WINDER	GOOD	Historical	0	.	0	0	0	0	.	x	0	.	.	0	0
46	Lake Poinsett	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
48	FLORENCE LAKE	FAIR	Current	0	.	0	0	0	0	x	0	0	.	.	0	0
54	LAKE FREDERICA	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
58	LAKE DOWNEY	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
60	LAKE BALDWIN	GOOD	Current	0	.	0	0	0	0	.	x	0	0	.	0	0
61	LAKE BARTON	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
63	BEAR LAKE	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	.	0
64	LAKE FAIRVIEW	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
65	LAKE LAWNE	FAIR	Current	0	.	x	0	0	0	.	x	0	0	.	0	x
67	LAKE PRICE OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	0	.	0	0
69	BEARGULLY LAKE OUTLET	FAIR	Historical	0	.	0	0	0	0	.	0	0	.	.	.	x
70	SOUTH LAKE OUTLET	GOOD	Current	0	.	0	0	0	0	0	0	0	.	.	0	0
71	FOX LAKE	POOR	Current	0	.	0	0	0	0	x	x	0	.	.	x	x
72	LUCY LAKE	GOOD	Current	x	.	0	0	0	0	.	x	0	.	.	0	0
73	LAKE LUCIEN OUTLET	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	.	0
74	MILLS LAKE	GOOD	Historical	0	.	0	.	.	0	.	.	0	.	.	.	0
78	Howell Lake	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
79	LAKE MAITLAND	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
80	LAKE MINNEHAHA	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
81	LAKE OSCEOLA	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
82	LAKE MIZELL	GOOD	Current	0	.	0	0	0	0	.	x	0	0	.	0	0
83	LAKE VIRGINIA	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
85	CLARK LAKE OUTLET	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	.
86	LOUGHMAN LAKE	POOR	Current	x	.	x	0	0	x	.	x	0	.	.	x	x
87	SALT LAKE	POOR	Current	x	.	x	0	0	x	.	x	0	.	.	x	x
88	LAKE PEARL	FAIR	Historical	0	.	0	0	0	x	.	0	0	x	.	.	x
91	LAKE FLORIDA	GOOD	Historical	0	.	0	0	0	0	.	0	0	0	.	.	0
92	Lake Kathryn	GOOD	Historical	0	.	0	0	0	0	.	0	0	.	.	.	0
94	Fairy Lake	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	0
95	ISLAND LAKE	GOOD	Historical	0	.	0	0	.	0	.	0	.	.	.	.	.
96	LAKE PREVATT	POOR	Current	0	.	0	0	0	0	.	x	0	0	.	x	0
98	SPRING LAKE	FAIR	Historical	0	.	x	0	0	x	.	x	0	0	.	.	0
99	CABBAGE SLOUGH	FAIR	Current	x	.	0	0	0	x	.	0	0	.	.	0	x
101	LAKE HARNEY	GOOD	Current	0	.	0	0	0	0	0	0	0	0	.	0	0

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WQI OR TSI-WATER QUALITY INDEX RATING
WHICH INDEX USED, WQI OR TSI, IS
BASED ON WATERBODY TYPE

SURFACE WATER QUALITY DATA SCREENING REPORT
MEDIAN VALUES FOR EACH WATERSHED SCREENED

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SCREENING VARIABLES AND CRITERIA

WATERSHED ID	NAME	RANK WQI OR TSI	DATA RECORD CURRENT OR HISTORICAL	TN TN>2.0	STREAM TP TP>.46	LAKE TP TP>.12	PH PH>8.8 PH<5.2	ALK ALK<20	TURB & TSS TURB>16.5 TSS>18	COND COND>1275	OXYGEN DEMAND BOD>3.3 COD>102 TOC>27.5	DO DO<4	COLIFORM BACTI TOT>3700 FECAL>470	BIOL DIV DIART<1.95 DINAT<1.5 BECK<5.5	CHLA CHLA>40	SECCHI DISC SD<.7
102	PUZZLE LAKE	GOOD	Current	0	.	0	0	0	0	.	0	0	0	.	0	0
103	RUTH LAKE	GOOD	Current	0	.	0	0	0	0	.	0	0	.	.	0	.
104	Lake Jessup	POOR	Current	x	.	x	0	0	x	0	x	0	0	.	x	x
105	LAKE JESSUP NR STJR	POOR	Current	x	.	x	0	0	x	.	x	0	.	.	x	x
112	LAKE SYLVAN	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	.	x
119	Lake Monroe	FAIR	Current	0	.	0	0	0	0	0	.	0	0	.	0	x
126	LAKE ASHBY	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	x
127	LAKE DALHOUSE OUTLET	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
128	Lake Norris	GOOD	Current	0	.	0	0	0	0	.	x	0	0	.	0	x
129	LAKE DORR	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
133	LAKE BERESFORD	FAIR	Current	0	.	0	0	.	0	0	.	0	0	.	0	0
135	LULU LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
136	AKRON LAKE	GOOD	Current	0	.	x	x	x	0	.	0	0	0	.	0	0
137	LK KATHRYN TRACY CANAL	GOOD	Historical	0	.	0	.	.	0	.	.	0	.	.	.	0
138	LK WINNEMISSETT OUTLET	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	0	0
140	STAGGER MUD LAKE	FAIR	Current	0	.	0	0	0	0	x	0	0	.	.	0	x
143	Sellars Lake	GOOD	Current	0	.	0	x	x	0	.	0	0	.	.	0	0
144	S. GRASSHOPPER LAKE	GOOD	Current	0	.	0	x	x	0	.	0	0	0	.	0	0
145	Lake George	FAIR	Current	0	.	0	0	0	0	0	0	0	0	x	0	x
150	WILDCAT LAKE	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
151	LAKE EMPORIA	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	0	.
152	SHAW LAKE OUTLET	GOOD	Historical	0	.	0	0	x	0	.	0	0	.	.	0	.
153	LITTLE LAKE KERR OUTLE	GOOD	Current	0	.	0	x	x	0	.	0	0	0	.	0	0
155	LAKE DELANCEY	GOOD	Current	0	.	0	0	x	0	.	0	0	.	.	0	0
* WATER BODY TYPE: SPRING																
108	WEKIVA SPRING	GOOD	Historical	0	0	.	0	0	0	.	0	x	0	.	.	0
122	MESSANT SPRING	FAIR	Historical	0	0	.	0	.	.	.	.	x	.	.	.	.
131	BLUE SPRING	GOOD	Historical	0	0	.	0	0	0	x	0	x	0	.	.	.
139	Alexander Springs	UNKN	Current	.	.	.	0	.	.	.	.	x	.	.	.	.
142	PONCE DE LEON SPRING	UNKN	Current	.	.	.	0	.	.	.	.	x	.	.	.	.
148	JUNIPER SPRING	GOOD	Current	.	.	.	0	0	.	0	0	.	.	.	.	.
149	SWEETWATER SPRING	UNKN	Historical	.	.	.	0	.	.	x	.	x	.	.	.	.
* WATER BODY TYPE: STREAM																
9	FORT DRUM CREEK	UNKN	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
11	SWEETWATER BRANCH	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
15	PADGETT BRANCH	FAIR	Current	0	0	.	0	x	0	.	0	x	0	.	0	x
16	COW LOG BRANCH	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
17	Fort Drum MARSH	FAIR	Current	0	0	.	0	0	0	0	x	x	.	.	0	0
21	BLUE CYPRESS CREEK	FAIR	Current	0	0	.	0	0	0	.	0	x	.	.	0	.

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WATERSHED ID	NAME	RANK WQI OR TSI	DATA RECORD CURRENT OR HISTORICAL	TN TN>2.0	STREAM TP TP>.46	LAKE TP TP>.12	PH PH>8.8 PH<5.2	ALK ALK<20	TURB & TSS TURB>16.5 TSS>18	COND COND>1275	OXYGEN DEMAND BOD>3.3 COD>102 TOC>27.5	DO DO<4	COLIFORM BACTI TOT>3700 FECAL>470	BIOL DIV DIART<1.95 DINAT<1.5 BECK<5.5	CHLA CHLA>40	SECCHI DISC SD<.7
28	SIXMILE CREEK	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
29	WOLF CREEK	FAIR	Current	0	0	.	0	0	0	.	0	x	0	.	0	x
32	Bull Creek	FAIR	Current	0	0	.	x	x	0	.	0	x	0	.	0	.
33	JANE GREEN CREEK	FAIR	Current	0	0	.	0	0	x	.	x	x	0	.	0	x
34	WEST BR CRABGRASS CR	FAIR	Current	0	0	.	0	0	0	.	0	x	0	.	0	0
36	STJ RIV AB LK WASHINGT	POOR	Current	0	0	.	0	0	x	.	0	0	.	.	0	0
37	STJ RIV AB SAWGRASS LK	POOR	Current	x	0	.	0	0	x	0	x	x	.	.	0	0
38	CRABGRASS CREEK	FAIR	Current	0	0	.	0	0	0	.	x	0	0	.	0	x
40	PENNYWASH CREEK	GOOD	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
41	WOLF CREEK	FAIR	Current	0	0	.	0	0	x	.	0	0	0	.	0	0
42	STJ RIV AB LK WINDER	FAIR	Current	0	0	.	0	0	0	0	x	0	.	0	0	0
43	STJ RIV AB LK POINSETT	UNKN	Current	0	0	.	0	0	x	.	0	0	.	.	0	0
45	COX CREEK	GOOD	Historical	0	0	.	0	0	0	.	0	0	.	.	0	.
47	ROCKLEDGE CREEK	FAIR	Historical	0	0	.	0	0	0	x	x	0	.	.	.	.
49	TAYLOR CREEK	GOOD	Current	0	0	.	0	0	0	.	0	0	0	.	0	0
50	JIM CREEK	GOOD	Current	0	0	.	0	x	0	.	0	0	.	.	0	x
51	SECOND CREEK	FAIR	Current	x	0	.	0	0	x	.	0	0	0	.	0	x
52	TURKEY CREEK	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
53	TOOTOOSAHATCHEE CREEK	GOOD	Current	0	0	.	0	0	0	0	0	x	.	.	0	.
55	ECONLOCKHATCHEE RIVER	GOOD	Current	0	0	.	0	0	0	.	0	0	0	0	0	x
56	LONG BRANCH	UNKN	Current	0	0	.	0	0	0	.	x	x	x	.	0	x
57	STJ RIV AB PUZZLE LK	GOOD	Current	0	0	.	0	0	0	0	0	0	0	.	0	0
59	CRANE STRAND	GOOD	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
62	LITTLE WEKIVA CANAL	FAIR	Current	0	0	.	0	0	0	.	x	0	0	.	0	.
66	LITTLE ECONLOCKHATCHEE	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	0
68	CRANE STRAND DRAIN	POOR	Historical	0	x	.	0	0	0	.	x	x	x	.	.	.
76	HOWELL CK BL LK HOWELL	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
77	HOWELL CREEK	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
84	ECONLOCKHATCHEE RIVER	GOOD	Current	0	0	.	0	0	0	.	0	0	0	.	0	0
89	SWEETWATER CREEK	UNKN	Historical	x	x	.	.	.	.	.	.	.	.	.	.	.
93	GEE CREEK	FAIR	Current	0	0	.	0	0	0	.	0	0	x	.	0	x
97	LITTLE WEKIVA RIVER	FAIR	Current	0	0	.	0	0	0	.	0	0	.	.	0	x
100	SALT CREEK	UNKN	Historical	x	0	.	.	.	.	.	.	.	.	.	.	.
106	SOLDIER CREEK REACH	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	x
107	WEKIVA RIVER	FAIR	Current	0	0	.	0	0	0	.	0	0	0	0	0	0
110	ROCK SPRINGS RUN	FAIR	Current	0	0	.	0	0	0	.	0	0	x	.	0	x
113	STJ RIV AB LK JESSUP	GOOD	Current	0	0	.	0	0	0	0	0	0	0	.	0	0
114	WEKIVA RIVER	FAIR	Current	0	0	.	0	0	0	.	0	0	0	.	0	.
115	WEKIVA RIVER LOWER	FAIR	Current	0	0	.	0	0	0	0	0	0	0	.	0	0
116	RAVENNA PARK DITCHES	FAIR	Current	0	0	.	0	0	0	.	x	0	0	.	0	x
117	STJ RIV AB LK MONROE	GOOD	Current	0	0	.	0	0	0	0	0	0	0	.	0	0

LEGEND:
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BECK-BECK'S BIOTIC INDEX
BIOL DIV-BIOLOGICAL DIVERSITY
CHLA-CHLOROPHYLL
COND-CONDUCTIVITY
DO-DISSOLVED OXYGEN
CURRENT-1989 TO 1993
DIART-ARTIFICIAL SUBSTRATE DIVERSITY
DINAT-NATURAL SUBSTRATE DIVERSITY
FECAL-FECAL COLIFORM BACTERIA
HISTORICAL-1970 TO 1988
OXYGEN DEMAND-BOD, COD, TOC
PH-PH
TN-NITROGEN
TP-PHOSPHORUS
TOT-TOTAL COLIFORM BACTERIA
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
SD-SECCHI DISC METERS
WQI OR TSI-WATER QUALITY INDEX RATING
WHICH INDEX USED, WQI OR TSI, IS
BASED ON WATERBODY TYPE

SURFACE WATER QUALITY DATA SCREENING REPORT
MEDIAN VALUES FOR EACH WATERSHED SCREENED

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SCREENING VARIABLES AND CRITERIA

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118	UNDERHILL SLOUGH	FAIR	Current	0	0	.	0	0	x	0	.	0	0	.	0	0
120	BLACK WATER CREEK	GOOD	Current	0	0	.	0	0	0	0	0	0	0	.	0	x
121	STJ RIV AB WEKIVA R.	FAIR	Current	0	0	.	0	0	0	0	0	0	0	.	0	x
123	BETHEL CREEK	GOOD	Current	0	0	.	0	0	0	x	0	0	.	.	0	.
124	COW CREEK	FAIR	Historical	0	0	.	0	0	0	.	0	x	.	.	0	.
125	DEEP CR-LK ASHBY CA	GOOD	Historical	0	0	.	0	0	0	.	0	0	0	.	0	x
130	SAMSULA CANAL-SANDY DR	FAIR	Current	x	0	.	x	x	0	.	x	0	0	.	0	x
132	STJ RIV AB LK WOODRUFF	FAIR	Current	0	0	.	0	0	0	0	0	0	0	.	0	0
134	STJ RIV AB LAKE GEORGE	FAIR	Current	0	0	.	0	0	0	0	0	0	0	0	0	0
146	DEEP CREEK	POOR	Historical	0	0	.	.	.	0	.	.	x	.	.	.	.
147	JUNIPER CREEK	GOOD	Current	0	0	.	0	0	0	x	0	0	0	.	0	x
154	SALT SPRINGS RUN	GOOD	Historical	.	.	.	0	.	.	x	.	0	0	.	.	0
156	GEORGETOWN SLOUGH	GOOD	Historical	0	0	.	x	x	.	.	.	.	.	.	0	0

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1984 - 1993 TRENDS

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* WATER BODY TYPE: LAKE																						
4	Lake Woodruff	PARTIAL	FAIR	0	0	0	0	0	+	0	0	0	0	x	.	0	0	.	.	0	.	
20	BLUE CYPRESS LAKE	YES	GOOD	0	0	0	0	0	0	0	+	0	0	0	0	0	0	.	.	0	.	
31	Lake Helen Blazes	PARTIAL	FAIR	0	0	0	.	+	x	0	0	0	0	0	.	x	x	.	.	0	.	
35	SAWGRASS LAKE	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
39	Lake Washington	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
44	LAKE WINDER	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
46	Lake Poinsett	YES	GOOD	0	0	0	0	0	0	0	+	0	0	0	0	0	0	.	.	0	.	
48	FLORENCE LAKE	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
54	LAKE FREDERICA	YES	GOOD	0	0	0	0	0	0	0	0	0	.	0	.	+	+	0	.	0	.	
58	LAKE DOWNEY	YES	GOOD	0	0	0	0	0	0	0	0	0	.	0	.	0	0	0	.	0	.	
60	LAKE BALDWIN	YES	GOOD	0	0	0	0	0	0	0	0	x	.	0	.	0	0	0	.	0	.	
61	LAKE BARTON	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
63	BEAR LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
64	LAKE FAIRVIEW	YES	GOOD	0	0	0	0	0	0	0	x	0	.	0	.	+	+	x	.	0	.	
65	LAKE LAWNE	PARTIAL	FAIR	0	+	x	0	+	0	0	+	+	.	x	.	+	+	0	.	0	.	
67	LAKE PRICE OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
69	BEARGULLY LAKE OUTLET	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
70	SOUTH LAKE OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
71	FOX LAKE	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
72	*LUCY LAKE*	*YES*	*GOOD*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
73	LAKE LUCIEN OUTLET	YES	GOOD																			
74	MILLS LAKE	YES	GOOD																			
78	Howell Lake	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
79	LAKE MAITLAND	YES	GOOD	0	0	0	x	0	0	0	0	0	.	0	.	0	0	0	.	0	.	
80	LAKE MINNEHAHA	YES	GOOD	0	0	0	0	0	0	0	0	0	.	0	.	x	0	0	.	0	.	
81	LAKE OSCEOLA	YES	GOOD	0	0	0	0	0	0	0	x	0	.	0	.	+	0	0	.	0	.	
82	*LAKE MIZELL*	*YES*	*GOOD*	0	0	0	0	0	0	0	x	0	.	0	.	0	0	0	.	0	.	
83	LAKE VIRGINIA	YES	GOOD	0	0	0	0	0	0	0	0	0	.	0	.	+	+	0	.	0	.	
85	CLARK LAKE OUTLET	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
86	LOUGHMAN LAKE	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
87	SALT LAKE	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
88	LAKE PEARL	PARTIAL	FAIR																			
91	LAKE FLORIDA	YES	GOOD																			
92	Lake Kathryn	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
94	Fairy Lake	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
95	ISLAND LAKE	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
96	LAKE PREVATT	NO	POOR	0	0	x	0	0	.	0	0	0	.	0	.	0	0	0	.	0	.	
98	SPRING LAKE	PARTIAL	FAIR																			
99	CABBAGE SLOUGH	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

LEGEND:

ALK-ALKALINITY
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WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	WQI OR TSI	OVER-ALL TREND	W Q or I	T S I	T N	T P	C H A	S D L	P H	A L K	T U R B	T S	B O D	T O C	D O	D O S A T	T C O L I	F C O L I	T E M P	F L O W	DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
101	LAKE HARNEY	YES	GOOD	+		+	0	+	0	0	0	0	0	0	0	.	x	x	0	0	0	.	
102	PUZZLE LAKE	YES	GOOD	+		+	0	+	0	0	x	0	0	.	0	.	0	0	x	.	x	.	
103	RUTH LAKE	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
104	Lake Jessup	NO	POOR	0		0	0	+	0	0	x	0	x	0	x	.	0	0	0	0	0	.	
105	LAKE JESSUP NR STJR	NO	POOR	0		0	0	0	0	0	0	.	0	0	0	.	0	0	.	.	0	.	
112	LAKE SYLVAN	YES	GOOD																				
119	Lake Monroe	PARTIAL	FAIR	+		0	+	+	0	0	x	0	0	0	.	.	0	0	.	.	0	.	
126	LAKE ASHBY	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
127	LAKE DALHOUSE OUTLET	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
128	Lake Norris	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
129	LAKE DORR	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
133	LAKE BERESFORD	PARTIAL	FAIR	0		0	0	0	0	0	0	.	0	0	.	.	0	0	.	.	0	.	
135	LULU LAKE	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
136	AKRON LAKE	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
137	LK KATHRYN TRACY CANAL	YES	GOOD																				
138	LK WINNEMISSETT OUTLET	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
140	STAGGER MUD LAKE	PARTIAL	FAIR	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
143	Sellars Lake	YES	GOOD	0		0	0	0	.	.	0	0	0	.	.	.	.	.	.	.	0	.	
144	S. GRASSHOPPER LAKE	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
145	Lake George	PARTIAL	FAIR	0		0	0	+	0	0	+	+	+	0	0	.	0	+	.	.	0	.	
150	WILDCAT LAKE	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
151	LAKE EMPORIA	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
152	SHAW LAKE OUTLET	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
153	LITTLE LAKE KERR OUTLE	YES	GOOD	0		0	0	0	0	0	x	x	0	0	0	0	0	0	.	.	0	.	
155	LAKE DELANCEY	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
* WATER BODY TYPE: SPRING																							
108	WEKIVA SPRING	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
122	MESSANT SPRING	PARTIAL	FAIR	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
131	BLUE SPRING	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
139	Alexander Springs	NO	UNKN	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
142	PONCE DE LEON SPRING	NO	UNKN	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
148	JUNIPER SPRING	YES	GOOD	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
149	SWEETWATER SPRING	NO	UNKN	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
* WATER BODY TYPE: STREAM																							
9	FORT DRUM CREEK	NO	UNKN	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
11	SWEETWATER BRANCH	PARTIAL	FAIR	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
15	PADGETT BRANCH	PARTIAL	FAIR	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
16	COW LOG BRANCH	PARTIAL	FAIR	.		.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

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				1984 - 1993 TRENDS																				
17	Fort Drum MARSH	PARTIAL	FAIR	0	0	0	0	0	.	x	0	0	0	+	0	0	0	.	.	.	.	0	.	
21	BLUE CYPRESS CREEK	PARTIAL	FAIR	0	0	0	0	0	.	0	0	0	0	0	.	0	0	.	.	.	.	0	.	
28	SIXMILE CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
29	WOLF CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
32	Bull Creek	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
33	JANE GREEN CREEK	NO	FAIR	0	+	0	+	.	.	0	.	0	.	.	.	0	x	.	.	.	+	.	.	
34	WEST BR CRABGRASS CR	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
36	STJ RIV AB LK WASHINGT	NO	POOR	0	0	0	+	0	0	0	0	0	0	0	0	0	0	.	.	.	+	.	.	
37	STJ RIV AB SAWGRASS LK	NO	POOR	0	0	x	+	0	0	0	0	0	0	0	0	0	0	.	.	.	+	.	.	
38	CRABGRASS CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
40	PENNYWASH CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
41	WOLF CREEK	NO	FAIR	0	0	0	0	.	.	0	.	0	.	.	.	0	0	.	.	.	+	.	.	
42	STJ RIV AB LK WINDER	PARTIAL	FAIR	+	0	0	+	0	0	0	+	0	0	0	.	+	+	.	.	.	0	.	.	
43	STJ RIV AB LK POINSETT	NO	UNKN	+	+	0	+	.	0	0	0	0	.	.	.	+	+	.	.	.	0	.	.	
45	COX CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
47	ROCKLEDGE CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
49	TAYLOR CREEK	YES	GOOD	+	+	0	0	0	.	0	0	0	0	+	+	0	0	.	.	.	0	.	.	
50	JIM CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
51	SECOND CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
52	TURKEY CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
53	TOOTOOSAHATCHEE CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
55	ECONLOCKHATCHEE RIVER	YES	GOOD	0	0	0	+	0	.	0	0	0	0	0	.	0	0	0	.	.	0	.	.	
56	LONG BRANCH	NO	UNKN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
57	STJ RIV AB PUZZLE LK	YES	GOOD	0	0	0	0	0	0	0	+	0	0	0	0	0	0	x	.	.	0	.	.	
59	CRANE STRAND	YES	GOOD	+	+	0	+	0	.	x	0	0	.	0	.	+	+	0	0	.	x	.	.	
62	LITTLE WEKIVA CANAL	PARTIAL	FAIR	x	x	0	0	x	.	0	0	0	0	x	.	0	0	0	.	.	0	.	.	
66	LITTLE ECONLOCKHATCHEE	PARTIAL	FAIR	+	0	+	+	0	+	0	0	0	0	0	.	+	+	x	0	.	0	.	.	
68	CRANE STRAND DRAIN	NO	POOR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
76	HOWELL CK BL LK HOWELL	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
77	HOWELL CREEK	PARTIAL	FAIR	0	0	+	+	0	.	x	0	0	.	0	.	0	0	x	.	.	0	.	.	
84	ECONLOCKHATCHEE RIVER	YES	GOOD	+	0	+	+	0	0	0	0	0	0	0	.	+	+	0	0	.	0	.	.	
89	SWEETWATER CREEK	NO	UNKN																					
93	GEE CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
97	LITTLE WEKIVA RIVER	PARTIAL	FAIR	0	0	0	0	0	0	0	x	0	.	0	.	0	0	.	0	.	0	.	.	
100	SALT CREEK	NO	UNKN																					
106	SOLDIER CREEK REACH	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
107	WEKIVA RIVER	PARTIAL	FAIR	0	0	x	0	0	.	0	0	0	+	0	.	0	0	x	.	.	0	.	.	
110	ROCK SPRINGS RUN	PARTIAL	FAIR	0	0	0	+	0	.	0	0	x	.	0	.	0	0	x	.	.	0	.	.	
113	STJ RIV AB LK JESSUP	YES	GOOD	0	0	0	+	0	0	0	+	0	0	0	.	0	0	.	.	.	0	.	.	
114	WEKIVA RIVER	PARTIAL	FAIR	x	x	0	0	0	.	x	0	0	0	x	.	x	x	x	.	.	0	.	.	

<--- PLEASE READ THESE COLUMNS VERTICALLY

DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS

LEGEND:

ALK-ALKALINITY
BOD-BIOCHEM. OXYGEN DEMAND
CHLA-CHLOROPHYLL
DO-DISSOLVED OXYGEN
DOSAT-DO SATURATION
FCOLI-FECAL COLIFORM
FLOW-FLOW
MEETS USE-MEETS DESIGNATED USE
PH-PH
SD-SECCHI DISC METERS
TCOLI-TOTAL COLIFORM
TEMP-TEMPERATURE
TN-NITROGEN
TOC-T.ORGANIC CARBON
TP-PHOSPHORUS
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
TSI-TROPHIC STATE INDEX FOR LAKES AND ESTUARIES
WQI-WATER QULAITY INDEX FOR STREAMS AND SPRINGS

SURFACE WATER QUALITY ASSESSMENT REPORT ** USGS HYDROLOGIC UNIT: 03080101 ST JOHNS RIVER, UPPER
TRENDS-SOURCES-CLEANUP

'x'=DEGRADING TREND
'0'=STABLE TREND
'+'=IMPROVING TREND
'.'=MISSING DATA

1984 - 1993 TRENDS

<--- PLEASE READ THESE COLUMNS VERTICALLY

WATERSHED ID	NAME	QUALITY RANK MEETS USE ?	QUALITY RANK WQI OR TSI	OVER-ALL TREND	WQI or TSI	TN	TP	CHLA	SD	PH	ALK	TURB	TSS	BOD	TOC	DO	DOSAT	TCOLI	FCOLI	TEMP	FLOW	DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
115	WEKIVA RIVER LOWER	PARTIAL	FAIR	+	0	0	+	0	0	0	0	0	0	+	.	0	0	.	.	0	.	
116	RAVENNA PARK DITCHES	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
117	STJ RIV AB LK MONROE	YES	GOOD	0	0	0	0	0	0	0	0	0	0	0	.	x	x	.	.	0	.	
118	UNDERHILL SLOUGH	PARTIAL	FAIR	+	0	+	+	0	0	0	0	0	.	.	.	0	0	.	.	x	.	
120	BLACK WATER CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
121	STJ RIV AB WEKIVA R.	PARTIAL	FAIR	0	0	0	+	0	0	x	0	0	0	0	.	0	0	x	0	0	.	
123	BETHEL CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
124	COW CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
125	DEEP CR-LK ASHBY CA	YES	GOOD	0	0	.	+	.	.	0	0	0	.	.	.	0	0	.	.	0	.	
130	SAMSULA CANAL-SANDY DR	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
132	STJ RIV AB LK WOODRUFF	PARTIAL	FAIR	+	0	0	+	0	0	x	0	0	0	0	.	0	0	.	+	0	0	
134	STJ RIV AB LAKE GEORGE	PARTIAL	FAIR	0	0	0	+	0	0	0	+	+	0	x	.	0	0	0	0	0	.	
146	DEEP CREEK	NO	POOR																			
147	JUNIPER CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
154	SALT SPRINGS RUN	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
156	GEORGETOWN SLOUGH	YES	GOOD																			

LEGEND:

ALK-ALKALINITY
BOD-BIOCHEM. OXYGEN DEMAND
CHLA-CHLOROPHYLL
DO-DISSOLVED OXYGEN
DOSAT-DO SATURATION
FCOLI-FECAL COLIFORM
FLOW-FLOW
MEETS USE-MEETS DESIGNATED USE
PH-PH
SD-SECCHI DISC METERS
TCOLI-TOTAL COLIFORM
TEMP-TEMPERATURE
TN-NITROGEN
TOC-T.ORGANIC CARBON
TP-PHOSPHORUS
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
TSI-TROPHIC STATE INDEX FOR LAKES AND ESTUARIES
WQI-WATER QULAITY INDEX FOR STREAMS AND SPRINGS

NPS QUALITATIVE SURVEY RESULTS
AN "X" INDICATES A PROBLEM WITH POLLUTANT OR SOURCE
THE * ON MAPID INDICATES NO STORET INFORMATION AVAILABLE FOR THIS WATERSHED
-SEE PAGE 11 FOR LEGEND FOR THIS TABLE-

CATNAME=ST JOHNS RIVER, UPPER HUC=03080101

MAPID	WBID	BASIN	WQ03	WQNPS	NUTRIENT	BACTERIA	SEDIMENT	OIL	PESTICID	OTHERCHE	DEBRIS	OXYGEN	SALINITY	PH	METAL	HABITAT	FLOW	THERMAL	OTHERPOL	FISHKILL	ALGAL	WEED	TURBIDITY	ODOR	FISHDECL	NOSWIM	NOOFISH	OTHERSYM	INDUS	STORP	AGRI	RESL	SILD	URB	CNST	HYDM	OTHER
1*	28932	LITTLE SAWGRASS LAKE		GOOD																																	
2*	2893T	DEERHAVEN LAKE		GOOD																																	
3*	2920	BOYD LAKE OUTLET		GOOD																																	
4	2921	Lake Woodruff	FAIR	THREAT	X		X																								X		X	X			X
5*	2978C	ELLIS LAKE		FAIR	X																X	X									X		X	X			X
6*	3165	JOE GORE SLOUGH		GOOD																																	
7*	3164	PARKER BAY DRAIN		GOOD																																	
8*	3160	ST. JOHNS MARSH		THREAT	X		X										X					X									X					X	X
9	3154	FORT DRUM CREEK	POOR	THREAT	X		X									X	X						X								X				X	X	X
10*	3162	BOGGY BRANCH		GOOD																																	
11	3161	SWEETWATER BRANCH	FAIR	GOOD																																	
12*	3159	PARKER SLOUGH		GOOD																																	
13*	3156	JIM GREEN CREEK		GOOD																																	
14*	3157	UNNAMED BRANCH		GOOD																																	
15	3152	PADGETT BRANCH	FAIR	GOOD																											X						
16	3149	COW LOG BRANCH	FAIR	GOOD																																	
17	2893S	Fort Drum MARSH	FAIR	GOOD																											X						
18*	3151	UNNAMED DITCH		THREAT	X	X									X								X										X	X			X
19*	3148	UNNAMED DITCH		THREAT	X	X		X															X								X		X	X			X
20	2893V	BLUE CYPRESS LAKE	GOOD	GOOD																																	
21	3133	BLUE CYPRESS CREEK	FAIR	THREAT	X	X	X		X			X	X							X	X	X	X	X	X	X					X		X	X			
22*	3143	LOKOSEE DITCHES		GOOD																																	
23*	3145	MITCHELL CREEK		GOOD																																	
24*	3140	DRAINED FARMLAND		THREAT	X																										X						
25*	3144	MINOR DITCHES		GOOD																																	
26*	3137	NORTH LOKOSEE DITCHES		GOOD																																	
27*	3141	UNNAMED CREEK		GOOD																																	
28	3130	SIXMILE CREEK	FAIR	FAIR	X		X																								X					X	X
30*	3084C	Cow Log Branch		GOOD																																	
31	2893Q	Lake Helen Blazes	FAIR	GOOD																																	
32	3084B	Bull Creek	FAIR	GOOD																																	
33	3084	JANE GREEN CREEK	POOR	GOOD																																	
35	28931	SAWGRASS LAKE	FAIR	GOOD																																	
36	2893P	STT RIV AB LK WASHINGT	POOR	GOOD																											X			X			
37	2893X	STT RIV AB SAWGRASS LK	POOR	GOOD																																	
39	2893O	Lake Washington	FAIR	GOOD																											X			X			
42	2893N	STT RIV AB LK WINDER	FAIR	GOOD																											X			X			
43	2893L	STT RIV AB LK POINSETT	POOR	GOOD																																	
44	2893Y	LAKE WINDER	GOOD	GOOD																																	
46	2893K	Lake Poinsett	GOOD	GOOD																																	
47	3064	ROCKLEDGE CREEK	FAIR	THREAT	X	X	X				X	X	X			X	X			X	X	X	X		X						X		X	X	X		X	
48	3064A	FLORENCE LAKE	FAIR	THREAT	X	X	X				X	X	X			X	X			X	X	X	X		X						X		X	X	X		X	
49	3059	TAYLOR CREEK	GOOD	THREAT	X		X										X								X						X						X	X
55	2991	ECONLOCKHATCHEE RIVER	GOOD	THREAT	X	X	X	X	X		X	X	X					X	X	X	X	X	X		X						X		X	X		X	X	X
57	2893I	STT RIV AB PUZZLE LK	GOOD	GOOD																																	
62	3004	LITTLE WEKIVA CANAL	FAIR	THREAT	X		X	X	X		X	X	X		X	X	X	X		X	X	X	X		X								X	X	X	X	X
63	3004A	BEAR LAKE	GOOD	THREAT	X		X	X	X		X	X	X		X	X	X	X		X	X	X	X		X								X	X	X	X	X
64	3004B	LAKE FAIRVIEW	GOOD	THREAT	X		X	X	X		X	X	X		X	X	X	X		X	X	X	X		X								X	X	X	X	X
65	3004C	LAKE LAWNE	FAIR	THREAT	X		X	X	X		X	X	X		X	X	X	X		X	X	X	X		X								X	X	X	X	X

NPS QUALITATIVE SURVEY RESULTS
AN "X" INDICATES A PROBLEM WITH POLLUTANT OR SOURCE
THE * ON MAPID INDICATES NO STORET INFORMATION AVAILABLE FOR THIS WATERSHED
-SEE PAGE 11 FOR LEGEND FOR THIS TABLE-

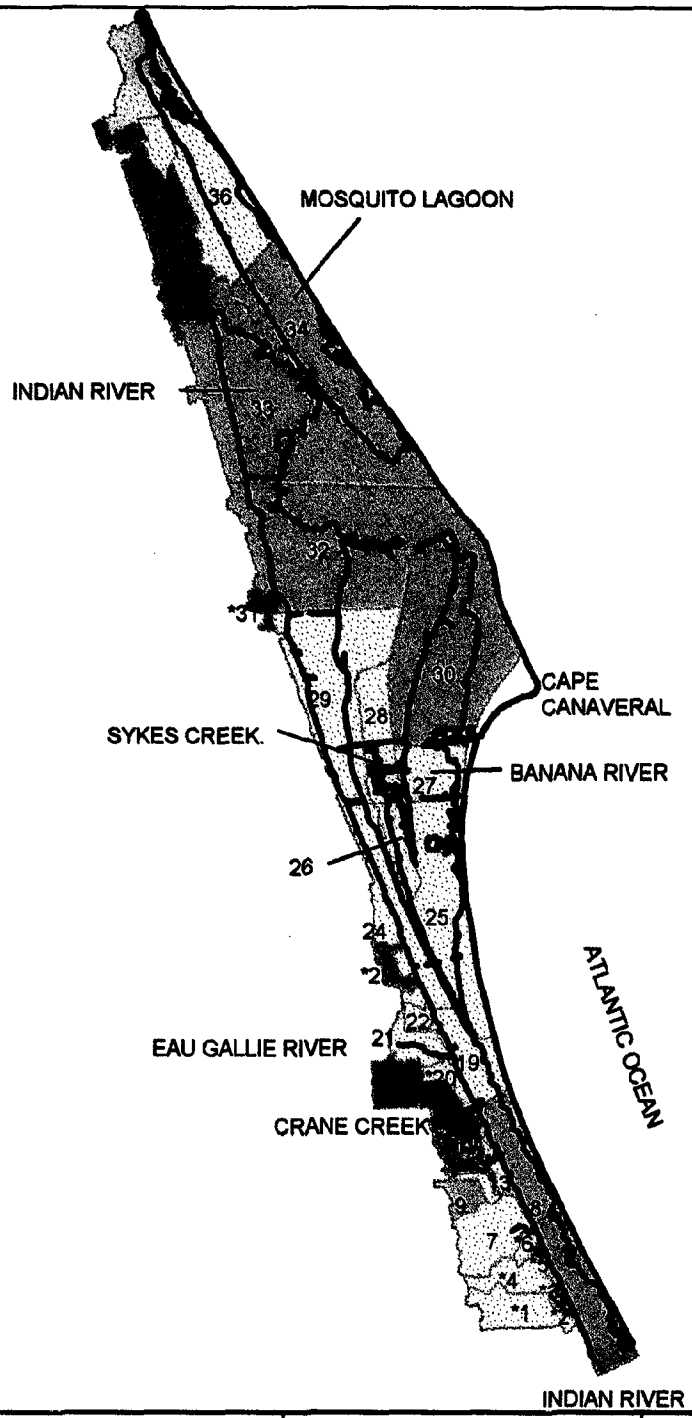
CATNAME=ST JOHNS RIVER, UPPER HUC=03080101
(continued)

MAP ID	WBID	BASIN	WQ30S	WQNPS	NUTRIENT	BACTERIA	SEDIMENT	OIL	PESTICIDES	OTHERCHE	DEBRIS	OXYGEN	SALINITY	PH	METAL	HABITAT	FLOW	THERMAL	OTHERPOL	FISHKILL	ALGAL	WEED	TURBIDITY	ODOR	FISHDECL	NOSWIM	NOFISH	OTHERSYM	IND	STP	AG	RE	SL	LD	UR	CN	HM	OT
66	3001	LITTLE ECONLOCKHATCHEE	FAIR	THREAT	X	X	X	X			X	X	X							X	X		X		X				X	X	X			X		X	X	
70	3008	SOUTH LAKE OUTLET	GOOD	THREAT	X		X									X						X	X								X			X	X			X
71	3008A	FOX LAKE	POOR	THREAT	X		X									X						X	X								X			X	X			X
72	3002	LUCY LAKE	GOOD	THREAT	X	X	X	X	X	X				X		X				X	X	X	X	X	X						X							
75*	2999	BEAR CREEK		THREAT			X																X												X	X		X
76	2997	HOWELL CK BL LK HOWELL	FAIR	THREAT	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X						X			X	X	X		X
77	2997A	HOWELL CREEK	FAIR	THREAT	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X						X			X	X	X		X
78	2997B	Howell Lake	GOOD	THREAT	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X						X			X	X	X		X
79	2997C	LAKE MAITLAND	GOOD	THREAT	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X						X			X	X	X		X
80	2997D	LAKE MINNEHAHA	GOOD	THREAT	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X						X			X	X	X		X
81	2997E	LAKE OSCEOLA	GOOD	THREAT	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X						X			X	X	X		X
82	2997F	LAKE MIZELL	GOOD	THREAT	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X						X			X	X	X		X
83	2997G	LAKE VIRGINIA	GOOD	THREAT	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X						X			X	X	X		X
84	2991A	ECONLOCKHATCHEE RIVER	GOOD	THREAT	X	X	X	X	X		X	X	X					X	X	X	X	X	X		X				X	X	X		X	X		X	X	X
85	2978	CLARK LAKE OUTLET	GOOD	FAIR	X																X	X									X			X	X			X
86	2978A	LOUGHMAN LAKE	POOR	FAIR	X																X	X									X			X	X			X
87	2978B	SALT LAKE	POOR	FAIR	X																X	X									X			X	X			X
88	3000	LAKE PEARL	FAIR	GOOD																																		
90*	2998	CRANES ROOST OUTLET		GOOD																																		
91	2998A	LAKE FLORIDA	GOOD	GOOD																																		
92	2994B	Lake Kathryn	GOOD	THREAT	X		X	X	X		X	X	X		X							X	X		X									X	X	X		X
93	2994A	GEE CREEK	FAIR	THREAT	X		X	X	X		X	X	X		X							X	X		X				X	X				X	X	X		X
94	2994C	Fairy Lake	GOOD	THREAT	X		X	X	X		X	X	X		X							X	X		X									X	X	X		X
95	2994D	ISLAND LAKE	GOOD	THREAT	X		X	X	X		X	X	X		X							X	X		X									X	X	X		X
97	2987	LITTLE WEKIVA RIVER	FAIR	THREAT	X																	X							X	X				X	X			X
98	2987A	SPRING LAKE	FAIR	THREAT	X																	X												X	X			X
104	2981	Lake Jessup	POOR	POOR	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X						X			X				X
105	2981A	LAKE JESSUP NR STJR	POOR	POOR	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X						X			X				X
107	2956	WEKIVA RIVER	FAIR	THREAT	X	X	X	X			X					X	X			X		X	X		X	X					X	X		X		X		
108	2956C	WEKIVA SPRING	GOOD	THREAT	X	X	X	X			X					X	X			X		X	X		X	X					X	X		X		X		
109*	2984	ELDER SPRINGS RUN		POOR	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X						X			X				X
110	2967	ROCK SPRINGS RUN	FAIR	THREAT	X	X	X				X						X			X		X	X		X	X								X	X	X		
111*	2973	DEFOREST LAKE OUTLET		FAIR	X																										X			X	X			X
112	2961	LAKE SYLVAN	GOOD	GOOD																																		
113	2893F	STJ RIV AB LK JESSUP	GOOD	GOOD																																		
114	2956A	WEKIVA RIVER	FAIR	THREAT	X	X	X	X			X					X	X			X		X	X		X	X			X	X	X	X		X		X		
115	2956B	WEKIVA RIVER LOWER	FAIR	THREAT	X	X	X	X			X					X	X			X		X	X		X	X					X	X		X		X		
116	2962	RAVENNA PARK DITCHES	FAIR	THREAT	X	X						X	X								X	X							X	X	X				X			
117	2893E	STJ RIV AB LK MONROE	GOOD	GOOD																									X	X								
119	2893D	Lake Monroe	FAIR	GOOD																									X	X	X				X	X		
120	2929A	BLACK WATER CREEK	GOOD	THREAT	X		X		X		X			X							X	X	X		X						X	X	X	X		X		X
121	2893C	STJ RIV AB WEKIVA R.	FAIR	GOOD																											X				X			
124	2952	COW CREEK	FAIR	GOOD																																		
125	2925	DEEP CR-LK ASHBY CA	GOOD	GOOD																																		
126	2925A	LAKE ASHBY	GOOD	GOOD																																		
128	2929B	Lake Norris	GOOD	THREAT	X		X		X		X			X							X	X	X		X						X	X	X	X		X		X
129	2929C	LAKE DORR	GOOD	THREAT	X		X		X		X			X							X	X	X		X						X	X	X	X		X		X
131	28933	BLUE SPRING	GOOD	GOOD																																		

NPS QUALITATIVE SURVEY RESULTS
AN "X" INDICATES A PROBLEM WITH POLLUTANT OR SOURCE
THE * ON MAPID INDICATES NO STORET INFORMATION AVAILABLE FOR THIS WATERSHED
-SEE PAGE 11 FOR LEGEND FOR THIS TABLE-

CATNAME=ST JOHNS RIVER, UPPER HUC=03080101
(continued)

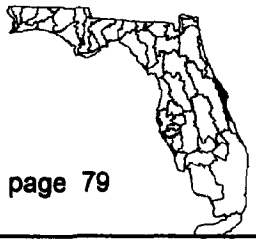
MAP ID	WBID	BASIN	WQ03 05	WQNPS	NUTRIENT	BACTERIA	SEDIMENT	OIL	PESTICIDE	OTHERCHEM	DEBRIS	OXYGEN	SALINITY	PH	METAL	HABITAT	FLOW	THERMAL	OTHERPOL	FISHKILL	ALGAL	WEED	TURBIDITY	ODOR	FISHDECL	NOSWIM	NOFISH	OTHERSYM	IND	STP	AG	RE	SL	LD	UR	CN	HM	OT
132	2893B	STJ RIV AB LK WOODRUFF	FAIR	GOOD																									X	X		X						
133	2893U	LAKE BERESFORD	FAIR	GOOD																																		
134	2893Z	STJ RIV AB LAKE GEORGE	FAIR	GOOD																											X				X			
138	2931	LK WINNEMISSETT OUTLET	GOOD	GOOD																																		
139	2918A	Alexander Springs	POOR	THREAT																													X		X			
140	2923	STAGGER MUD LAKE	FAIR	THREAT	X			X			X									X			X						X	X	X				X			
141*	2918B	BUCK LAKE		THREAT																													X		X			
142	2921A	PONCE DE LEON SPRING	POOR	THREAT	X		X																								X			X	X			X
143	2918C	Sellars Lake	GOOD	THREAT																													X		X			
145	2893A	Lake George	FAIR	GOOD																									X	X	X				X			
147	2905	JUNIPER CREEK	GOOD	THREAT	X		X	X				X	X							X	X	X	X		X						X			X	X			X
148	2905A	JUNIPER SPRING	GOOD	THREAT	X		X	X				X	X							X	X	X	X		X						X			X	X			X
149	2905B	SWEETWATER SPRING	POOR	THREAT	X		X	X				X	X							X	X	X	X		X						X			X	X			X
150	2905C	WILDCAT LAKE	GOOD	THREAT	X		X	X				X	X							X	X	X	X		X						X			X	X			X
153	2899	LITTLE LAKE KERR OUTLE	GOOD	THREAT	X	X																												X	X			
154	2900	SALT SPRINGS RUN	GOOD	THREAT	X		X				X											X	X		X						X			X	X			X
155	2894	LAKE DELANCEY	GOOD	THREAT	X		X															X	X								X		X	X	X			X



MIDDLE EAST COAST BASIN
03080202

AVERAGE WATER QUALITY
1984-1993 STORET DATA
WATERSHED ID NUMBERS LINK MAP TO TABLES
* INDICATES QUALITATIVE ASSESSMENT

WATER QUALITY
- GOOD
- THREATENED
- FAIR
- POOR
- UNKNOWN



MIDDLE EAST COAST BASIN

Basic Facts

Drainage Area: 872 square miles
Major Land Uses: urban, wetlands, rangeland, industrial
Population Density: moderately high, concentrated in southern half of basin (Titusville, Cocoa, Cape Kennedy, Melbourne, Edgewater, New Smyrna)
Major Pollution Sources: urban runoff, WWTPs
Best Water Quality Areas: Indian River, Mosquito Lagoon south of Edgewater, Little Turkey Creek
Worst Water Quality Areas: Newfound Harbor, Crane Creek, Banana River south of Highway 528
Water Quality Trends: 5 sites have stable trends, nine watersheds in upper portion of basin show improving trends, a middle Indian River area shows degradation
OFW Waterbodies:
- Most of Mosquito Lagoon and Banana River
- Indian River Aquatic Preserve
- Banana River State Aquatic Preserve
- Pelican Island National Wildlife Refuge
- Canaveral National Seashore

SWIM Waterbodies: Indian River Lagoon System
Reference Reports:
- East Coast BAS, DEP (Orlando), 1984
- Indian River Lagoon Reconnaissance Report, SJRWMD and SFWMD, 1987
- Indian River Water Quality Survey, DEP (Orlando), 1985
- Florida Nonpoint Source Assessment, DEP (Tallahassee), 1988

Ecosummary Report (by DEP Central District):
- Halifax R @ Silver Beach Memorial Bridge (1992)
- Turnbull Bay @ CM12 (1993)
- Indian R. @ Cocoa STP Outfall (1993)

Basin Water Quality Experts:
- John Hendrickson, Joel Steward, SJRWMD, 904/328-8321
- Guy Hadley, Steve Kent, DEP (Orlando) 407/894-7555
- Conrad White, Brevard County Office of Natural Resource Management 407/633-2016

In the News

* The City of Melbourne's WWTP is no longer discharging to Crane Creek and Eau Gallie River.
* The Indian River Estuary was included in the National Estuary Program
* The Florida Legislature passed a bill in 1990 banning sewage discharge into the Indian River Lagoon by July 1, 1995.
* Several cruise ships in Port Canaveral have been cited for improper disposal of sewage in Port Canaveral waters.

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Ecological Characterization

The Middle East Coast basin extends from Ponce de Leon Inlet at New Smyrna Beach south to Sebastian Inlet and contains three major bodies of water: Mosquito Lagoon, Indian River and Banana River. All three are actually estuarine lagoons with tidal influence extending only approximately 10 miles north and south of the inlets. There is little freshwater influence from natural stream drainage areas, with the exception of the Eau Gallie and Sebastian areas. In their natural state, the lagoons are bordered by mangrove swamp or Spartina marsh and have lush growths of seagrasses on their bottoms. Mosquito Lagoon and Turnbull Bay retains much of their native vegetation; whereas, the shores of Indian and Banana River are becoming more and more urbanized. The land portion of the basin is dominated by urban developments, rangeland and wetlands. Causeways serve to partition the Banana and Indian River Lagoons, causing considerable localization of wind and tidal mixing effects. Mosquito Lagoon connects with the Indian River north of the Eau Gallie Causeway and through Haulover Canal, part of the Intracoastal Waterway. The Indian River connects with Banana River through the deep, narrow Barge Canal, which connects to Port Canaveral through a system of locks. Sykes Creek connects Newfound Harbor to the Barge Canal, and receives drainage from several large canals and fresh water tributaries.

Urban areas are often networked with canals connecting to the estuary. Some of the urban areas are still served by septic tanks. Other fresh water input comes from canals draining rangeland or orchards further to the west. Interbasin diversions of fresh water have greatly augmented natural inflows to the system during the wet season.

Anthropogenic Impacts

There are several difficulties with the analysis of this basin. First, the reach units are too large to point out localized areas of water quality problems. Second, there is not a firm consensus among the surveyed water quality professionals in the area. The following analysis and water quality map represent the best assessment of available data, state criteria, and professional opinion.

The southernmost reach of Indian River has very good water quality except for the immediate vicinity of Turkey Creek, Crane Creek, and Eau Gallie River. Turkey Creek has a variety of pollution sources including a drainage canal from the St. Johns River Basin, and urban runoff from the Melbourne area. Part of the SWIM plan for the area involves diverting some water back to the St. Johns River. Crane Creek has been degraded from Melbourne's two WWTPs discharges. Both have now ceased discharging and are using deep well injection. Eau Gallie River receives urban runoff. A WWTP ceased discharging to the Eau Gallie River more than 3 years ago.

Another major pollution source in Indian River is the Rockledge/Cocoa development area with nutrient and BOD loading from WWTPs and urban runoff. The middle portion of Indian River from Titusville to Cocoa has poor water quality along the developed western side. Water quality is degraded due to two Titusville WWTPs' effluents, significant urban runoff from a labyrinthine canal system, and several causeway bridges which severely limit water circulation. Development and associated pollution is significantly reduced north of Titusville. Water quality in that area can be considered good to excellent.

The worst water quality problem in the Banana River area is the Sykes Creek/Newfound Harbor area located in southern Merritt Island. These areas have had algal blooms, seagrass die-offs, and occasional fish kills. The area is heavily developed and has historically had several poorly operating WWTPs discharging to Sykes Creek. These plants have all been upgraded and are no longer discharging to Sykes Creek. The creek still exhibits high concentrations of nutrients and chlorophyll and low Secchi depth values. At present a worsening trend in water quality has been observed.

The middle of the Banana River also receives effluent from WWTPs associated with Cocoa Beach and the Patrick Air Force Station complex on the Canaveral Peninsula. The southern end of the lagoon previously received additional WWTP discharge from county operated facilities. These treatment plants have shifted to deep well discharge which should help to improve the surface water quality. Port Canaveral, a manmade harbor which connects the Banana River to the Atlantic Ocean through a series of locks, receives pollution from both shipping traffic discharges and from the effluent of several seafood processing industries. The northern areas of Merritt Island and Banana River are sparsely developed (because they are part of the Kennedy Space Center) and water quality is good.

Mosquito Lagoon is wide and shallow and, thus fairly well mixed through wind action. This mixed condition accounts for the low Secchi disc transparency and high nutrient values. There are few point sources in this region, and development is relatively sparse (due to Kennedy Space Center and the Canaveral National Seashore), but usually serviced by septic tanks. Most of the area is classified as Class II waters, but has recently been reclassified from approved for shellfish harvesting to conditionally approved. This is why it received a "fair" rating since it only partially meets its designated use.

** USGS HYDROLOGIC UNIT: 03080202 EAST COAST, MIDDLE

SURFACE WATER QUALITY DATA FOR 1970-1993
MEDIAN VALUES FOR EACH WATERSHED
CURRENT PERIOD OF RECORD (1989-1993) USED WHERE AVAILABLE
PERIOD PRIOR TO 1989 IS EVALUATED AS HISTORICAL INFORMATION

INDEX	GOOD	FAIR	POOR
WQI-RIVER	0-44	45-59	60-90
TSI-ESTUARY	0-49	50-59	60-100
TSI-LAKE	0-59	60-69	70-100

WATERSHED ID	NAME	WATERSHED DATA RECORD MAX #OBS	BEG YR	END YR	DATA PERIOD	WATER CLARITY TURB	SD	COLOR	TSS	DISSOLVED OXYGEN DO	DOSAT	OXYGEN DEMAND BOD	COD	TOC	PH	ALKALINITY ALK	TROPHIC STATUS NITRO	PHOS	CHLA	COLIFORM TOTAL	FECL	BIOLOGICAL SPECIES DIVERSITY NAT	ART	BECK	COND	FLOW	WATER QUALITY INDICES WQI	TSI
▾ WATER BODY TYPE: ESTUARY																												
8	INDIAN R. AB SEB INLET	1419	89	93	Current	3.6	1.2	20	14	6.6	78	2.1	.	.	8.1	122	0.82	0.04	5	.	.	3.2	.	.	40728	.	.	48
19	INDIAN R. AB MELB CSWY	677	89	93	Current	2.8	1.6	20	10	6.8	79	3.8	.	.	7.9	89	1.33	0.07	10	.	.	.	.	.	30248	.	.	52
24	INDIAN R. AB MELB CSWY	1046	89	90	Current	4.0	1.4	16	9	7.0	79	.	.	.	8.1	.	1.32	0.06	13	.	.	.	.	.	.	.	.	55
25	BANANA R. BL MATHERS	224	83	87	Historical	6.5	1.0	16	13	5.7	69	3.1	.	.	8.0	109	1.25	0.10	14	.	.	.	.	.	30000	.	.	57
26	NEWFOUND HARBOR	238	89	93	Current	4.3	1.0	25	21	6.9	76	3.5	.	.	8.2	.	1.71	0.05	10	.	.	.	.	.	.	.	.	56
27	BANANA R. AB 520 CSWY	206	89	93	Current	5.5	1.1	20	6	6.2	67	2.7	.	.	7.7	132	1.62	0.05	9	.	.	.	.	.	34803	.	.	53
28	Sykes Creek/Barge Can.	343	89	93	Current	3.0	1.0	30	19	7.1	84	2.4	.	.	8.1	.	1.42	0.05	13	.	.	.	.	.	.	.	.	55
29	INDIAN R. AB 520 CSWY	610	89	93	Current	5.6	1.2	15	13	6.2	72	3.0	.	.	7.7	111	1.52	0.06	11	.	.	.	.	.	34550	.	.	56
30	BANANA R. AB BARGE CAN	112	81	87	Historical	5.2	1.0	10	13	6.2	74	1.9	.	.	8.4	160	1.37	0.04	4	.	1	.	.	.	30600	.	.	44
32	INDIAN R. AB NASA CSWY	552	89	91	Current	2.9	1.7	11	10	6.4	75	.	.	11	8.3	.	1.22	0.03	12	.	.	.	.	.	50900	.	.	45
33	INDIAN R. AB M. BREWER	302	89	93	Current	2.6	1.6	11	6	6.5	73	2.5	.	.	8.0	129	1.14	0.04	7	.	.	3.8	.	.	44288	.	.	48
34	Mosquito Lagoon	146	90	93	Current	4.9	1.2	12	10	6.7	73	.	.	7	8.0	127	1.19	0.04	4	5	4	.	.	.	49675	.	.	47
36	Mosquito Lagoon	1878	90	93	Current	6.3	1.0	13	14	6.3	73	2.3	.	4	7.9	116	1.11	0.06	6	10	5	.	.	.	50388	.	.	54
▾ WATER BODY TYPE: STREAM																												
7	GOAT CREEK	44	89	91	Current	5.4	0.5	45	8	6.1	71	6.0	.	8	7.2	.	1.07	0.09	7	.	.	.	.	.	31200	.	49	.
9	LITTLE TURKEY CREEK	4	89	89	Current	9.7	.	150	6	7.8	81	1.0	.	16	7.4	.	0.57	0.06	.	.	.	.	.	.	670	.	31	.
10	DRAINED FARMLAND	68	89	91	Current	3.7	0.9	61	3	6.4	69	1.0	.	13	6.9	163	0.91	0.02	2	80	62	.	.	.	1076	8	33	.
13	TURKEY CREEK	303	89	92	Current	5.6	0.7	49	19	5.9	68	1.8	.	11	7.6	.	1.16	0.07	17	.	.	.	.	.	17336	0	47	.
18	CRANE CREEK	350	89	93	Current	4.8	0.8	26	18	5.4	61	2.6	.	13	7.7	143	1.27	0.11	18	.	118	.	.	.	18410	.	62	.
21	EAU GALLIE RIVER	216	89	93	Current	5.7	0.8	30	23	6.0	67	3.4	.	13	7.6	119	1.36	0.12	21	.	45	.	.	.	15710	.	53	.
22	HORSE CREEK	101	89	93	Current	3.3	0.7	100	4	3.6	46	1.4	.	18	6.8	.	0.89	0.06	2	.	.	.	.	.	2020	.	57	.

LEGEND:
ALK-ALKALINITY MG/L
ART-ARTIFICIAL SUBSTRATE DI
BEG YR-BEGINNING SAMPLING YEAR
BECK-BECK'S BIOTIC INDEX
BOD-BIOCHEMICAL OXYGEN DEMAND MG/L
CHLA-CHLOROPHYLL UG/L
COD-CHEMICAL OXYGEN DEMAND MG/L
COLOR-COLOR PCU
COND-CONDUCTIVITY UMHOS
DO-DISSOLVED OXYGEN MG/L
DOSAT-DO % SATURATION
END YR-ENDING YEAR
FECL-FECAL COLIFORM MPN/100ML
FLOW-FLOW CFS
MAX #OBS-MAXIMUM NUMBER OF SAMPLES
NAT-NATURAL SUBSTRATE DIVERSITY
NITRO-TOTAL NITROGEN MG/L
PH-PH STANDARD UNITS
PHOS-TOTAL PHOSPHORUS MG/L
SD-SECCHI DISC METERS
TOC-TOTAL ORGANIC CARBON MG/L
TOTAL-TOTAL COLIFORM MPN/100ML
TSI-TROPHIC STATE INDEX
TSS-TOTAL SUSPENDED SOLIDS MG/L
TURB-TURBIDITY MG/L
WQI-WATER QUALITY INDEX

SURFACE WATER QUALITY DATA SCREENING REPORT
MEDIAN VALUES FOR EACH WATERSHED SCREENED

** USGS HYDROLOGIC UNIT: 03080202 EAST COAST, MIDDLE

'x'=EXCEEDS SCREENING CRITERIA
'0'=WITHIN SCREENING CRITERIA
'.'=MISSING DATA

SCREENING VARIABLES AND CRITERIA

WATERSHED ID	NAME	RANK WQI OR TSI	DATA RECORD CURRENT OR HISTORICAL	TN TN>2.0	STREAM TP TP>.46	LAKE TP TP>.12	PH PH>8.8 PH<5.2	ALK ALK<20	TURB & TSS TURB>16.5 TSS>18	COND COND>1275	OXYGEN DEMAND BOD>3.3 COD>102 TOC>27.5	DO DO<4	COLIFORM BACTI TOT>3700 FECAL>470	BIOL DIV DIART<1.95 DINAT<1.5 BECK<5.5	CHLA CHLA>40	SECCHI DISC SD<.7
* WATER BODY TYPE: ESTUARY																
8	INDIAN R. AB SEB INLET	GOOD	Current	0	.	0	0	0	0	x	0	0	.	0	0	0
19	INDIAN R. AB MELB CSWY	FAIR	Current	0	.	0	0	0	0	x	x	0	.	.	0	0
24	INDIAN R. AB MELB CSWY	FAIR	Current	0	.	0	0	.	0	0	.	0	.	.	0	0
25	BANANA R. BL MATHERS	FAIR	Historical	0	.	0	0	0	0	x	0	0	.	.	0	0
26	NEWFOUND HARBOR	FAIR	Current	0	.	0	0	.	x	0	x	0	.	.	0	0
27	BANANA R. AB 520 CSWY	FAIR	Current	0	.	0	0	0	0	x	0	0	.	.	0	0
28	Sykes Creek/Barge Can.	FAIR	Current	0	.	0	0	.	x	0	0	0	.	.	0	0
29	INDIAN R. AB 520 CSWY	FAIR	Current	0	.	0	0	0	0	x	0	0	.	.	0	0
30	BANANA R. AB BARGE CAN	GOOD	Historical	0	.	0	0	0	0	x	0	0	0	.	0	0
32	INDIAN R. AB NASA CSWY	GOOD	Current	0	.	0	0	.	0	x	0	0	.	.	0	0
33	INDIAN R. AB M. BREWER	GOOD	Current	0	.	0	0	0	0	x	0	0	.	0	0	0
34	Mosquito Lagoon	GOOD	Current	0	.	0	0	0	0	x	0	0	0	.	0	0
36	Mosquito Lagoon	FAIR	Current	0	.	0	0	0	0	x	0	0	0	.	0	0
* WATER BODY TYPE: STREAM																
7	GOAT CREEK	FAIR	Current	0	0	.	0	.	0	x	x	0	.	.	0	x
9	LITTLE TURKEY CREEK	GOOD	Current	0	0	.	0	.	0	0	0	0	.	.	.	.
10	DRAINED FARMLAND	GOOD	Current	0	0	.	0	0	0	0	0	0	0	.	0	0
13	TURKEY CREEK	FAIR	Current	0	0	.	0	.	x	x	0	0	.	.	0	x
18	CRANE CREEK	POOR	Current	0	0	.	0	0	x	x	0	0	0	.	0	0
21	EAU GALLIE RIVER	FAIR	Current	0	0	.	0	0	x	x	x	0	0	.	0	0
22	HORSE CREEK	FAIR	Current	0	0	.	0	.	0	x	0	x	.	.	0	0

LEGEND:
ALK-ALKALINITY
BECK-BECK'S BIOTIC INDEX
BIOL DIV-BIOLOGICAL DIVERSITY
CHLA-CHLOROPHYLL
COND-CONDUCTIVITY
DO-DISSOLVED OXYGEN
CURRENT-1989 TO 1993
DIART-ARTIFICIAL SUBSTRATE DIVERSITY
DINAT-NATURAL SUBSTRATE DIVERSITY
FECAL-FECAL COLIFORM BACTERIA
HISTORICAL-1970 TO 1988
OXYGEN DEMAND-BOD,COD,TOC
PH-PH
TN-NITROGEN
TP-PHOSPHORUS
TOT-TOTAL COLIFORM BACTERIA
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
SD-SECCHI DISC METERS
WQI OR TSI-WATER QUALITY INDEX RATING WHICH INDEX USED, WQI OR TSI, IS BASED ON WATERBODY TYPE

SURFACE WATER QUALITY ASSESSMENT REPORT
TRENDS-SOURCES-CLEANUP

** USGS HYDROLOGIC UNIT: 03080202 EAST COAST, MIDDLE

'x'=DEGRADING TREND
'0'=STABLE TREND
'+'=IMPROVING TREND
'.'=MISSING DATA

1984 - 1993 TRENDS

<--- PLEASE READ THESE COLUMNS VERTICALLY

WATERSHED ID	NAME	QUALITY RANK: MEETS USE ?	QUALITY RANK: WQI OR TSI	OVER-ALL TREND	WQI or TSI	TN	TP	CHLA	SD	PH	ALK	TURB	TSS	BOD	TOC	DO	DOSAT	TCOLI	FCOLI	TEMP	FLOW	DEGRADATION SOURCES, PRESENT CONDITIONS AND CLEANUP EFFORTS
* WATER BODY TYPE: ESTUARY																						
8	INDIAN R. AB SEB INLET	YES	GOOD	0	0	0	+	0	0	0	0	0	0	0	.	0	0	.	.	x	.	
19	INDIAN R. AB MELB CSWY	PARTIAL	FAIR	0	0	0	+	0	0	0	.	+	+	.	.	0	+	.	.	x	.	
24	INDIAN R. AB MELB CSWY	PARTIAL	FAIR	x	x	0	0	x	0	+	.	0	0	.	.	0	+	.	.	x	.	
25	BANANA R. BL MATHERS	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
26	NEWFOUND HARBOR	PARTIAL	FAIR	0	0	0	+	0	0	x	.	0	x	+	.	0	0	.	.	0	.	
27	BANANA R. AB 520 CSWY	PARTIAL	FAIR	0	0	0	0	0	0	x	x	0	.	.	.	0	0	.	.	+	.	
28	Sykes Creek/Barge Can.	PARTIAL	FAIR	+	+	+	+	+	0	0	.	+	x	+	.	0	0	.	.	0	.	
29	INDIAN R. AB 520 CSWY	PARTIAL	FAIR	+	+	0	+	0	+	x	x	+	0	.	.	0	0	.	.	0	.	
30	BANANA R. AB BARGE CAN	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
32	INDIAN R. AB NASA CSWY	YES	GOOD	+	+	+	+	+	+	x	.	+	0	.	.	x	x	.	.	0	.	
33	INDIAN R. AB M. BREWER	YES	GOOD	+	+	0	+	+	+	x	.	0	0	.	.	0	0	.	.	+	.	
34	Mosquito Lagoon	YES	GOOD	+	+	+	+	+	+	0	.	+	+	.	.	0	0	.	.	0	.	
36	Mosquito Lagoon	PARTIAL	FAIR	+	+	0	+	+	+	x	.	+	+	.	.	0	0	.	.	+	.	
* WATER BODY TYPE: STREAM																						
7	GOAT CREEK	PARTIAL	FAIR	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
9	LITTLE TURKEY CREEK	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
10	DRAINED FARMLAND	YES	GOOD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
13	TURKEY CREEK	PARTIAL	FAIR	x	0	0	+	0	x	0	.	0	x	x	.	0	0	.	.	x	.	
18	CRANE CREEK	NO	POOR	+	0	+	+	0	0	0	.	+	0	+	.	+	+	.	.	0	.	
21	EAU GALLIE RIVER	PARTIAL	FAIR	+	+	+	+	0	0	0	.	0	x	+	.	0	0	.	.	0	.	
22	HORSE CREEK	PARTIAL	FAIR	0	0	.	.	.	0	0	.	.	.	.	.	0	0	.	.	0	.	

LEGEND:

ALK-ALKALINITY
BOD-BIOCHEM. OXYGEN DEMAND
CHLA-CHLOROPHYLL
DO-DISSOLVED OXYGEN
DOSAT-DO SATURATION
FCOLI-FECAL COLIFORM
FLOW-FLOW
MEETS USE-MEETS DESIGNATED USE
PH-PH
SD-SECCHI DISC METERS
TCOLI-TOTAL COLIFORM
TEMP-TEMPERATURE
TN-NITROGEN
TOC-T.ORGANIC CARBON
TP-PHOSPHORUS
TSS-TOTAL SUSPENDED SOLIDS
TURB-TURBIDITY
TSI-TROPHIC STATE INDEX FOR LAKES AND ESTUARIES
WQI-WATER QULAITY INDEX FOR STREAMS AND SPRINGS

NPS QUALITATIVE SURVEY RESULTS
AN "X" INDICATES A PROBLEM WITH POLLUTANT OR SOURCE
THE * ON MAPID INDICATES NO STORET INFORMATION AVAILABLE FOR THIS WATERSHED
-SEE PAGE 11 FOR LEGEND FOR THIS TABLE-

CATNAME=EAST COAST, MIDDLE HUC=03080202

MAP_ID	WBID	BASIN	WQ3 05	WQNPS	NUTRIENT	BACTERIA	SEDIMENT	OIL	PESTICIDE	OTHER CHEM	DEBRIS	OXYGEN	SALINITY	PH	METAL	HABITAT	FLOW	THERMAL	OTHER POL	FISH KILL	ALGAL	WEED	TURBIDITY	ODOR	FISH DEC	NOSWIM	NOFISH	OTHER SYM	IND	STP	AG	RE	SL	LD	UR	CN	HM	OT
1*	3121	MICCO DITCHES		FAIR	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
2*	3123	COASTAL DRAIN		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
3*	3122	COASTAL DRAIN		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
4*	3119	TROUT CREEK		FAIR	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
5*	3116	COASTAL DRAIN		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
6*	3115	KID CREEK		FAIR	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
7	3107	GOAT CREEK	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
8	2963A	INDIAN R. AB SEB INLET	GOOD	FAIR	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X		X	X	X				X	X	X			X				
9	3106	LITTLE TURKEY CREEK	GOOD	THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
11*	3104	SOUTH DITCH		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
12*	3099	NORTH DITCH		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
13	3098	TURKEY CREEK	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X			X	X	X	X	X	X						X				X		X	
14*	3102	UNNAMED DITCH		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
15*	3096	RADIATION DITCH		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
16*	3097	UNNAMED DITCH		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
17*	3095	UNNAMED DITCH		THREAT	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X							
18	3085	CRANE CREEK	POOR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X					X	X				X			
19	2963B	INDIAN R. AB MELB CSWY	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X		X	X	X						X			X				
20*	3087	ELBOW CREEK		FAIR	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X				X			
21	3082	EAU GALLIE RIVER	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X				X			
22	3081	HORSE CREEK	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X				X		X	X	X						X				X			
23*	3077	PINEDA GOLF COURSE DRA		THREAT	X		X					X	X			X					X		X	X	X									X		X	X	X
24	2963C	INDIAN R. AB MELB CSWY	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X		X	X	X						X			X				
25	3057A	BANANA R. BL MATHERS	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X			X	X		X	X	X						X							
26	3044A	NEWFOUND HARBOR	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X			X	X		X	X	X						X							
27	3057B	BANANA R. AB 520 CSWY	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X			X	X		X	X	X					X	X							
28	3044B	Sykes Creek/Barge Can.	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X			X	X		X	X	X					X	X							
29	2963D	INDIAN R. AB 520 CSWY	FAIR	FAIR	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X		X	X	X				X	X	X			X				
30	3057C	BANANA R. AB BARGE CAN	GOOD	FAIR	X	X	X	X	X	X	X	X	X		X	X	X			X	X		X	X	X				X	X	X							
31*	3028	ADDISON CREEK		POOR	X	X	X	X	X	X	X	X	X		X	X	X			X	X		X		X			X			X		X	X	X	X	X	
32	2963E	INDIAN R. AB NASA CSWY	GOOD	FAIR	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X		X	X	X						X			X				
33	2963F	INDIAN R. AB M. BREWER	GOOD	FAIR	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X		X	X	X				X	X	X			X				
34	2924	Mosquito Lagoon	GOOD	THREAT	X	X	X	X	X	X	X	X	X		X	X		X			X		X		X						X			X		X		
35*	2942	TURNBULL CREEK		THREAT	X	X	X	X	X	X	X				X	X		X			X		X		X						X			X	X	X		
36	2924B	Mosquito Lagoon	FAIR	THREAT	X	X	X	X	X	X	X	X	X		X	X		X			X		X		X				X	X	X			X		X		
37*	2939	UNNAMED DITCHES		FAIR	X	X	X									X							X		X									X				

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BLUE JORDAN SWAMP	25
BLUE SPRING	58
BOGGY CREEK	25
BONNET CREEK	25
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